



Submission by
Alternative Technology Association
on
Distribution Reliability Measures
Draft Report

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Introduction

We ATA welcome this timely review, and thank the AEMC for the opportunity to provide this late submission.

Founded over 30 years ago, the ATA is a National, not-for-profit organisation whose 5,000 plus members are mostly residential energy consumers with an interest in sustainable energy and resource use.

Through the application of our in-house expertise and experience in energy policy and markets to our continuing advocacy and research, and close collaboration with fellow members of the National Energy Consumer Roundtable, the ATA is an important voice for energy consumers Australia wide and in each of the NEM jurisdictions.

ATA presents a uniquely two-fold perspective in the DSP policy debate: as well as directly representing all Australian energy consumers through our support of improving energy affordability through improvements to the energy market, we speak with authority on behalf of the growing portion of the consumer base who have an active interest in DSP.

ATA's consumer advocacy is funded by the Consumer Advocacy Panel.

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1. Choice of measures

ATA concur that the four measures proposed to be the standard measures (SAIDI, SAIFI, MAIFI, MAIFLe) are appropriate in the Australian context.

We are concerned about one element of the definitions of MAIFI and MAIFLe, namely the exclusion of momentary interruptions (and MI events) that occur during a sustained interruption, and have further information on this is provided herein.

2. Definitions

Sustained interruptions

ATA support the proposed definitions of sustained interruptions

Momentary interruptions

Generally, the AEMC’s assessment of the consumer impacts of different types of supply interruptions is accurate, however there is one omission that is important when understanding the impact of multiple interruptions.

Interruptions of any duration negatively impact motors found in many appliances, particularly for pumps in refrigerators, freezers, air-conditioning systems, water pumps, sewer pumps, and compressors. In normal operation these motors are started and stopped by the appliance itself, and when power is lost the system cannot go through its normal shutdown operation.

While a total pump or compressor failure as a result of a single interruption can happen, it is less common in non-industrial scale devices, each interruption still contributes to wear and tear. The outcome of this is that a greater number of momentary interruptions will shorten the life of an appliance and increase the frequency of maintenance and replacement. In older appliances (more likely to be found in lower-income homes and older person’s homes) and in some industrial or commercial processes, a single power interruption can directly trigger a failure and asset damage.

Additionally, momentary interruptions can result in further damage to motors when

- The motor is driving a flywheel, common in industrial and other processes, which in turn over-drives the motor when there is an interruption
- When a brief interruption results in reenergisation while a motor is still rotating, resulting in reenergisation out of phase or out of frequency. On site rotating generators can be effected similarly.

Customer experience of momentary interruptions during a sustained interruption

When there are multiple momentary interruptions, the consumer experience is just that – of multiple interruptions, not just a sustained single interruption. When an auto recloser trips multiple times at the commencement of a sustained interruption, or when power is temporarily restored during

repairs to a sustained interruption, a consumer typically has no way of knowing if the power will remain off, or go off again.

ATA are of the strong view that momentary interruptions during a sustained interruption should not be excluded from MAIFI, due to the impacts of momentary interruptions on consumers that occur irrespective of whether they are part of the longer interruption.

Use of MAIFI or MAIFle, impact of single v. multiple events

For the reasons outlined above, to reflect the nature of impacts of repeated momentary interruptions on consumers, **ATA recommend that, where a choice needs to be made between the two, MAIFI (based in all momentary interruptions, not just those outside of sustained interruptions) be used instead of MAIFle**

As a general comment regarding the discussion in section 3.2.4 of the draft report on the impacts of the choice of measure in relation to incentive schemes, we are of the view that the choice of reliability measure and associated incentive scheme should reflect the distribution business' capacity to mitigate consumer impacts, not the other way around.

If the incentive scheme needs to be improved to suit a more appropriate measure of reliability without sending perverse incentives, that is a preferred approach, rather than choosing reliability measure that is less representative of consumer impact because the incentive scheme is not designed properly.

Moving from one to three minutes for MAIFI and MAIFle limits

We are of the view that changing the time limit from one minute to three minutes better aligns distribution businesses incentives for reliability with the best interests of consumers, and will have little or no material impact on most consumers. As noted later, however, in ATA's view the risk of potential impacts on consumers on life support needs to be understood before this change is made.

The below table (compiled by ATA for a previous submissions to the AEMC and AEMO regarding distribution reliability) indicates the relative impact for a particular customer for interruptions of different durations for a typical consumer (noting the wide distribution of consumer experiences).

These are described in terms of impact by appliance, where interruptions occur while that appliance is in use.

