



Major Energy Users Inc.

Australian Energy Markets Commission

**Review of Distribution Reliability
Outcomes and Standards**

**Comments on the Issues Paper
– NSW Workstream**

Submission by

The Major Energy Users Inc

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Executive Summary

The Major Energy Users Inc (MEU) supports the AEMC's most recent efforts at reviewing the distribution reliability outcomes and standards in New South Wales. Like the NSW Government, the MEU has particular concerns about the impact of network expenditure on energy bills in NSW.

The MEU generally supports the proposed AEMC approach to the issue and the range of aspects for the review, but has the following comments:

- There is a need to reflect the inter-relationship between the party that sets the reliability measures and the party which provides the resources for their achievement.
- Accessing specific data to reveal the actual costs for achievement of reliability standards and the measurement of service performance can be fraught, as data can be readily manipulated.
- Consideration must be given to the implementation and outcomes of a STPIS, which provides a financial incentive for the long term improvement of service performance – the incentive programs have resulted in service performance well in excess of minimum standards
- The need to consider using better pricing signals in tariffs to encourage users to reduce peak consumption as this is an efficient and cost effective way of enhancing network reliability.

The MEU has its greatest concerns in relation to the assessing the benefits to consumers of reliability programs. It considers that great care is required in assessing the willingness of consumers to pay for improved reliability and the AEMC should focus more on the reliability issues for the worst performing elements. In this regard the MEU concludes:

- The scenarios for different reliability service levels needs at least one lower level to be symmetrical with the one higher level
- Careful development of regulatory charts of accounts is needed to ensure that the expenditures for reliability are truly reflective.
- Willingness to pay for improved reliability is a critical element that depends on the questions asked. Surveys where the question is asked "what are you willing to pay for improved reliability?" most frequently show there is no such willingness.
- The MEU (and other stakeholders) considers that the AEMO VCR approach is flawed and great care is urged.
- Care is needed in further segmenting willingness to pay below a regional level.

1. Introduction

The Major Energy Users Inc (MEU) welcomes the opportunity to provide views on the AEMC's Issues Paper on Review of Distribution Reliability Outcomes and Standards – NSW Workstream.

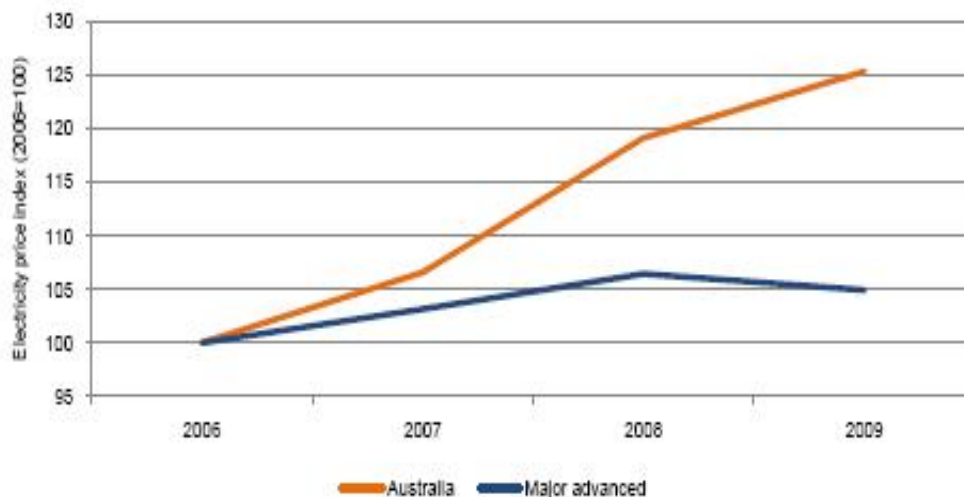
The MEU intends also to participate in the future work on distribution reliability.

