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Dear Dr Funston,

Ausgrid submission re AER's draft CECV methodology

Ausgrid is pleased to provide this submission on the Australian Energy Regulator's (**AER**) draft customer export curtailment value (**CECV**) methodology (**draft methodology**).

Ausgrid is concerned that the draft methodology excludes avoided investment costs. This approach is likely to lead to a material understatement of the benefits of investing to alleviate curtailment of exports from distributed energy resources (**DER**). As a result, this approach risks our ability to effectively facilitate the energy transition.

We understand that the AER excluded these costs partially due to the additional modelling complexity that this entails. We recommend that the AER utilise the Houston Kemp analysis on avoided investment costs (prepared on behalf of NSW, TAS and ACT Distribution Network Service Providers (**DNSPs**)) in the final methodology and include these costs in the revised methodology for 2023.

We understand that the AER must publish the CECVs by 1 July 2022 in line with the Australian Energy Market Commission's (**AEMC**) *Final Determination: Access, pricing and incentive arrangements for DER*. We appreciate that the AER has been working collaboratively with DNSPs to meet these timeframes. As such, we recommend that the AER continues to review its preliminary CECV methodology in the remainder of 2022 to include avoided investment costs, so that the 2023 values incorporated these costs.

We provide further detail on the above, and in relation to other important methodological issues, in our response to the consultation questions at **Attachment A**.

We thank the AER for the opportunity to provide this submission and look forward to continued collaboration with the AER on this issue. Should you wish to discuss any of the issues raised in this submission further, please contact Gareth Downing, Senior Regulatory Economist at [redacted]

Regards,

[redacted]

Alex McPherson

Head of Regulation

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Attachment A: Ausgrid's response to the draft customer export curtailment value methodology questions

Q1: What are your views on the value streams to be captured in the CECV?

The AER's CECVs should include avoided investment costs. We encourage the AER to consider including this value stream as part of its CECV methodology.

We recommend that upon publishing the final CECVs, the AER work within the remainder of 2022 to revise the CECVs for 2023 so that thy include the avoided investment costs.

We understand that modelling avoided investment costs is complex and may entail the risk of under or over estimation of benefits. However, Houston Kemp's analysis indicates that exclusion of this value stream is likely to lead to a material understatement of the benefits of investing to alleviate curtailment. This may preclude otherwise efficient investments in DER integration and enablement, and result in investment in higher-cost centralised generation at a higher cost to customers. While there may be alternative methodologies for estimating these benefits (for example with-and-without analysis), the benefits are material and should be considered by the AER.

In the interim, as per the AER's draft decision, we agree with the AER's proposal to allow DNSPs to estimate and include avoided investment costs as a value stream as part of the broader VaDER framework is appropriate. Ausgrid agrees with the AER that the VaDER framework should allow for the full wholesale market value of potential investments in DER to be quantified.

Q2: What are your views on our interpretation of customer export curtailment and the concept of the alleviation profile?

We understand that the draft methodology requires DNSPs to demonstrate a clear link between an investment and the alleviation of export curtailment over time through the development of an alleviation profile. Ausgrid supports the concept of the alleviation profile in principle, but note that the alleviation of curtailment may be achieved through DER enablement investments e.g. better low voltage visibility and modelling which allows for a relaxation of technical controls. We support grounding the assessment of the relative costs and benefits of investment in the customer experience.

The development of alleviation profiles is prefaced on an assumed level of visibility of low voltage networks and hosting capacity. While we undertake detailed modelling of low voltage network, there are limitations inherent in any modelling exercise and consequently the alleviation generated by any given investment may depart from modelled alleviation.

Accordingly, while we support the proposal to clearly link the alleviation impact of proposed investments to the quantified benefits of addressing curtailment, we note that the level of initial modelling sophistication may vary. Modelling will improve over time as alleviation profiles become a common input into investment forecasting.

Q3: What are your views on our interpretation of the distribution of costs and benefits, including the relationship between CECVs and export charges?

We agree with the AER that CECVs should reflect the benefit that flows to all customers from alleviating curtailment. Ausgrid agrees with the AER that it is appropriate for the costs associated with DER investments, where associated with facilitating the delivery of expect services, be reflected in export tariffs.

While we are supportive of the use of efficient tariffs to make the best use of existing network hosting capacity, we note that the responsiveness of customers to export tariffs is yet to be established. Accordingly, in developing our response to DER we are undertaking tariff trials and testing the strength of the underlying relationship between export service costs, export tariffs and customer demand for export services.

Q4: Do you agree that half-hourly CECV estimate are appropriate?

We agree that half-hourly CECVs are appropriate because they provide a suitable balance of accuracy and practicality for the purposes of assessing investments.

Q5: Do you agree that CECV estimates for each NEM region are appropriate?

We agree that AER's CECVs should be estimated for each NEM region. As noted by the AER the use of alleviation profiles will facilitate more accurate estimation of locational benefits.

Q6: Do you have any views on the model inputs and assumptions and the process of estimating CECVs?

The assumption that 'avoided investment costs are likely to be immaterial' is not supported by analysis undertaken by Houston Kemp. Accordingly, we recommend that the AER and Oakley Greenwood revisit whether it can include this value stream to ensure that estimates of CECVs are robust.

We have material concerns regarding the underlying assumptions adopted to support the AER's CECVs forecast. We note that the forecast CECVs do not appear consistent with market fundamentals that will drive transition of the energy market.

