Appendix 1 – Comments on the AER's Value of Customer Reliability Consultation Update

Energy Consumers Australia appreciates the opportunity to provide detailed comments on the issues raised in the Consultation Update Paper.

Developments since AEMO's 2014 Review

Since AEMO's 2014 review, there have been developments in consumer decision making and behaviour, and investments in technology that are only likely to accelerate.

- Consumer behaviour is changing in managing energy use – including participation in demand response, load shedding, peak shaving, etc. – facilitated by information being provided in real time via devices.
- Rising adoption of behind-the-meter generation and reliability solutions including solar PV and battery storage.
- Greater potential usage of and reliance on electricity due to emerging technologies, such as the electrification of transportation.

These significant changes in the electricity market could impact Australian VCRs, the best approach to measuring them, and which customer segments and outage situations need to be assessed. Internationally model-based approaches are increasingly being used and hybrid VCR methodologies have emerged which use a combination of survey and model-based approaches. These hybrid methodologies are more appropriate in the context of a transitioning electricity market and could mitigate the risk of over-investment in electricity network assets.

The following comments address Section 4 of the Consultation Update Paper.

4.1 Assessment Criteria

The AER's development of an explicit assessment framework and criteria is supported.

A key criterion (Criteria 1), which is critical to the long-term interests of consumers and therefore the NEO, is whether a given methodology produces reasonable estimates. It would be helpful for the AER to provide more transparency around how this will be determined in practice, i.e. how the AER will ultimately determine the accuracy of the approach.

Previous approaches appear to have relied heavily on consensus, which while easy to measure, is subject to bias. Previous assessments have also largely only considered differences within a given methodology (e.g. differences between survey methodologies), but not across methodologies, e.g. survey and model-based approaches.

The use of cross-checks, for example revealed preference and model-based approaches, as essential to ensuring the ultimate, hybrid methodology produces reasonably accurate results are supported.

4.2 Current and Potential VCR Uses

No comment.

4.3 Evaluating Approaches for Estimating VCR

Approach to Standard Outages

The AER states that "surveys seek information directly from customers as opposed to model-based approaches which rely on historical data."[1] This may have been true historically, but contemporary approaches are more sophisticated and use surveys to obtain key modelling inputs.

[1] Ibid. p.16

For example, a key question for model-based approaches is how to shape the damage function to account for business operations, e.g. what types of costs are unable to be stored in case of an outage, including labour and spoilage, and how these costs can be managed in the case of an outage, e.g. sending staff home during long outages. Surveys can be used to address these questions across business segments.

A key difference between survey-based approaches and model-based approaches is that the former asks consumers directly regarding what they would pay hypothetically, while the model-based surveys ask customers about the costs and cost structure they actually face. Both directly engage customers as required under the NER.

The AER makes a number of justifications for preferring survey-based methodologies:

- customer types;
- outage types (duration, timing, etc.); and
- location (CBD, urban, rural, remote).

It is noted that surveys could also be used to obtain similar information for model-based approaches.

4.4 Annual Adjustment Factor

The AER's planned approach is supported, in particular to:

- apply a CPI – X approach, where the X will account for changes in customer VCR drivers, e.g. rising storage adoption or the effect of enhanced outage related communications; and
- align inflation and key customer segment (storage, EVs, etc.) growth with AEMO forecasts, as this will ensure internally consistent information across industry.

4.5 Proposed Methodology and Survey Design for Estimation on Standard Outages

The Consultation Update Paper does not provide detail regarding the underlying sample design. It is therefore not possible to comment on whether key sampling biases have been mitigated in the design. The publication of detailed information regarding the planned sample design, including stratification approach and basis, sample allocation method and basis, and any data processing and correction steps and the justification for them are supported.

There is strong support for making the final survey participation rates and raw responses available by customer segment for public review in order to foster transparency.[2]

4.6 Approach for Residential and Small Business Customers

The AER states that "contingent valuation and choice experiments allow for both tangible costs directly related to outages (such as food spoilage) and intangible costs (such as loss of comfort) to be considered."[3]

It would be helpful for the AER to provide more information on how the AER's preferred methodologies distinguish between intangible costs and the error term. A hybrid approach could provide an important cross check on survey results, for example, by using modelling and revealed preference to set a cap on the level of intangible costs. The further development of revealed preference and/or model-based hybrid approaches I supported.

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[2] Survey participant privacy must of course be protected.

[3] AER, *Values of Customer Reliability Consultation Update*, April 2019, p.22

The AER states that it believes that potential biases in survey-based methodologies could be accounted for and corrected.[4] However, anchoring bias is the only bias that is explicitly accounted for in this section. It could be useful if the AER were to provide a comprehensive list of potential biases and demonstrates how each have been addressed should be developed as part of the sample and survey design.

A partial list[5] of potential survey biases are provided in the table below.

