Ausgrid Submission

AER consultation paper – Values of Customer Reliability

November 2018

570 George Street
Sydney NSW 2000
All mail to GPO Box 4009
Sydney NSW 2001
T +61 2 131 365
www.ausgrid.com.au

16 November 2018

Mark Feather
General Manager Policy and Performance
Australian Energy Regulator
GPO Box 520
Melbourne VIC 3001

By email: AERInquiry@aer.gov.au

Dear Mr Feather

Thank you for the opportunity to respond to the Australian Energy Regulator's (AER) Consultation Paper, Values of Customer Reliability (VCR). Ausgrid welcomes the AER engagement with stakeholders to establish nationally consistent VCRs over the next year.

Ausgrid supports the response Energy Networks Australia has provided on this consultation process, and we have provided additional comments to the specific questions posed by the AER in attached table.

Ausgrid believes it is important to strengthen and build on the methodology used to generate VCRs to improve outcomes and to provide confidence to all stakeholders who use them. We also strongly believe that any extension to use VCRs in additional areas should not diminish the value of the VCR approach currently used in network planning and investment tests and that careful consideration should therefore be given to this principle as the use of VCR's is expanded.

Ausgrid would greatly value ongoing engagement with the AER on the development of VCRs over the next year and is committed to support the project via our active participation. To further underpin this objective, Ausgrid wishes to nominate Matthew Webb, Ausgrid's Head of Asset Investment, as a member of the VCR Consultative Committee.

If you have any further questions regarding this response or our nomination, please feel free to contact me on 02 8260 1824.

Yours sincerely

Sam Sofi
General Manager Asset Management and Operations
Ausgrid

Ausgrid Responses to AER VCR Consultation Questions

	Question	**Response**
	Using VCR to inform Wholesale market settings	
1	How might the wholesale market price cap be informed by VCR?	No response
2	What customers and outage scenarios should be considered when deriving applicable VCR values to inform the wholesale market price cap?	No response
	Potential Uses for VCR	**Any extension to use VCRs for additional roles should not diminish the current uses of VCR.**
3	Should VCR inform load-shedding priorities for services other than essential services, and if so, how?	Ausgrid supports the ENA view that technical and system security consideration should be the first priority when considering load shedding. The location of critical customers such as hospitals, transport, and essential services also informs load shedding priorities. The VCRs of critical customers may not be readily estimated using survey techniques due to the broader community impact an interruption to these customers may cause. VCR may be of interest in developing load shedding priorities, but operational requirements should be considered first.
4	What customers and outage scenarios should be considered when deriving the VCR values considered when establishing load-shedding priorities?	Direct cost estimates may be required in considering VCRs of major & critical customers including business impacts. Length of rotation of load shedding may be considered to minimise impacts to hospitals and other essential services, and to limit business losses.
5	Should VCR inform a price cap for ancillary services such as NSCAS and FCAS, and if so, how?	No response
6	What customers and outage scenarios should be	No response

	considered when deriving applicable VCR values?	
7	Should VCR inform a price cap for RERT, if so, how?	Ausgrid supports the ENA views that VCR could be considered in procurement of RERT, however, we believe that care should be taken in obtaining estimates that are appropriate to the outage scenarios envisaged. Additionally, RERT can also be procured for system strength and VCR should not be the defining limit.
8	What customers and outage scenarios should be considered when deriving applicable VCR values?	In scenarios involving wide area outages, direct cost approaches may be an appropriate methodology to adopt for developing VCRs.
9	Should the AER determine a VCR for prolonged and extensive outages envisaged by System Black and HILP events?	Ausgrid supports the ENA views that relevant VCRs for this outage scenario would be valuable in network planning, and that different methodology should be used in developing VCRs for HILP events, as these differ to normal outage scenarios. Residential and SME customers may not feasibly understand the impact of HILP events if they have not experienced it. Direct cost approach or scenario analysis may be an appropriate methodology, including flow-on impacts such as widespread traffic disruption, water supply etc.
10	Should VCR be used to inform scheduled planned outages, and if so, how?	Ausgrid believe that review of impacts on customers for planned interruptions could be useful in better understanding our customers. VCR could be used to inform time of day/week/year for planned interruptions.
11	Should the AER determine additional VCRs for planned outages	It is possible that the VCRs may not be that different between planned and unplanned interruptions for customers. This should be reviewed when further information is available.
12	Should VCR values for different customer types also inform the allocation of	In principle, Ausgrid believes that VCR should inform allocation of transmission and distribution costs among customers,

