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Ref: NB/TF/JD

18 July 2014

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

Dear Mr Pierce

RE: Submission on the Australian Energy Market Commission Draft Report – Distribution Reliability Measures

Ergon Energy Corporation Limited (Ergon Energy), in its capacity as a Distribution Network Service Provider in Queensland, welcomes the opportunity to provide comment to the Australian Energy Market Commission on its *Draft Report – Distribution Reliability Measures* (the Draft Report).

Specific comments in relation to the issues raised in the Draft Report are included in the attached submission.

Should you require additional information or wish to discuss any aspect of this submission, please do not hesitate to contact either myself on (07) 3851 6416, or Trudy Fraser on (07) 3851 6787.

Yours sincerely

Jenny Doyle
Group Manager Regulatory Affairs

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Enc: Ergon Energy's submission

Submission on the *Distribution Reliability Measures* Draft Report

18 July 2014

Submission on the *Distribution Reliability Measures*

Draft Report

Australian Energy Market Commission

18 July 2014

This submission, which is available for publication, is made by:

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Introduction

Ergon Energy Corporation Limited (Ergon Energy) welcomes the opportunity to provide comment to the Australian Energy Market Commission (AEMC) on its *Distribution Reliability Measures* Draft Report (the Draft Report).This submission is provided by Ergon Energy, in its capacity as a Distribution Network Service Provider (DNSP) in Queensland.

Ergon Energy is generally supportive of the proposal by the AEMC to design common, nationally consistent definitions for distribution reliability measures. In particular we consider the proposal will facilitate more efficient decision-making and reduce the regulatory burden on distribution businesses, thereby resulting in improved customer outcomes both in terms of cost and otherwise.

As a member of the Energy Networks Association (ENA), the peak national body for Australia's energy networks, Ergon Energy has contributed to and generally supports the ENA's submission on the Draft Report.

In particular Ergon Energy agrees with the ENA's view that the value of the AEMC's review is threefold and more specifically, that the review:

- Identifies opportunities for nationally consistent definitions capable of feasible adoption under existing and future regulatory frameworks;
- Considers and proposes a process to ensure ongoing consistency; and
- Identifies areas for further policy development to increase transparency for customers regarding the trade-offs between reliability and cost.

Ergon Energy regards each of these as necessary for the development and streamlining of a national reliability framework.

In response to the AEMC's invitation to provide comments on the Draft Report, Ergon Energy has provided detailed comments in the attached table. Ergon Energy is available to discuss this submission or provide further detail regarding the issues raised, should the AEMC require.

Table of detailed comments

AEMC Questions	Ergon Energy Response
Box 3.1 Proposed definitions for distribution reliability measures for sustained interruptions	
SAIDI or System Average Interruption Duration Index in respect of a relevant period, means the sum of the durations of all the *Sustained Interruptions* (in minutes) that have occurred during the relevant period, divided by the *Customer Base*.	Ergon Energy does not have any concerns with this proposed definition, but recommends that consideration be given to the inclusion of a definition of *interruption duration*, consistent with Institute of Electrical and Electronic Engineers, *IEEE Guide for Electric Power Distribution Reliability* Indices, IEEE Std 1366-2012, 31 May 2012, which refers to '*the time period from the initiation of an interruption until service has been restored to the affected customers'*. Furthermore Ergon Energy believes it is important to make clear that the process of restoration may require a staged approach, involving restoration of service to small sections of the system until full service restoration has been achieved. With this in mind, Ergon Energy suggests there would be benefit in ensuring that each of these individual stages is tracked i.e. collecting the start time, end time and number of customers interrupted for each stage of the process.
SAIFI or System Average Interruption Frequency Index in respect of a relevant period, means the total number of *Sustained Interruptions* that have occurred during the relevant period, divided by the *Customer Base*	Ergon Energy has no specific comment to make in relation to this measure.
Sustained Interruption means an *Interruption* to a *Distribution Customer's* electricity supply that has a duration longer than 3 minutes, provided that the successful restoration of supply to the *Distribution Customer* is taken to be the end of the *Sustained Interruption*.	Ergon Energy generally supports the transition to a 3 minute duration definition for a sustained interruption, and believes this will provide encouragement (via the Service Target Performance Incentive Scheme (STPIS)) for DNSPs to invest in automation solutions to achieve relatively low-cost performance improvements for the average customer supplied.
Box 3.2 Proposed definitions for distribution reliability measures for momentary interruptions	
MAIFI or Momentary Average Interruption Frequency Index in respect of a relevant period, means the total number of *Momentary Interruptions* that have occurred during the relevant period, divided by the *Customer Base*, provided that *Momentary Interruptions* that occur	Ergon Energy's preference is for MAIFIe, as opposed to MAIFI, to be adopted as the measure for reporting performance. The basis for this preference in explained in further detail below.

