27 March 2025

Anna Collyer
Chair
Australian Energy Market Commission
GPO Box 2603
Sydney NSW 2000

Submitted via: https://www.aemc.gov.au/contact-us/lodge-submission (ERC0400)

Dear Ms Collyer,

Including distribution network resilience in the NER: Draft Determination

Erne Energy is pleased to provide a submission to the AEMC's Draft Determination on the rule change for Including distribution network resilience in the NER[1], proposed by the Honourable Lily D'Ambrosio MP, Victorian Minister for Energy and Resources and arising out of the 2022 Victorian Government Electricity Distribution Network Resilience Review into the storms of 2021[2].

We do not support the draft decision that would create new expenditure factors for "resilience", particularly in the absence of the development of a binding guideline for Distribution Network Service Providers (DNSPs) on how proposed resilience capital and operational expenditure related to expenditure on resilience will be treated by the AER.

The Draft Determination does not reduce the risk that consumers will pay multiple times for resilience[3]:

1. Consumers fund routine electricity network business operation with aspects of routine reliability investments, such as routine maintenance and asset replacement, that support resilience – *still the case*
2. Consumers fund electricity network business investment in a (location) specific resilience solution ("ex-ante") – *new opportunity to require consumers to support resilience investment*
3. Consumers fund repairs following an event that damages electricity network equipment ("ex-post") – *still the case*
4. Consumers fund compensation for long outages, such as Guaranteed Service Level payments – *still the case, but out of scope for this rule change*
5. Consumers invest in their own electricity resilience (regulator's "rational alternative") – *still the case and an increasingly likely approach*

Only by providing clarity in the rules by defining resilience (to differentiate it from reliability) and defining a prolonged outage and the causes of prolonged outages that qualify for a resilience treatment, will the burden that will fall on consumers in pursing electricity network resilience be limited.

<u>Clarity versus flexibility</u>

It has always been possible for DNSPs to invest in resilience solutions (as AEMC acknowledges[4]) and the new resilience expenditure factors offer no increased clarity for DNSPs (or consumers) on investment in resilience. Clarity will only be provided in the expanded AER guidance on resilience expenditure and this guideline must be explicit on how the AER will assess resilience expenditure, interactions with other schemes related to resilience, such as the Value of Network Resilience (VNR),

[1] https://www.aemc.gov.au/sites/default/files/2025-02/draft_determination.pdf
[2] https://www.energy.vic.gov.au/__data/assets/pdf_file/0030/594930/network-resilience-review-final-recommendations-report.pdf
[3] https://energyconsumersaustralia.com.au/wp-content/uploads/report-consumer-electricity-resilience-jill-cainey.pdf
[4] https://www.aemc.gov.au/sites/default/files/2025-02/draft_determination.pdf

and the quality of the specific engagement DNSPs will need to undertake to support proposals for resilience solutions.

The AER's request for "flexibility"[5] in the scope of the guideline, supported by the AEMC in the Draft Determination, would undermine the clarity the Rule Change proposal and the AEMC seek to provide through the creation of resilience-specific expenditure factors. Flexibility is not needed, but to ensure that consumers do not fund resilience multiple times or overpay for unnecessary resilience investment, clarity is essential in both the Rules and guideline related to resilience investments.

Commencing with a flexible guideline is likely to result in higher costs to consumers for electricity resilience noting that:

(a) It is not yet clear how the VNR framework will interact with the new resilience expenditure factors; and
(b) Consumers are investing in their own energy resources that do provide resilient electricity (the AER's "rational alternative") and that consumer-led approaches are only likely to increase and accelerate in the near-term, competing with DNSP expenditure and posing the very real risk that consumers will pay over and over again for electricity resilience.

To reduce the cost impact on consumers, a more prescriptive approach in the AER guideline initially is preferrable to ensure that the treatment and assessment of DNSP investment in resilience is transparent. As the AER, DNSPs and consumers begin to understand the assessment process and the requirements to secure expenditure approval for resilience solutions, revisions of the new guideline may allow for more flexibility.

<u>Clarity on stakeholder engagement</u>

Clarity is particularly needed on the engagement approach that the AER would need to see to decide favourable for a resilience investment. The AER will need to detail how the Better Resets Handbook will address proposed resilience expenditure.

Further, the AER need to provide explicit detail on the approach it would take to assessing a resilience investment that is marginal, but that is clearly demonstrated through DNSP engagement with its stakeholders to be supported by consumers.