	distribution and transmission shared costs among customers, and if so, how?	but only where there are material differences in VCR. Review of new customer segments may be appropriate to deal with customers that are likely to have significantly different VCRs. There is evidence new or changing customer segments have developed and have an increased level of significance including: • Renewable generators (major and small scale); • Major transport facilities; • Data Centres & ICT facilities It is believed that it would be useful to undertake some targeted surveys or case-studies of these customers to better understand their requirements in terms of reliability. Generally, in NSW most major customers' requirements are capacity related rather than network reliability based, since dedicated network connections are customer funded. These customer funded investments generally reflect the higher value these customers place on reliability. As a result, allocation of shared costs may be better determined on the basis of capacity rather than VCR. Generators are an exception and may have additional requirements in terms of voltage & fault levels. In the case of larger generators this may require them to fund network augmentations to meet these requirements.
13	Are there any other regulatory investment assessments and/or NEM planning contexts that could be informed by the application of VCR values	Distribution Automation & Control is an area where accurate VCR estimates may be useful in targeting where automation & control within the Distribution network may generate significant customer value. Improvements in automation and control systems may enable reliability improvements to be efficient and viable in localised parts of the network that have

		very poor reliability.
14	If so, what customer and outage scenarios should be considered when deriving applicable VCR values?	Outage scenarios that should be considered include; • Momentary interruptions (<1 min.) • Outages between 30 min. and 12 hours • Localised outages (1-3 suburbs – Urban, 1 regional area) • Wide area outages (major CBD's, >3 suburbs – Urban, Multiple regional areas) • Major blackouts (more than 12 hours) The relative VCRs for this range of outages would be useful in network planning & design. Major blackouts and wide area outages are generally considered HILP events that would need to be developed using alternate methodologies instead of customer survey techniques, since most customers would have little or no experience of these outages.
15	For what purposes do you currently use VCR? Is the current level of VCR segmentation by customer type and outage scenarios in AEMO's 2014 review fit for your purposes?	Ausgrid supports ENA views on customer segmentation. VCRs are used primarily for probabilistic planning evaluation. The segmentation of customer types is generally reasonable but current estimates do not seem to accurately reflect network differences (e.g. CBD, Urban or Rural). It should be noted that 'Urban' is a broad category and further segmentation may be beneficial (inner metro vs outer metro). Overseas evidence indicates that significantly higher VCR's exist for residential customers in extreme weather environments. It is noted that in these cases the VCR's would be seasonal. It is believed that segmentation of these types of customers may be useful in identifying regions or areas with unusual VCR's due to environmental factors. Life support customers are a special case of customer. These customers are currently

		considered through a range of operational and regulatory mechanisms to ensure they are provided with appropriate reliability. VCR's for these customers may be useful in confirming whether sufficient arrangements are in place for these customers, but this may be possible using specialist case studies rather than survey techniques. It is believed that the nature of equipment or appliances connected to the network may have a greater impact on VCR's than customer type. These include; • Lifts in residential or commercial buildings • Renewable Generation (large & small scale) In addition, increasingly customers may work remotely or operate businesses from their residences e.g. ITC Consulting, Graphic Design. It is believed that these customers are likely to place a higher value on reliability and it may be useful to identify whether this is in fact the case. It would be very useful if VCR estimates for industrial customers were available at standard industry classification level. There is some evidence that significant differences in VCRs exist between different types of industry. Given the number of industrial customers is relatively small it may be possible that the sample size to survey these customers could be quite small. Significant increased connection activity and demand has been seen in the following commercial customer segments; • Data Centres & ICT facilities • Major transport infrastructure It is believed that these customers may have significant differences in VCR

		compared to other directly connected customers. It may be possible to derive this through targeted surveys or direct cost approaches in conjunction with these firms Current VCR estimates do not adequately deal with HILP Outage scenarios which require specific direct cost estimates since most customers would have little or no experience with these events and survey responses are unlikely to be useful in valuing these scenarios.
16	For what future purposes could you use VCR? What level of VCR segmentation would you require?	Ausgrid believes that VCR may be useful in the future to inform targeting of distribution automation to improve reliability in specific areas.
	Methodologies for deriving VCR	
17	Do you think the methodology used by AEMO to derive (CVS and CM for residential and business, and DCA for direct connect customers) is still appropriate, taking into account current and potential uses of VCR discussed in chapter 4?	Ausgrid supports ENA views and believes that methodology utilized by AEMO for determining VCRs is generally appropriate, but not for all types of outages. Long duration outages (more than 24 hours in urban customers) and wide area outages (multiple suburbs and areas/regions) are scenarios that most customers have limited experience of and are unlikely to be able to provide any meaningful responses. These scenarios will probably require direct cost methods or model-based approaches. It is also believed that it is necessary to undertake a larger sample of industrial and major commercial customers to obtain accurate estimates of VCR at standard industry classification level.
18	If not, what other method or methods would be most appropriate to engage with customers and derive VCR values?	As detailed above, Ausgrid believes that some outage scenarios and customer segments require a different approach to that undertaken by AEMO. A more detailed survey of major load customers could be undertaken, particularly data centres and major transport operators (railways, metros, airports, road tunnels), as it is believed they