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within the first three minutes of a *Sustained Interruption* are excluded from the calculation.	
MAIFIe or Momentary Average Interruption Frequency Index event in respect of a relevant period, means the total number of *Momentary Interruption Events* that have occurred during the relevant period divided by the *Customer Base* for the relevant period, provided that *Momentary Interruptions* that occur within the first three minutes of a *Sustained Interruption* are excluded from the calculation.	Ergon Energy strongly recommends the use of MAIFIe as the indicator of momentary interruption performance, as opposed to the alternative MAIFI measure. Currently, via a risk assessed process, Ergon Energy determines the most appropriate number of reclose attempts to be applied to distribution feeders and feeder sections. While the application of MAIFI may encourage DNSPs to reduce the reclose attempts (hence reducing SAIFI and SAIDI), the use of MAIFIe would allow DNSPs to determine the most appropriate number of reclose counts on a feeder section, and therefore achieve the best outcome for sustained interruption performance. This approach would also remove the need to consider the conflict in performance against the MAIFI measure.
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.	Ergon Energy suggests the phrase "temporarily restored" is capable of subjective interpretation, and therefore may result in confusion. Ergon Energy recommends the AEMC give further consideration to the drafting of this definition to clarify whether it refers to when supply is restored, or to when supply restoration is attempted through the close operation of a network device. Where MAIFI is a performance indicator, under Ergon Energy's current approach to the application of auto-recloses, a high number of momentary interruptions would be recorded. Ergon Energy is concerned that this definition is framed around an assumption that only single momentary interruptions occur i.e. either supply is restored or the event becomes a sustained interruption. Currently Ergon Energy makes up to 3 reclose attempts in rural networks, and does not regard these as a temporary restoration of supply, but rather an attempt to restore supply.
Momentary Interruption Event means one or more *Momentary Interruptions* that occur within a continued duration of 3 minutes or less, provided that the successful restoration of electricity supply after any number of *Momentary Interruptions* is taken to be the end of the *Momentary Interruption Event*.	As indicated in a recent customer survey conducted by Ergon Energy (see further detail below) customers generally see minimal difference between the impacts of a 1 minute supply interruption and a 3 minute supply interruption. Consequently, Ergon Energy considers that a transition to a 3 minute duration definition for a sustained interruption will provide encouragement through the STPIS incentives for DNSPs to invest in distribution automation solutions to achieve relatively low cost performance improvements to the average customer supplied.