1.1 Electricity costs in general

The NEM design is based on providing strong incentives for the supply side of the electricity market to provide a vibrant and responsive electricity supply. But in delivering a reliable electricity market, the incentives provided to supply side participants have resulted in a number of detrimental outcomes, including:

- The sharply increasing cost of electricity as identified by Garnaut¹ in his update #8 in both relative (figure 1) and actual (figure 2) terms²

Figure 1: Real electricity prices in Australia and the seven major advanced economies, 2006 to 2009, index in US dollars

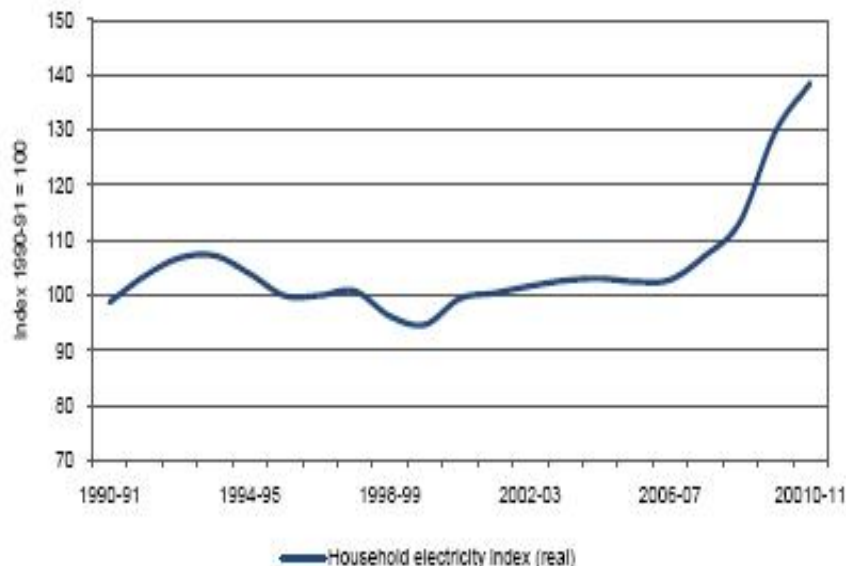


Source: IEA 2008, OECD 2010.

¹ Garnaut: Climate Change Review Update 2011 Transforming the electricity sector

² ibid pages 7 and 8

Figure 2: Real household electricity price movements
(constant 100 would mean electricity prices rising at same rate as other prices)



Source: Australian Bureau of Statistics, Consumer price index for electricity (Category 6401.0).

- Despite the increases in the real cost of electricity, reliability in supply has not improved and in some cases has deteriorated
- Electricity consumption in recent years has flattened to the extent that in some regions electricity consumption is actually falling such as in NSW³.
- The separation of the setting of network reliability performance standards (set by governments) from the costs involved (set by the regulator)
- Increased costs to consumers caused by the continually increasing:
 - Volatility and risks in the market
 - Transaction and prudential costs

There have been other causes to the burgeoning electricity prices such as

- The apparent use by state governments to use their electricity assets to extract indirect taxation from electricity consumers through ever increasing dividends and tax equivalent payments
- The loss of the benefits of competition by concentration of the supply industry and raising of barriers to new entrants by:
 - A reducing number of participants due to amalgamation and sale of government owned entities to existing market participants
 - The re-aggregation of generation and retailing and the emergence of the “gentailer” model of market participant
 - The ability of dominant generators to exercise market power.

³ This fall in NSW might be a result of the massively increasing costs of electricity in that region, but regardless of the cause, consumers are seeing prices rise considerably in real terms

Overall, whilst the supply side incentives have continued to deliver a reliable electricity supply to consumers, there have been significant increases in costs seen by consumers for this.

1.2 An overview of reliability as seen by consumers

Consumers see reliability in terms of their electricity supply at the point of connection. Under the electricity supply arrangements that now apply, this reliability is a function of the performance of generation, transmission, and distribution. But it is also necessary to accept that the performance of the market operator (AEMO) and each consumer's retailer also impact on the overall delivery of electricity.

By segregating the market into these five different elements, any change in reliability in one element may not necessarily impact on the overall reliability at the point of connection. Generally the reliability seen by consumers is most impacted by the performance of the distribution networks where most of the disturbances occur. But the cost consumers see is a function of the cost incurred in each element. This means that there may be a large cost incurred in one element to improve reliability but when the consumer sees the overall reliability impact, there may have been little or no change.

For example, if reliability in the transmission element is improved (but the costs for this are high), consumers see little improvement as the transmission network is already much more reliable than the distribution networks. They do see the increase in cost but the overall reliability they see may not have changed.

In a similar way, the increase in reliability in the generation sector is also very high (with unserved energy being 0.002%). The increase in the market price cap to retain this level of unserved energy resulted in a higher cost for electricity seen by consumers, but this increased cost did little to improve the reliability of supply at the consumer's connection point.