		have significantly different VCRs to other directly connected customers such as mines & manufacturing/processing facilities.
19	Should different methods be used for different customer types?	Yes, direct connected customers and major commercial /industrial customers should be estimated using more specialised direct cost methods. Major transport facilities, data centres are likely to require Direct Cost Approach surveys rather than Contingent Valuation, Choice Modelling & Conjoint Analysis.
20	Should multiple methods, including model based approaches, be used to cross check derived VCR values	Ausgrid strongly believes in the importance of having a high degree of confidence in the derived VCRs nationwide. Our view is that multiple methods would support having a high level of confidence in the VCRs.
	VCR Customer Segments	
21	What levels and categories of segmentation in VCR values are useful to you, taking into account the trade off between accuracy and required survey respondents and resources?	Ausgrid supports the views of the ENA on customer segmentation. We believe that confidence in derived VCRs is critical, given the value of investment the VCRs are based upon. Customer segments should include; • Residential customers in areas with extreme weather conditions • Residential customers in high density dwellings (>4 levels) • Life support customers • CBD based customers • SME's • Industrial customers by standard industry classification • Renewable generators (Major & small scale); • Major transport facilities;

		• Data Centres & ICT facilities
22	Are there particular customer types, categories, sectors etc. that are critical to focus on in this review and any surveys we conduct?	Significant increased connection activity and demand has been seen in the following commercial customer segments; • Data Centres & ICT facilities • Major transport infrastructure It is believed that these customers may have significant differences in VCR compared to other directly connected customers.
23	What categories of segmentation do you consider necessary as likely to drive variation in values of customer reliability?	• Customer type (Commercial (SME's), Industrial, Residential) • Major Industry by standard industry classification • Nature of appliances & equipment connected (e.g. lifts, essential services, home office etc.)
24	What categories of segmentation do you consider unnecessary as being unlikely to drive variation in values of customer reliability?	Ausgrid believes that socio-economic factors would not drive significant differences in VCR, but it would be useful to have this confirmed.
25	What level and categories of segmentation in VCR values can be utilised, given the level of detail and segmentation present in customer data and data sets to which you have access	• Commercial • Major load • Residential
	Determining which outage characteristics to test for	
26	What outage scenarios should be included when surveying customers to establish a CDF?	• Interruption duration • Interruption frequency • Timing of interruption (time of day / week / season)

27	Are there particular outage characteristics that are critical to focus on in this review and any surveys we conduct?	Ausgrid believes that duration and frequency of interruptions are both critical to focus on for this review. Network planning, investment, and operational response can influence duration and frequency of interruptions.
28	What outage characteristics do you consider necessary to include as being likely to drive variation in values of customer reliability?	Duration and frequency of interruption will drive variation in VCRs for the majority of customers. For specific customer segments such as major customers, industrial customers, data centres, major transport, utilities, and other essential services, timing of interruption may also drive significant variation in VCRs. (eg interruption to transport in peak time vs Sundays, interruption to data centres when they are doing their internal generator maintenance).
29	What outage characteristics do you consider unnecessary as being unlikely to drive variation in values of customer reliability?	No response
30	What outage characteristics can be utilised, given the level of detail and segmentation present in customer data and data sets to which you have access?	Frequency and duration VCRs can be readily applied to general network planning and investment. Timing of interruption VCRs can be applied for planned interruptions, operational response, and investment planning for major customers.
	Combining segmented VCR values at a point of investment	
31	What method should be used to representationally weight affected segmentation customer classes at the point of proposed investment?	Ausgrid supports ENA views on weighting VCRs by customer load and type.
32	Should different consumption information be used to weight VCR values depending on the nature of the outages being considered? For example, should average annual consumption information be	No response

	used to weight VCR values when considering prolonged outages, and average peak consumption values be used to weight VCR values when considering short outages during peak periods?	
	Applying the CDF at a point of investment	
33	What datasets are available to accurately estimate the probabilities of different outage scenarios occurring at the point of proposed investment?	No response
	Annual adjustments to VCR and frequency of VCR reviews	
34	How often should the AER undertake reviews of VCR?	Ausgrid supports ENA views on certainty and consistency of approach in undertaking reviews of the VCR.
35	What mechanism(s) should be applied to adjust the VCR on an annual basis?	Ausgrid supports ENA views on certainty and consistency. If there is an expectation that methodology may change, or a VCR may change significantly, then this should be taken into consideration when reviewing annual adjustments.
	Transitioning to new VCR values	
36	Should smoothing techniques be applied when transitioning to newly derived VCRs?	Ausgrid supports ENA views that VCRs are relatively stable and smoothed over a reasonable timeframe. VCR values should not vary significantly as a consequence of customer survey results which reflect a recent reliability experience, unless there has been a recent significant reliability event/power outage event that ought to change the result.


Thank you
Ausgrid