AEMC Questions	Ergon Energy Response
Box 3.3 Request for stakeholder views on definitions for momentary interruption and momentary interruption event	
With regard to the proposed definitions for momentary interruption and momentary interruption event in Box 3.2, the AEMC are seeking views on how changing the duration of a momentary interruption from 1 minute to 3 minutes could: • impact consumers in terms of potentially longer momentary interruptions and in terms of a likely reduction in sustained interruptions; and • materially increase the range of distribution automation system alternatives that could be cost effectively implemented, thus increasing the number of systems deployed.	Ergon Energy, through consultation with the vendor supplying its Distribution Management System believes that typically DNSP's automation applications are capable of delivering fault identification, isolation and restoration within timeframes between 1 and 5 minutes. The variation in timeframes is associated with variations in communication system delays and the complexity of the switching required in facilitating the isolation and restoration sequence of events. Restoration times of less than 1 minute are possible for simple two step switching sequences in network areas with high speed and reliable communications systems. Early in 2014, Ergon Energy conducted a short-form Customer Survey of 101 customers to gauge the value our customers place on 1 minute vs. 3 minute supply interruption durations. The Customer Survey found only a minor difference in value between a 1 minute and 3 minute supply interruption, with 6% of respondents assigning a "significant impact" to a 1 minute interruption and 9% assigning a "significant impact" to a 3 minute interruption. Further details of the survey and associated results can be provided if requested.
Box 3.4 Request for stakeholder views on the impact of momentary interruptions and momentary interruption events	
The AEMC are seeking views on whether the impact on customers of multiple momentary interruptions, within a single momentary interruption event, is likely to be materially greater than a single momentary interruption.	Ergon Energy believes the customer preference assessment should not be based on a comparison between the numbers of momentary interruptions, but rather between a momentary and a sustained interruption. Momentary interruption events exist in the network operating environment as an attempt to avoid the occurrence of a sustained interruption. Multiple reclose attempts occur as a means to improve the probability of avoiding a sustained interruption for a transient fault. Ergon Energy has a risk based approach to the application of reclosing on HV distribution feeder sections. In an urban environment a maximum single reclose attempt is typically applied on a faulted network section where as in the rural networks this may extend to 3 attempts, but only in the most sparsely populated network sections such as in Single Wire Earth Return feeder sections. Ergon Energy does not believe the impact on customers during multiple momentary

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	interruptions would be materially greater than a single momentary interruption.
Box 3.5 Proposed supporting definitions	
Planned Interruption means an *Interruption* resulting from a *Distribution Network Service Provider's* intentional interruption of electricity supply to a *Customer's* premise where the *Customer* has been provided with prior notification of the *Interruption* in accordance with all applicable laws and regulations.	Ergon Energy has no concerns with this proposed definition. However, it should be acknowledged that as jurisdictions have different transitional arrangements in relation to the introduction of the National Energy Customer Framework planned interruption notification requirements, it will take some time for the timeframes associated with this definition to be consistent across the NEM.
Unplanned Interruption means an *Interruption* that is not a *Planned Interruption.*	Ergon Energy has no concerns with this proposed definition.
Customer means an end user of electricity who purchases electricity *supplied* through a *distribution system* to a *connection point.*	Ergon Energy has no concerns with this proposed definition.
Distribution Customer means a *connection point* between a *distribution network* and *Customer* that has been assigned a *NMI*, including energised and de-energised *connection points* but excluding *unmetered connection points.*	Ergon Energy has no concerns with this proposed definition.
Customer Base in respect of a relevant period, means: • the number of *Distribution Customers* as at the start of the relevant period; plus • the number of *Distribution Customers* as at the end of the relevant period, divided by two.	Ergon Energy has no concerns with the proposed definition, and considers that it will assist in making period average performance index reporting simpler, less onerous and less complicated compared with capturing customer count information at the point in time of the interruption.
Interruption means any loss of electricity supply to Distribution Customers associated with an outage of any part of the network, including outages affecting a single Customer's premises but excluding disconnections caused by a retailer or a fault in electrical equipment owned by a Customer, provided that: • the start of an *Interruption* is taken to be when the Interruption is initially automatically recorded by equipment such as *SCADA* or, where such equipment does not exist, at the time of the first *Customer* call reporting that there has been an *outage* in the	Ergon Energy has no concerns with this proposed definition.

