21 July 2014

Mr John Pierce
Chairman
Austalian Energy Market Commission,
PO Box A2449 Sydney South NSW 1235,

Distribution reliability measures (EPR0041)

Dear Mr Pierce

The ENA is pleased to make a submission in response to the Australian Energy Market Commission's *Draft Report, Distribution Reliability Measures* (Draft Report) released on 19 June 2014.

As you will be aware, the ENA and a number of its member businesses worked closely with the AEMC in an advisory capacity in the development of the Draft Report. We appreciated the briefings provided to ENA's Asset Management Committee during the course of the AEMC's Review, and valued the open exchange between our two organisations. In ENA's view the Draft Report delivers an effective set of nationally consistent distribution reliability measures that can be widely adopted with the support of the COAG Energy Council.

In the attached submission ENA supports the range of measures proposed in the Draft Report and the proposed definitions. In some cases ENA has suggested that there is a need for flexibility or transitional arrangements, as the proposed changes could result in costs or a loss of benefits for a network that ultimately could impact on customers.

An important change proposed by the Draft Report is in the measurement of momentary interruptions. Adopting the Momentary Average Interruption Frequency Index event (MAIFIe), in preference to the current MAIFI measure that applies under the Service Target Performance Incentive Scheme (STPIS), could support the greater use of smart network technologies such as distribution feeder automation and self-healing networks.

There are two areas in the Draft Report where ENA suggests there is scope for further work. These are consideration of a national approach to the classification of feeders, that could better reflect the experiences of customers, and a national approach to addressing and reporting the experience of customers in areas with consistently poor reliability.

ENA looks forward to further discussions with the AEMC and other stakeholders on these important issues.

Yours sincerely

John Bradley
Chief Executive Officer

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DISTRIBUTION RELIABILITY MEASURES

Response to the AEMC Draft Report

July 2014

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NATIONAL RELIABILITY FRAMEWORK

COAG ENERGY COUNCIL AGENDA

The COAG Energy Council is currently considering a national approach to network reliability standards to be set out in the National Electricity Rules.

In the interim, the COAG Energy Council tasked the Australian Energy Market Commission (AEMC) with developing a set of common definitions for distribution reliability measures. ENA welcomed the opportunity to participate in the process of developing national definitions, in an advisory capacity to the AEMC's Review of Distribution Reliability Measures.

Within the National Electricity Market (NEM) reliability measures are defined and applied by the Australian Energy Regulator (AER) under the Service Target Performance Incentive Scheme (STPIS), which provides incentives to maintain or improve reliability performance, and in the AER's reporting and benchmarking of reliability performance.

In addition, jurisdictions within the NEM may impose minimum service standards for the duration and frequency of outages, reporting requirements for areas of poor reliability and guaranteed service level payment schemes.

Outside of the NEM, the Economic Regulatory Authority in Western Australia and the Utilities Commission in the Northern Territory have defined and applied reliability measures for distribution networks in these jurisdictions.

While the AEMC's Review has developed consistent definitions of distribution reliability measures with regard to current usage in the NEM, there is an opportunity through the COAG Energy Council for common definitions to be applied nationally, including in Western Australia and the Northern Territory.

The ENA and its members in these jurisdictions are ready to assist the COAG Energy Council with advice in this regard.

Scope of the AEMC Review

The COAG Energy Council's terms of reference required the AEMC to set out:

- the range of distribution output reliability measures which could be used to set distribution reliability targets;
- definitions for the expression of distribution output reliability measures, including a list of the events which will be excluded from the calculation of reliability performance;
- the classification of feeder types which will be used to set distribution reliability targets;
- any other reliability measures which could be used in setting reliability requirements for distribution businesses; and
- any relevant factors for the AER to have regard to in developing a methodology for undertaking an assessment of the trade-offs between

In ENA's view the value of the AEMC Review is threefold.

The AEMC Review has identified a set of consistent definitions that feasibly could be widely adopted in regulatory arrangements. Customers will benefit where there is consistency in reliability measures used for benchmarking and reporting. Further, consistency in the definitions used by the AER and jurisdictions has the potential to reduce the regulatory burden for network businesses, which can be passed through as lower costs to customers.

The AEMC has proposed an implementation process for ensuring that consistency of distribution reliability measures is maintained on an ongoing basis. This consists of a non-binding guideline to be set out in the National Electricity Rules, with the AER to have the role of drafting, publishing and maintaining the guideline, including consultation whenever the guideline is reviewed. The benefit of having a guideline in place is that it would help address the problem of definition "creep", where inconsistencies have occurred each time a new reporting, benchmarking or incentive scheme is introduced.