Residential Appliance In Use During Interruption	Relative Impact of Unplanned Interruption Lasting:			
	Seconds	Minutes	Hours	Days
Refrigerator	Low (if infrequent)	Low	High	High
Separate freezer	Low (if infrequent)	Low	High	High
Lighting	Low (if infrequent)	Medium	Medium	High
Electric stove /oven	Low	Medium	High	High

Clocks, digital equipment	High	Low	Low	High
Clothes dryer	Low	Low	Medium	Medium
Air-conditioner	Low (if infrequent)	Low	Medium to High	High
Space heating	Low	Low	Medium to High	High
Dishwasher	Medium	Low	Medium	Medium
Washing machine	Medium	Low	Medium	High
Television, entertainment unit	Low	Low	Low	Medium
Desktop computer (without UPS)	High	Low	Low to Medium	Medium to High
Water heating (electric storage)	Low	Low	Medium	High

Table 1 Consequence of interruption for one residential customer, not on life support, by appliance and interruption duration.

This indicates that, generally, interruptions of a few minutes have a similar impact to interruptions of a few seconds, supporting the proposal that the impact of an interruption of up to three minutes is similar to an interruption of up to one minute.

As raising the MAIFI limit from one to three minutes may allow more flexibility for networks which will generally improve reliability of supply, safety and efficiency (for example where reconfiguring auto-reclosers has been identified as a bushfire mitigation strategy), **ATA support this change as it is clearly in the long term interest of consumers (subject to the following recommendation regarding life support customers).**

Life support customers

Noting that two men with muscular dystrophy, who were dependent on life support equipment, recently died following power disruption to their home in Perth, ATA and other consumer advocates are of the view that the risk of impacts on customers dependent on life support equipment should be understood prior to changing the definition of momentary interruption, to ensure there is no material increase to risk of serious consequences for these customers.

We suggest that the AEMC consults appropriate stakeholders, such as Physical Disability Australia, the state Physical Disability Councils and Disability Commissioners (state and/or federal), about the impacts of the proposed changes with regard to risk to people on life support.

Wording of definition of momentary interruption

ATA are of the view that the expression in the definition of momentary interruption could be improved. The proposed definition of momentary interruption is:

“Momentary Interruption means an *Interruption* to a *Distribution Customer’s* electricity supply with a duration of 3 minutes or less, provided that the end of each *Momentary Interruption* is taken to be when electricity supply is temporarily restored or, in the absence of a temporary restoration of supply, when supply is successfully restored.”

ATA suggest it would be clearer and more concise to say:

“Momentary Interruption means an *Interruption* to a *Distribution Customer’s* electricity supply with a duration of 3 minutes or less, provided that the end of each *Momentary Interruption* is taken to be when electricity supply is restored for any duration.”

Future treatment of Supply Capacity Limiting

Victoria’s smart meters include a functionality designed to limit consumption of energy at certain times or under certain circumstances: Supply Capacity Limiting (SCL), or Supply Capacity Control (SCC). SCL is yet to be deployed.

While some of its benefits and risks are debated, it is broadly agreed that SCL may be used in emergency situations to the benefit of all consumers by reducing the overall duration of interruptions and the total number of customers impacted. It may in future be used to

- supply to more customers more quickly after a fault, particularly after a large scale interruption and/or
- as an alternative to rolling blackouts on days of unforeseen demand or major transmission constraint

SCL works to moderate usage by briefly (for a few minutes at a time) disconnecting supply to an individual home if a consumption threshold is reached, so lessening strain on the grid and sending a signal to consumers to reduce their load until network stability is restored.

As emergency SCL offers benefits to consumers, it is preferable that distribution businesses are incentivised appropriately to deploy it for the above intended purposes. This may happen naturally as SCL should always improve SAIDI. However, SCL may manifest as repeated momentary or sustained interruptions for consumers who don’t or can’t manage their load, presumably worsening SAIFI, MAIFI and/or MAIFIE.

There is a risk that networks might not use SCL in emergencies if the incentives seem to penalise them for doing so. **Therefore ATA suggest the AEMC provides some guidance on the treatment of repeated outages from ‘emergency’ SCL or SCC in relation to SAIFI and SAIDI.** For example, it might be appropriate to exclude repeated SCL events from MAIFI or SAIFI.

Proposed supporting definitions

ATA support the proposed supporting definitions (planned/unplanned, customers, interruptions).

3. Exclusions and major event days

Exclusions

Generally, we are supportive of the proposed definition of exclusions, however we are of the view that the proposed new exclusion (direction from emergency services) needs to be modified to ensure consistency with its intent.

Exclusion 7 should not apply when a network fault (or other event that is normally not excluded) has caused or contributed to the fault situation. For example, where a network component has failed, or lightning strike or accident has caused a fault, an exclusion should not apply just because a directive has been issued by emergency services.

ATA recommend that the AEMC reword the proposed Exclusion 7 to clarify that it does not apply in such cases where ‘non-excluded’ event has caused or contributed to the fault situation.

Major and catastrophic event days

ATA acknowledge that this is a vexed aspect of reliability reporting.