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network; and • the end of an *Interruption* is taken to be when the *Interruption* is automatically recorded as ending by equipment such as *SCADA* or, where such equipment does not exist, the time when electricity supply is restored to affected *Distribution Customers.*	
Box 4.1 Proposed definitions for exclusions	
Exclusions - *Interruptions* that result from the following circumstances may be excluded from the calculation of *SAIDI, SAIFI, MAIFI* and *MAIFIe*: 1. *Load shedding* due to a *generation* shortfall. 2. Automatic *load shedding* due to the operation of under-frequency relays following the occurrence of a *power system* under-frequency condition. 3. *Load shedding* at the direction of *AEMO* or a *System Operator*. 4. *Load* interruptions caused by a failure of the *shared transmission network*. *5.* *Load* interruptions caused by a failure of *transmission connection assets* except where the *interruptions* were due to inadequate planning of *transmission network connections points* and the *Distribution Network Service Provider* is responsible for the planning *of transmission network connection points.* *6.* *Load* interruptions caused by the exercise of any obligation, right or discretion imposed upon or provided for under *jurisdictional electricity legislation* and *national electricity legislation* applying to a *Distribution Network Service Provider.* *7.* *Load* interruptions caused by, or extended by, a direction from state or federal emergency services.	Ergon Energy supports the principle that incentive schemes should only penalise DNSPs for the effect of events that are reasonably within their control to prevent and repair when failure occurs. Where calculations of performance include situations where impediments prevent DNSPs from carrying out restoration efforts, a true record of performance would not be demonstrated. Furthermore, Ergon Energy supports the proposed exclusions as acceptable given that: • Through the application of the interruption definition, proposed interruptions resulting from the failure of the customer's electrical installation are not considered in reliability performance average indices; and • Major Event Days are considered through application of the Major Event Day Definition. Ergon Energy anticipates that application of Exclusion No. 7 will allow suspension of an unplanned outage event when restoration efforts are impeded by emergency services blockade of inaccessible or unsafe roadways. During the 2010-11 Queensland floods, this exclusion category would have been applied extensively and Ergon Energy expects that exclusion or suspension on this basis will allow more accurate representation of the network reliability performance that is within the direct control of the DNSP. However, determining the impact this additional exclusion will have on the future targets will be difficult to achieve with a reasonable level of accuracy. Interruption event recording in the past did not capture the point in time when access was impeded and then again when restored. As such, assessing historical impacts and considering its application when proposing future scheme targets will be difficult. Further, Ergon Energy supports the ENA's suggestion of an additional exclusion to ensure the impact of the proposed role of Metering Co-ordinators, as considered in the AEMC's *Expanding competition in metering and related services* rule change, does not result in detriment to DNSPs i.e. where meters are owned and provided by third parties. Importantly, where load switching is initiated by Metering Co-ordinators, DNSP's may be in the position of being responsible for reliability issues and performance impacts from

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	actions that were not aware of, or could not control.
Box 4.2 Request for stakeholder views on proposed list of exclusions	
The AEMC are seeking views on whether the proposed list of exclusions accurately reflects the types of interruptions that could be excluded from the calculation of distribution reliability measures for the purposes of bench-marking or economic incentive schemes.	Ergon Energy has extensive radial sub-transmission networks in its distribution network supply chain. The performance impacts of these components are considered in the reported reliability measures for Ergon Energy. The inclusion of the performance results of these sub-transmission networks prevents direct benchmarking between Ergon Energy's network performance and the performance of other NEM DNSPs, as few if any, have the same performance exposure from upstream components of the supply chain. Where direct benchmarking of performance between DNSPs is the desired outcome of reporting reliability performance, Ergon Energy suggests contributions from the supply chain upstream of the distribution feeder should be excluded, or at least reported separately to the feeder category average index performance. Additionally, Ergon Energy believes it is worth keeping in mind that, in comparison to other DNSP networks, Ergon Energy's short rural feeders have less interconnection opportunities, meaning that benchmarking or comparison would reflect unfairly on Ergon Energy's network.
Box 4.3 Proposed definitions for major event days and catastrophic events	
Major Event Day - *Interruptions* that occur on a Major Event Day may be excluded from the calculation of SAIDI, SAIFI, MAIFI and MAIFIe. *Major events day* has the meaning given in the *IEEE Guide*, provided that: • for the purposes of applying an economic incentive scheme, the regulator may apply a different multiple of log standard deviation than the 2.5 multiple used in the statistical method set out in section 3.5 of the *IEEE Guide* should such multiple be determined by the regulator to more accurately reflect the normal operation of the *distribution network*; and • *Catastrophic events* may be excluded from the statistical method used to classify *Major Event Days*.	Ergon Energy supports the MED and extension of the MED methodology to include the catastrophic events exclusions.

