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Australian Energy Regulator
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Value of Customer Reliability WALDO Consultation Paper

Major Energy Users Inc (MEU) is pleased for the opportunity to provide its views on the methodology proposed by the Australian Energy Regulator (AER) for developing the Value of Customer Reliability (VCR) values for the National Electricity Market in relation to Widespread and Long Duration Outages (WALDO).

The MEU was established by very large energy using firms to represent their interests in the energy markets. With regard to all of the energy supplies they need to continue their operations and so supply to their customers, MEU members are vitally interested in four key aspects – the cost of the energy supplies, the reliability of delivery for those supplies, the quality of the delivered supplies and the long term security for the continuation of those supplies.

Many of the MEU members, being regionally based, are heavily dependent on local staff, suppliers of hardware and services, and have an obligation to represent the views of these local suppliers. With this in mind, the members of the MEU require their views to not only represent the views of large energy users, but also those interests of smaller power and gas users, and even at the residences used by their workforces that live in the regions where the members operate.

It is on this basis the MEU and its regional affiliates have been advocating in the interests of energy consumers for over 20 years and it has a high recognition as providing informed comment on energy issues from a consumer viewpoint with various regulators (ACCC, AEMO, AEMC, AER and regional regulators) and with governments.

The premise behind a WALDO VCR

The MEU remains unconvinced about the premise that a WALDO VCR is necessary.

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As an overarching observation that impacts the AER review for the implementation of a WALDO VCR, is that consumers have consistently advised the regulators and rule makers for the electricity markets, that costs they see for the supply of their electricity services are already too high and they do not see a need for increased reliability¹, especially if this comes with an increase in costs. The concept of a WALDO VCR is that it would not only increase costs but it would also increase reliability above what is already being provided.

The ACCC² in its reports on retail electricity has made the observation that there has been considerable over-investment in networks (especially in NSW and Queensland) and cited that at least some of this over investment was an outcome of unnecessary high reliability standards being imposed. As a result, the ACCC recommended that there be write-downs of network assets to enhance economic efficiency. By applying an unnecessary premium to the calculated VCRs, the AER WALDO approach is replicating the condition of increasing reliability standards (and hence increasing the asset base) when the ACCC views that excessive reliability standards for networks were economically inefficient.

The MEU notes that this AER decision to effectively increase reliability comes at the same time that the ESB has proposed an increase in the reliability standard to 0.0006% USE for the application of the Retailer Reliability Obligation (RRO). These increases are in direct opposition to the stated views of consumers that they do not want higher electricity costs, reliability as it is now is acceptable and they do not want to pay for higher reliability levels.

When the AER received responses to its questionnaire issued to seek input to its setting of the VCR, it perceived from the consumer responses that consumers preferred:

-) Localised outages to widespread outages
-) Shorter outages to longer outages
-) Outages at off-peak times to outages during peak times

While the MEU considers that the observations that outages of shorter duration and at off-peak times are to be expected, the assumption that the AER made from the survey responses was there might be a need for a different VCR for WALDOs. As a result, it has sought input from stakeholders to assess the magnitude of a WALDO VCR and from ACIL Allen as to how a WALDO VCR might be calculated.

What is an outstanding observation from stakeholders about the need for a WALDO VCR, is the statement on page 6 footnote 7. This footnote identifies networks as

¹ For example, see the surveys of consumers undertaken by the Victorian distribution networks regarding cost and reliability of supply

² ACCC, Restoring electricity affordability and Australia's competitive advantage, Retail Electricity Pricing Inquiry – Final Report June 2018

considering a WALDO VCR is necessary whereas consumers consider there is not. That networks want a WALDO VCR is understandable as this will enable them to more easily justify network augmentations at consumer expense. In contrast, consumers (for whom the VCR is developed and calculated from the costs they incur when there is an outage) consider that a WALDO VCR is not needed. The MEU members report that they have provided input to the AER about the costs they incur and advise the MEU that the costs they provided reflect what they expect and do not see that a higher VCR for WALDO events (as defined by the AER) is warranted.