On one hand, it is clearly unfair to hold network businesses accountable for events that are beyond their capacity to plan for or control, and the cost of measures (such as undergrounding powerlines) to completely eliminate the potential for catastrophic events to impact supply often well exceeds the value of the benefit.

On the other hand, some factors that influence the reliability outcomes of major events and catastrophic events are, to some extent, within the control of the network business. For example, the efficacy and speed of restoration of supply after floods and fires is directly impacted by the planning decisions and resource allocations made by the network businesses up to and during these events.

Also, while a network’s overall performance for reliability may not be well represented by isolated major event days, as noted by the AEMC, that distinction is usually irrelevant for consumers: an interruption is an interruption.

Indeed, sometimes interruptions have their greatest impact on major event days, eg on hot days where air conditioner use is placing strain on the network, and when bushfires cause an outage that restricts the use of pumps to fight fires.

Finally though, transparency in reporting reliability performance is paramount, particularly around the impacts of extreme events.

With the above in mind, ATA are of the view that, regardless of the cause of interruption

- **network businesses should be keeping full records of all interruptions**
- **all interruptions should be captured in the relevant indices.**

It is appropriate also that **the network businesses are given the option to report what each measure would have been with major/catastrophic events excluded**, to demonstrate to energy users what portion of supply interruptions are beyond their control.

For example, the default reported measure for SAIDI, should include catastrophic days, but a network business may choose to also report the SAIDI on only ‘non-catastrophic’ days alongside this to demonstrate their performance under non-extreme situations.

4. Feeder classification

Volatility of classification

ATA support the proposed changes to address feeder classification volatility. We also suggest that the AEMC consider other measures to reduce volatility, such as requiring reclassification to be based on a longer term change (for example, at least three successive years of operating in a different classification to the current classification as a precondition of reclassification, other than for feeders where the catalyst for changes is likely to be permanent, such as high growth areas).

Feeders supplying variety of customers

Residential customers have different (generally, much lower) reliability requirements than other energy users, particularly large users. Arguably, at a transmission and wholesale level, this results in the cross-subsidy of larger users by smaller users. While such cross-subsidy may be less pronounced at a distribution level due to differential charging of customer types, it does raise the question ‘who pays?’ for higher reliability afforded to larger energy users.

While acknowledging that the above issues relate more to cost recovery than reliability, in the interest of fairness and cost-reflectivity, **ATA agree with the AEMC that it would be appropriate to divide feeders into sections by customer type, where this can be done efficaciously. We encourage the AEMC to explore this option further.**

5. Lowest reliability customers

ATA strongly support the AEMC’s proposed principles regarding the assessment of reliability to supply lowest reliability customers, in particular as they pertain to:

- meeting the need for consistency across jurisdictions
- the focus on the experience of individual customers, rather than feeder performance
- the comparison of these customers against similarly classified feeders

Understanding customer experience

The AEMC suggests that measures of reliability for understanding customer experience be based on unplanned SAIDI and SAIFI, however as we have noted previously, **MAIFI is also an important feature of the customer experience of reliability and should be included when understanding the experience of lowest-reliability customers.**

Measures for identifying worst served customers

ATA supports the method proposed under 6.3.1: Identifying actual customers.

With regard to the three measures proposed, **ATA suggests that the AEMC consider a variant on the first: the use of a threshold relative to an average SAIDI value (eg, four times the average for that feeder type), for at least two consecutive years so as to avoid isolated incidents distorting the result.**

The second measure ('the worst 5%') is in ATA's view less likely to reflect the real impact of differences in reliability in a given feeder type. For example, actual poor reliability may affect customers on fewer than 1% of CBD feeders in one network, but more than 10% of long rural feeders in another.

6. Implementation plan

Lack of national consistency

Overall, the approach of standardising reliability measures is appropriate and could be adopted in each jurisdiction without excessive burden. While we understand the desire for flexibility, we are concerned that the standards proposed to be non-binding.

Failing to make the measures binding raises serious doubts over the consistency of the advice with COAG EC's principle to have regard to:

"the need for consistency in setting and reporting on the distribution reliability targets across the NEM"

and the AEMC's additional principle:

"to provide consistency and transparency in the calculation of distribution reliability measures to allow meaningful reporting and bench-marking exercises to occur"

As stated on page iii of the draft report: *"to derive the most benefits from the proposed common definitions, it is desirable that the measures are widely applied"* While there are naturally differences between and within jurisdictions with regard to reliability, these could be accommodated by using the same measures but to different target levels that suit a region.

ATA is of the view that while the proposed definitions may go some way towards realising the benefits of national consistency, unless their use is binding then the potential exists for divergence between jurisdictions (and distributors), limiting the effectiveness of standardisation (and remaining challenging for consumer advocates to engage as effectively with the target setting process and related processes)

We ask the AEMC recommends to COAG EC that the use of the standardised measures be binding across jurisdictions

On guidelines, we support that the NER prescribes that responsibility for setting out any guidelines is to rest with the AER.