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Dear Dr Funston,

Ausgrid is pleased to provide this submission to the Australian Energy Regulator's (AER) issues paper on Customer Export Curtailment Values (CECVs) methodology. **Attachment A** provides our response to the AER's questions.

Ausgrid operates a shared electricity network that powers the homes and businesses of more than 4 million Australians living and working in an area that covers over 22,000 square kilometres from the Sydney CBD to the Upper Hunter. As a Distribution System Operator (DSO) we have an important role in providing safe, reliable, and efficient network services that enable customers and communities to get the most value from investments in Distributed Energy Resources (DER) and supports the transition to a renewable energy system.

The methodology for estimating CECVs will be critical to informing when and whether networks should undertake export enablement investment. We broadly support the approach in the AER's issues paper. However, we consider that in deriving CECVs:

- All wholesale market value streams should be incorporated;
- A long-hand electricity market modelling approach should be adopted as it will provide more accurate investment signals; and
- The broad impacts of export curtailment across all national electricity market (NEM) regions should be estimated.

CECV development should reflect the cost of curtailment for customers so that electricity distributors make efficient export enablement investments that provide customers with greater control over their energy usage. Customers are also likely to benefit through a more efficient co-ordination of network capacity and least-cost generation, whether centralised or decentralised.

Ausgrid is currently participating working with other electricity distributors on CECV modelling. We look forward to engaging with the AER on the insights from this work as they become available.

We thank the AER for the opportunity to provide this submission and look forward to continued collaboration with the AER on CECVs. 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

Connecting communities,  
empowering lives

## Attachment A. Ausgrid's Response to the CECV Methodology Issues Paper questions

### Q1: Do you agree with our interpretation of export curtailment in the context of calculating CECVs?

Ausgrid broadly supports the AER's interpretation of export curtailment. We agree that export curtailment should reflect a scenario where a lower level of DER export occurs relative to an expected level. The AER should use the Australian Energy Market Operator's (AEMO) Integrated System Plan (ISP) assumptions and scenarios as the basis to develop CECVs. The AER should adopt more nuanced localised CECVs and allow electricity distributors to put forward localised CECVs where data allows.

In the early stages of CECVs development, it may be impractical to determine the extent to which actual exports are curtailed. However, as low-voltage and export curtailment visibility improves the AER should revisit and consult on this issue.

### Q2: Which value streams should be captured in the CECVs?

CECVs should reflect wholesale market value streams including: the avoided marginal generator short run marginal cost; the avoided generation capacity investment; and essential system services, as set out in the issues paper.

There are modelling complexities associated with including avoided generation capacity investment and essential system services value streams. However, these values are critical to setting efficient signals so that CECVs reflect the true opportunity cost of curtailing exports. We also have engaged in a joint consultancy with other electricity distributors, which will calculate how CECVs can incorporate avoided generation capacity investment and essential system services. We will share these results and engage with the AER on the findings.

Customer preferences should determine the value of DER investment and these preferences should be reflected in the valuation of DER benefit streams.<sup>1</sup> Failure to reflect customer preferences ignores benefits for customers, and the positive welfare trade-offs and associated efficiency improvement flowing from increased DER investment. We encourage the AER to reconsider its current position on this matter.

Tangible environmental benefits should also be reflected in the valuation of DER investments. We note the broad commitment from governments to achieve Net Zero by 2050. Failure to acknowledge these benefits will understate the true benefits of DER and is likely to result in less efficient and more costly abatement for customers over the long-term.

It is also an overly narrow interpretation of the regulatory framework to exclude environmental benefits. The Australian Energy Market Commission (AEMC) has confirmed that the National Electricity Objective (NEO) lends itself to considering the impacts of climate change, stating:

In order to make decisions that meet the national energy objectives, the Commission considers whether its decisions are robust to any impacts on the price, quality, safety, reliability and security of supply of energy or energy services, if these matters are impacted by mitigation or adaptation risk that manifests due to the issue of climate change.<sup>2</sup>

### Q3: Should CECVs reflect the detriment to all customers from the curtailment of DER exports, or particular types of customers?

CECVs should reflect the detriment to all customers from the curtailment of DER exports across a network. The export of energy into the network provides benefits for all customers, either directly through export tariffs or indirectly through wholesale price reductions. Efficient investments that maximise net economic benefits may not proceed if the CECVs the AER calculates only take the detriment to a narrow subset of customers into account.

<sup>1</sup> We note several customer studies show that customers support DER investment even if they currently cannot access DER. See, for example: Energy Consumers Australia, 2021, *Community Attitudes to Rooftop Solar and the AEMC's Proposed Reforms* <[Community attitudes to project X \(energyconsumersaustralia.com.au\)](https://www.energyconsumersaustralia.com.au)>; SA Power Networks 2018, *Community Attitudes Towards Potential Solar Infrastructure Investment*, <<https://www.aer.gov.au/system/files/SAPN%20-%2016%20-%20Newgate%20Research%20Community%20attitudes%20toward%20Solar%20-%20December%202018.pdf>>.

