Submission to the Australian Energy Regulator

Network resilience guidelines

Consultation paper

By

Helen Bartley & Mark Grenning

10 July 2026

Acknowledgement of country

We acknowledge the Traditional Custodians of the various lands on which we work and the lands on which energy consumers live and work. We honour the customs and traditions and special relationship of those Traditional Custodians with the land as well as those where this report is being prepared. We respect the elders of these nations, past and present.

Acknowledgements

This submission was funded by *Energy Consumers Australia* as part of its Grants Program to support consumer advocacy and research projects that benefit of household and small business consumers. The views expressed do not necessarily reflect the views of Energy Consumers Australia.

We acknowledge the support of the energy consumer advocates, regulatory representatives, networks and others who generously made time at short notice to share their insights through interviews and discussions. We especially appreciate the contribution of climate change scientist and electricity resilience expert Dr Jill Cainey MBE, whose direct input and earlier work for the ECA has helped us shape our views on significant aspects of this submission.

About the authors

Helen Bartley is an independent Qualified Professional Researcher, Fellow of The Research Society and Accredited Statistician. She serves on the Australian Energy Regulator's Consumer Challenge Panel and several energy network consumer advisory panels, with a focus on evidence-based consumer research and engagement.

Mark Grenning is an independent consumer advocate and energy policy specialist with extensive experience in regulation, commercial strategy and energy markets. A former Director of Policy and Regulation at the Energy Users Association of Australia, he has extensive experience in electricity and gas network reset panels and the AER's regulatory framework.

Contents

1 Summary

This submission responds to the AER's consultation paper on network resilience guidelines from a consumer perspective. Our approach is based on practical experience in network resets, discussions with consumer advocates, the regulator, networks and experts and a close reading of recent AER decisions.

1.1 Key messages

We agree with the AER's comments about the growing impact of widespread and prolonged power outages from an increase in extreme weather events. Our observations of network consumer engagement have highlighted energy consumers' growing concerns around network resilience when climate change events are expected to increase in severity and frequency. We have seen how these concerns differ across networks and whether customers have lived experience of climate change events.

Resilience is both an asset management and consumer value issue

Our concerns go beyond the increased potential impact of events. Energy consumers are also concerned about the risk of networks' over-investment resulting in significant increases in electricity costs. This includes a risk they may pay for resilience multiple times, for example through ex ante investment, cost pass throughs and GSL payments. This is in addition to their private behind the meter investment in solar power, batteries and generators. The risk of too much investment too soon ("gold plating") is also occurring when consumers are subject to significant cost of living pressures. Resilience is not just an asset management issue – it is a consumer value issue.

Our submission considers how resilience expenditure should be assessed in the context of climate-related risks, affordability pressures, uncertainty in forecasting, and a need for clearer guidance for networks, consumers and other stakeholders. We focus on the balance between ex ante investment and ex post recovery, the importance of genuine consumer engagement, the limits of climate and economic modelling, and a need for transparency about the roles of networks, governments, communities and customers. We want to ensure that resilience investment is prudent, efficient and capable of delivering outcomes that consumers value, without creating a new pathway for unnecessary or poorly justified network expenditure.

We welcome the AER's development of a more comprehensive resilience guideline. Since the AER's publication of the 2022 guidance note, consumers and networks have struggled to follow the guidance. This has created numerous problems for the propose/response regulatory framework. Consumers are wondering why resilience initiatives they support are not approved. Networks, which invested significantly in consumer engagement and gained consumer support for their proposals, are seeing the AER reject their proposals.

Networks and consumers alike are wondering about the benefit of extensive and best practice engagement when the AER rejects expenditure supported by that engagement. This situation is not helped by network uncertainty as to the AER business case requirements.

The Guideline should focus on principles and evidence expectations to balance prescription and flexibility.The relatively short time available for the AER to develop this guideline, plus the complex issues, has led us to recommend that the guideline focus on principles and evidence

expectations and balance prescription and flexibility. The guideline needs to include a clear explanation of the AER's expectations of how networks should develop their business cases and engage with consumers, but provides enough flexibility to reflect different network risks, consumer and community needs and preferences.

These principles and evidence expectations need to be accompanied by an AER commitment to engage with individual networks early in their reset process as they develop their expenditure proposals and design their engagement plans.

1.2 Structure of our submission

Our submission continues with a discussion of key themes (Chapter 2) we have seen in network resilience engagement that we consider should be addressed in the guideline. Network operators have invested significantly in what we understand is best described as research-grade[1] climate modelling, including downscaling beyond established approaches,[2] to generate more localised impacts for which customers are paying. This is a new and complex area for network operators and for consumer understanding that needs to be discussed and explored with consumer panels.

In Chapter 3 we present our preliminary views in response to the Consultation Paper's questions, noting our views may change after we consider other submissions.

We have listened to the views of various stakeholders whose perspectives have been invaluable in framing our submission. However, the views expressed throughout our submission belong to us, and should not be interpreted as the views of any other party.

Appendix A lists the individuals and organisations we engaged with to help inform this submission. Appendix B discusses why we consider the guideline's benefits will be limited without the development of long term robust VNR values.

[1] Research-grade climate modelling is based on simulations modelling vs established science like the IPCC reports

[2] For example, NARCliM is an established downscaling approach with a minimum grid size of 4 x 4 km (https://www.climatechange.environment.nsw.gov.au/narclim). Smaller grids are not established.

2 Key themes

Our experience as members of many electricity network-reset consumer panels and recent discussions with various stakeholders suggests the guideline should incorporate the following key themes to bring more certainty to consumers and network operators on how to best deal with extreme weather events.

2.1 Unclear objective of resilience expenditure

What is the objective of resilience expenditure?

A recurring question is the appropriate objective of resilience expenditure. If the measure is the impact of resilience events with outages >12 hours, is the objective to:

- Ensure that the current major event day (MED) experience, measured over a particular base period, does not worsen; or
- Achieve some level of improvement in the MED base period experience.

Alternatively, if the measure is to impact on overall reliability, resilience expenditure can have reliability benefits, is the objective to:

- Maintain existing reliability which obviously varies within and between network (i.e. prevent reliability from worsening);
- Restore reliability to a pre-climate-change baseline (however the baseline is defined); or
- Improve current reliability in high-risk communities to reduce the gap between the reliability in those communities and the reliability in lower risk communities.

An alternative approach considers the objective *as an output of, not an input for*, the prudent and efficient level of expenditure. For example, for its 2024-29 reset, Ausgrid's proposed resilience expenditure resulted from consumer engagement in which consumers considered a range of options as consumers and then balanced fair and equitable access to electricity across the region with affordability. This expenditure ($40m/yr) was forecast to reduce the number of outages by around 13% and the frequency by around 11% in the three LGAs with the higher resilience risk.[3]

2.2 The burden of proof for networks to identify climate risk is unclear

What is the burden of proof for networks to identify their climate risk?

We agree with the AER's view that climate change risk involves considerable uncertainty in modelling and forecasting. Although there may be broad agreement about long-term changes in the frequency and severity of extreme weather events, we remain to be convinced that these forecasts can be translated reliably into asset- and location-specific risks and hence prudent and efficient ex ante expenditure for network hardening.

Resilience challenges vary significantly by geography, between and within networks, as well as by hazard type and network configuration. For some hazards, such as cyclones, the unpredictability of event paths makes targeted network hardening impractical.[4] The same

[3] Ausgrid, *2024-29 Regulatory Proposal*, January 2023, p. 78

[4] Look at the pathway of Cyclone Alfred in 2024 https://www.bom.gov.au/cyclone/history/Alfred2025.shtml

challenge can apply to other climate-related risks, where predicting specific locations and likelihoods may be more accurate than cyclones but still have a relatively high level of uncertainty.

This creates a mismatch between the long timeframes used to assess climate trends and the five-year regulatory reset period. While climate trends to 2050 and 2100 may be more predictable at a high level, the severity, frequency and location of climate-related risks over the next 10 to 15 years are much less certain. As a result, we are not surprised that networks are grappling with how to use long-term climate modelling to assess asset risks, define appropriate baselines and prepare proposals for the next five-year reset period.