For example, in 2030 and beyond, CECVs in the order of $10-$20 MWh appear inconsistent with the level required to support AEMO's forecast level of solar uptake. AEMO is forecasting around 3,000 MW of new large-scale solar and 1,500MW in new rooftop solar by 2039-40. Additionally, the levelised cost of large-scale solar PV in AEMO's Step Change case is between $35 to $40 MWh in 2040 excluding any costs of transmission augmentation. Therefore, it is difficult to see how the draft methodology aligns with underlying wholesale market economics and solar uptake assumptions.

We note the draft methodology assumes that storage, e.g. hydro, takes the value of alternative generation, when bidding into the market, rather than the highest cost alternative over a foresight horizon of the plant. This approach is inconsistent with Houston Kemp's, and may be inconsistent with commercial practices concerning the use of storage assets, release of energy. As a result, the draft methodology understates the marginal cost of storage.

Similarly the draft methodology assumes an average outage rate across all periods, rather than applying a sequence of projected outage values. This will have the general effect of lowering the estimated marginal cost of outages. We consider that applying a sequence of projected outage values will adhere more closely to outage patterns and is the preferable approach.

The modelling does not appear to have a mechanism for ensuring that the emissions limitations that underpin the capacity modelling are captured in the dispatch modelling. In adopting this assumption, coal-fired power plants will tend to bid up to their maximum available capacity, overestimating the output from these plants and a lower marginal price. We note that this is

inconsistent with the assumptions under AEMO's Step Change scenario of a transition to Net Zero by 2050.

We note that the AER's consultant, Oakley Greenwood, has expressed concerns with the application of with-and-without analysis to derive estimates of avoided investment costs based on the evidentiary requirements needed to undertake this form of analysis. However, the analysis undertaken by Houston Kemp on behalf of NSW, TAS and ACT DNSPs drew upon more than a year's worth of export curtailment data and was informed by discussions of probable alleviation profiles. Therefore, it demonstrates that with-and-without analysis can provide a reasonable range of avoided investment cost values.

We consider that the potential for inaccuracy arising from the application of with-and-without analysis, is likely to be lower than the of inaccuracy arising from excluding this value stream. However, notwithstanding the above, we understand that the potential for inaccuracy can be addressed through the application of sensitivity testing and applying a range of avoided investment cost premiums when assessing the relative costs and benefits of specific DER projects.

Q7: Do you have any views on the factors we should consider in updating CECVs annually, as well as potential triggers for reviewing the CECV methodology prior to the five-yearly review?

Ausgrid agrees that the CECV methodology should be reviewed prior to the five-yearly review if there is new information to support the inclusion of new wholesale market value streams, or a new approach is adopted to quantifying wholesale market value streams. In addition to these factors set out by the AER we consider that the CECV methodology should be subject to a review prior to the five-yearly review if:

- a material or systematic error is identified in the estimation of CECVs;
- the assumptions underpinning the estimation of CECVs are materially revised e.g. there is evidence of strategic behaviour not captured within existing modelling; or
- the AEMO materially revises its integrated system plan scenarios.

Some of the above factors may be capable of being incorporated through the revision of assumptions in the context of annual CECV modelling. However, where changes are material, we recommend reviewing the underlying methodology.

Q8: Do you support the DNSP model allowing for the self-selection approach?

Ausgrid supports DNSPs being able to self-select half-hourly values. The self-selection approach will allow for the estimation of benefits from alleviating curtailment with greater accuracy. While the data requirements associated with the self-selection approach may limit the application of this approach in the short-term, the self-selection approach provides for a robust framework for the estimation of the benefits that flow from addressing export curtailment.

Q9: Do you support the DNSP model allowing for the characteristic day approach?

We support including functionality within the model to allow for the use of the characteristic day approach as a modelling option. We note that the application of characteristic days is broadly consistent with the aggregation methodology Ausgrid has applied in our preliminary analysis of CECVs.

We do not consider that applying the characteristic day approach should be mandatory. The proposed framework for ranking days may be less accurate than the self-selection approach, or indeed an alternative framework for aggregation. While we are supportive of the characteristic days approach being available as an aggregation option, alternative simpler forms of aggregation may provide for similar results and should be explored.

Q10: Do you support the DNSP model allowing for the ranking of characteristic days approach?

We support including functionality for DNSPs to rank characteristic days as a modelling option. The characteristic days approach aggregates CECVs based on the likelihood of curtailment occurring for a given type of day (and hours within those days) e.g. a spring day when there is low demand and high solar PV output.

As noted above, further information is required to determine whether ranking characteristic days provides a more robust or accurate option for aggregating CECVs relative to alternative aggregation approaches.

Q11: Do you have views on the ranking of characteristic days?

Ranking characteristic days reflects an appropriate framework for assessing the probabilistic benefits that flow from alleviating curtailment as it aggregates CECVs by reference to the likelihood of curtailment occurring on a characteristic day. Ausgrid in principle supports including characteristic days as an aggregation option within the proposed DNSP model.

However, while an appropriate framework, ranking characteristic days is dependent on the data held by Ausgrid and other DNSPs that would inform the ranking process. Accordingly, noting the limitations in the data held that would inform ranking characteristic days, we consider that DNSPs be allowed to re-rank characteristic days during the forthcoming 2024-29 regulatory period where information improves.