<sup>2</sup>. AEMC, 2019, *Applying the energy market objectives*, <[https://www.aemc.gov.au/sites/default/files/2019-07/Applying%20the%20energy%20market%20objectives\\_4.pdf](https://www.aemc.gov.au/sites/default/files/2019-07/Applying%20the%20energy%20market%20objectives_4.pdf)>

## Attachment A. Ausgrid's Response to the CECV Methodology Issues Paper questions

### Q4: How should CECVs be expressed?

CECVs should be expressed in \$ per MWh for curtailed solar PV generation. However, we note that the standard 'MWh' expression does not preclude a more disaggregated or aggregated temporal approach for CECVs i.e. more or less than one-hour.

### Q5: Do you agree with our overall interpretation of CECV?

The AER's overall interpretation of CECV aligns closely to ours. However, we recommend a 'long-hand' electricity market modelling for developing CECVs. It should include wholesale value streams so that CECVs provide efficient investment signals and reflect the opportunity cost of curtailment.

### Q6: Should there be a more explicit link between CECVs and export tariffs?

There should not be a more explicit link between CECVs and export tariffs.

In our view, CECVs and export tariffs do not have a strong link. The table below shows they have significant differences in how they are used and the costs which they are intended to reflect. There is a risk that drawing a more explicit link could understate CECVs. Export tariffs should reflect the long run margin cost (LRMC) of network augmentation while an efficient CECV should capture a broader set of value streams, including avoided wholesale market benefits.

	Use case	Costs
CECV	Network investment planning	Wholesale market savings, network benefits, environmental benefits, and intangible benefits
Export tariffs	Price signal for customers	LRMC of network augmentation

### Q7: How could we estimate CECVs across different customer groups?

CECVs should be specific to network customer groups. These targeted CECVs for different customer groups will allow for more accurate valuations of the impact of curtailment by electricity distributors. However, we do not consider that specific CECVs are necessary to inform developing export tariffs which will continue to be developed based on LRMC.

### Q8: Should CECVs be estimated by national electricity market (NEM) region?

CECVs should be estimated by NEM region, as this will better reflect the cost of curtailment to customers at their location. We note that there can be significant differences in wholesale market costs between NEM regions.

### Q9: Should CECVs for a particular NEM region reflect the impact of DER export curtailment that occurs in other NEM regions?

CECVs for a NEM region should seek to reflect the impacts of DER export curtailment that occurs across interconnected NEM regions. Where possible, the full effects of DER export curtailment across the NEM should be modelled.

### Q10: What is the appropriate temporal aggregation for estimating CECVs?

The AER should calculate CECVs using a temporal aggregation that reflects changes in dispatch prices throughout the course of the day. This could be done by using wholesale market prices from a narrow timespan (5-minute trading intervals) which, for practical purposes, are then aggregated to a broader temporal dimension such as a single year or various pricing windows for tariffs.

We recommend that the AER revisit this issue after it has completed its wholesale market modelling and tested the sensitivity of CECVs to different temporal dimensions.

## **Attachment A. Ausgrid's Response to the CECV Methodology Issues Paper questions**

### **Q11: Should we also estimate CECVs into the future, or allow DNSPs to forecast changes in CECVs over time?**

The AER should estimate CECVs into the future based on established and agreed AEMO scenarios, and our joint consultancy on CECVs methodology, while providing electricity distributors with the flexibility to exercise the option to forecast and model changes in CECVs over time. .

### **Q12: Do shorthand approaches provide sufficient forecasting ability or is electricity market modelling necessary for calculating CECVs?**

The AER should conduct electricity market modelling to ensure that CECVs reflect the opportunity cost associated with curtailing investments. This will allow for all value streams to be accurately captured in CECVs and reflect the opportunity cost of curtailment.

### **Q13: How should generator bidding behaviour be modelled?**

Generator bidding behaviour should be incorporated into longhand electricity modelling, as it will support the development of CECVs that closely reflect potential or likely market conditions. If algorithms are applied to reflect generator bidding behaviour, the algorithms, assumptions and impacts of these algorithms should be transparently reported to support constructive engagement by electricity distributors.

### **Q14: How should interconnector behaviour be modelled to determine regional CECVs?**

We support the inclusion of interconnector behaviour when modelling regional CECVs as it will facilitate more accurate valuation. When modelling interconnector behaviour it is appropriate to adopt the assumptions applied by AEMO in their Electricity Statement of Opportunities (ESOO) and ISP modelling, as well as the loss equations that AEMO applied to these flows.