The uncertainty is compounded by changes in the way climate scenarios are framed and applied. Some may argue that cost benefit analysis using probability modelling with sensitivity testing can address these concerns. However, greater sophistication does not necessarily make it easier to translate high-level scenarios into prudent and efficient network-specific investment decisions.

The shift from Representative Concentration Pathways (RCPs) to Shared Socio-Economic Pathways (SSPs) in the Intergovernmental Panel on Climate Change's Sixth Assessment Report (AR6) published in 2022-2023 means climate models now combine physical greenhouse gas levels with human and societal development. The report clearly links climate targets with socio-economic factors like population growth, economics, education, and technology.

The most recent 2024 Bureau of Meteorology/CSIRO biennial report,[5] had a range of projections for the future climate across the NEM that could impact on network resilience.[6] These are summarised in the following table. Climate model confidence (left hand column) decreases from the top to the bottom and corresponding impacts on electricity network equipment for severe weather events are shown in the right column.

[5] We understand the 2026 report is expected to be published by the end of October 2026.

[6] CSIRO, *State of the climate*, 2024, p. 29

Table 1: Climate model confidence, hazards, projected change and impact on networks

Confidence[1]	Climate Hazard[2]	Projected change[2]	Impact on networks[3]
High	Temperature	Substantial warming	Medium
High	Heatwaves & extreme heat	Continued warming, with more extremely hot days and fewer extremely cool days	Medium
High	Sea level	Ongoing sea level rise through this century and beyond, at a rate that varies by region but roughly follows the global average. Recent research on potential ice loss from the Antarctic ice sheet suggests that a scenario of larger and more rapid sea level rise this century or beyond cannot be ruled out	Low
High	Bushfire weather	A longer fire season for much of the south and east, and an increase in the number of dangerous fire weather days for many regions	High
Medium	Rainfall	A further decrease in cool season rainfall across many regions of the south and east More intense short-duration heavy rainfall events, even in regions where the average rainfall decreases or stays the same Likely increases in the average duration of drought and aridity in regions within the south and east	Very low
Low-Medium	East Coast Lows	Fewer east coast lows on average, particularly during the cooler months of the year, but a likely greater impact from those that occur due to heavier rainfall and higher sea levels.	High
Low-Medium	Tropical cyclones	Fewer tropical cyclones, but a greater proportion projected to be of high intensity, with ongoing large variations from year to year. The intensity of rainfall associated with tropical cyclones is also expected to increase and combined with higher sea levels, is likely to amplify the impacts from those tropical cyclones that do occur	Very high
Low-Medium	Extreme wind	Small decreases in wind speed may be seen	High
Low	Thunder, lightning and hail	Severe convective storms may increase in frequency and intensity (hail, rain and lightning).	High

1. ENA, Electricity Networks A guide to climate change and its likely affects, 2022
2. CSIRO, *State of the climate*, 2024, p.29
3. https://energyconsumersaustralia.com.au/sites/default/files/wp-documents/report-consumer-electricity-resilience-jill-cainey.pdf

The severe weather events with the most severe impact on electricity networks are typically the most difficult for climate models to predict with certainty: East Coast lows, cyclones, extreme wind and severe convective storms (downdrafts, hail and lightning). In contrast, bushfire weather occurrence has more certainty.

Once climate modelling has been completed, networks then seek to quantify the increasing network risks due to climate change and the risk reduction benefits of corresponding network hardening solutions. A recent example is the Climate Resilience Economic Model developed by CutlerMerz for AusNet's 2026-21 distribution proposal that was based on inputs from Risk Frontiers (climate modeller) and AusNet.[7]

The AER acknowledges the uncertainty in climate modelling and forecasting, and the uncertain impact of climate change on electricity networks and affected communities,[8] therefore the uncertainty in forecasting resilience-related expenditure. [9] We look forward to more specific guidance on what the burden of proof should be and how this might vary between different components and levels of proposed resilience expenditure. For example:

- Are there open-source models where the results will be acceptable to the AER?
- When is an expenditure material enough to require specific climate modelling to support the proposed expenditure?

An example of the latter is AusNet transmission's proposal to spend $34m in 2027-32 to strengthen ~ 180 transmission towers on market-critical lines to improve resilience to extreme wind events. It is important to note that the business case was built on a Bureau of Meteorology analysis of historical wind data to identify lines that are at risk over the next regulatory period. AusNet did not have confidence that climate modelling could provide a sound basis for assessing how future wind trends would impact on various lines. As they note in their submission on this project:[10]

> "The modelling indicated that transmission lines along the coast, particularly in Southwest Victoria, where the two most recent events have occurred (between Sydenham and Heywood), have uniform exposure to severe convective wind events (approximately one event per year exceeding 35 m/sec wind speeds within 5 km of certain sections). The northeastern section of MSS-DDTS 330kV circuits recorded the highest exceedance counts for each threshold; however, the steep terrain in the area may result in an overestimation of actual hazard exposure along the line. Figure 32 presents a spatial representation of mean occurrence and maximum gusts modelled from approximately 40 years of weather data.
>
> The weather analysis concluded that there have been notable improvements in modelling over the past five years, yet for localised downburst wind events, further advances in data collection and model development are necessary to reliably assess frequency and magnitude for fully informed design standards and network risk assessments. Ongoing monitoring of advancements in modelling and observational data

7 CutlerMerz, Climate resilience economic modelling model methodology, September 2024

8 AER, Network resilience guidelines, Consultation paper, June 2026, p.1

9 Ibid, p.14

10 AusNet, Transmission Line Structures, Asset Management Strategy, October 2025, p.34

> continues to support future updates to asset management strategies and risk evaluations."

In its draft decision on AusNet's transmission proposal, the AER approved the strengthening of ~ 60 towers at a cost of $13.1m. The AER accepted that there was sufficient evidence for some level of resilience investment based on a combination of AusNet's revealed risk and history of tower failures from extreme weather events (in addition to AusNet's climate modelling) and also considered stakeholder (e.g. Victorian Government and the network reset panel) views as part of its broader assessment.

Given the materiality of the proposed expenditure, the AER's assessment focused on whether the proposed scope is efficient and maximise value for consumers. The level of scrutiny the AER applies to climate modelling underlying a network business case is understandably, dependent on factors such as materiality, uncertainty, and the extent to which the modelling underpins the proposed expenditure. The importance of the modelling to the proposed expenditure and how large is the proposed expenditure were factors leading to the AER's more detailed examination of Ausgrid's climate modelling for its 2024-29 reset.

In determining the level of prudent and efficient expenditure, the AER concluded that a smaller portfolio of transmission tower strengthening projects provided better value for consumers, leading to the reduction to $13.1m. AusNet had applied a decision rule of keep investing until the marginal benefit of an additional tower strengthening was zero.

While we agree that maintaining a flexible approach to assessing resilience expenditure is important, we would recommend that the Guideline provide some principles:

- For networks and consumers on how the AER might assess materiality – to be supplemented by one-on-one AER/network discussion early in the reset process to help guide that network's approach to developing business cases and consumer engagement, and
- On how consumers can ensure that the climate risk information they are being presented with by a network is truly independent and builds confidence in the predictive power of these models (both climate and network risk measurement) to support prudent and efficient expenditure proposals to the AER.

2.3 Varying network approches to ex ante expenditure versus ex post recovery

What is the appropriate balance between of ex ante investment (capex and opex step changes) versus ex post recovery via a cost pass through?

Ex ante expenditure covers a range of investments, from network hardening to limit the impact of events on infrastructure and reduce the likelihood and severity of outages, to measures such as mobile response vehicles, community hubs and mobile generators to aid recovery. Networks can submit a pass-through application to the AER to cover the costs of recovering from a climate event where the costs exceed 1% of the annual revenue requirement for that year. Costs lower than this threshold are assumed to be covered by regulated allowances.

Ex ante capex can be for very long-lived assets that customers will be paying for (via return of and on capex) for decades. While the annual bill impact may be small, it is long term. A cost pass though brings all the costs immediately to customers with no long-term cost.

Consumers have shown varying levels of support for ex ante investment, with support differing according to consumers' "lived experience" of prolonged outages (responsiveness post event) versus no experience (risk reduction before event occurs). For example, Powercor's consumer engagement following the 2021 storms highlighted these two contrasting views[11].

