AUSTRALIAN ENERGY REGULATOR

Values of customer reliability

The Australian Energy Regulator has undertaken an important study into the value different customers place on having a reliable electricity supply. The study was conducted in all states and territories except Western Australia. The results of this study will be used to ensure consumers pay no more than necessary for safe and reliable energy, helping energy businesses identify the right level of investment to deliver reliable energy services to customers.

Developing values of customer reliability

What are values of customer reliability (VCR)?

VCRs seek to reflect the value different types of customers place on a reliable electricity supply and are expressed in dollars per kilowatt-hour ($/kWh).

Importantly, VCR is not a single number but a collection of values across residential and business customer types that need to be selectively applied depending on the context in which they are used.

Why do we need values of customer reliability?

Reliable electricity supply is important as electricity outages have customer impacts including costs related to lost productivity and business revenues, and intangible or indirect costs such as a reduction in convenience, comfort, safety and amenity provided by electricity.

However, a reliable electricity supply requires investment in transmission and distribution network assets, which is paid for by electricity consumers. Understanding this is important because to achieve a higher level of reliability, a higher amount of investment is required. Therefore, there is a trade-off between electricity reliability and affordability.

It is important that the right balance is struck between the level of electricity supply reliability and investment, as these investment costs form a significant portion of customer bills. Knowing the value different types of customers place on having a reliable electricity supply in different parts of the network assists electricity planners, asset owners, and regulators in striking this balance, providing customers with a more reliable electricity supply where desired and avoiding an overbuild of network assets in places where customers do not value further network investment.

The AER's role in VCR

We, the Australian Energy Regulator (AER), are the independent regulator for Australian's energy networks, its retailers and wholesale markets. We work to make all Australian energy consumers better off, now and in the future.

A rule change made in July 2018 in the National Electricity Rules (the Rules) requires us to determine the values different customers place on having a reliable electricity supply. This is referred to as the values of customer reliability (VCR).

The last multi-jurisdictional study of VCR was undertaken by the Australian Energy Market Operator (AEMO) in 2014.

The AER's extensive consultation

In developing the VCR methodology and VCR values we undertook an extensive consultation process that commenced in October 2018. We engaged widely with governments, energy regulators, customer and industry representatives and the public.

We also engaged independent experts to assist in the review.

- The University of Melbourne's *Melbourne Energy Institute* (MEI) provided expert advice from leading academics in the field
- A consortium consisting of KPMG and Insync assisted in developing and carrying out our surveys

The AER's VCR surveys

The survey techniques we have used are the same type as those used by AEMO with some changes made to improve the accuracy of responses and account for changes since 2014.

To determine the VCR values we surveyed over 9,000 residential and business customers of various sizes and industries across eastern and south-eastern Australia, and the Northern Territory.

The survey sought to understand customer preferences across a range of outage situations considering:

- how widespread an outage is
- how long the outage lasts
- whether the outage occurs during peak or off-peak times
- whether the outage occurs during summer or winter
- whether the outage occurs on a weekday or the weekend.

For very large businesses (reaching above 10 MVA peak demand) we used a different survey technique asking them to value the direct cost they incur for outages of different durations.

About the AER's VCR values

While we used similar survey techniques as AEMO, the changes we have made means our results are not directly comparable to AEMO's 2014 results. That is, the differences in VCR values could be driven by methodological changes, changes in customer preferences or a combination of both.

Residential

We consider climate zone and remoteness to be key drivers of reliability preferences for residential customers rather than state boundaries. Therefore, we produced residential VCR values for climate zones and remoteness combinations rather than for states, with the exception of the Northern Territory. However, using these results, we have also calculated VCR values by state for comparison with AEMO's 2014 VCR values.

Business

For business customers using less than 10 MVA peak demand, we derived VCR values for the same business sectors (agriculture, commercial and industrial) as AEMO in 2014. Our VCR values for very large businesses (reaching above 10 MVA peak demand) are not directly comparable to AEMO's 2014 values because we included a wider range of businesses in our sample compared to AEMO in 2014.

What do the AER's VCR values show?

Our 2019 VCR values show:

- While there are some differences between 2014 and 2019 in the VCR values for residential and business customers, in general, VCR values are similar between the two years. Consistent with previous VCR studies we observe that business customer VCRs continue to be higher than residential customer VCRs.
- Residential customers continue to value reliability and have a preference to avoid longer outages, and outages which occur at peak times (defined as 7am to 10am and 5pm to 8pm). However, residential values are lower in 2019 than in 2014 with the exception of customers in suburban Adelaide.
- The 2019 VCR values are lower than the 2014 results for agricultural and commercial customers, and higher for industrial customers.
- The higher industrial VCR value has driven a small increase in the National Electricity Market (NEM) and state VCR values compared to 2014. This is because proportionally, industrial customers use more energy relative to other customer segments and so, have a greater influence on load weighted VCR numbers.
- The direct cost survey results show that VCR values amongst the approximately 300 business sites that consume the most energy in the NEM can vary greatly depending on the sector.