This overview highlights that whilst reliability of distribution might not have changed in recent times consumers have seen increased costs due to improved reliability in the other elements. This means that when the AEMC examines the issue of the cost of reliability, it must address the total cost seen by consumers in relation to the reliability seen by consumers at their points of connection – i.e. across the five different elements that impact on reliability as seen by consumers.

Another aspect of reliability not generally recognised by governments or regulators is that reliability across a network is not the same for all consumers. There are sectors of a network that provide less reliability than other parts yet all consumers of the same class pay the same, even though they receive a different standard of reliability. Because of this there needs to be a greater

focus on ensuring those sectors of the network with a poorer performance are enhanced in order to bring all reliability up to the same standard for all consumers of the same class.

Averaging reliability measures does not identify those sectors where there is clearly a lesser reliability performance, and hence there is a need for improvement. This means that the measures of reliability are extended to highlight the least well performing sectors. Not to do so, does not provide equity between consumers of the same class, as the price for the service is the same regardless of the reliability provided.

1.3 A general overview of the impact of distribution reliability

The original concepts behind the NEM (as propounded by Professor Hilmer) were that disaggregation of the vertically integrated government owned electricity providers would result in increased efficiencies, prevent the extraction of monopoly rents in sectors that are natural monopolies, and through robust competition in contestable sectors, deliver efficient services, when coupled with efficient economic regulation.

In the monopoly sector (which includes the transport of electricity), the disaggregation was intended to allow consumers to be more involved in managing their demand for electricity supplies and to minimise their costs through greater transparency. One significant aspect of this disaggregation has been that governments, rule makers and regulators have tended to focus on each element in isolation.

The AEMC notes that the driver behind the decision to investigate distribution reliability standards is tied to the obvious rapidly raising costs for providing electricity distribution services. The MEU has noted that distribution network services costs have been rising rapidly in real terms, and that one (but not the only) driver has been the increasing claims for capital investment. This issue was recently raised by Professor Garnaut (in his update #8), the NSW Government commissioned report by Parry and Duffy and a report by IPART.

The MEU and its affiliates have been addressing revenue reset applications from distribution businesses for over a decade, from businesses in every state and territory in the NEM and in other jurisdictions. It has noted with interest that although the bulk of capex claims have been related to addressing growth of demand and customers in each distribution region, **the capex costs for replacement of assets and improved reliability, have not been the largest element of the capex requested.**

This observation is extremely important as the distribution businesses, and their Associations, have been advising that it is these costs (ie replacement of ageing assets and the drive for improved reliability) that are the main drivers of their capex needs. Some Government Ministers and regulators have then parroted

these observations seemingly without recognising that the main cause of increased costs stems from capex destined for growth. In its responses to regulators, the MEU and its affiliates have consistently observed this fact and have been concerned that factual misunderstanding about the real capex drivers still continues.

The MEU has also been observing that despite the large amounts of capex being claimed and being invested, service standards have tended to increase over time, but concurrently, service performance targets for incentive schemes have been falling and therefore more likely to be easily achieved and deliver a regulatory bonus to the distribution business (courtesy of the AER). The MEU is of the view that targets for incentive schemes need to be challenging and that the businesses should be investing some of the anticipated reward from the schemes into improving service standards. This has not occurred in the last regulatory round, with the distribution businesses seeking for consumers to underwrite the capex needs for improved reliability and for the businesses to take the rewards for achieving better than (lower) target levels.

The MEU has also noted in its many responses to both the national regulator (AER) and to jurisdictional regulators (such as IPART, ESCV, ESCoSA, WA's ERA and NT's UC) that the setting of reliability standards needs to be made in conjunction with the decision to set allowed costs for their achievement. It is totally inappropriate for reliability standards to be set independently of the costs associated with achieving them. For governments to set reliability standards independently without having involvement with the expected costs of their achievement (and hence the capacity of consumers to pay) is unproductive.

In the case of electricity transmission, there is a greater involvement of the economic regulator in the balancing of reliability standards with the cost of their achievement, but even so, there is still government responsibility involvement with the setting of some transmission service standards.

As a general comment, the MEU considers that the setting of reliability standards needs to be carried out by the economic regulator (in conjunction with relevant expert agencies) as only it has the ability to balance the cost with the setting of the standard.