For communities that had experienced a major outage, extreme weather events were "by nature unpredictable" and their resilience goals "tended to be strongly tactical and based on survival until service can be re-established", i.e. a quick network response to bring fast restoration. Those communities that had not experienced a major outage supported more longer-term "strategic" resilience goals to "ensure a future where reliance on energy was likely to be greater. They were more focussed on avoiding set-back, rather than responding to setbacks".[12]

The influence of customers' experience on a network's approach to resilience expenditure is evident with Energy Queensland. Ergon and Energex's long experience with severe weather means the networks and their customers are well prepared with a combination of assets built to Australian standards (such as substations built to withstand a one in 200-year flood and tower design varying geographically depending on cyclone risk) combined with a focus on preparedness and recovery.

Energy Queensland publishes an annual Natural Hazards Strategy, [13] including a summer preparedness plan. The plan outlines actions to minimise disruption during natural hazard events and support a fast, coordinated response to restore electricity supply. The plan sets out specific actions for Energy Queensland's network, as well as how the organisation works with other parties, including Queensland Disaster Management, local councils, Queensland Fire and Rescue, and other distribution network service providers. These arrangements help clarify roles, strengthen community resilience, and ensure additional resources are available when required. Preparedness activities occur throughout the year, with a stronger annual focus commencing each June to prepare for bushfire season, which typically begins in August, followed by the summer storm season in October and cyclone season in November.

In their 2025-30 resets, Ergon and Energex's initial proposals had resilience capex at <1% of total capex focussed on raising assets in flood zones and installing covered conductor, sparkless fuses and pole wraps in bushfire prone areas[14] plus further mobile generators and substations. Energex accepted the Draft Decision of $25m and Ergon revised proposal of $35m was accepted. The total approved resilience capex of $60m was <1% of total combined approved capex of $7.6b.

Ergon and Energex have built significant trust with their customers that both networks will 'go the extra mile' to restore power as quickly and safely as possible. Both networks have used cost pass throughs to recover storm damage costs in recent years. Annual costs per customer have been relatively small. For example, the bill for the extensive storms in South-East

11 EUAA, Submission, Including Distribution Network Resilience in the NER, ERC 0400, November 2024

12 Ibid, p. 8, footnote 13

13 Energy Queensland, *Natural Hazards Strategy*, Inc. Summer Preparedness Overview for 2025/26, November 2025

14 Ergon Energy, Network Regulatory Proposal, 2025-30, p. 61

Queensland over an 11-day period from December 2023 to January 2024 was $2/yr for a residential customer and $4-5/yr for a small business customer in 2025-6 and 2026-7.[15]

In other networks where customers have less lived experience of the impact of extreme weather events, the uncertainty in climate modelling contributes to the difficulty of striking the right balance between ex ante categories and ex post. The AER in its submission to the AEMC rule change review that led to this guideline, said getting:[16]

> "the optimal balance of ex-ante and ex-post funding (or balance of risk allocation) to maintain service level outcomes so that it is consistent with the needs and preferences of consumers will be a significant and difficult exercise."

The Consultation Paper notes that the AER has approved 72.3% of proposed resilience expenditure. Discussions with the AER established this is based on the AER's final determination of networks' revised expenditure proposals. The AER has since advised us that basing the figure on networks' initial proposals drops the approval rate to 45.2%. In recent resets, the AER has:

- Decided to significantly reduce proposed asset hardening capex based on flawed business cases. For example, AusNet Services initial proposal was for $238.7m for asset hardening:
    - the Draft Decision reduced that to $30.7m as the AER found that AusNet's modelling did not apply the value of network resilience methodology correctly and overestimated the maximum achievable benefits;
    - AusNet's revised proposal, which included an updated business case, proposed $143.9m
    - the AER's Final Decision approved $61.9m with the AER highlighting modelling shortcomings including the incorrect application of the value of network resilience methodology and value of customer reliability.[17]
- Generally, been more willing to approve ex ante expenditure that provides operational readiness to ensure comprehensive preparation and to enable timely and efficient recovery from extreme weather events.

Given this experience, the guideline would benefit from the inclusion of principles that were behind approvals or rejections of specific resilience proposals in recent determinations and the illustration of the AER's application of those principles through references to specific network business cases. The NSW Treasury Disaster Cost Benefit Framework[18] that provides detailed guidance on how to build a business case for high impact low probability events, could be useful source for this guidance.

---

15 AER, Letter to Energex, Determination - Energex South East Queensland Storms Cost Pass Through Application, 23 April 2025

16 AER, Letter to AEMC, Submission in response to the AEMC's consultation paper – National Electricity Amendment (including distribution network resilience in the National Electricity Rules), 7 November 2024, p.3

17 AER, Final decision, AusNet Services electricity distribution determination, 1 July 2026 - 30 June 2031, Attachment 2 – Capital expenditure, May 2026, pp.29-34

18 *NSW Treasury, Disaster* Cost-Benefit, Framework, TPG23-17, October 2023

2.4 Networks are wondering why they should invest in consumer engagement

What does the AER expect from network customer and community engagement and what is its influence on expenditure approval?

The AER's *Better Resets Handbook* aims "to encourage networks to develop high quality proposals through genuine engagement with consumers that meets [the AER's] expectations".[19]

However, it is not evident to us how much influence consumers can have on expenditure proposals. For example, Ausgrid's best practice resilience engagement (in which customers indicated a clear willingness to pay for resilience) in its 2024-29 proposal seemed almost irrelevant when the AER did not accept the business cases. Similarly, in the recent Victorian electricity distribution 2026-31 resets, the AER saw consumer engagement is a necessary but not a sufficient condition for expenditure approval, and businesses must present a strong business case. The AER noted in its draft decision for Powercor[20]:

> "We acknowledge the engagement Powercor has undertaken with its rural stakeholders in developing its regional and rural reliability and worst served feeder augex projects. Although this project was broadly supported by Powercor's stakeholders, community support is not the sole factor in determining whether a project is prudent and efficient. The driver of these projects is to improve reliability. However, in the absence of a regulatory obligation, we must assess the cost and benefits of these projects.
>
> In many cases Powercor has overestimated the benefits of these projects which results in negative net benefits for these projects. We note that where the NPV of these projects are marginally positive after accounting for the overstated benefits, we have included that capex in our alternative estimate where ordinarily in the absence of community support, would not be considered prudent and efficient."

AusNet had a similar example with its proposed $26.5m expenditure for its 2026-31 electricity distribution price review to improve reliability on its worst served feeders.[21] The proposal was strongly supported by AusNet's consumers in general, not just customers located along these feeders. However, the proposed expenditure failed the AER's economic assessment with the AER highlighting problems in benefits measurement and the failure of AusNet to consider cheaper options. Yet, as illustrated in the following table, AusNet's proposed 2026-31 ex ante resilience capex to improve recovery preparedness was approved with it unclear whether the provision of a business case was necessary.

[19] AER, *Better Resets Handbook*, July 2024, p.3

[20] AER, Draft decision, Powercor electricity distribution determination, 1 July 2026 – 30 June 2031, Overview, p. 4

[21] AusNet, Electricity Distribution Price Review, 2026-31 Regulatory Proposal, January 2025, pp. 149-151

Table 2-1: Resilience expenditure proposed by AusNet and the AER's decisions

Projects	Business case provided	Original proposal	Draft Decision	Revised proposal	Final decision
Stand-alone power systems	Yes	7.1	7.1	7.1	7.1
Mobile generation	Yes	3.5	3.5	3.5	3.5
Emergency vehicles	No	1.1	1.1	1.1	1.1

The AER approved all three categories based on a combination of resilience being an expenditure factor in the rules, the Victorian Government's expectations on resilience planning and actions stemming from the Victorian Network Outage Review. The AER did not provide an analysis of the business cases. It is uncertain if that approval would have been forthcoming without review of the business cases were the amounts sought considerably higher.

While it is important for consumers to have confidence that the AER effectively scrutinises network operators' business cases, consumers also need to understand the criteria for the AER to approve expenditure (or otherwise) when it is strongly supported by best practice engagement (which the AER should detail in the guideline) without meeting all the requirements of the capex criteria.