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Catastrophic event means a large scale event (such as a cyclone, flood or bushfire) that is identified by: • applying a 4.15 multiple to the log standard deviation used in the statistical method set out in section 3.5 of the *IEEE Guide*; or • such other statistical method determined by the regulator to more accurately identify large scale events.	Ergon Energy supports the inclusion of this definition, and believes it will be particularly relevant for the Ergon Energy network where the effects of "catastrophic" events are regularly experienced.
IEEE Guide means the 'IEEE Guide for Electric Power Distribution Reliability Indices, IEEE Std 1366-2012' published by the Institute of Electrical and Electronic Engineers on 31 May 2012.	Ergon Energy regards this definition as generally understood.
Box 4.4 Request for stakeholder views on proposed definition for major event days	
The AEMC are seeking views on whether the 2.5 beta method described in IEEE standard 1366 - 2012 is the appropriate default method for identifying major event days.	Ergon Energy agrees it is appropriate to retain the 2.5 beta method as the baseline. However in doing so, it needs to be acknowledged that 2.5 beta may not best represent the normal operation of each distributor, as a consequence of the retention of the provisions allowing the regulator to agree to an alternate method as proposed by the distributor.
Box 4.5 Request for stakeholder views on proposed definition for catastrophic events	
The AEMC are seeking views on whether: • catastrophic events should be excluded from the distributor's data set of interruptions; and • the 4.15 beta method is the appropriate default method for identifying catastrophic events.	Ergon Energy believes exclusion of catastrophic events is practical, and agrees that the 4.15 beta method, in the absence of a recognised alternative, is the most appropriate default method of identification of these events. The provision of an opportunity for DNSPs to propose, and the regulatory authority to approve, an alternate method for identifying catastrophic events would remove / reduce the risk of adverse effects the application of the nominated method may have on a DNSP's reported reliability performance.
Box 5.1 Proposed definitions for feeder classifications	
CBD feeder means a *feeder* in one or more geographic areas that have been determined by the relevant participating jurisdiction as supplying electricity to predominantly commercial, high-rise buildings, supplied by a predominantly underground *distribution network*	Ergon Energy agrees that the relevant jurisdictional authority should have the ability to define a CBD area, the reliability and security of supply afforded to that area and the investment in network infrastructure required to achieve it.

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containing significant interconnection and redundancy when compared to urban areas.	Ergon Energy notes that there is a generally accepted, unwritten rule is that each state has one CBD area only. As more CBD feeders will trigger investment required to achieve resilience levels to ensure adequate performance, Ergon Energy considers it appropriate for jurisdictional regulators to have direct influence in this process.
urban feeder is a *feeder* which is not a *CBD feeder* and has a weather normalised maximum demand over the feeder route length greater than 0.3 MVA/km.	Ergon Energy strongly suggests that further consideration is given to this definition, as it is linked to distribution feeder load density. Ergon Energy is actively promoting demand side management to encourage reduction in peak demand on network sections. Consumers are also installing alternative energy sources such as solar PV systems and it is envisaged that in the future this will extend to energy storage systems such as battery banks. Furthermore, Ergon Energy notes time-of-use tariffs as another mechanism to encourage customers to reduce energy consumption through peak periods. The combined effect of these will be reduction in peak demand, and ultimately, feeders that were categorised as urban will transition to short rural and be considered against less onerous performance targets and limits. Consequently, Ergon Energy believes it would be more appropriate to identify an alternative method of defining an urban feeder that is less dependent on the annual maximum demand and more closely linked to customer density.
short rural feeder means a *feeder* with a total feeder route length less than 200 km, which is not a *CBD feeder* or *urban feeder*.	Ergon Energy believes it is important to note that some customers supplied by short rural feeders are not dissimilar to those supplied on an urban feeder yet the performance requirement is significantly different. Ergon Energy suggests consideration of an alternate method for defining the feeder categories is undertaken in the future. This may include alignment to customer segment rather than load density. Customer density may be a suitable alternative but would require involvement of NEM distributors to identify appropriate boundary points between feeder / customer segment type. Making the category definitions aligned to customer expectations leads to infrastructure investment that matches customer expectations.
long rural feeder means a *feeder* with a total feeder route length greater than 200 km, which is not a *CBD feeder* or *urban feeder.*	Ergon Energy reiterates its comments on short rural and urban in the context of long rural feeders, although accepts the route length consideration as appropriate.
Alternative definition for urban feeder **urban feeder** is a feeder which is not a **CBD feeder** and either:	Ergon Energy believes the definitions of urban and rural feeders require further consideration as they do not appear to be representative of the customer type being