The MEU considers that a core element of the setting of reliability standards is an overall assessment of the ability of consumers to pay for the costs of achieving the standards set. For example, ESCoSA has carried out specific surveys as to the preparedness of consumers to pay for higher reliability. The outcome of these surveys was that SA consumers provided an unequivocal view that they were not prepared to pay more for improved reliability⁴.

⁴ McGregor Tan Research for ESCoSA "Consumer Preference for Electricity Service Standards", November 2007. This report developed on work carried out for ESCoSA by KPMG in 2002, which reflected much the same view

There have been other surveys undertaken over time regarding reliability, but few (if any) specifically asked the question “would you pay more for increased reliability?” In this regard none ever asked the question “would you accept a lower reliability if the cost was reduced?”

In a climate of network service charges increasing much faster than general inflation, consumers are being required to pay more in real terms for the same or even lower reliability of supply they receive. This then raises the question as to whether there has ever been a survey as to whether consumers consider the price they currently pay for service is appropriate for the reliability of the service they receive.

There is a general presumption throughout the AEMC Issues Paper that the current levels of cost are appropriate for the levels of reliability provided. The MEU considers that distribution network prices no longer reflect a reasonable cost for the service provided when compared to long term historic pricing for electricity supplies when directly provided by government owned vertically integrated businesses.

1.4 Actual NSW DNSP performance and capex allocation

In the AER revenue reset of the NSW DNSPs in 2008, in its draft decision the AER provided actual performance of the DNSPs over time and compared these to the NSW government set performance targets. The AER decided not to implement a STPIS program for the NSW DNSPs because the AER considered that there have been insufficient records on which to set meaningful targets. The implication of this comment is that the AER might institute a STPIS for the NSW DNSPs at the next revenue reset scheduled for 2014.

The AER provided the following tables (7.4 and 7.5) in its November 2008 draft decision relating to the capex to be granted to the NSW DNSPs, and observed that the licence conditions require 100% compliance, and this meant that targets for service performance need to be higher than the basic “must always be achieved” levels in order to comply with the licence condition. In fact, the licence requirements only require the DNSPs to report on non-compliance.

Table 7.4 NSW DRP licence conditions – average reliability standards- SAIDI minutes per customer, by feeder type

	2005–06	2006–07	2007–08	2008–09	2009–10	From 2010–11	Actual performance 2006–07
EnergyAustralia							
CBD	60	57	54	51	48	45	13
Urban	90	88	86	84	82	80	78
Short-rural	400	380	360	340	320	300	290
Long rural	900	860	820	780	740	700	1093
Integral Energy							
Urban	90	88	86	84	82	80	66
Short-rural	300	300	300	300	300	300	175
Long rural	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Country Energy							
Urban	140	137	134	131	128	125	114
Short-rural	340	332	324	316	308	300	239
Long rural	750	740	730	720	710	700	497

Source: NSW DRP licence conditions; DNSP annual reports.

Table 7.5 DRP licence conditions – average reliability standards- SAIFI interruptions per customer, by feeder type

	2005–06	2006–07	2007–08	2008–09	2009–10	From 2010–11	Actual performance 2006–07
EnergyAustralia							
CBD	0.35	0.34	0.33	0.32	0.31	0.30	0.17
Urban	1.30	1.28	1.26	1.24	1.22	1.20	0.96
Short-rural	4.40	4.20	3.90	3.70	3.40	3.20	2.76
Long rural	8.50	8.00	7.50	7.00	6.50	6.00	5.64
Integral Energy							
Urban	1.30	1.28	1.26	1.24	1.22	1.20	0.90
Short-rural	2.80	2.80	2.80	2.80	2.80	2.80	2.00
Long rural	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Country Energy							
Urban	2.00	1.96	1.92	1.88	1.84	1.80	1.36
Short-rural	3.30	3.24	3.18	3.12	3.06	3.00	2.47
Long rural	5.00	4.90	4.80	4.70	4.60	4.50	3.82

Source: NSW DRP licence conditions; DNSP annual reports.

