

Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

July 11th, 2012

AEMC Reference: EPR0027

Dear Sir,

Please accept this brief submission in response to the Commission's *Review of distribution reliability outcomes and standards NSW Workstream Draft Report*¹.

My interest in this stems from my role as end-use customer representative on the AEMC's Reliability Panel. Specifically this submission refers to the formulation and use of the Value of Customer Reliability (VCR) figures used in the Draft Report.

The Draft report presents cost-benefit analyses of the investment required (or avoided) to achieve a number of alternative reliability outcomes for consumers. The project has found that lower reliability (measured in terms of minutes off supply – the familiar SAIDI measure) is cost effective in that it moves towards costs that are more reflective of consumers' willingness to pay. However, the benefits stated from the scenarios tested are small.

I have a number of concerns in the approach taken from the perspective of residential consumers. These matters would not change the findings of the Draft Report in relation to the scenarios tested. It does however indicate that further scenarios with even greater reductions in reliability (on average) would be likely to still be cost-effective for residential consumers.

Like any aspect of the regulatory framework, the consideration of VCR should be done on the basis of the National Electricity Objective (NEO), as stated in the National Electricity Law:

... to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to –

- price, quality, safety, reliability, and security of supply of electricity; and*
- the reliability, safety and security of the national electricity system.*

¹ <http://www.aemc.gov.au/Market-Reviews/Open/review-of-distribution-reliability-outcomes-and-standards.html>

In its recently released Issues paper on the *Review of distribution reliability outcomes and standards* National Workstream², the AEMC has highlighted the relationship between the price and reliability aspects of the NEO and VCR:

“Promotion of a more efficient allocation of resources through the use of value-based planning and reliability decisions which incorporate an assessment of the value to customers of improved reliability in consideration of the costs of network investment. This would improve efficiency by ensuring that reliability outcomes reflect a price-reliability trade-off that reflects customers’ preferences.”

The NEO and the interests of consumers are intended to be interpreted in an economic efficiency sense. To the extent that ‘efficient investment’ is for the long term interests of consumers and allocative efficiency needs to be assessed against some form of a ‘willingness to pay’ it is apparent that VCR, a measure of ‘willingness to pay’, will be used either explicitly or implicitly in the market. Such a direct relationship to the NEO suggests that the reliable determination and appropriate use of VCR measures is a high order need of the market.

I note that in June 2012, the SCER provided a response to the AEMC’s Final Report on the Effectiveness of NEM Security and Reliability Arrangements in light of Extreme Weather Events³. In this response, the MCE (now SCER) have requested some specific actions in relation to VCR.:

“ ... targeting the end of 2012, the AEMC provide advice on how the VCR and the Reliability Settings (specifically the MPC) relate, the process for amending the MPC based on a VCR, and the implications that this may have on the market. In providing its advice, the AEMC should also take into account issues associated with the complexity of the operation of the NEM, particularly how different categories of customers value reliability of supply.”

And in relation to a National and Regional VCR study:

“The MCE requests AEMO undertake a review of national and regional VCR levels in the NEM.... The MCE requests this study to be completed by end of July 2013, noting that this may be contingent on the outcomes of current and previous review processes.”

AEMO initiated a review of issues related to the establishment of a more national VCR in late 2010. It is not entirely clear that the MCE’s latest request refers to this past work or is intended to expand on it.

² <http://www.aemc.gov.au/News/Whats-New/aemc-publishes-issues-paper-for-the-national-workstream-of-the-review-of-distribution-reliability-outcomes-and-standards-.html>

³ www.scer.gov.au/files/2012/06/MCE-Response_AEMC-Extreme-Weather-Events-Review_8-June-2012.pdf

The implications for residential consumers

The NSW workstream survey results and analysis represent important progress on developing our collective understanding of both the willingness and capacity of consumers to pay for reliability outcomes. The results are consistent with previous findings about the relative VCR of the residential consumer segment.

Importantly, and potentially for the first time, the survey also provides an indication of the lower VCR attributable to lower income consumers. Further, the NSW workstream provides results based on the standard feeder types (CBD, urban, rural) and provides insights into the preferences of rural residential customers that have not been previously documented.

The historic use of **statewide** VCR values for Transmission planning (by AEMO and VENCORP) and the method used by AEMC and Oakley Greenwood (OGW) for this project, employ a volume weighted average of customer classes.