Consumers across different networks have differing varying levels of experience and knowledge about resilience issues and their investment in resilience measures differs. This may shape their expectations and preferences for network resilience expenditure. For example, Ergon customers have long lived experience with extreme weather events and strongly favour operational readiness, including preparation before storm, cyclone or bushfire seasons and the ability to restore services quickly. Ausgrid customers on the NSW Central Coast have also developed sound knowledge through Ausgrid's extensive engagement to inform its 2024–29 proposal and the subsequent implementation of approved community-based expenditure. By contrast, customers in other networks may be newer to these discussions.

2.5 Networks are looking to State Governments to get what the AER does not approve

Are networks and their consumers reliant on their State Governments to get desired expenditure approved?

One outcome of the AER's final decisions for the Victorian DNSPs where the failure of a business case meant that consumer supported expenditure was not approved, is that networks may increasingly seek their respective State Government to mandate forms of expenditure so the AER must approve expenditure flowing from a regulatory obligation. This would help demonstrate to customers that their concerns are being heard and may encourage customers to continue participating in future resilience engagement. However, we consider this a second- or third-best outcome for consumers. Government directions can be blunt instruments and may increase the risk of inefficient spending.

2.6 Customers will pay for resilience without a clear business case

What is the role of networks and the AER to consider resilience for vulnerable customers?

Network resilience is unevenly distributed. Some locations are subject to greater risk of extreme weather events, and they tend to be in more sparsely populated areas, so the VCR/VNR benefits are lower, and it is harder to find NPV positive projects. Additionally, the impacts on customers at a particular location also vary. For example, some customers in may be able to afford to self-insure through behind-the-meter consumer energy resources with solar and batteries or diesel generators.

We have observed a strong willingness among customers in lower risk areas to contribute to the cost of improving reliability for customers in higher risk areas. While assuring prudent and efficient expenditure minimises the risk of an inefficient cross-subsidy, it would be helpful for the guideline to give some indication of the level of flexibility the AER may exercise in approving expenditure that has strong customer and wider community support but does not pass a business case test under the capex criteria.

2.7 What should be the scope of 'network services' the AER regulates?

Where does the role of networks (and their customers who pay the bills) in electricity resilience end?

Network operators appear to be seeking to take a leading role in improving resilience. The issue is to what extent network operators should be assuming this role, given customers pay for network resilience. Expanding the definition of shared network services to include a range of resilience services gives networks a monopoly on their provision.

We want to ensure that electricity consumers do not have to pay for "scope creep" to increase a network's RAB and resilience obligations are appropriately shared among networks and other Government and private stakeholders. The AER did not approve AusNet's proposed $10.8m for 2026-31 to install back-up supply to 30 community hubs across the network because this this is behind the meter activity:[22]

> "[this is] not … a network service, as these can and have been provided by third parties and are considered part of a competitive market. In addition, the installation costs and ongoing maintenance (including the ownership) of these assets are typically borne by the building owners as these assets are within its properties as they are the direct beneficiaries of the backup supply. AusNet has not considered why and how the proposed community hubs are appropriately recovered as a standard control service."

We expect that NSW DNSPs may seek to expand the scope of network services with their Framework and Approach submissions for 2029-34. We are concerned that this may result in an expansion of networks into services that can be competitively provided, as with AusNet's proposal.

We see some positive examples where parties appear to be developing an understanding on where the role of the network ends and the role of other stakeholders start. For example,

[22] AER, Attachment 2 - Capital expenditure - Draft decision - AusNet Services distribution determination 2026-31, September 2025, p. 51

Ausgrid's work on the NSW Central Coast is providing sector leading evidence of how this might work in practice.

We look forward to greater collaboration between different stakeholders to determine where the network's role (and consumers paying) ends and individual customer, government, council, telcos or broader community responsibility begins. This is particularly relevant for community resilience hubs, telecommunications dependencies, batteries and disaster response planning. For example, we do not see the networks' role as providing long duration power security to mobile phone towers. This collaboration can be facilitated and encouraged by the AER providing some guidelines on the extent of network services.

2.8 A comprehensive resilience guideline requires a robust value of network resilience

The current 'temporary' approach to valuing network resilience does not support a long-term resilience guideline

In response to a request from the Energy and Climate Change Ministerial Council (ECMC), in 2024, the AER developed the Value of Network Resilience (VNR) measure for outages lasting more than 12 hours. The measure was quickly developed to inform the Victorian 2026-31 electricity distribution price reviews. The AER published its final VNR decision in September 2024.[23] In that decision it undertook to continue the review, including commencing work on the longer-term VNR in early 2025 and then calculating new VNR values using the longer-term methodology in 2026. We were both involved in the 2024 work, but we are not aware of any progress since the AER published its final decision in September 2024.

Consumer and network confidence in a long-term network resilience guideline requires consumer and network confidence in a long-term VNR. It is concerning that the revised network resilience guideline will, at least initially, be based on the 2024 temporary VNR. There are many reasons to develop this long-term methodology and values, not the least being the massive expansion in home batteries under the Federal Government's Better Home Batteries program that has and will continue to significantly increase consumers' own resilience.

We discuss our concerns and the implications in more detail in Appendix B.

[23] AER, Value of Network Resilience 2024, Final Decision, September 2024

2.9 Summary

The themes we presented in this section are important context for our approach to answering the AER's questions in the Consultation paper.

The timetable to develop this guideline is tight, hence our recommendation that the revised guideline strikes a balance between prescription and flexibility. A single prescribed guideline without flexibility will not work for all networks and it is clearly important to avoid unintended consequences.

While we clearly appreciate the consumer views that networks need to do more to address resilience concerns, we are also aware of consumer concerns about the affordability of energy and the cost impact of gold-plating networks in the name of resilience. We are concerned that such actions would result in consumers paying multiple times for resilience – through ex ante expenditure, cost pass throughs and GSL payments as well as customers' investments in solar panels and home batteries to improve their own resilience.

Given the above, to meet the AER's requirements, resilience expenditure guidance needs to be based on clear principals. These principles need to be combined with an AER commitment to deep engagement with individual networks early in their reset process as they develop their expenditure proposals and design consumer engagement plans. The framework should include clarity on the role of climate modelling and economic assessment but provide flexibility in how that is achieved. A template is useful, but it should not deterministic.

A principled approach should enable consumers and networks to better understand how a particular network's resilience risks, level of consumer knowledge and their State Government requirements might be most efficiently incorporated into a network's expenditure proposals such that consumers see value in continuing deep engagement.

We do not want a situation where networks consider engagement is of limited value. The risk there is that networks go back to the situation prior to the Better Resets Handbook where they have an incentive to put in an ambit claim in their initial proposal. This is followed by a sometimes tortuous process of detailed information requests and AER bottom-up analysis of every cost line to the extent that consumer views become almost irrelevant.

3 Detailed responses to AER questions

3.1 Definition of network resilience

Q1: What are your views on the definition of network resilience?

In its 2022 guidance note the AER defined network resilience as follows:[24]

> "a performance characteristic of a network and its supporting systems (e.g. emergency response processes, etc.). It is the network's ability to continue to adequately provide network services and recover those services when subjected to disruptive events."

We consider this definition to be a useful starting point because it recognises that resilience is broader than the physical hardening of assets. It also captures the systems, processes and operational capability required for a network operator to prepare for, respond to and recover from major disruptive events, including severe weather and other climate-related hazards.

Although improving network resilience can lead to improvements in reliability, the definition should distinguish resilience expenditure from reliability expenditure. From a consumer and regulatory perspectives "reliability" focuses the frequency and duration of interruptions in normal operating conditions. In contrast, resilience is concerned with the network's ability to withstand and recover from low-probability, high-impact disruptive events and the benefits of resilience expenditure may include both avoided short-duration outages (less than 12 hours), typically valued using the VCR.