How are VCR values used?

VCR values are useful inputs in regulatory and network investment decision-making to ensure consumers pay no more than necessary for safe and reliable energy.

The VCR values are available for use in electricity planning and investment decision-making by asset owners, governments, and regulatory authorities.

Any investment decisions where VCR is applied should use a VCR value reflective of the affected customer composition on the network. This is important to be able to take account of the different preferences for reliability by different customer segments on the network.

Our VCR values suggest network investments in residential areas will face a higher cost benefit hurdle than an area dominated by industrial customers because of the lower value of residential VCRs.

We will use VCRs as part of our role in the economic regulation of national electricity networks. For example, in:

- undertaking assessments of proposed network business expenditure to ensure consumers pay no more than necessary for network services
- in the distribution service target performance incentive schemes (STPIS) as the key measure for linking outcome performance with the STPIS incentives

VCRs will also be used by other parties to:

- evaluate cost-effective ways to replace, build or upgrade infrastructure
- set transmission and distribution reliability standards and targets
- inform reviews of the NEM market reliability standard and settings
- inform reviews of the system restart standard
- inform procurement of reliability and emergency reserve trader (RERT) services.

Next steps and more information

Further information about the AER VCR review

We published our *Final decision on methodology* setting out our VCR methodology in November 2019 and our *Final report* containing the VCR values in December 2019. Further information about our VCR review can be found here.

VCRs for widespread and long duration outages

We are currently continuing work on VCRs for widespread and long duration outages and intend to publish the results, including the underlying model, in early 2020.

Annual adjustment of VCRs

The VCR values published will be updated annually using our CPI-X approach set out in our VCR methodology (available here).

Application of VCRs

We will monitor the use of the published VCRs to check they are being applied correctly. We encourage those using VCR values to contact us to support the correct application.

For further information please contact: aerinquiry@aer.gov.au

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2019 VCR values

Residential customer VCRs by climate zone and remoteness - in $/kWh

Residential customer segment	Applicable State or Territory	Residential VCR ($/kwh) $2019
Climate Zone 1 Regional	Queensland	23.95
Climate Zone 2 CBD & Suburban	Queensland, New South Wales	22.95
Climate Zone 2 Regional	Queensland, New South Wales	25.56

Climate Zone 3&4 Regional	Queensland, New South Wales, Victoria, South Australia	26.47
Climate Zone 5 CBD & Suburban NSW	New South Wales	29.27
Climate Zone 5 CBD & Suburban SA	South Australia	33.23
Climate Zone 5 Regional	Queensland, New South Wales, South Australia	24.57
Climate Zone 6 CBD & Suburban	Victoria, New South Wales, South Australia	21.25
Climate Zone 6 Regional	Victoria, Queensland, New South Wales, South Australia	21.77
Climate Zone 7 CBD & Suburban	Australian Capital Territory, Victoria	21.39
Climate Zone 7 Regional	Tasmania, Victoria, New South Wales	16.96
Northern Territory	Northern Territory	18.31

Residential customer VCRs by state/territory (in $/kWh) – comparison with AEMO 2014 VCRs

	Tasmania	South Australia	Victoria	New South Wales	Australian Capital Territory	Queensland	Northern Territory	NEM
AER 2019 residential VCR ($/kWh)	16.96	30.31	21.43	25.85	21.38	23.76	18.31	24.08
AEMO 2014 residential VCR ($/kWh) in $2019	30.78	28.95	26.66	28.57	N/A	27.38	N/A	27.95

Business customer VCRs* (in $/kWh) - comparison with AEMO 2014 VCRs

	Agriculture	Commercial	Industrial
AER 2019 business VCR ($/kWh)	37.87	44.52	63.79
AEMO 2014 business VCR ($/kWh) in $2019	51.34	48.16	47.45

*businesses using <10 MVA peak demand

Very large business customers* (in $/kWh) – for business segments

	Services	Industrial	Metals	Mines
AER 2019 very large business VCR ($/kWh)	10.54	117.99	19.86	35.16

*Very large businesses using >10 MVA peak demand.

Very large business customers* (in $/kWh) – for transmission/distribution

	Tranmsission	Distribution
AER 2019 very large business VCR ($/kWh)	26.44	56.69

*Very large businesses using >10 MVA peak demand.