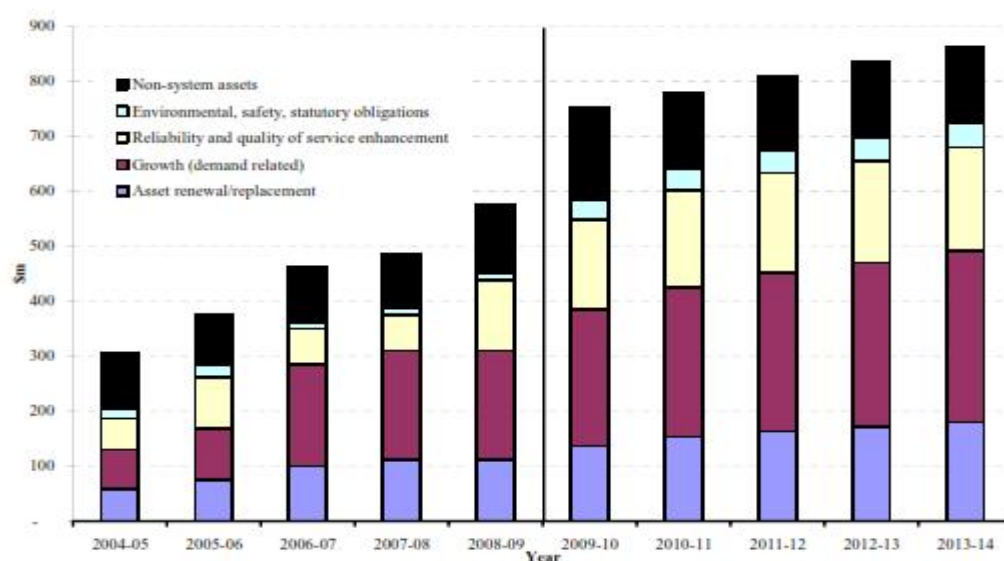
Despite the fact that all NSW DNSPs had exceeded, by a significant amount, the licence performance levels, the AER considered that the capex and opex claims of the DNSPs should, in the most part, be accepted so that the service performance could continue to exceed licence level requirements.

This assessment is supported by the data provided by the AEMC in Issues Paper appendix B. The data provided shows that overall service performance of the DNSPs greatly exceeded the minimum standards set in the licence conditions. There are only three annual measures out of a total of 120 annual

measures that did not comply and one of those was only marginally non-compliant. What is most interesting is that 80% of the measures related to periods before the recent AER decision to allow a massive increase in capex for the DNSPs⁵.

Examination of the capex allocation for each DNSP provides an interesting counterpoint. In its draft decision, the AER provided the following figures (7.3, 7.4 and 7.5)

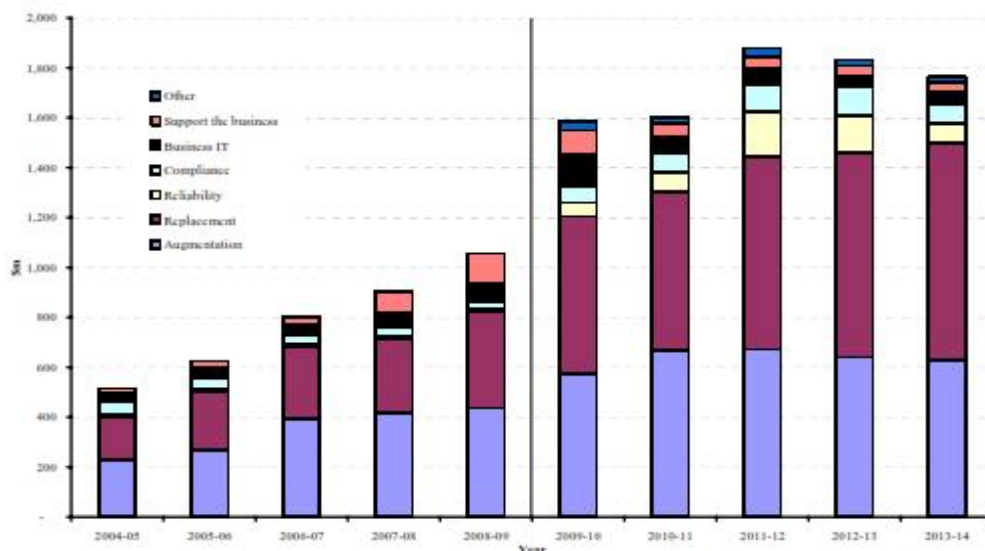
Figure 7.3.: Country Energy’s actual and proposed capex by category (\$m, 2008–09)



Source: Country Energy, *Regulatory proposal*, RIN template 2.2.1. Data for 2004–2009 converted to \$2008–09.