While the current definition is a useful starting point, we also encourage the AER to consider the following:

- The reference to continuing to "adequately" provide network services is important, but what does "adequately" mean from a customer perspective? The definition needs to be assessed from the perspective of customers and communities affected by disruptive events, given that different customer groups and different communities are likely to have different needs of their network that require different responses.
- Resilience may improve reliability, but it should not be treated as identical to reliability. Clear and objective criteria are needed to help networks and customers alike identify when expenditure is primarily resilience related.
- If the primary driver of expenditure is to address prolonged outages ≥ longer than 12 hours, it is appropriate to assess benefits using resilience-specific measures, while recognising that some benefits may still relate to shorter interruptions. For example, a resilience expenditure item could be based on 55% of the benefits measured by VNR (≥12 hrs) and 45% measured by VCR (<12 hours).
- Hardening parts of the network with increased risk does not mitigate the issue occurring elsewhere that has not been hardened. The assessment framework should recognise that resilience is not only about capital expenditure. It can also include operational readiness, emergency response capability, customer communication and support for community preparedness.
- Evidence requirements should be practical and proportionate, particularly where the probability, location and severity of extreme weather events are uncertain.

[24] AER, Network resilience, A note on key issues, April 2022, p.6

In summary we consider the AER's definition is a useful starting point because it recognises network resilience as is broader than asset hardening and includes operational capacity needed to prepare for, respond to and recover from disruptive events.

However, the definition should more clearly distinguish resilience from reliability by focusing resilience on low-probability, high-impact events, customer and community outcomes, and proportionate evidence of benefits, particularly for prolonged outages and climate-related hazards.

3.2 Inclusion of TNSPs in the guidelines

Q2. What are your views on whether the network resilience guidelines should apply to transmission network service providers?

We appreciate there is a range of views on this question, including:

- TNSPs have a different role to DNSPs and any inclusion of TNSPs should be the subject of a fit-for-purpose review
- Inclusion of TNSPs would provide more certainty in preparing their regulatory proposals - the guideline should be sufficiently flexible to account for the different role of TNSPs

Regardless, TNSPs can already seek approval for resilience expenditure under the existing capex guideline. As we discussed above, AusNet applied for $34m in its 2027-32 Transmission Revenue Proposal for tower strengthening to address historical wind risk. Further, TNSPs are already required to build their networks to relevant Australian standards, which take account differences in local conditions and risks.

An important issue that needs to be considered is what a resilience guideline applying to TNSPs might mean for resilience capex expenditure, given that the avoided costs would include VCR, VNR and emergency restoration costs as well as market benefits. For example, an outage of a regional transmission line may mean considerable renewable generation is unable to be dispatched. This could lead significant market costs and potentially justify significant resilience capex. This would then place even more pressure on the ability of climate modelling to forecast risk.

We look forward to TNSPs' submissions on the potential advantages and disadvantages for consumers of including resilience expenditure more explicitly in the guideline. We also assume that, if the Guideline applies, resilience-related elements would be included in the Transmission Annual Planning Report.

In summary, while existing standards and capex processes already allow resilience investment for TNSPs, we look forward to seeing TNSP submissions on this matter.

3.3 Supporting information for resilience expenditure proposals

We support the AER's three criteria for resilience expenditure proposal in the Consultation paper:

- An identified need shown by a causal relationship between the proposed resilience expenditure and the expected increase in extreme weather events
- Testing of the preferred option to ensure the proposed option has the greatest net benefit

- Genuine consumer engagement on the range of network and non-network options

In presenting the identified need, the network should be able to explain to the AER and its customers the degree of uncertainty in future projections of severe weather, including uncertainties in location of event, scale of event and timing of event and then how that has been used to determine particular asset investment.

The testing of all options should be based on the methodology agreed with the AER early in the reset process.

In presenting genuine consumer engagement, the network should be able to show how it ensured consumers were fully informed on the uncertainties around the identified need and were able to make informed conclusions on the range of network and non-network options presented during engagement.

3.3.1 Standardised resilience template

Q3. What are your views on a standardised resilience template?

We see benefits in having a standardised resilience template, provided it is sufficiently flexible to reflect different network contexts, geographies and risk profiles. A standardised template would support greater consistency assessing, describing and comparing resilience, helping to build stronger evidence within individual networks and across the sector. A standardised template would also improve transparency, make it easier to understand interactions within and between networks over time, and support shared learning about what works.

However, there will be circumstances where local conditions, types of events, asset types or regional characteristics differ, so the template needs to have some flexibility.

We anticipate some networks may raise concerns about additional compliance burden, but a well-designed template should help reduce duplication, strengthen business cases and provide a clearer basis for consumer engagement, scrutiny and investment decisions.

In summary we support a standardised template, especially if it sets a common information baseline while allowing justified flexibility.

3.3.2 Reporting of spend through Annual Information Orders

Q4. What are your views on implementing a requirement on DNSPs to provide actual resilience spend through Annual Information Orders?

We support the requirement for DNSPs to provide actual resilience spend through Annual Information Orders. From a consumer perspective this requirement ensures network accountability for progress on projects and alignment with objectives, regulatory requirements, and network adherence to a promise to customers to deliver on projects or explain otherwise.

In summary, we agree with this requirement.

3.3.3 Types of data that should be reported

Q5. What are your views on the type of data that might be useful and publicly available?

At the outset this data provision should be fit for purpose and recognise the large amount of data already provided to the AER. It could include:

- Historical outage data to be provided in a standard format
- How that data has been used to develop a "base year" story about the severity and frequency of events, which cannot be materially different from history
- How the network proposes to use climate modelling to inform their forecast of major climate events over the next 15 to 20 years and then their resilience expenditure requirements for the next reset period
- How this is integrated into their asset planning framework, which is aligned to the proposed Distribution Annual Planning Report (DAPR) requirements (see below)

We acknowledge that historical outages and historical meteorological data are unlikely to be a good indicator of the future weather, given the extent weather has changed, inter-annual variability (e.g. La Nina/El Nino) and the increasing likelihood of compound weather events, where more than one type of event occurs in the aftermath of another event.

Additionally, global climate models provide a data for an area that is around 150 x 150 km. To provide better locational information, climate scientists use downscale modelling to interpolate these large scaled modelled grids to smaller grids (typically 5 x 5 km). Even current research grade downscaling capabilities (1 x 1 km) may not provide sufficient resolution to identify a specific network location for a severe weather event with confidence. This is particularly the case for the less certain severe weather variables that typically cause the most damage to electricity networks.

Further, global climate models have uncertainties that are propagated through downscaling models, which have their own uncertainties. These uncertainties are additive, increasing total uncertainty in any prediction.

Most state governments have produced downscaled climate data for their jurisdiction using the latest modelling from the most recent IPCC processes (e.g. NARCliM in NSW). Where downscaled climate data has been developed the network operator should use the data appropriate to its jurisdiction. This would ensure consistency of data source in a given jurisdiction.

Note the AEMC's rule change requires the AER to assess efficiency of proposed expenditure[25]:

> "the extent to which the capital or operating expenditure forecast will efficiently reduce the risk and impact on consumers of power outages caused by severe weather events"

In summary, while publicly available climate data and downscaled modelling are useful inputs, their limitations mean they should not be treated as definitive proof of future network resilience needs over a regulatory period.

[25] AEMC, Draft rule determination, National Electricity Amendment, (Including distribution network resilience in the national electricity rules) Rule, February 2025

3.4 Evidence requirements to assess a preferred resilience solution

Q6: What are your views on the evidence that the AER has had regard to in assessing a business's preferred resilience solution?

We appreciate there can be different solutions to addressing the impact of an extreme weather event on a network and community. We agree the AER should focus on the solutions that result in the greatest net benefit to consumers in line with the NER's requirements. In assessing the net benefit, there is a case for considering more than the VCR/VNR customer impacts. The list includes impacts on the broader community and regional consequences where they are material to consumers' willingness to pay, the distribution of costs and benefits or the value of avoiding prolonged outages.

We appreciate the AER has derived value from various forms of evidence, and broadly agree that useful evidence categories include options analysis that covers credible non-network options; demonstration of the probable benefit realisation of each option; assessment of any service target performance incentive scheme (STPIS) adjustment where resilience expenditure also improves reliability; consistency with the VNR guideline; and transparent supporting models that allow consumers and the AER to understand the limitations of the modelling, including the climate model or scenario used and the downscaling approach adopted.