The MEU notes that the AER sees that the WALDO VCR would be used for major outages of between 1-2 GWh and 15 GWh of unserved energy (USE) and would be used for assessing the costs to provide System Restart Services and limiting the impact of protected events. What concerns the MEU is the implicit assumption that the value consumers place on reliability increases with the duration and/or geographical extent of an outage.

The experience of consumers with regard to their loss of supply lies almost exclusively with failures within the distribution network and these tend to be reasonably local but commonly of not extended duration, although longer durations do occur. Further, failures in the supply of electricity and in the transmission network are, in relation to the failures in the distribution networks, very few³, so there is very limited experience on which to base this assumption of a need for a WALDO VCR.

The MEU questions why, when such detailed examination has been carried out to assess the value consumers do apply to reliability at their points of connection, why there is any consideration that this assessment does not reflect consumers' needs under all conditions **as they have advised to the AER.**

The VCR as calculated

The AER has assumed that the VCR as calculated though its investigations does not address WALDO events, yet provides no any evidence that this is the case other than intuition.

The development of the VCR reflects an average view at best, with surveys clearly showing that different end users have a different value that each puts on the loss of their supply. There has been little assessment as to whether such individual end user assessments reflect usage at the worst time for each end user or whether they reflect the costs incurred over a series of outages at different times. Effectively, the calculated VCR cannot be taken as a definitive value but, at best, as a guide as to what values consumers place on the loss of supply.

³ The MEU points out that even within distribution networks failure of supply is not a frequent event

Further, the individual inputs provided by end users are aggregated into sectors with each sector weighted to provide an “average” for all consumers within a region. Such averaging is appropriate to develop a VCR but it does not lead to a conclusion that a VCR calculated in this way does not implicitly include the value consumers place on the loss of supply related to a WALDO event.

This then raises the core question as to what a VCR really represents, and to make any assumptions about whether there is sufficient granularity in its calculation to substantiate the adjustment of the value to reflect a change such as a WALDO event. For example, a decision to adjust the VCR to reflect movements in the cost of living as measured by the consumer price index really assumes an accuracy that is totally absent from the actual development of the measure in the first place.

While there have been attempts to provide more definitive inputs by the surveyed end users, the data provided will be most commonly based on perception rather than being definitive. For example, if the outage occurs once a year will the cost impact of that outage will be seen to be lower/higher than the same length outage that occurs weekly. Does this mean end user input to the VCR process reflects that frequency of outages that are seen? So, if the more frequently an outage occurs, does this affect the end user view on what the costs are? ie is something that happens very infrequently more or less likely to be seen to have a lesser or greater cost impact.

This observation is supported by the outcomes of the VCRs calculated by the AER. There is considerable variation between the VCRs calculated between different regions in the NEM for residential end users yet, intuitively, the impacts of a loss of supply to a household would be quite similar regardless of location. There are two standouts from an assessment of the VCRs calculated

1. Residential end users in SA as seen to want a higher VCR than in other states and this is probably related to the massive loss of supply that SA has is that residential end users in SA have seen in recent years
2. In contrast, residential end users in Tasmania see the need for a lower VCR (about 50% pf the SA VCR), possibly because of the high reliability they see.

The reasons for this disparity should be investigated to identify if there are sound reasons that have caused this; such reasons might be derived from a behavioural economics analysis.

When the issue of perception is coupled with the outcome of averaging, there is no certainty that the outturn VCR does not already include for the impacts of WALDO events.

The MEU considers that the AER has to examine in more detail the behavioural economics at the basis of establishing a VCR before assuming that a premium on the calculated VCR is warranted as a result of WALDO events.

Widespread outages

Consumers assess the impact of any loss of supply at the point of usage and this loss is most likely driven by a failure in part of the distribution network. In contrast, a WALDO is most likely to be caused from a shortage of supply in the wholesale market (resulting in load shedding) or from a failure of the transmission network, leading to more geographically widespread outages.

While the MEU considers that the responses to the survey are what would be expected (especially a preference for shorter outages and outages at off-peak times) the MEU is less convinced that consumers have a lesser desire for local outages over widespread outages as the impact on each consumer of a local outage is just the same as a widespread outage. At most, the MEU considers that a preference for a local outage might reflect an altruistic view from consumers rather than one driven by a willingness to pay.