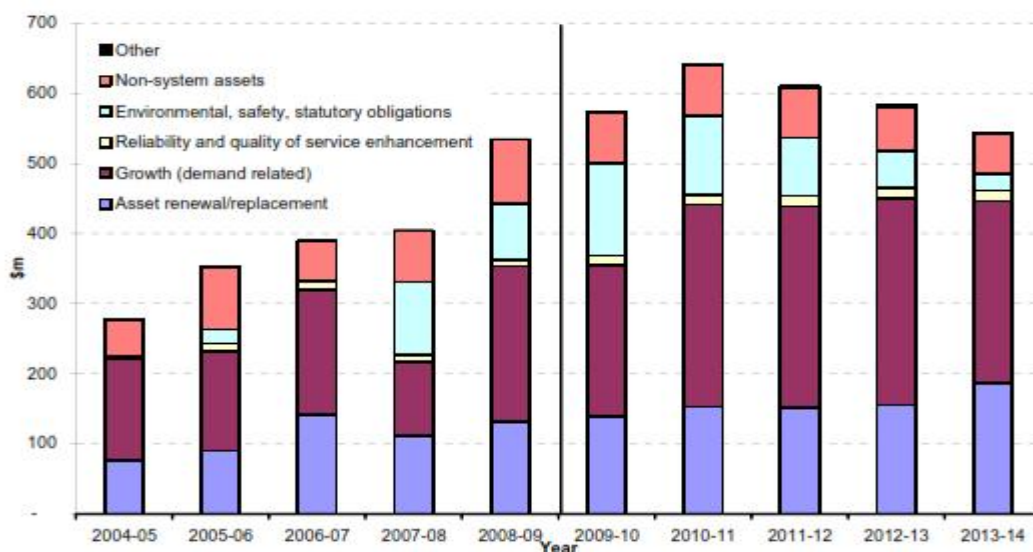
⁵ Ausgrid capex for 09/14 was over 90% of its RAB, Endeavour Energy capex was more than 70% of its RAB and Essential Energy capex was nearly 90% of its RAB

Figure 7.4: EnergyAustralia’s capex proposal by driver (\$m, 2008–09)



Source: EnergyAustralia, *Regulatory proposal*, RIN template 2.2.1. Data for 2004–2009 converted to \$2008–09.

Figure 7.5: Integral Energy’s actual and proposed capex by category (\$m, 2008–09)



Source: Integral Energy, *Regulatory proposal*, RIN template 2.2.1. Data for 2004–2009 converted to \$2008–09.

These show that the capex dedicated to reliability was a small part of the total capex claimed and granted, raising the question as to whether the aspect of meeting or exceeding minimum service performance levels was seen by the DNSPs as requiring significant attention. Clearly, the modest amount of capex dedicated to reliability issues does not indicate that the DNSPs considered that meeting this licence condition was considered to be challenging.

2. Setting the AEMC framework

This section addresses elements of the review following the AEMC structure of the Issues Paper

2.1 The framework of the review

The AEMC considers that, accepting the time constraints the AEMC is subject to, it should focus on the following elements:

- Using the NSW DNSPs to cost the variations on reliability
- Using the AER distribution determination as the basis for efficient costs
- Assessing the different consumer classes preparedness to pay for a range of reliability outcomes

The MEU sees that whilst the task appears straightforward, it is indeed extraordinarily challenging.

Our experience in the recent revenue reset of the NSW DNSPs shows that they have used the changes to Chapter 6 of the NER to maximise their revenue. That this is so can be attested to by the AER decision to recommend a series of rule changes to bring balance to the NER in relation to network revenues.

A classic example of the NSW DNSP decision to maximise their revenue, is by looking at their approach to the WACC. All of the NSW DNSPs, knowing they could access debt at about 5.9% interest argued (successfully) for them to be granted a debt interest rate of some 8.9% in their revenue decision. The NSW DNSPs were fully aware that this would result in their achieving revenue well in excess of their needs.

As the AEMC will be using data provided to it by the NSW DNSPs, the MEU sees there is a risk that the DNSPs could use their extensive knowledge to the detriment of consumers by providing the AEMC with information that acts in the interests of the DNSPs.