However, we have some concerns as to how the evidence may be presented and interpreted:

- The forms of evidence presented are largely led by network operators and it is not clear whether they have been subjected to independent scrutiny
- As discussed in other parts of this submission, climate risk modelling and historical data are necessary inputs but do not, by themselves, justify network expenditure at a local level to mitigate the risk of future events occurring at a particular location over a particular time frame. They should be linked to local risk exposure, credible options, consumer benefits and transparent assumptions before being relied on to support expenditure.
- The options considered, modelled and presented to consumers must be genuine, relevant to the affected community, and include both network and non-network responses, including preparedness, prevention, response and recovery measures. The AER should also provide guidance on how opex/capex trade-offs should be presented, particularly where operating expenditure is a partial substitute for network hardening capital expenditure. This should include the base global climate model/scenarios used (e.g. some global climate models run "hot" or "wet"[26]) and the downscaling approach used (e.g. NARCliM for NSW).
- While we agree with the importance of consistency with the VNR guideline we do not consider the existing VNR values are a useful source of information to help address the identified need. As discussed in detail in Appendix B the existing VNR values were only ever intended to be a temporary measure, and the AER should follow through on its commitments to update the VNR methodology and values.

Network resilience benefits are difficult to quantify and may change over time as customers and communities change, adapt and build their own resilience. Proposals should quantify benefits where the evidence is reasonably available and the assumptions can be tested and

[26] Climate Change in Australia, *Climate information, projections, tools and data*, ESCI Climate Data, https://www.climatechangeinaustralia.gov.au/en/projects/esci/esci-climate-data/, viewed on 29 June 2026

should use transparent qualitative evidence where benefits are material but not capable of robust quantification. The AER should therefore encourage proposals to explain the balance between prevention and preparedness on the one hand, and response and recovery on the other, rather than assuming that all outages can or should be prevented.

Affordability of any proposal needs to consider who pays and who benefits. Evidence should consider willingness to pay among those who stand to benefit directly from resilience expenditure and those who contribute to its cost, as well as broader community and regional impacts where those impacts are relevant to consumer value, distributional effects or the consequences of prolonged outages.

If resilience expenditure also improves reliability, any STPIS assessment needs to quantify and distinguish the resilience benefit from the reliability benefit, including how any STPIS adjustment avoids double-counting benefits already captured through the incentive scheme.

The AER should publish practical examples of good approaches to resilience assessment, such as where a network has considered mobile generation, non-network alternatives, or other measures that support affected communities during prolonged outages.

This is particularly important from a consumer perspective because prolonged outages can have broader community and regional consequences that inform the value consumers place on resilience. Regional leaders have told us about the significant economic impacts in their communities when businesses are forced to close, people are unable to work, and investors lose confidence to invest in the regions. These impacts should not replace the NER's net benefit test, but they can provide relevant evidence for assessing consumer value, willingness to pay and the distribution of benefits from resilience expenditure.

In summary, resilience expenditure should be supported by independently scrutinised evidence that demonstrates clear net benefits for consumers, including genuine consideration of local needs, preparedness, recovery and affordability. The AER should also ensure proposals transparently distinguish resilience benefits from reliability improvements and reflect broader community and regional impacts, particularly where prolonged outages affect economic activity, wellbeing and confidence.

3.5 Key features of genuine consumer engagement

Q7: What are your views on the key features of genuine consumer engagement on resilience proposals?

We agree with the AER's statement that[27]:

> "high quality consumer engagement is essential for ensuring that networks provide the services that meet the needs of their consumers, at a price that is affordable and efficient"

We also agree, in relation to network resilience proposals that networks need to:

- Show how competing consumer preferences were considered and balanced
- Provide evidence from studies, workshops and forums showing how consumer preferences were identified

[27] AER, Network resilience guidelines, Consultation paper, June 2026, p.18

- Demonstrate that consumers understood the identified severe weather risks and associated uncertainties associated with any predicted risks
- Show how credible alternative options were developed and tested with consumers, including key trade-offs
- Show how the business worked with affected communities and resilience actors to understand community needs before, during and after natural disasters
- Explain how consumer preferences informed the proposal, including how diverse views were balanced

However, genuine engagement and evidence of genuine engagement must also consider:

- The purpose of the engagement and demonstrate how that purpose was achieved. We expect genuine engagement on any topic where consumer preferences are sought and tested to include at a minimum
    - Providing customers with sufficient information to enable them to form a reasonable and meaningful view, including ensuring customers understand what is being presented and their options and ensure they have a high-level understanding as to how regulatory decisions are made
    - Providing customers with genuine, plausible choices (if they exist) from which preferences can be established and clear information about the costs, risks and benefits of proposals.
    - Being clear with customers as to the level of influence they can have, and how
- Who was engaged and how they were selected to participate in the engagement? Participants may range from an informed group of customer advocates who have the skills and knowledge to interrogate a proposal to the broader customer base with limited understanding of the issues. That broader customer group could include affected customers and communities, the wider community who bear a share of the costs but derive no direct benefit and other stakeholders who contribute to community resilience.

Additionally, at the outset:

- Customers are well placed to convey the impacts on their lives, communities and work when extreme weather events occur
- Impacted communities and customers can also communicate their expectations around community and network resilience. What outcome are they seeking? Are they seeking some other solution?
- Consumers may be able to contribute to solutions – how well placed are they to respond to an event? Do consumers want to pay for large capex to address a potential one in 100-year event that may or may not occur in the next 5 years?

We also encourage early engagement between network operators and the AER to test the likelihood of acceptance of resilience proposals if they have consumer support. We are familiar with various examples of resilience proposals that the AER did not accept, despite sound engagement with consumers.

In summary, we support the AER's approach.

3.6 Definition of community resilience

Q8: What are your views on the definition of community resilience?

The AER's 2022 network resilience guidance adopted the 2020 Royal Commission into National Natural Disaster Arrangements definition, i.e.:[28]

> "The ability of communities to withstand and recover from the impacts of natural disasters."

Importantly, the AER recognises the importance of community-led and collaborative approaches to disaster preparedness, as opposed to top-down approaches. The AER also acknowledges network service providers have an important role providing essential services to communities ahead of, during and after a natural disaster and they have a collaborative role with other responsible entities, such as government and telecommunications entities.

Whilst we broadly agree with the AER's definition in the 2022 guidance note to some extent and we agree that increased network resilience contributes to increased community resilience, it is also important to consider from a consumer perspective the following, which will natural not be the same for all customers:

- The scope of "community" whether the definition should explicitly include residents, households, businesses, commercial and industrial customers, essential services, vulnerable groups, and broader network users
- The meaning of "withstand[ing]" a natural disaster, and in the context of electricity this could include maintaining supply, limiting outage duration, reducing asset damage, preserving critical services, or supporting safe operation during the event
- The meaning of "recover[ing]" from a natural disaster, and in the context of electricity this could include restoration of services, return to normal network performance, customer outcomes, timeframes, affordability, or community wellbeing
- The different resilience thresholds within a community: Individuals, households, businesses, and critical services may have different needs, tolerances, and capacities to prepare for, withstand, and recover from disruption
- Where the role of the network finishes and the role of the 'community' starts in mitigating climate risk.

Our main concern with the current definition is that it does not include community preparedness, adaptation, risk reduction, planning, or long-term improvements (not just network improvements) to mitigate the impact of future events if and before they occur.

In summary, a broader definition of community resilience would better reflect the lived experience of customers before, during and after natural disasters. It would also support more targeted, equitable and acceptable resilience investments.

[28] AER, Network resilience, A note on key issues, April 2022, p.14

3.7 Factors for assessing community resilience

Q9: What are your views on the factors the AER has regard to when assessing community resilience?

As stated above and acknowledged by the AER, network operators have an important role contributing to community resilience, and the lead-up to, during, and after, a natural disaster. However, network resilience should be limited to the provision of network services according to regulatory and statutory requirements on prescribed minimum service levels and standards to ensure continued supply. Consumers should not pay for resilience that is the responsibility of other stakeholders, such as telecommunications providers or government at all levels.

Additionally, increased community resilience may diminish the need for increasing network resilience, particularly if customers and/or communities have invested in an islandable energy system. This raises a key issue around where the role of the network begins and ends, as well as customers' willingness to pay for network resilience when they have invested to build their own resilience.

