31 August 2021

Dr Kris Funston
Executive General Manger, Network Regulation
Australian Energy Regulatory (AER)
GPO Box 520
Melbourne Vic 3001

Dear Dr Funston,

DRAFT DER INTEGRATION EXPENDITURE GUIDANCE NOTE

Endeavour Energy appreciates the opportunity to provide this response to the AER's Draft DER Integration Expenditure Guidance Note (the draft note).

We broadly support the intent of the draft note to promote consistency in the methodologies and transparency in the assumptions applied by DNSPs in developing business cases for DER integration investment. Formal guidance on the AER's expectations on the type of information and analysis to support the proposed expenditure continues a recent trend by the AER to refine its guidance and assessment process for both traditional and emerging areas of network investment.

Overall, the guidance on the process required of DNSPs before making investment to increase DER hosting capacity is based on sound principles and is generally reasonable. Aspects of the draft note we consider require further consideration or clarity are discussed in the sections below.

Principles-based approach

DER hosting capacity

The draft note adopts a principles-based approach that is consistent with recommendation by CSIRO/CutlerMerz in their *Value of Distributed Energy Resources Final Report* (VaDER report). From our perspective, a principles-based approach is more adaptive to market developments than a prescribed approach.

It is important that DNSPs are provided with the flexibility – particularly in relation to assessing a network's DER hosting capacity – to select a methodology that is proportionate to the level of proposed investment and can be applied using information available to the DNSP. Regarding the latter, limited access to interval metering data and low DER adoptions rates contribute to some NEM networks, including Endeavour Energy, having relatively low levels of visibility on their low voltage networks.

It is therefore appropriate for the AER to consider these factors when assessing whether a network has adequately demonstrated their investment proposal has been based on their best possible understanding of DER hosting capacity.

Investment to help DNSPs monitor and control dynamic energy flows on the low voltage network will be necessary to effectively manage the transition to a high-DER future. This type of visibility enhancement investment has added significance following the AEMC's *Access, pricing and incentives arrangements for DER* final rule which requires DNSPs to offer customers a free 'basic' export service. A better understanding of network behaviours enabled by such investment will ensure this level of service reflects the base level of DER hosting capacity the network can provide with no, or only minimal additional investment.

Market modelling for wholesale market benefits

Relatedly, in lieu of deciding on a specific model or methodology ahead of its consultation on customer export curtailment values (CECV), the AER has proposed model transparency and

economic/technical rationale as the two key principles which should underpin the approach adopted by DNSPs to quantify wholesale market benefits. Whilst these seem appropriate, Endeavour Energy's required capability uplift in market modelling currently lag those of other networks (e.g. SAPN, Victorian DNSPs) who have previous experience in applying a combination of market and network data to help quantify generation benefits and include them as a component of the 'value stack'.

Improving our market modelling and analytical capabilities will continue to be an area of focus however, there is a risk associated with directing resources and expenditure ahead of the AER endorsing a specific model or approach. With the AER not required to complete CECV methodology until 1 July 2022, we consider it prudent in the interim to allow DNSPs to estimate wholesale market benefits using any reasonable methodology that broadly aligns with the draft principles.

Valuing the benefits of DER

Storage benefits

The draft note broadly aligns with the RIT-D application guidelines. Whilst consistency with the RIT-D should help to ensure that only efficient DER integration investments are made, the AER's guidance generally has a narrow focus on valuing the benefits of increasing hosting for solar PV. We accept that solar PV has driven DER integration proposals and that future iterations of the guidance note will address other DER technologies when they reach maturity (e.g. Electric Vehicles).

However, we believe the AER's guidance should be reflective of DER's broader definition beyond rooftop PV and would value the guidance note providing greater clarity on how benefits from increasing network capacity to host other types of DER technologies should be captured. For instance, we expect an increase in applications to connect grid-scale battery energy storage systems (BESS) and community batteries to our network. Without clear guidance on how benefits from storage projects might be captured (e.g. option value), the net value of investment to facilitate these projects risks being overstated or understated.

Environmental benefits

The draft note adopts the CSIRO/CutlerMerz recommendation to only allow them to be considered where producers are required to make an environmental payment (e.g. carbon tax) or there is a jurisdictional requirement for DNSPs to consider their impact.