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• has a weather normalised maximum demand over the feeder route length greater than 0.3 MVA/km; or • has a customer density of greater than X customers per route km of feeder length. This alternative definition would improve the intuitiveness of the definition of urban feeder, however, the AEMC are not proposing that this change is made in isolation to a review of the associated reliability targets and incentive schemes.	supplied. For example, residential customers require a common level of performance. Furthermore, there is a change in performance expectation between suburban residential and rural residential customers that should be recognised in the performance targets and associated network infrastructure investment. Customer density, in Ergon Energy's opinion, appears to be a more appropriate and static, in that it is not linked to a maximum demand, which customers are actively being encouraged to reduce. Further, retention of demand-related alternative criteria will allow provision of increased reliability to low customer number/high demand customers such as light industry and commercial enterprises. As mentioned above the definition of feeder categories should be considered as part of a broader review in the future.
Box 5.2 Request for stakeholder views on using temperature normalised maximum demand	
The AEMC are seeking views on whether the proposal to use the temperature normalised maximum demand: • would be likely to reduce uncertainty and risk for the distributors; and • introduces any adverse impacts.	The consideration of weather normalised maximum load data will reduce the year to year churn that currently occurs in the annual classification of a distribution feeder. However, Ergon Energy is not convinced this on its own will overcome the negative trends being observed and the forecast in network maximum demand, which will see distribution feeders moving from urban to rural over time as a consequence of demand management, PV and battery storage, and distributed generation.
Box 5.3 Request for stakeholder views on alternative criterion for urban feeder classification	
The AEMC are seeking views on whether the proposed additional criterion for classifying urban feeders: • would provide a more intuitive feeder classification in lightly load suburban areas; and • how it could be implemented given the potential impacts on affected distributors.	Additional criteria that are not reliant on feeder load density will allow more appropriate alignment of customer type with provided network performance and security of supply. Initially, Ergon Energy expects that implementation would require determination of appropriate NEM-wide boundary points in terms of the customer density, representative of the urban residential area and the rural residential area. Back-casting of historical feeder level performance based on the reclassification of the feeders would then require minimal effort to identify appropriate future targets and regulatory limits.
Box 5.4 Request for stakeholder views on amendment of the CBD definition	