The AEMC Review has also highlighted areas for further review and policy development in the context of a national reliability framework that seeks to make transparent for customers the trade-offs between reliability and cost. Specifically there could be value in a broader national review of feeder classifications and consideration of a national approach to addressing and reporting the experience of customers in areas with consistently poor reliability.

AEMC REVIEW

ENA RESPONSES TO THE DRAFT REPORT

ENA and a number of member businesses provided our views as an input into the AEMC's recommendations presented in the Draft Report. In this process, ENA sought consistency with international standards, particularly the Institute of Electrical and Electronics Engineers (IEEE) *IEEE 1366 – 2012* standard, and was informed by ENA's policy framework set out in the *National Reliability Reporting Framework.*

In this submission the ENA substantially supports the recommendations of the AEMC's Review and sets out the basis for ENA's positions.

Individual submissions by ENA's network businesses may specifically address the questions raised by the AEMC in its Draft Report concerning the impacts of the proposed changes on customers and on networks themselves, which will vary from network to network.

Measurement

The AEMC's proposed measures are set out in Part 1 of Appendix B of the AEMC's Draft Report.

These measures are ENA's preferred nationally consistent measures which could be adopted by the AER and jurisdictions. They could be tested with the regulators and jurisdictions in Western Australia and the Northern Territory, as a basis for common definitions to be applied nationally.

Compared with other measures that could be adopted and that have been identified by the AEMC in the Draft Report, the preferred measures are widely used internationally and throughout Australia. The preferred measures are also less prone to be misleading than the customer based measures included in Section 7 of the AEMC's Draft Report.

Momentary interruption events[1]

The AEMC has proposed that the Momentary Average Interruption Frequency Index event (MAIFIe) is a preferred measure of momentary reliability performance, compared to the Momentary Average Interruption Frequency Index (MAIFI). While the MAIFI measure includes every device operation (circuit breaker and automatic circuit recloser) where supply is restored within 1 minute, the measure of MAIFIe groups momentary interruptions into invidual events.

While the AER's STPIS currently specifies MAIFI, Victorian networks have traditionally reported, and been rewarded and penalised against, MAIFIe. In other jurisdictions networks have not been required to report MAIFI. However networks could have the capability in the future to report MAIFIe.

ENA supports the use of MAIFIe rather than MAIFI. The use of MAIFIe could encourage distribution networks to optimise reclose operations to improve network reliability.[2] Customers are therefore likely to benefit from improved restoration outcomes, although they may be more aware of multiple restoration attempts.

Duration of interruptions

The issue considered by the AEMC Review was whether the duration of momentary interruptions should remain unchanged (less than 1 minute) or be changed to conform to the *IEEE 1366 - 2012* standard of less than 5 minutes or the UK/European standard of less than 3 minutes.

It is recognised that SP Ausnet has already made significant investments under the current STPIS incentive

[1] Section 3.2.3 and 3.2.4

[2] ENA notes that there are occasions such as bushfires where public safety considerations will override auto reclose operations, and impact on monetary interruptions reliability performance.

arrangements and may not be able to recoup the benefits of their investments under different arrangements.

For the majority of networks, a change to either 3 minutes or 5 minutes could provide sufficient economic incentive to invest in feeder automation solutions. ENA understands that a similar rationale underpinned the decision by the Office of Gas and Electricity Markets (Ofgem) in the UK to shift in 2000 from 1 minute to 3 minutes.

ENA considers that in the Australian circumstances that 3 minutes is appropriate based on the available technology and network operational requirements. In supporting the proposed change in duration of momentary interruptions from 1 minute or less to 3 minutes or less, ENA makes the proviso that if adopted there will need to be appropriate transitional arrangements established between a potentially adversely impacted network and the AER.

To align the duration of momentary interruptions with sustained interruptions means the duration of sustained interruptions would be greater than 3 minutes. This change in duration will not only need to be reflected in the AER's STPIS, but could also require changes to be made to jurisdictional standards or license conditions which define sustained interruptions as greater than 1 minute and momentary interruptions as 1 minute or less.

Major event days and catastrophic events[3]

Under the current STPIS and benchmarking arrangements major event days are excluded from the calculation of distribution reliability measures, on the basis of statistical analysis. The AER currently requires a distribution network to use the 2.5 beta (β) method in identifying major event days, where β is the standard deviation of a normal distribution, and the value of β can vary across networks.

According to the AER's STPIS:

> *"The 2.5 beta method is the AER's minimum or 'safe harbour' approach to setting the major event day boundary that a DNSP may propose. However, in accordance with clause 2.2 of this scheme, a DNSP can propose a major event day boundary that is greater than 2.5 standard deviations from the mean. Provided the AER agrees to a DNSP's proposal for a 'greater' boundary, natural events that are more than the agreed multiple of standard deviations from the mean of the log normal distribution of five regulatory years' SAIDI data will be excluded."*[4]

The ENA supports the continuation of the current arrangements. The 2.5 beta (β) method is part of the *IEEE 1366 -2012* standard and is applied in many countries. The flexibility to propose a higher boundary than 2.5 standard deviations from the mean could provide a greater incentive for networks to improve reliability performance, where there are opportunities to do so.