We accept the treatment of environmental benefits is contested but believe as they are a factor in customers' decision to invest in DER and are realised irrespective of the presence of an associated tax or levy, they should be included in DER integration business cases in some form.

An approach which couples environmental benefits with prevailing energy policy risks uncertainty and inconsistent investment decisions. It would be preferable if the condition on which environmental benefits could be included were not sensitive to diverse and changing government policy positions.

DER Integration Strategy

The draft note sets out information DNSPs should include in their DER integration strategies (DERIS) to demonstrate the relationship between proposed DER integration expenditure to other aspects of the regulatory proposal. Much of the proposed information corresponds closely with new reporting obligations introduced as part of the AEMC's *Access, pricing and incentive arrangements for DER* final rule and therefore could be duplicative and not value adding.

Furthermore, as part of the final rule the AEMC explicitly considered requiring DNSPs to develop a DERIS but instead opted to expand the scope of the DAPR, to include information on embedded generation, along with the regulatory proposal overview paper to include information on how the DNSP intends to manage the integration of DER through the different elements of its regulatory proposal.

We would normally have strong reservations about the AER setting formal expectations on information that DNSPs are not obligated to provide. However, in practice it may be difficult to comply

with the new ‘summarised’ information disclosure requirements without being informed by the detailed and coherent content which would be included in a DERIS. Nevertheless, the AER should contemplate situations where these NER requirements are satisfied in the absence of a DERIS that contains the requested information, particularly where strong customer and stakeholder support for the proposed expenditure to increase DER hosting has been demonstrated.

Access to interval metering data

As previously mentioned, limited access to interval metering data on reasonable commercial terms is a barrier to improved visibility of the low-voltage network. With efficient DER integration investment increasingly reliant on the type of granular data which in most jurisdictions can only be accessed from third-party metering data providers, there is an expectation we will need to pay high data access fees which we suspect are currently set well above the marginal costs of providing the data.

Notwithstanding any changes which may follow the AEMC’s Final Report on the *Review of the Regulatory Framework for Metering Services* to address this issue, the AER should consider to what extent opex step changes should be applied to ensure these access costs are factored into an efficient opex allowance and the evidence required to support the proposed increase in these costs.

Our responses to the questions in the explanatory statement are provided in Appendix A. If you have any queries or wish to discuss our submission further please contact Joe Romiti, Regulatory Analyst at Endeavour Energy on [redacted]

Yours sincerely

[redacted]

Colin Crisafulli
Manager Network Regulation

Appendix A: Responses to consultation questions

1) Do you agree with the proposed guidance relating to how DNSPs should prepare a DER integration strategy?

Overall, we consider the AER's draft guidance is reasonable and should assist DNSPs to provide the AER with improved transparency and coherent plans on how forecast levels of DER connecting to the network will be efficiently managed. The draft guidance will also improve the consistency in how this information is presented between DNSPs, although the level of detail should be proportionate to the overall level of network expenditure so as not to make this a resource intensive exercise that risks unduly delaying net beneficial DER integration projects.

Noting the distinction made between DER and flexible demand by the Energy Security Board, we welcome clarification on whether a DER integration strategy (and guidance note more broadly) should include electric vehicles which, although they are commonly grouped as a DER technology represent a flexible load with no export capabilities (except for the small proportion of EVs with V2G capabilities).

We agree in principle that tariffs should be linked to underlying drivers of network costs but would welcome additional guidance on how DNSPs could adequately demonstrate "how tariff reform will be used to accommodate the forecasts of DER made and reduce the need for network investment". From our interpretation, this would require networks to forecast the impact of any applicable tariff on DER adoption forecasts which could be challenging given tariff reform, namely export tariffs, could affect customers' decision to invest in DER (particularly for passive PV without a battery).

2) Should the format of the business case be prescriptive? If so, how?

We support the AER's preliminary position not to introduce a prescribed template or format for DER integration expenditure business cases and consider it important that DNSPs have the same discretion on presenting the case for DER integration expenditure as they do for conventional network investment.

Whilst we do not expect our 'standard' business case structure will need to be significantly modified for DER integration investments (as decisions will largely be informed by applying existing investment framework processes, assessment techniques and governance arrangements), DNSPs should have the flexibility to adapt business cases structures where necessary. This might apply for instance to account for different challenges and approaches between reactive and proactive expenditure programs.

3) Are there particular input assumptions that should be consistent for all DNSPs?