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The AEMC are seeking stakeholders' views on whether the proposed definition of CBD feeder is appropriate, in particularly, whether a participating jurisdiction should be able to define more than one CBD.	Ergon Energy regards participating jurisdictional authorities as the appropriate entities to define the areas that are of critical importance to a jurisdictions' interest, and those that would justifiably require high levels of investment in network infrastructure to provide very high levels of security and reliability of supply.
Box 6.1 Principles for considering lowest reliability customers	
The AEMC are proposing that the following principles should be considered when developing a method for assessing the areas with the lowest reliability customers: 1. The approach used should be able to be applied consistently across the jurisdictions and distributors. 2. The focus should be on customer experiences of reliability, rather than on feeder reliability. 3. The approach needs to measure the experience of the lowest reliability customers compared to that of the average customers, on feeders of the same classifications. 4. The approach needs to take into account that reliability outcomes may vary from year to year.	At a high level, Ergon Energy agrees that the AEMC's proposed principles would be appropriate as considerations when developing a method for assessing the areas with the lowest reliability customers. Ergon Energy is currently obliged to monitor, report and make improvements to the performance on the lowest reliability of supply distribution feeders. This obligation now forms part of Ergon Energy's Distribution Authority. Additionally, Ergon Energy's current program for improvement has priority based on the 3 year average duration of interruption at the feeder level as a ratio to the jurisdictional limit for the applicable feeder category. The assessment process also identifies anomalous years of performance in an attempt to avoid investment/improvement for extremely low frequency events. The investment decision also requires assessment for prudency. Ergon Energy's reliability reporting application supports the performance reporting to the distribution feeder level. To provide reporting to the customer level to identify the lowest reliability customer will require additional investment in support system upgrades. Customer surveys consistently find that customers place greater value on the unplanned interruption over planned interruptions and consequently, this should be the dominant factor in the assessment of poor performance. Most recent customer research indicates that residential customers place comparable value on frequency and duration of interruption, whilst business customers place greater value on frequency over duration of supply interruptions. Guaranteed Service Level (GSL) schemes provide some level of financial compensation to the customer to cover smaller pockets of customers that are not able to be identified as having poor reliability of supply. As the method suggested by the AEMC's Draft Report draws parallels with the purpose of GSL schemes, Ergon Energy queries whether the AEMC intends to review the appropriateness of GSL schemes or introduce an alternative incentive based scheme targeting performance at the customer level. Although Ergon Energy acknowledges the benefits of common definitions and common improvements programs across the NEM, the different operating structures, in addition to obligations under jurisdictional schemes may not lend themselves to common

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	terminology.
Box 7.1 Customer based distribution reliability measures that may be used	
CAIDI or Customer Average Interruption Duration Index in respect of a relevant period, means the sum of the durations of all *Sustained Interruptions* (in minutes) that have occurred during the relevant period, divided by the total number of *Sustained Interruptions* (i.e. *SAIDI* divided by *SAIFI*)	Ergon Energy generally concurs with the AEMC assertion that CAIDI can provide a misleading impression of performance. For instance, Ergon Energy is expected to report one of the best years of reliability performance (2013-14) in terms of SAIDI and SAIFI performance across the applicable feeder categories. However, despite this, the CAIDI measure indicates a decline in performance across the applicable feeder categories this year by comparison to the previous year as a result of the proportional improvement difference between the SAIDI and SAIFI, i.e. SAIFI improvements observed over the past 12 months were proportionally greater than the SAIDI.
CAIFI or Customer Average Interruption Frequency Index in respect of a relevant period means the average frequency of *Sustained Interruptions* that have occurred during the relevant period for those *Customers* experiencing *Sustained Interruptions.*	Ergon Energy agrees with the AEMC assessment of the counter-intuitive nature of CAIFI as a measure, for reasons similar to those noted for the CAIDI measure.
CTAIDI or Customer Total Average Interruption Duration Index in respect of a relevant period, means the total time during the relevant period that average *Customers* who actually experienced an *Interruption* were without power. This is similar to *CAIDI,* except that those Customers with multiple Interruptions are counted only once.	For the reasons stated, Ergon Energy does not believe the CTAIDI measure is appropriate, and agrees with the AEMC's assessment of its counter-intuitive nature.
Box 7.2 Load based distribution reliability measures that may be used	
ASIDI or Average System Interruption Duration Index is similar to *SAIDI* except that it is based on load (kVA) rather than numbers of *Customers.*	Ergon Energy does not consider there is any benefit in reporting to this index rather than the customer based SAIDI. It may be an appropriate measure for a transmission entity with low customer numbers and high demand per customer. However, for a distribution entity with a large number of customers, SAIDI is more appropriate.
ASIFI or Average System Interruption Frequency Index is similar to *SAIFI* except that it is based on load (kVA) rather than numbers of *Customers.*	Similar to our response in relation to ASIDI, Ergon Energy does not consider there is any benefit in using this measure for reporting, rather than SAIFI, and believes it may be a more appropriate measure for transmission entities.