There is a risk that without clear and explicit guidance related to engagement, that DNSPs and their stakeholders will expend significant effort and cost in exploring approaches to electricity resilience, that will not be sufficient for the AER to decide in favour of a resilience investment.

<u>Rules versus a guideline</u>

It is critical that there is an appropriate balance between specifying requirements that would support resilient electricity in the Rules and in the guideline, and that balance is not yet correct.

The AEMC continues to support the Victorian government's position that there is no necessity for a definition of resilience in the Rules and currently there is no distinction in the Rules or elsewhere between reliability and resilience. This needs to be resolved. It is essential for clarity, for DNSPs, the AER and consumers, that there is a definition of both electricity network resilience and prolonged outages in the Rules.

The draft rule relies on "severe weather" as an indicator for resilience expenditure. Not every severe weather event would result in a loss of power that could be addressed by a "resilience" approach.
In addition, there is no definition of "severe weather" in the Rules, which means there is a lack of clarity around the type and scale of weather event that causes a "prolonged outage" that could be

[5] https://www.aemc.gov.au/sites/default/files/2024-11/aer_0.pdf

mitigated by resilience investment. The inclusion of "severe weather" in the draft rule is unhelpful and the Rules need to clearly differentiate between "reliability outages" and "resilience outages".

There are already definitions of "reliability" and "outage" in the Rules[6] and to be consistent and to provide the desired clarity on resilience for all stakeholders, definitions of "resilience" and "prolonged outage" are required in the Rules.

We suggest that the AER definition for network resilience in its current guidance note[7] is a good start:

> Network resilience is 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*.

However, further clarity on what represents a "disruptive event" and/or a "prolonged outage" is needed.

There is already a very clear boundary established between reliability events and disruptive events in the Service Target Performance Incentive Scheme (STPIS)[8] through the Major Event Day (MED) threshold. The MED threshold is already used by DNSPs to exclude prolonged and disruptive events from the assessment of reliability performance and this threshold clearly indicates when an outage transitions from a reliability event to a resilience event.

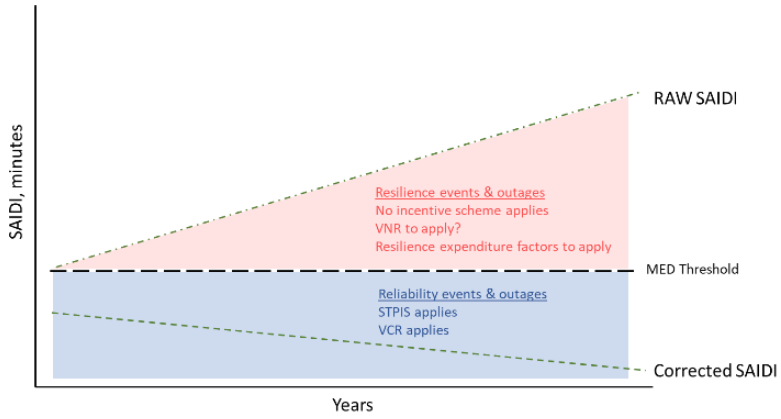

Figure 1: Conceptual diagram demonstrating the use of the MED threshold to differentiate between reliability and resilience events

Additionally, the MED threshold is specific to a DNSP, so accommodating local influences related to severe weather and climate change, and is also feeder related as it is based on System Average Interruption Duration Index (SAIDI)[9,10], so can be used to identify specific customers that might be experiencing more minutes lost to MEDs as a result of increased severe weather events due to climate change.

We would suggest that the AER definition for resilience is modified to:

> Network resilience is 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 *major events*.

[6] https://energy-rules.aemc.gov.au/ner/641, Chapter 10, page p1536 (reliability) and p1518 (outage)
[7] https://www.aer.gov.au/system/files/Network%20resilience%20-%20note%20on%20key%20issues.pdf
[8] https://www.aer.gov.au/industry/registers/resources/schemes/service-target-performance-incentive-scheme-2018-amendment
[9] https://www.aer.gov.au/system/files/2024-12/AER%20-%20Distribution%20reliability%20measures%20guideline%20-%20August%202022%20%28updated%20December%202024%29.pdf
[10] https://ieeexplore.ieee.org/document/6209381

If a more generic version of "resilience" is preferred in the Rules then we suggest:

> Resilience is a performance characteristic of a system and its ability to continue to adequately operate and recover when subjected to major events

Further, a "prolonged outage" or an outage that can be related to resilience, rather than reliability, is an outage occurs during a MED. This definition of a "disruptive event" and/or a "prolonged outage" also needs to be defined in the Rules:

> A "prolonged outage" is an outage that occurs during a major event day

We do not support the use of the length of time of any outage (e.g. 12 hours or greater) or the cause of the outage ("severe weather") being used to define a resilience-related "prolonged outage" versus any other outage in the Rules or the AER guideline.