We support the AER's preliminary position to align guidance on the use of inputs, assumptions, and forecasts with the RIT-D.

As a general principle, we consider DNSPs should have the flexibility to apply relevant and reasonable inputs in their cost-benefit assessments. A fixed set of assumptions may not always be fit-for-purpose given the operating environments, network configuration and characteristics, risk levels, customer demographics and DER penetration forecasts which are all factors in investment decisions will not be uniform for every proposed investment across the NEM.

Whilst it is unclear whether the AER will mandate the use of standard assumptions, if introduced we believe guidance on the application of generation-based assumptions - particularly on market data such as generation LRMC - would assist DNSPs in formulating business cases that accurately factor in the costs and benefits to the total electricity system. This would also support the intent of the guidance note to promote greater consistency in the methodologies used by DNSPs.

4) In what ways could DNSPs justify their assumed export limit in the base case scenario?

Where static export limits are proposed as the base case scenario, we agree DNSPs should provide evidence that the selected export limit is not arbitrary, particularly where the case for investment is sensitive to the limit used in the base case.

Evidence of efficiently set export limits will rely on the DNSP's visibility of energy flows on the low voltage network and their ability to accommodate forecast DER connections within the intrinsic hosting capacity of the network on a locational basis.

Whilst monitoring of energy flows in the low voltage network is fundamental to optimising the integration of DER, visibility vary across DNSPs. In Endeavour Energy's case, access to advanced metering data which could provide the required visibility is hampered by a slow smart meter rollout and limited information being provided on commercial terms by retailers and/or metering data providers. The relative lack of smart meter data in NSW makes it more difficult to emulate the progress achieved by other DNSPs in developing capabilities for DER hosting analysis.

This often means additional DER enablement investment is required to better understand network behaviour and baseline hosting capacity at more granular levels. As hosting capacity and export limits are intrinsically linked, this capability will also help inform and justify efficient base case export limits. In the interim, we may rely upon modelling based on different scenarios of DER forecasts and uptake to justify the export limit.

5) Are there particular examples where DER adoption forecasts may vary between the base case scenario and the investment case?

We agree DER adoptions forecasts would generally be consistent between the base case and investment case except where the investment case improves hosting capacity and permits an increase in DER that was prevented from connecting to network under the base case. In such cases, it is reasonable to expect DNSPs to provide analysis to support adoption forecasts.

We accept that networks should not actively incentivise DER adoption beyond projected forecasts but note that government policies may target DER technologies and stimulate DER adoption as part of a broader energy reform agenda (e.g. solar and battery systems via the NSW Empowering Homes program).

For targeted large-scale schemes of this type, adoption forecasts may differ where the investment case solves local network constraints which limit customer participation.

6) Do you agree with the proposed criteria for undertaking hosting capacity assessments?

We agree with the proposed criteria which sensibly does not prescribe specific approaches or techniques for DER hosting capacity analysis. Importantly, it also recognises understanding of DER hosting capacity differs between DNSPs which generally has a correlation with DER penetration rates, low voltage network visibility and access to smart meter data.

It is therefore appropriate that expectations on providing evidence that business cases are built from a good understanding of hosting capacity be commensurate with networks having the capabilities and resources to perform accurate and in-depth studies.

7) Are there other examples of approaches that DNSPs could adopt to assess network hosting capacity?

There are several approaches DNSPs can apply to assess DER hosting capacity with varying degrees of sophistication depending on (among other things):

- the level of low voltage visibility
- the accuracy of the network model
- associated asset data.

One method is via detailed time series power flow analysis or historical state estimation. As is generally the case for data-driven techniques, the robustness of this approach relies on the availability

of smart meter data. Given the limitations on accessing metering data (see response to Q4), Endeavour Energy would only be able to use this approach for a subset of our low voltage network and apply the data as a statistical sample to draw broader but less accurate conclusions about the low voltage network.

Irrespective of the approaches identified during this consultation, we consider the AER should not prescribe methods of analysis and instead allow networks the flexibility to apply an approach that best conforms with their capabilities.

8) Do you agree that the total electricity system is the appropriate system boundary for considering DER costs and benefits?

We agree that investment decisions should capture the benefits and costs relating to customer owned DER assets. This is best achieved by setting the system boundary at the total electricity system level which has the further advantage of capturing value streams consistent with the RIT-D.