The end result for the Draft Report is a summary figure used in the cost-benefit analyses of \$95/kWh compared to the residential figure of \$20.70 and the lower income figure of around \$15.60. This represents ratios of 4.5 and 6:1 respectively.

Residential customers on rural feeders have been allocated a VCR of \$15.11/kWh – similar to that for low income consumers.

One area of immediate interest therefore is the weighting ascribed to residential consumers' VCR in the use of these results. If a statewide VCR is to be used for cost benefit assessments (as is the case here) or in investment tests (it can be expected that Transmission Level VCRs developed by AEMO and the Distribution level VCRs being developed by the AEMC will be used in the RIT-T and RIT-D Regulatory Investment Tests) will residential consumers be asked to fund infrastructure investments that are multiples of their willingness to pay?

Arguably, although the extent is only beginning to be estimated, the NSW workstream results confirm that this is already the case.

The formulation and application of statewide VCRs is inherently problematic simply because of the diversity of results between customer classes. The NSW example highlighting this with very high results for small business that appear extraordinary compared to past results.

In future work I would encourage the Commission to consider how this diversity should be accommodated – either by consider different weightings (such as by network revenue rather than consumption) or ensuring that sensitivity testing of investment decisions includes the full range of VCRs by customer classes.

Uncertainty and Sensitivity Testing

The OGW report includes a discussion of the “Statistical reliability of VCR results” at section 5.4 (page 45). I think some caution is required in simply accepting the results. Of note is the small sample sizes of, particularly, large business. OGW note this on a number of occasions. For example, at page 43:

“.. The estimate of the VCR for larger businesses ... needs to be treated with some caution. However. Due to the relatively small number of responses received from this customer sector (74) we cannot be certain we have captured responses from a sufficiently representative sample of larger businesses.”

In relation to the small business sector which, as discussed above, drastically skews the statewide figure away from the residential results, it is noteworthy that the result for Essential Energy (of \$202.82) is less than half of the adopted statewide value for this customer class (\$413.12) yet at Table 35, OGW state a VCR and std error of \$413.12 & \$26.93.

As OGW state at page 45-46, assuming a normal distribution and representative sample:

“There is a 95% chance that the true VCR for any population lies within a range defined by +/- 1.96 x standard error” of the estimated VCR of that population ... this is usually termed the 95% confidence interval.”

This implies that, if the assumptions about distribution and sampling hold, the 95% confidence interval for the small business sector is **\$360 to \$466**. However, as mentioned, the Endeavour energy results fall well outside this yet, according to Table 38, comprised 139 of 497 samples (28%). This clearly implies that some of the assumptions or methodology warrant further analysis.

A more comprehensive statistical analysis of the results is obviously needed but given OGW’s comments about the time allowed for the overall project (the detailed survey and analysis) it is reasonable that this has not been performed. However, this also highlights the uncertainty inherent in this complex matter.

It is for this reason that I encourage appropriate use of broad ranges of possible values. To repeat a point made in a previous submission to AEMO:

“The uncertainty inherent in the derived VCR values must be determined and stated explicitly. The precision with which data is presented and used should correspond to this uncertainty. The Application of VCR values should also include a sensitivity test of the impact of considering the limits of a reasonable confidence interval.

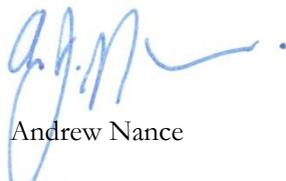
For example, the OGW Paper cites the New Zealand Grid Investment Test as using a value of unserved energy (USE) of NZ\$20 per kWh with sensitivity of the result being tested at values + and – NZ\$10 from that figure.”

Willingness To Pay

On a final matter, the survey work also included questions designed to test the Willingness to Pay and Willingness to Accept (WTP and WTA) of changes in the reliability currently experienced. I would draw your attention to the observations that residential customer preferences for distribution investments to improve reliability indicate a majority preference for reductions in frequency rather than duration – implying greater analysis of the implications for the typical SAIFI measure than SAIDI measure is warranted.

In summary, I encourage the AEMC to actively engage in the market's approach to VCR given its inherent link to the NEO. It is an area of the market that has received limited attention previously but I believe it will become increasingly important as the market matures further.

Sincerely,



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