The AER has indicated it supports community resilience expenditure where it is prudent, efficient, linked to distribution network services as defined under the NER. We agree with the AER that assessing the quantitative costs and benefits of a proposal may not be straightforward and therefore it is also appropriate to consider qualitative evidence such as findings from government reviews, as well as evidence from impacted communities and the wider customer base.

In summary, we support the AER's approach.

3.8 DAPR information requirements

Q10: What are your views on the type of information that should be included in the DAPR to better understand a DNSP's strategy to manage its resilience needs?

Q11: What are your views on how this new information collection relates to the AER's existing information collection though the Annual Information Orders?

Considerable change is underway in distribution network reporting form the current Distribution Annual Planning Report (DAPR):

- As part of the rule change that has led to this guideline review, from 2028, the Australian Energy Market Commission (AEMC) requires distribution network service providers to explicitly account for climate change impacts in their DAPR.[29] This includes providing clear and comparable information about how each DNSP is assessing and managing resilience risks, particularly those linked to climate change and more frequent severe weather events.
- The AEMC is currently considering an ECA rule change to increase the network visibility of Consumer Energy Resources (CER). The soon to be released final determination is expected to require DNSPs to prepare a new distribution network development plan (DNDP) every five years aligned with their regulatory proposals. DNSPs would be required

[29] AEMC, Final rule to reduce the risk of power outages caused by severe weather, Media release, 8 May 2025

to publish a concise annual update to replace the existing DAPR. The AEMC is also proposing a proposed principles-based framework for distribution network data reporting.

The guideline Consultation Paper makes no mention of this ECA rule change process which will be finalised soon. Given the developing DNSPs' reporting framework, our comments here focus on the information we think DNSPs should provide and we leave the AER to consider where it is best published.

The information should include the expected impacts on network outages, asset management, risk management, emergency response capability and long-term investment planning.

It should be presented in a consistent reporting format so that consumers, regulators and other stakeholders consider different resilience strategies across networks, over time and across major projects.

It should also explain how DNSPs have engaged with consumers in developing their resilience plans. At a minimum, the reports should be written in a way that customers can understand, test and scrutinise. This is important because resilience investment can have material bill impacts, and consumers need to be able to see why particular options are being proposed, what alternatives were considered, and how the preferred approach reflects customer priorities and willingness to pay.

The report should also include backward-looking information, not just forward-looking proposals. For example, DNSPs should be required to report on how they spent previously approved resilience funding, whether projects were delivered on time and on budget, and whether the expected benefits were achieved. Post-investment reviews would help demonstrate whether resilience expenditure is efficient and whether restoration assets and other resilience measures are being used effectively.

When network assets are damaged by a severe weather event the network operator should identify whether the damaged assets were subject to a resilience investment, regardless of the period in which the resilience investment occurred. This would allow an assessment of whether ex ante resilience investment minimised the outage length and/or repair costs and whether the AER should approve all parts of a cost pass through application if assets covered by the application were previously strengthened by ex-ante resilience investment.

In summary, from a consumer perspective the information provided by DNSPs needs to be a clear, consistent and consumer-focused tool for explaining how DNSPs are preparing their networks for climate-related resilience risks.

3.9 Incentive schemes

Q12: What are your views on how resilience expenditure should be addressed in the incentive schemes?

The capital expenditure sharing scheme (CESS), the efficiency benefit sharing scheme (EBSS), and the service target performance incentive scheme (STPIS) should all be applicable to resilience expenditure.

However, as it is important that consumers do not pay twice, once for the capex and once for the STPIS benefits from increased reliability, STPIS adjustments should be made where resilience expenditure improves reliability.

In summary, we support the application of the CESS, EBSS and STPIS to resilience expenditure, provided it is balanced with safeguards to ensure customers are not charged twice if the expenditure also improves reliability.

4 Conclusions

Overall, we consider a Network Resilience Guideline to be an important tool to give assurance to consumers that the AER approved resilience expenditure will be in their long-term interests. The guideline should support prudent and efficient investment that reflects genuine consumer value, while avoiding a pathway for poorly justified expenditure or a new form of network gold plating.

- Resilience expenditure should be assessed from clear consumer-value perspective, recognising that consumers support better preparedness and faster recovery but are also concerned about affordability and the risk of paying multiple times for resilience.
- The guideline should distinguish resilience from reliability, with resilience focused on low-probability, high-impact events, prolonged outages, operational readiness and recovery capability, rather than treating all reliability-related expenditure as resilience expenditure.
- Networks should be required to demonstrate a credible causal link between proposed expenditure, the severe weather risks being addressed, expected consumer outcomes and the efficient reduction of outage risk and impact.
- The guideline should provide clear principles and expectations for climate modelling, including how uncertainty, downscaling limitations, geographic specificity and the five-year regulatory period should be considered in network business cases. Recognising the need for flexibility across networks, the AER should engage with individual networks early in their reset processes to ensure alignment on the network's proposed methodology for assessing its resilience expenditure proposal and developing its approach to consumer engagement.
- A standardised resilience template would be valuable if it creates consistency and transparency while still allowing flexibility for different hazards, geographies, network configurations and community needs.
- Genuine consumer engagement requires:
    - Consumers to be appropriately informed and skilled participate in meaningful engagement
    - Networks to clearly explain to consumers realistic choices, the cost and benefit trade-offs, the uncertainty in forecast risks, and how consumer preferences have shaped the final proposal
    - The AER to be clear to consumers on its approach for assessing network resilience expenditure
- The guideline should clarify how the AER will treat proposals with strong consumer support, particularly where the economic case is marginal but there are clear equity, community resilience or preparedness benefits.
- The respective roles of networks, governments, councils, telecommunications providers, communities and individual customers should be clearly delineated so that electricity consumers only fund expenditure that is properly connected to prescribed network services.

- Annual Information Orders and DNSP reporting should provide transparent information on actual resilience expenditure, project delivery, use of approved funding, outcomes achieved, and lessons from events where resilience investments were tested.
- Incentive schemes should apply to resilience expenditure, but with safeguards to ensure consumers are not charged twice where resilience investment also improves reliability outcomes that are rewarded through existing schemes.
- The AER should urgently progress a robust long-term VNR methodology. Consumer confidence in the guideline will be weakened if long-lived resilience investments continue to rely on a temporary VNR methodology that may not reflect changing consumer behaviour, battery uptake and behind-the-meter resilience.

Overall, we support a guideline that is principles-based, transparent and practical to give:

- Networks a clearer pathway to develop well-evidenced proposals
- Consumers a level of confidence that their views and bills are being taken seriously
- The AER a robust basis for approving resilience expenditure only where it is prudent, efficient and in the long-term interests of consumers.

Appendix A: Thought contributors to this submission

We acknowledge the following individuals and organisations [named with permission] who made time to meet with us to share their thoughts on the consultation paper

- Australian Energy Regulator
- Individuals
    - Dr Jill Caney, MBE, climate change scientist and electricity resilience expert, consumer advocate and TasNetworks customer
    - Chris Harvey, regional AusNet customer
    - Linda Nieuwenhiuzen, CEO Committee for Greater Shepparton and Powercor customer
- Network operators
    - Ausgrid
    - AusNet (distribution and transmission)
    - Energy Queensland
    - Powercor
    - TasNetworks

Appendix B: Case for developing long-term VNR values

The Guideline's benefits will be limited without the development of long term robust VNR values

The AER's VNR work which led to the Final Decision in September 2024,[30] was designed to develop an "initial" VNR based on multiples of the Values of Customer Reliability (VCR). The AER timed the decision so a VNR would be available to assist Victorian DNSPs in the development of any resilience proposals for their 2026-31 electricity distribution price review.[31]

In publishing the initial VNR the AER acknowledged its limitations:[32]

> "We acknowledge we have had to take a pragmatic approach to develop the initial VNR methodology and deliver the initial VNR within the required timeframe. We have balanced considerations of timeliness and suitability in developing our final VNR approach, acknowledging that it is not possible to explore and implement some potentially 'first best' approaches within the required timeframe for establishing the initial VNRs."