However, amid growing climate change concerns environmental benefits continue to be significant reason underpinning customers' decision to invest in DER technologies. Whilst including societal benefits may be beyond be AER's remit, it is debateable that that these benefits accrue to parties other than electricity consumers and producers to an extent they should be considered an externality and excluded from business case assessments.

Also, the guidance note does not explicitly consider scenarios where DER integration investments can deliver customer benefits in addition to those provided by improving DER hosting capacity. For instance, voltage optimisation investment aimed at improving DER hosting can also be used to manage average voltage levels and fluctuations and improve customer appliance longevity. These benefits are likely to be significant and we would welcome guidance on how this value stream should be considered and quantified.

9) Do you agree that the methodology used to quantify wholesale market benefits should balance shorthand and longhand approaches?

Yes. In developing guidance on quantifying wholesale market benefits, the AER should not discount the use of shorthand methods on the basis their relative simplicity could lead to inefficient investment decisions. Refining shorthand models - to mitigate against the risk of overstating or understating benefits and costs - would better support the application by DNSPs of user-friendly tools to value benefits further up the electricity supply chain noting third-party consultants or proprietary models will typically be utilised to run sophisticated market modelling for investment above a certain 'low impact' threshold.

10) Do you know of other examples of electricity market models or analysis tools that could be used by DNSPs to quantify wholesale market benefits?

No.

11) Do you have views on the AER's initial analysis and whether this approach could be applied in practice?

Having experienced relatively few and localised hosting constraints that have been able to be managed through minor investment, Endeavour Energy has had only limited exposure and experience in the use of market modelling to derive wholesale market benefits. Whilst this makes us less able to critique the AER's initial analysis, we consider the transparency and economic/technical rationale principles underpinning any endorsed methodology is sound and should support efficient decisions.

Consistent with the VaDER final report, the guidance note focusses on distributed small-scale PV hosting. We consider guidance on how these methodologies could be flexibly applied in practice to facilitate DNSP-led DER investments (e.g. grid-scale BESS, community batteries, microgrids) would be beneficial to networks.

12) Do you agree with the proposed principles for quantifying wholesale market benefits? Are there other principles that we should consider?

We support a principles-based approach and whilst we consider the proposed principles are sensible and sound, it may be premature to endorse these prior to understanding the degree to which existing market models are able to satisfy each of the AER's desired requirements. It may be appropriate to review or reconsider principles as part of the CECV review.

13) Do you agree with the proposed methods for quantifying network benefits?

We consider the proposed methods are fundamentally sound although the impact of DER on line losses could be more complicated than is suggested in the guidance note. Depending on the timing and amount of excess generation exported to the network, higher penetration of DER could lead to increased line losses in some distribution network locations and further underlines the importance of DNSPs having greater visibility and dynamic control of energy flows.

Whilst resilience is often interpreted to mean reliability, these two concepts are distinct. Whilst networks respond to recent bushfire, flooding and storm events by focussing on designing and building networks that are more resilient to increasingly intensive natural weather events, a methodology for quantifying the benefits of improved resilience should also be considered.

14) Do you agree with the proposed methods for quantifying environmental benefits?

Further to our response to Q8, environmental benefits will continue to be a factor in the investment of large-scale and small-scale DER in the NEM and networks will inevitably need to invest to facilitate the transition to a high-DER future. These benefits will come in the form of renewable generation displacing greenhouse gas emitting generators and will be realised regardless of the presence of any government-imposed levy or tax on generators.

The introduction and subsequent repeal of Australia's carbon pricing scheme demonstrates the general lack of consensus on the direction of energy policy at both the federal and state levels. We believe coupling environmental benefits with prevailing government policy risks uncertainty and could disallow investment which would be efficient under a previous or future policy position. It would be preferable if the condition on which environmental benefits could be included is not sensitive to diverse and changing political positions but rather reflect the actual climate-based gains from the DER enabling investment.

The implications to networks and customers of climate change continuing unabated are significant and wide-ranging. We believe networks have an important role to play in making investment decisions that consider this.

15) Do you agree with the proposed method for quantifying changes in DER investment?

Notwithstanding the possibility of the scenario discussed in the response to Q5, we agree DNSP investment in network hosting capacity would not normally incentivise customer investment in DER and where there is a change in DER investment, we agree with the AER's proposed approach.