If the AEMC continues to pursue introducing new expenditure factors for resilience, then we support the factors only applying for solutions related to mitigating the impacts of prolonged outages caused by severe weather (and not other risks such as cybersecurity that may impact electricity network performance).

However, not all "severe weather" related outages constitute "resilience" outages. The Rules must specify that the DNSP must demonstrate that any investment in resilience will mitigate the impacts of prolonged outages caused by *climate change exacerbated* severe weather. That is, the DNSP must demonstrate that there is a strong relationship between climate change and an expected increase in prolonged outages (an increase in minutes lost due to MEDs) due to severe weather to underpin any investment in resilience solutions, whether at a specific location or generically across the broader DNSP area.

A distribution network is designed to withstand some severe weather events through routine risk management and asset management processes. It is critical that the DNSP demonstrates that a resilience investment is addressing impacts beyond *normal* severe weather.

A cyclone is a normal severe weather event for low latitudes, however where climate change is shown to result in an increased future likelihood of a cyclone making landfall at higher latitudes (as Cyclone Alfred did) then efficient resilience expenditure to address the risk of a more southerly landfall might be justified to mitigate that risk. Noting that location-specific resilience investment is unlikely to be supported by climate change projections for cyclones, East Coast Lows, thunderstorms etc. since the location of these severe weather events can only be predicted on meteorological forecasting timescales (hours), rather than on investment timescales (years).

A DNSP seeking to invest in a resilience solution must demonstrate:

(a) That customers on a given feeder are experiencing increasing minutes lost to MEDs caused by severe weather;
(b) That minutes lost to severe weather related MEDs are likely to increase as a result of climate change;
(c) That the proposed investment in the resilience solution will reduce the number of minutes lost to severe weather related MEDs;
(d) That customers have been engaged appropriately; and
(e) That customers fully support the proposed investment and resultant reduction in minutes lost to MEDs

Resilience is not reliability

Resilience and reliability are not the same thing, nor are they on the same continuum of reliability with resilience representing "maximum reliability"[11]. This is why a definition of resilience is needed in the Rules and why additional clarity is needed on the difference between a reliability event and resilience event.

Currently, DNSPs are using the "inadequate level of service customer" metric as an indicator for the provision of resilience investment. However, the "worst-served" metric is a reliability metric based on SAIDI[12] and indicates that a customer is having poor reliability outcomes in comparison to other customers, not poor resilience outcomes.

There is a risk that if resilience is treated as "maximum reliability", then consumer will fund DNSP investments in improving reliability (as is the case with using "worst served" reliability customers as the basis for targeted resilience investment), switching from using VCR to VNR to assess the costs and benefits, since VNR is much higher value than VCR and lowers the bar for business case for a "resilience" investment.

More exploration would be needed by the DNSP to determine if there was a resilience element to the poor reliability worst-served consumers experience (based on the number of minutes lost as a result of MEDs related to severe weather) and to demonstrate that the resilience element was likely to worsen as a result of climate change exacerbated severe weather.

Understanding the role of ex-ante resilience investment

The new requirements for resilience related information to be recorded in the Distribution Annual Planning Report (DAPR) are welcome but need enhancement to ensure that expenditure on resilience, particularly, ex-ante investment resilience measures, can be tracked and monitored to determine, over time, whether that expenditure has been effective at increasing resilience and reducing ex-post expenditure related to network repairs following a severe weather event.

The AER will need to provide guidance on how the DNSP can demonstrate the causal relationship between climate change and severe weather related MEDs. It would be helpful if the AER indicated the climate projections they and the DNSP will use in each region to assess future climate impacts (and, if applicable the appropriate lower and upper bound Shared Socio-economic Pathways (SSP, formerly Representative Concentration Pathways, RCPs[13]). Any assessment of risk should be made using the ISO 31000[14], since this standard is required for Systems of National Significance[15] and was used to design the risk assessment framework in the Electricity Sector Climate Information (ESCI) project[16].

In summary the balance between what's in the rules and what's in the guideline is critical to ensure consumers don't overpay for resilience and to ensure that clarity on resilience expenditure is delivered. The AEMC should provide recommendations on the content of the AER guideline to ensure that the guideline robustly supports the intent of the rule change.