Importantly, the AER published the Final Decision on the basis that it would continue work to develop a more robust loner-term VNR. Indeed, many stakeholders only supported the AER's initial approach on the condition that the AER would continue this work. As the AER notes in the Final Decision:[33]

> "We recognise that many stakeholders who support our proposed approach have only done so on the basis that this approach will not be the foundation for the longer term VNR approach. We also recognise the concerns held by stakeholders who do not support our proposed approach or only support elements of it."

The Final Decision discussed next steps and ongoing collaboration in 2025 and 2026. In particular, the AER received considerable network support to develop a Customer Outage Survey focussing on outages longer than 12 hours and a "longer-term" VNR calculation methodology in 2025 followed by a longer-term VNR to be determined in 2026.

Since 2024, the rapid growth of home batteries has allowed more customers to store and use their own energy, strengthening their individual resilience. Where these systems can operate independently from the grid, they may reduce customers' reliance on the network and, in turn, reduce the value customers place on network resilience. For these reasons, and to support consumer and network acceptance of the Resilience Guideline in line with the AER's public commitment, we strongly encourage the AER to develop a longer-term VNR methodology and value.

30 AER, Value of network resilience, Final decision, September 2024

31 Ibid, p. 23

32 Ibid, p.2

33 Ibid

The expansion in this behind the gird Consumer Energy Resources since 2024 is significant and that growth is forecast to continue for decades:

- In the 10 years to 2024, battery installations totalled approximately 1.75 GW. In the first nine months of the Better Home Batteries program, to March 2026, 420,000 batteries were installed, providing 12 GWh of usable capacity. [34]
- In 2024, the average home battery size was around 11–12 kW. [35] In 2025, it increased to 22 kW, and in 2026 it was larger again before subsidy arrangements changed in May.
- From April 2026, under the Step Change scenario in the 2026 ISP, small-scale batteries are projected to grow from 5 GW/12 GWh to 12 GW/33 GWh by 2030 and 35 GW/78 GWh by 2050[36]. By 2050, around two-thirds of dwellings with solar are forecast to have batteries, with just over half of those batteries coordinated through a VPP. [37]

The AEMO CEO recently reported in his Australian Energy Week speech that batteries, along with roof top solar, are making a "profound transformation" the NEM,[38]:

> "…as consumers have increasingly taken control of their own energy future. Many here will know that the generating capacity of consumer resources today is larger than the capacity of the remaining coal fired power stations, at times meeting more than 60% of all demand in the NEM."

In the same speech, he also described the contribution of home batteries in meeting record Victorian demand on 27 January this year.

> "But for us at AEMO, neither the new demand record nor the sweaty night were the most remarkable part of that day. It was the window into the future provided by households with new home batteries. For the most part, these were not sophisticated virtual power plants with central control over the home battery's activity.
>
> Most batteries were operating in a passive mode; soaking up self-generated solar power during the day, while some supplemented that during periods of free power from their retailer. That stored energy was then used to power their home during the evening peak, meaning they drew less power from the main grid. To quantify that: at the time of record peak demand, homes with batteries were each drawing 1.4 kilowatts less than homes with just solar.
>
> That's an 80% reduction during a record demand, and the impact of those batteries extends beyond the peaks. In fact, on average, across the first quarter, households with batteries reduced the amount of energy they drew from the grid during the evening peak by nearly a kilowatt."

[34] Bowen, C. *Battery and solar growth pave way to renewables future*. Minister for Climate Change and Energy. Media release, 3 June 2026.

[35] Sunwiz, Battery Attachment Rate is Surging — and May Soon Exceed 100%, https://www.sunwiz.com.au/battery-attachment-rate-is-surging-and-may-soon-exceed-100/, viewed on 30 June 2026

[36] AEMO, 2026 Integrated System Plan, p. 41

[37] Ibid

[38] AEMO, CEO speech at Australian Energy Week 2026, 10 June 2026

The expansion of behind the meter CER resources brings into question:

i. The validity of a VNR based on a VCR multiple where the VCR calculation methodology is outdated, and

ii. The development of the residential 'upper bound' VNR based on back-up diesel generation.

A reasonable inference based on the expansion of consumers' behind-the-meter investment is that consumers' willingness to pay for networks to improve reliability and resilience is falling. This could lead to considerable over-investment (gold plating) by networks, given many of the network hardening proposals from network operators are long life assets.

1. The validity of a VNR based on a VCR multiple where the VCR calculation methodology is outdated

Distinct from the question of whether VCR multiples constitute a robust methodology for long-term application—an issue that was central to the 2024 debate—there remains a further question whether the current VCR measurement methodology provides an appropriate foundation for a long-term VNR methodology.

In the most recent five-yearly VCR review in 2023-24, the initial AER approach which adopted a similar methodology to 2019 was changed following stakeholder engagement[39]:

> "to account for the energy transition and trends in the broader economy."

As an example of these trends, the AER note that increasing EV ownership may mean an increase in customers' willingness to pay. However, that would need to be balanced by the likelihood that EV owners have an islandable home battery and the availability of public charging.

While residential VCR values in 2024 were higher than 2019 values for nearly all segments (but not uniformly so) we suggest that since then customers' actual and forecast investments in consumer energy resources may mean that their willingness to pay has fallen.

A number of stakeholders suggested that the energy transition meant that major reviews should be more frequent than every five years[40]. The AER noted:[41]

> "Given the rapid changes taking place in the energy sector, we are open to conducting more frequent reviews of VCR. We will also further consider this when we have assessed the outcomes of the 2024 VCR update and in the context of our medium-term work program for both the VCR and VNR."

The AER also noted:[42]

> "The current work stream on the value of network resilience and its outcomes may also require us to consider the VCR in a period less than 5 years."

[39] AER, Values of customer reliability methodology, Final determination, August 2024, p. 1

[40] Ibid, pp. 33-34

[41] Ibid, p. 2

[42] Ibid, p. 34

We do not think a long-term resilience guideline should be applied using multiples of a VCR that is already likely to be out-of-date.

2. Residential upper bound VNR based on back-up diesel generation

The AER's approach to determining the "residential upper bound" VNR was a simplistic comparison of diesel back-up vs a home battery. Because the former was cheaper than the latter, the cost of the former set the upper bound. The AER argued that[43]:

> "In setting the residential self-generation upper bound, we also considered an alternative self-generation option utilising battery storage and solar PV. However, this option was a considerably more expensive resilience measure compared to the generator option. Customer engagement insights also indicated this alternative option was not a 'lived experience' option considered by those that have experienced prolonged outages."

In its January 2025 proposal for 2026-31 distribution network capex, Ausnet argued that[44]:

> "Our program is justified using the AER's Value of Network Resilience, which estimates the value of network upgrades to customers and the impacts of investments behind-the-meter have been considered by the AER in developing this."

Our concern at the time about this approach was that even if one accepted the approach that diesel back-up is cheaper than batteries, the use of the upper bound to assess a business case should not assume that the upper bound is appropriate for all residential consumers. We suggest that across the NEM very few consumers would be willing to pay for diesel back-up. Applying the upper bound to all consumers overstates benefits.

Our current concern about this approach, and networks application of it, is that it was arrived at

- prior to the recent large fall in battery costs and the Federal Government's Better Home Batteries Program, and
- not taking into account the reasons residential customers buy a battery

On the latter, a residential consumer's choice to install a battery is not a simplistic diesel versus battery resilience cost comparison. Residential consumers' willingness to pay for batteries is driven by reasons other than security of supply/resilience, for example lower overall electricity costs and lower emissions, or they simply don't have the confidence to operate a generator. Therefore, the relative costs of diesel back-up versus batteries are almost irrelevant to their value of resilience.

Our recommendation

The AER should investigate the impact of the rapid expansion of behind the meter consumer energy resources on VCR and develop a long term VNR methodology that, if it continues to be based on VCR multiples, has a robust basis for that approach. A priori we expect WTP to decrease. Without that, more comprehensive long term VNR methodology and value,

[43] AER, Value of network resilience, Final decision, September 2024, p. 29

[44] AusNet, Electricity Distribution Price Review, 2026-31 Regulatory Proposal, January 2025, p. 175

consumers are likely to regard network expenditure proposals based on the current VNR as lacking rigor and substance.