What is absent in the AER assessment (or the ACIL Allen report) is a view on how the end users see the difference between a widespread outage (wholesale supply or transmission failure) and a local outage (failure in the distribution network serving the consumer), and what the difference of a loss of supply from the different causes really is to each end user. The MEU points out that essentially a loss of supply has the same impact on the end user regardless of the cause.

The MEU considers that, as a first step to assess whether there is any justification for a WALDO VCR, there is a need to examine what is most likely to cause an outage to identify whether there is any justification for implementing a WALDO VCR based on a widespread outage.

Firstly, any outage is most likely going to be caused by a failure in the distribution network. A review of the failure rates in each of the three main elements of the supply chain shows that a distribution network outage is more likely to occur by a factor of 6 -10 times than an outage caused from the transmission network or the wholesale market. Yet it is a failure in the transmission network or the wholesale market that will result in more widespread outages, other than in exceptional circumstances (eg a bushfire) which might impact the distribution network. These exceptional circumstances are not what VCR is about as VCR is used to provide support for specific actions that the network might undertake to maintain reliability of delivery of electricity.

Secondly, an outage caused by a loss of wholesale supply could impact significant areas of a distribution network and so could be considered widespread. Yet the loss of wholesale supply is not going to extend for more than 12 hours. In fact, outages for any single consumer from a loss of wholesale supply is not going to extend more than 1-2 hours. This is because a loss of wholesale supply is never entire (except in very occasional exceptional circumstances such as occurred in SA in 2016) and any

shortage of wholesale supply is applied in a rolling pattern across many consumers so that most consumers have only short-term losses. Once the shortage of wholesale supply is overcome (either by new generation coming online or because demand falls over time) all consumers receive the amounts of electricity they need. This means that a widespread outage does not occur because of shortage of supply.

Thirdly, transmission investment is set on the basis of reliability measures (other than the VCR) that result in a very high level of reliability for the transmission network element of the supply chain. While an outage of the transmission network can lead to widespread outages, these are extremely rare due to the considerable duplication of the transmission supply network assets.

The reliability standards inherent in the development in the transmission networks are already higher than those that apply to the distribution networks so the question arises as to whether the reliability standards applying to the transmission network (with their significant amounts of duplication and at least N-1 standard) are already equivalent to the WALDO VCR. There has been no attempt to assess whether these higher transmission standards exceed the values identified for the WALDO VCR.

The most likely causes of a transmission outage arise from an extreme weather event or from nearby bushfires where the transmission line is closed due to the risk of ionisation carry over between phases. While the impacts of the severe weather event can lead to extended periods of transmission outage, the duration of a transmission line closure due to bushfire risks is usually quite modest, such that an extended outage is not a very likely outcome. To address either of these long duration causes would require a massive investment in transmission lines, and the cost to achieve the outcome to minimise the impacts would be massive and well above the cost allowance implicit in even a WALDO calculated VCR.

The AER observes (page 11) that

“...the primary use for WALDO VCRs is not [for] ...RIT-T...”

but could be used for High Impact Low Probability (HILP) events when applying the RIT-T. The MEU considers that such a usage is not appropriate when the elements of the supply chain are analysed.

Overall, the MEU considers that a decision to add a premium to the VCR to reflect widespread outages fails to reflect that the causes of such outages **as seen by end users** does not warrant a higher VCR.

The MEU notes that in the model developed by ACIL Allen, that the WALDO approach would add to the standard VCR a premium of

-) 0% for an outage less than 5 km radius
-) 10% for an outage of radius >5 km < 85km

) 30% for an outage of radius > 85 km

These rather arbitrary distances are informed by two studies, one in Austria based on a view that the loss over three provinces compared to a single street had a WTP premium and another study that the premium for a loss of supply in one street to the entire country. What is absent from the assessment is:

-) There is no assessment of the nature of the Austrian network or supply arrangements to assess the degree of comparability between the NEM and the Austrian study
-) A view as to whether the Austrian consumers (as have the NEM consumers) had
 - o been vocal about the amounts they were already paying for electricity supplies (noting the ACCC considered that NEM electricity network prices were too high)
 - o stated that they were accepting of the current levels of reliability and were not willing to pay more for increased reliability
-) What the value of Austrian VCR is for the single street. If the VCR for a single street is low, then it is probable that a VCR for a widespread outage could well be higher (noting that in the NEM, the VCR is perhaps 3 times the market price cap).