The IEEE has noted that rare, but severe, events such as cyclones, floods and bushfires can distort the identification of major event days using the 2.5 beta (β) method. The IEEE considered a methodology for excluding catastrophic events from the data used to calculate reliability measures, but recommended that the methodology for the treatment of catastrophic events be agreed between a network and the regulator.

ENA supports the exclusion of catastrophic events from the data set used by distribution networks to calculate reliability measures, using the IEEE's 4.15 beta (β) method.

Changes in definitions

The AEMC's definitions are included as Part 2 in Appendix B in the AEMC's Draft Report.

Sustained interruptions[5]

ENA has considered the AEMC's proposed minor changes to the definitions of the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI). While the wording changes do not materially change the definitions, the changes remove undefined terms such as "customer" durations and what could be seen as unnecessary explanations. Some ENA members, including Energex

[33] Section 4.2

[4] Appendix D, AER, Electricity distribution service providers: Service target performance incentive scheme, November 2009 https://www.aer.gov.au/sites/default/files/Amended%20STPIS%20-%20November%202009.pdf

[5] Section 3.1

and Ausgrid, could propose alternative wording to improve the application of the amended definitions[6].

Momentary interruptions[7]

The changes in wording of the definitions for the MAIFI and MAIFIe measures should be consistent with the proposed wording for SAIDI and SAIFI.

Definitions relevant to the National Energy Customer Framework (NECF)[8]

ENA notes that the proposed definitions for planned and unplanned interruptions may be inconsistent with the definitions used in the NECF (and which relate to the relevant sections of the National Electricity Rules, the National Electricity Law, and the National Energy Retail Law).

Further the definition of interruption could include a provision to allow for the exclusion of disconnections permitted under the NECF for retailers and distributors, as well as faults in electrical equipment owned by customers.

Distribution customer[9]

The AEMC Review has identified that there are inconsistencies in the definition of distribution customers, across benchmarking, incentive and reporting arrangements.

The ENA supports the adoption of a consistent national definition of distribution customers, as proposed. However, for those networks that currently include unmetered connection points there could be material costs in making an ad-hoc change to operational management systems, to exclude unmetered connection points. Therefore if the proposed measure is adopted, for networks that are adversely affected it would be beneficial to allow a sufficient transition period in which networks could adjust their systems accordingly. ENA considers that the impact of the change on SAIDI and SAIFI would be insignificant, and would not introduce a significant discontinuity with the historical series.

[6] Note that Ausgrid currently applies a methodology when calculating reliability measures that reflects a daily customer count.
[7] Section 3.2
[8] Section 3.3
[9] Section 3.3

Definition of exclusions[10]

ENA considers that when benchmarking the performance of distribution networks, or applying incentive schemes it is appropriate to remove those interruptions from the calculation of reliability measures (SAIDI, SAIFI, MAIFI, MAIFIe) that are due to factors beyond the control of the network. ENA supports the definition of exclusions identified in the AEMC Review Draft Report.

ENA proposes an additional possible exclusion that follows from the proposed role for a Metering Coordinator that is being considered as part of the AEMC's *Expanding competition in metering and related services* rule change. This provision would exclude interruptions due to actions authorised by Metering Coordinators for example due to metering equipment changes or load control activities.

CBD feeder classification[11]

The AEMC Review has recommended modifying the existing definition of a CBD feeder to provide for jurisdictions to determine one or more geographic areas that could be defined as a CBD feeder, while retaining the existing reference to a "*feeder supplying predominantly commercial, high rise buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared with urban areas.*"

ENA considers that it is a matter for jurisdictions to determine those areas of a network which could be required to have high levels of security (i.e. a low risk of an interruption). Historically this has been one designated area, namely the main central business district within the capital cities.

Consideration of feeder classifications

Churn in feeder categories

ENA raised two issues in the course of the AEMC Review, concerning disruptive changes in feeder classifications.

- Weather can cause feeders to shift between categories (usually between rural short and urban) from year to year and can adversely impact on STPIS outcomes.

[10] Section 4.1
[11] Section 5

» Fringe urban expansion can result in a step change that results in the reclassification of rural short feeders to urban, and a step change to a higher reliability performance target.