In the Rules:

1. A definition of resilience (Chapter 10)
2. A definition for prolonged outages (Chapter 10)
3. Requirements for the AER guideline (6.4.6)

[11] https://energyconsumersaustralia.com.au/wp-content/uploads/report-consumer-electricity-resilience-jill-cainey.pdf
[12] https://www.aer.gov.au/system/files/2024-12/AER%20-%20Distribution%20reliability%20measures%20guideline%20-%20August%202022%20%28updated%20December%202024%29.pdf
[13] https://nesp2climate.com.au/wp-content/uploads/2024/01/Understanding-SSPs-1.pdf
[14] https://www.iso.org/standard/65694.html
[15] https://www.homeaffairs.gov.au/reports-and-pubs/files/critical-infrastructure-town-hall-all-sectors-slide-deck-25112021.pdf
[16] https://www.climatechangeinaustralia.gov.au/en/projects/esci/about-esci/

a. The boundary between reliability events and resilience events
b. Resilience expenditure is contingent on the DNSP demonstrating that climate change exacerbated severe weather will increase prolonged outages (as defined in the Rules)
c. A requirement that resilience expenditure will reduce the impact of prolonged outages
d. The major headings covering resilience expenditure that need to be included in the DAPR

In the AER Guideline (non-exhaustive)

1. The evidence needed to demonstrate a causal relationship between increased prolonged outages and climate change (a feeder must show an increasing number of minutes lost to MEDs related to severe weather to justify the exploration of whether climate change is likely to further increase minutes lost to MEDs. Where a feeder demonstrates a decreasing trend in minutes lost to MEDs related to severe weather, no resilience investment is justified).
    a. Guidance on risk frameworks and climate projections to be used
2. The quality of engagement needed to support resilience expenditure (Better Reset Handbook)
3. The balance and weighting the AER will give to the various factors that might underpin a resilience investment
    a. Including how the AER will assess resilience investments that are robustly supported by consumers but with a marginal business case
    b. Including the balance between opex approaches to resilience and capex approaches to resilience
4. The detail of resilience inclusions in the DAPR to support an assessment of the effectiveness of resilience expenditure to minimise the impact of climate change exacerbated severe weather
    a. Current and future risks are identified
    b. Identify any current and future resilience expenditure and its value
    c. Whether a resilience solution has been tested by severe weather in the past year
    d. Minutes related to MED outages and trends (allows some assessment of DNSP "resilience" performance – development of a specific metric for resilience performance would be helpful to better understand the benefits of ex-ante resilience investment)
    e. Whether cost pass through applications, and their value, were required to address MED outages
        - Whether the cost pass through application was to repair a previously funded resilience solution (regardless of the period in which the original resilience expenditure occurred)
5. The interaction of the resilience expenditure factors with the VNR framework
    a. Guidance on the balance between DNSP-led resilience approaches versus funding from alternative sources for resilience (e.g. governments) and the degree to which consumers have already invested in rational alternatives to ensure that consumers don't pay multiple time for resilient electricity
6. The treatment of expenditure proposals to improve multi-agency coordination and customer support during a resilience event
7. The interaction of the resilience expenditure factors with incentive frameworks
    a. Consideration of the "Use it or lose it" (UIOLI) framework that the UK applies to resilience-related expenditure
8. The approach the AER will take for cost pass-through applications (ex-post) if a resilience solution (ex-ante) fails
9. Guidance on what could be considered efficient and effective resilience investments
10. Clarity on whether resilience should be "improved" or, like reliability, be "maintained" in the face of climate exacerbated severe weather
11. Clarity on how expenditure that addresses both reliability and resilience improvements will be treated (e.g. IT and communications improvements).

Additionally, it would be helpful if the AER's Annual Network Performance Report[17] builds on previous valuable explorations of resilience by including key elements of resilience expenditure, including the resilience-related details from the DAPRs, to help identify whether ex-ante investment in resilience has improved outcomes (reduced costs and reduced minutes without electricity) for consumers in relation to outages caused by major events.

Many thanks for the opportunity to provide a submission to the Draft Determination for Including distribution network resilience in the NER. Please contact me if you need further information.

Yours Sincerely

Dr. Jill Cainey MBE

[17] https://www.aer.gov.au/publications/reports?search=network%20performance%20report&f%5B0%5D=sector%3A59&f%5B1%5D=sector%3A60&f%5B2%5D=segment%3A76&f%5B3%5D=segment%3A77