The Austrian study only referenced residential assessments yet this issue has been extended to apply for commercial and industrial end user views that a widespread outage has a greater impact on them than if the outage is local.

The MEU considers that to use data from one electricity supply arrangement and apply it to another without any comparisons of the two electricity supply arrangements is flawed analysis, and not to include an assessment whether an independent competition authority had expressed a view that electricity prices (including network charges) were already too high and excluding any consideration of the expressed views of consumers supporting this, is totally lacking in rigour.

The MEU is very much of the view that the basis for deciding that a WALDO VCR is needed is based on an unsubstantiated view that the appropriately assessed VCR is insufficient to address widespread outages.

Response to questions.

Question	Response
Are there additional factors that the AER should consider in developing the range of outages used in the WALDO modelling?	The AER has not taken note of expressed consumer comments that they do not want to pay more for increased reliability and that electricity prices are already too high

	The MEU considers that the assumption that overseas data is comparable to the NEM conditions is not supportable. A much deeper comparison is needed to compare like with like. Any data inputs must only be allowed after appropriate comparisons are made between the source of the data and the NEM, and for adjustments incorporated to make the input data equivalent to NEM conditions
Is the 15 GWh limit sufficient for the Reliability Panel to make determinations of AEMO requests for the declaration of protected events?	Yes
Is the 15 GWh limit sufficient for estimating the economic value of procuring differing levels of System Restart Ancillary Services?	Yes
Should we publish VCRs for a number of WALDO scenarios in addition to publishing the final WALDO model?	The MEU considers that the model is not yet fit for purpose so publishing any output data is premature
Noting the limitations in the model, are stakeholders comfortable using the model and applying its outputs in applications such as reviews of the System Restart Standard and declarations of protected events? If not, what other steps could be taken to evaluate the costs of a WALDO related event?	The MEU agrees there are significant limitations in the model and until these are rectified, the WALDO VCR should not be used. The MEU has severe concerns that using the WALDO VCR process will increase costs for consumers when consumers have expressly stated they do not want increased reliability if this results in higher costs
Are there additional issues that the AER should consider in setting the wideness factor for outages occurring in the NEM?	The MEU does not consider there is any justification for apply a wideness factor

Social costs

The MEU is very concerned at the assumption the calculated VCRs do not include what the AER refers to as “social costs”.

“Social costs” seems to be based on the assumption that only under widespread and long duration outages there are additional costs that occur as a result of the outage that do not occur when the outage is of shorter duration than 12 hours or not “widespread”. As a result, the AER observes (page 3) that

“...there is a limited range of information on which to estimate factors such as the social costs of WALDO events. Given these uncertainties there are a number of limitations in the model and the estimated WALDO costs and VCRs generated by the model should be treated with caution.”

The MEU agrees.

The MEU observes that the AER assumes that the calculated VCRs determine the value consumers place on reliability of supply but once the amount of unserved energy (USE) exceeds 1 GWh then there are other costs that should be added and these are referred to as “social costs” which include (page 27)

“...the financial cost of managing social responses to an outage (e.g. increased crime) and the financial and non-financial costs for consumers from being unable to access services.”

The AER then cites the impacts on emergency and essential services, traffic congestion, transport delays, communications, commerce, households, etc. The ACIL Allen report states (page 25) that it is

“...difficult to quantify the social costs as they are dependent on the specific circumstances of the outage and the socioeconomic conditions. Most of the literature reviewed references the costs associated with the 1977 blackout in New York City, which lasted for about 25 hours. The costs associated with that blackout are ... are identified in the literature as direct and indirect costs”

Despite their concerns, ACIL Allen makes an attempt to provide a multiplier to incorporate the effects of these “social costs”. The MEU sees that ACIL Allen has made a good attempt to justify that these social costs are real but there is an essential question that is not addressed – to what extent are these social costs already included in the calculated VCRs or even in other costs consumers pay for. The assumption made is that they are not included, effectively based on the only detailed study made – that of the 1977 New York blackout.