The AEMC Review proposes to address the churn in feeder categories due to seasonal weather variations, by modifying the definition of an urban feeder. The change would replace *actual maximum demand* with *weather normalised maximum demand.*

The practical effect of this change could provide greater certainty for some networks around investment decisions as performance is not subject to undue fluctuations due to feeder category churn. For other networks, where there is already significant churn in feeders as part of normal business operations, the change may not improve the intuitiveness of the categorisation of feeders. Further, the proposal to use weather normalized maximum demand could be resource intensive for distribution networks that have a significant number of distribution feeders, and there is no current business requirement to apply weather normalisation at the feeder level. As such, the ENA supports networks having the flexibility to apply feeder classifications on the basis of weather normalised maximum demand where there is likely to be a material benefit to customers.

With regard to the issue of feeder classification changes due to urban development, ENA supports the AEMC's view that this issue could be addressed in a more comprehensive review at a later time, including in the forthcoming review of STPIS.

Customer experience of reliability

The efficient costs of delivering reliability to customers, and the reliability performance that customers experience will vary by location across networks, and from network to network. The ENA supports frameworks that make the trade – off between reliability and cost more transparent to customers, including the national framework for network reliability under consideration by the COAG Energy Council.

Greater transparency does not mean that the feeder classifications, which are used to differentiate the nature of the network between urban and rural areas, will necessarily be intuitive for customers. While lightly loaded feeders (less than the current 0.3MVA) may be classified as rural short or long on the basis of the network capability in these areas, it is possible that those customers in cities and towns connected to a classified rural feeder would expect their level of performance to be that of an urban feeder.

Networks have adopted a number of approaches, under a range of jurisdictional regimes including the regional approach in South Australia and the community approach in Tasmania, for engaging with customers on reliability performance outcomes. This approach focuses on the customer's expectations of performance based on where they live rather than on the network which supplies them and is considered to better reflect the level of performance for that community. Engagement with customers includes consideration of the potential for local generation or other non-network solutions to maintain or improve reliability performance for customers.

The existing feeder classification, which was first developed for Victoria and now applies nationally, is based on load density and circuit length. There is a concern that the existing feeder classification may not always allocate feeders "correctly" and as such impacts the ability to effectively benchmark performance in a " like for like" comparison. ENA understands that there is flexibility under existing regulatory arrangements for the mis-classification of specific feeders to be corrected, where supporting evidence is made available to the regulators.

The ENA considers that there is merit in undertaking a comprehensive review of feeder classifications, including a robust statistical analysis of the costs and benefits of different metrics such as location, load density, customer density, circuit length or a combination of these for all feeders nationally. The review would also identify the costs and benefits of making a change to feeder classifications, in the long term interests of the customer, given the potential widespread impacts and the discontinuity with historical data.

In this context the ENA supports consideration of an alternate customer density measure for urban feeders, as discussed in the AEMC Review, being deferred for consideration as part of a broader review.

Consideration of poor reliability areas

Principles

The AEMC Review was asked to address factors for the AER to consider in developing a methodology for making

an assessment of the trade-offs between costs and reliability in poorly served areas.

The ENA supports the four principles proposed by the AEMC Review to support the development of a methodology that could:

- apply across all jurisdictions, potentially including Western Australia and the Northern Territory, and all distribution networks;
- focus on the customer experience of reliability;
- allow for comparison of the worst served customers with customers experiencing
- average reliability performance on feeders of the same classification; and
- take into account fluctuations in reliability performance from year to year.

Implementation of these principles, through the consideration of specific measures will need to address the effectiveness of the proposed measures, including practicality and cost. For example identifying low reliability performance at an individual customer level, rather than at a feeder or community level, may be difficult and costly to implement.

Possible measures

The AEMC Review has served to underline the significance of the experience of customers in areas where reliability is poor.

In this context ENA notes that distribution network businesses have in place a range of strategies and approaches for maintaining reliability performance in areas of poor reliability, and for improving reliability where it is economic to do so through a mix of network and non-network solutions. Network businesses also have jurisdictional requirements to report on reliability performance in poorly served areas.

The ENA supports in principle the AEMC Review's broad approaches to identifying worst served customers, and network wide measures of lowest reliability outcomes, while recognising that there are economic constraints on addressing reliability for these customers.

NEXT STEPS

IMPLEMENTATION

The AEMC Review has proposed a set of consistent definitions for use in the NEM. ENA agrees with the AEMC that the more widely the consistent distribution reliability measures are adopted, the greater will be the benefits to customers.

At its next meeting the COAG Energy Council could endorse these definitions, and agree an implementation process that includes consultation on the applicability of these definitions for Western Australia and the Northern Territory, and a program for amending legislation and regulatory arrangements.

ENA supports the AEMC's proposal for the AER to be given the responsibility to maintain these consistent definitions on an ongoing basis. Further ENA suggests that the AER could liaise with regulators in Western Australia and the Northern Territory, to maintain consistency nationally.