Potential Biases in Survey Based VCR Estimates Reported in the Academic Literature

Energeia's review of the academic literature related to survey-based VCR estimation techniques identified the following potential biases that must be mitigated to ensure the accuracy of the estimates:

- **Hypothetical Bias** – Hypothetical bias can be defined as the difference between what a person indicates they would pay in the survey or interview and what a person would actually pay.
- **Protest Responses** – Respondents may actually place a higher or lower-than-average value on VCR but refuse to pay on the basis of ethical or other reasons, e.g. it being a public good.
- **Worst Case Scenario Assumption** – Respondents assume a worst-case scenario, increasing their reported value of reliability above what may be most likely to be the case.
- **Freeriders / Strategic Responses** – Respondents report a very high value to try and influence the result, which will mostly be paid for by others.
- **Risk Aversion** – Respondents value avoiding the loss of existing performance more than they do an increase in performance, even if they represent the same change in performance.

We agree with the AER's statement that "there is some evidence to suggest model-based approaches typically result in lower VCR values than survey-based approaches." Some of this evidence is laid out in Energeia's report attached to this response.

The AER's plans to check VCR values against model-based approaches, and to potentially cap estimates of customers' Willingness-to-Pay (WTP) using empirical data on the cost of backup supply are supported.

4.7 Approach for Large Direct Connect Customers and Industrial Customers

No comment.

4.8 Customer Segmentation/Granularity

There is general support for the AER's proposed segmentation framework as reflecting the key drivers of differences in VCR.

- Outage costs by timing, duration and location.
- Ability to respond to outages to mitigate costs.
- Impact of outage costs (e.g. affordability).

[4] Ibid. p.18
[5] Energeia, *VCR – Getting it Right for Australia*, Energeia, March 2018, p.14

However, the AER states that it proposes to segment businesses by grouped ABS industry classification, considering "how different types of businesses use electricity in their day-to-day operations."[6] The AER states that this is the most likely factor driving differences in business VCRs.

The AER does not elaborate on how its grouping categories reflect differences in day-to-day operations, so it is not possible to comment on the methodology's implementation or if it achieves its objective.

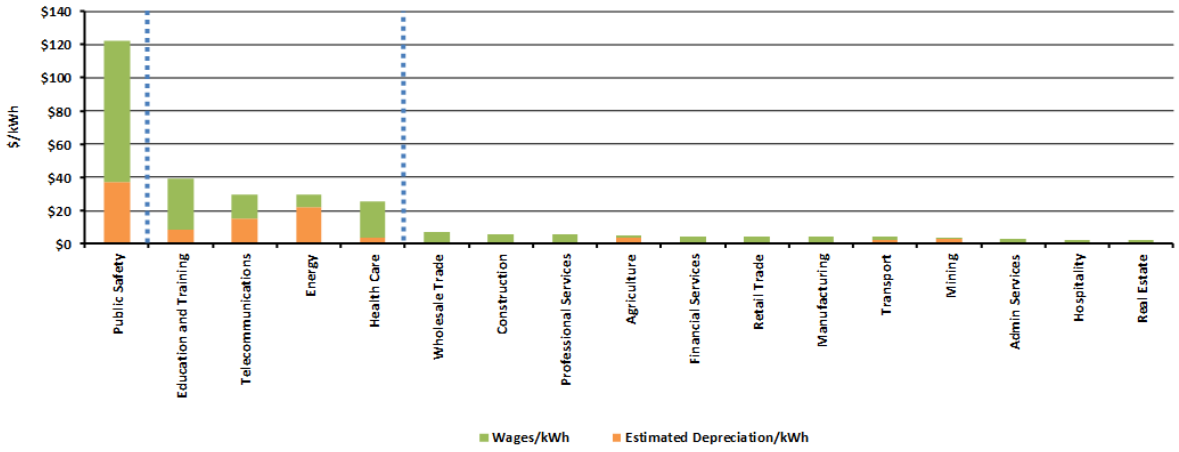
Energeia, has developed estimates of potential VCR cost drivers by ABS industry code to assess whether a model-based approach could provide insights into how VCR might differ between business segments. There are two key cost drivers used in Energeia's illustrative model-based example.

- **Wages** – Businesses generally lose the cost of wages during outages, less so where personnel are paid on an hourly basis and could be sent home when long duration outages are expected.
- **Depreciation** – This reflects the fixed costs that are incurred during outages regardless. While it may be possible to increase future utilisation to overcome losses, it will typically come at a higher wages cost.[7]

Spoilage and other direct damages from outages have not been included in this analysis due to the lack of readily available data, however, these gaps could be addressed in future via a survey.

The resulting, indicative VCR estimates by business segment are reported in Figure 1 (below) by business segment. Vertical bars show where natural grouping breakpoints appear to be.