In the assessment made by ACIL Allen, it uses the New York study to identify the allocation between the direct costs and the indirect costs; the outturn is that indirect costs are some 5 times the direct cost. ACIL Allen then makes an attempt to decide which of the indirect costs would be included in the calculated VCR and finally calculates that the remaining indirect costs were a 47% premium to the direct costs. To be conservative, ACIL Allen then reduces the “social cost” to be 30% of direct costs but then excludes metal smelting from the analysis.

It seems to the MEU that much of the derivation of the social cost is fairly arbitrary but more importantly, the entire derivation is based on how the costs were incurred in New York in 1977 but with little reference to how these costs are managed in Australia in 2020 and in the NEM.

For example,

- In the NEM, payments are made from networks to households for certain costs that are the result of an outage such as reimbursement for food spoilage.
- Firms carry insurances for loss of production caused by external interruptions (including power outages) so having them also pay increased network charges is effectively double counting but the insurance cost would not reduce if networks were more reliable.
- A major cost element in the New York example of indirect costs is the capital cost to the electricity network (Con Edison) yet under the NEM rules, consumers pay for these assets under the NEM rules
- Another major cost was for rail transport (MTA) yet this is a state government cost which effectively paid for by consumers.
- Police, fire departments, hospitals, etc are effectively paid for by consumers through taxes and levies

The ACIL Allen report identifies issues like traffic congestion but the MEU points out that implicitly the impact of traffic congestion from an outage is already included in the calculated VCR if the outage is less than 1 GWh, and anyway, the outturn costs are paid for by consumers either through taxes (payments for or by their own lost time).

This then raises the issue as to whether consumers of electricity should be levied with these costs considering that they are already paid for by all consumers⁴ through their network charges, taxes and levies, yet if the network reliability was increased by a WALDO VCR, the taxes and levies would not reduce, resulting in double counting.

⁴ Noting that as electricity supply is an essential service, the transfer of costs between electricity consumers and taxpayers is relatively arbitrary.

Overall, the MEU considers that a case for the imposition of social costs has not been made when there is made a comparison between the reality of the 2020 Australian and NEM conditions and the conditions that applied to the 1977 US and New York outage.

Question	Response
Are there additional issues that the AER should consider in setting the social cost factor?	The MEU considers that the development of the “social cost” modelling does not reflect the differences between the source information and the reality of 2020 Australia and NEM rules Overall, we consider that there is no justification for the inclusion of a social cost multiplier
Are there circumstances unique to Australia that need to be considered in the calculation of social costs? If so, how should these circumstances be incorporated into the modelling?	Yes, see response to above question. The assessment of the social cost multiplier needs to reflect what occurs in the NEM already.

The ACIL Allen Model

The MEU considers that ACIL Allen has made a good attempt to generate a model that would provide the basis for a WALDO VCR but also considers that a number of inputs (especially the multiplier for widespread outages and the multiplier for social costs) have been developed without adequate appreciation of the differences between where the source data comes from and the reality of the Australian conditions and the way the NEM operates.

Conclusions

The MEU has reviewed the approach to the development of the WALDO VCR and reiterates the view it provided in its response to the Consultation Paper on VCR that it does not see the need for a separate VCR for HILP events as to


“...design the network to manage HILP events [will] impose massive costs on consumers”.

The MEU notes that this sentiment was echoed by other consumer representatives who also see the potential cost increase in network charges to manage infrequent events.

If the AER persists with a WALDO VCR, then the ACIL Allen model provides a logical approach to its development provided that the multipliers for the widespread outages and the social costs are adjusted to 1.0 (ie the impacts of these two elements are effectively excluded)

The MEU is happy to discuss the issues further with you if needed or if you feel that any expansion on the above comments is necessary. If so, please contact the undersigned at davidheadberry@bigpond.com or (03) 5962 3225

Yours faithfully

A handwritten signature in black ink that reads "David Headberry". The signature is written in a cursive style and includes a checkmark at the end.

David Headberry
Public Officer