Figure 1 – Indicative Estimate of Lost Wages and Depreciation per kWh by ABS Business Segment



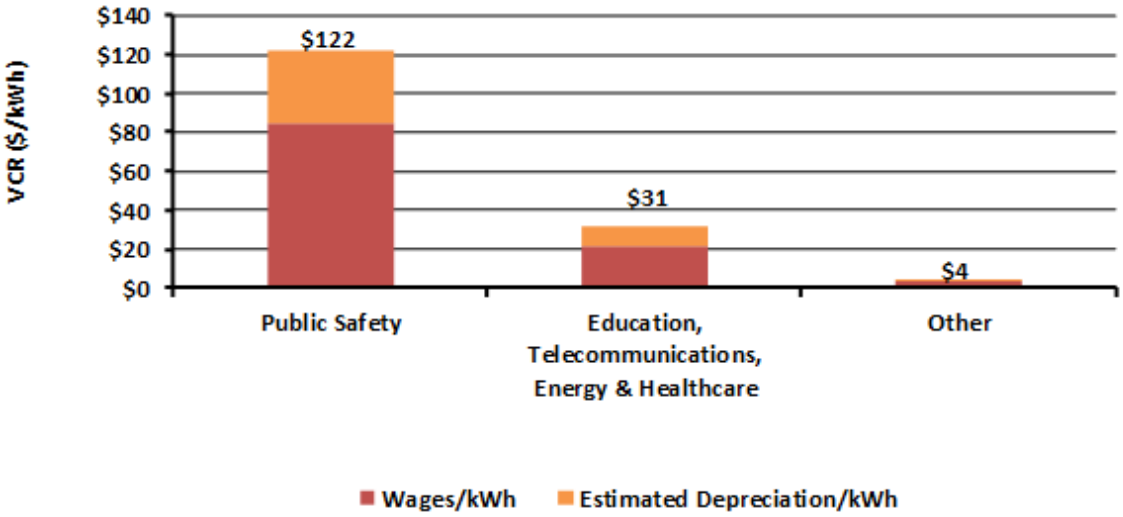
Source: Energeia, ABS

Figure 2 (below) shows the resulting business categories and high-level VCR estimates, broken out by wage and depreciation costs per kWh. There is a clear distinction between the estimated costs per kWh faced by each of the three resulting groups. Fewer groups could also reduce survey costs.

[6] AER, *Values of Customer Reliability Consultation Update*, April 2019, p.27

[7] Energeia notes that depreciation and other fixed costs including cost of capital, are only partially incurred by businesses.

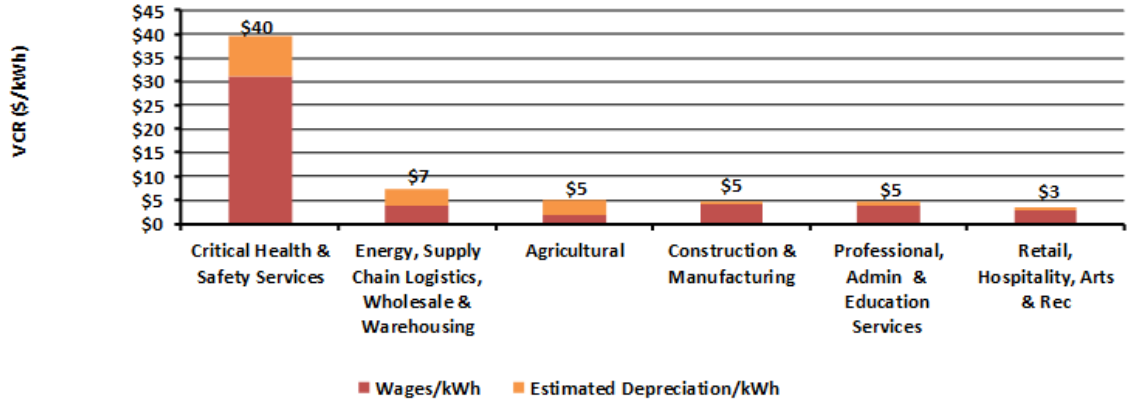
Figure 2 – Indicative Estimate of VCR by Cost Based Grouping



Source: Energeia, ABS

Figure 3 (below) reports on the estimated VCRs using the AER's proposed approach. The analysis shows very little difference in VCRs between most groups using the model-based estimation approach. However, it is worth noting that a wage-only based analysis might lead to three different price levels (agriculture being the third).

Figure 3 – Indicative Estimate of VCR by AER Grouping



Source: Energeia, ABS

Based on the foregoing analysis, Energeia suggests that the AER clarify the basis of its recommended grouping and consider the above cost-based grouping approach. Furthermore, a cost-based approach will be particularly important for businesses, which are more likely to invest in economic backup options. Finally, the AER could consider building on the above cost-based analysis by developing a survey to inform model-based approaches to estimating Australian VCRs.

4.9 Testing of Methodology

As we stated in our response to Section 4.5, the publication of detailed information regarding the planned pilot sample design, including stratification approach and basis, sample allocation method and basis, and any data processing and correction steps and the justification for them are supported. It would also be valuable if the AER were to make the pilot survey participation rates and raw responses available by customer segment for public review for transparency, noting that survey participant privacy must of course be protected.