There is little doubt that the AER determination in 2009 resulted in an increase in NSW network prices that have been judged to be excessive by a range of independent assessments. To rely on this data as a source of cost information will condemn the AEMC to using inflated costs as the basis of its assessment.

Assessing consumer preparedness to pay is a fraught exercise. Those consumers who receive excellent reliability are unlikely to want to pay for improved reliability but would be unlikely to countenance reduced reliability. Those consumers being served by poor performing network elements would like to see an improvement, but as they are already paying for the average performance they would see that, quite reasonably, they would want to see what “average reliability performance” is before providing an opinion.

In its investigations with its members the MEU has been advised that the way the question is asked about the cost impact of changed reliability that determines their response. They also note that frequency of outages and the timing of them, as well as the total duration, affects the costs they incur as a result of poor reliability. The question usually asked is posed in such simplistic terms that to provide a comprehensive and accurate response is not possible. As a result, the question of the cost of reliability (or lack of it) most commonly addresses the maximum cost rather than a well developed actual cost.

The MEU is aware that VENCORP (the transmission service operator in Victoria until it was subsumed into AEMO) developed the concept of the value of customer reliability (VCR). There is significant concern about the most recent measure of VCR and the MEU concerns are detailed below in section 3.6. It is noted that the VCR was developed by VENCORP (now AEMO) as a measure to evaluate the cost benefit of augmentations and expansions of the transmission network.

Some of the Victorian distribution networks have used the AEMO VCR as the basis for their decisions to invest in their networks as there is no other tool available for them to calculate the cost/benefit of augmentations and expansions. Despite this use, there is no certainty that it is appropriate for use in distribution networks as the VCR was specifically developed to replicate the higher standards of performance required of transmission networks.

2.2 Issues for the AEMC review

In section 2.2 of the Issues Paper, the AEMC provides a listing of the factors the MCE considers the AEMC should examine and to this the AEMC adds further factors that it considers are needed to be looked at.

The MEU considers that these factors provide a good basis for the AEMC task but would suggest that the AEMC needs also to get a better understanding as to how the different elements of capex contribute to the achievement of overall network reliability.

For example:

- Capex on growth assets could be increased so that the reliability of augmentations and extensions exceeds the targets and thereby increase the overall average.
- Replacement of assets (ie disposal of old and presumably less reliable assets with new assets and therefore more reliable) should increase overall network reliability.
- Replacement and refurbishment of assets associated with the worst performing elements of the network should provide a considerable benefit to the overall averages.

The MEU considers that the AEMC must examine in detail the impacts of the various ways that service levels are influenced so that it can fully appreciate the way average reliability is achieved.

2.3 Approach to reliability

The MEU notes that reliability is impacted by design decisions (the degree of redundancy built into the networks), the average reliability standards set and standards for individual feeders.

The fact that there are different redundancy standards implies that there are some consumers (eg in the CBD) that receive better reliability to those in urban and rural areas. To achieve this requires greater investment for the CBD, yet all consumers of the same class pay the same price for their network services.

The MEU notes that the reliability standards are predominately based on unplanned interruptions with many exclusions permitted in the calculation of the service performance. In this regard, it must be accepted that consumers only see an interruption to their supply when planned outages occur. The MEU considers that exclusions provide a distorted view as to the actual service performance seen by consumers at their points of connection.

In principle, the MEU considers that there should be no exclusions in the calculation of service performance and that the DNSPs should be encouraged to minimise all outages and to be incentivised to ensure that this is achieved.

As discussed above, the MEU supports the measurement of service performance on individual feeders so that these can be identified and action taken to improve the service performance where it provides the greatest benefit. It is accepted that the minimum service performance of individual feeders must be less than the average of all feeders of the same class. As part of the service performance of individual feeders, there should be a time limit set for the worst performing feeders to remain at this level, even if the service performance is not less than the minimum.

Customer reliability service standards provide an incentive (albeit quite low powered) on the DNSP to improve the service performance in poorly served areas of the network. However, the incentive to achieve a target has little bearing on the setting of the target and is therefore more related to a STPIIS than the setting of the actual target. On this basis the MEU agrees that customer reliability service standards should not be included in the AEMC review.

3. The AEMC approach to the review

3.1 Best practice

The AEMC proposes that it will consider:

- “the methodology for setting distribution reliability outcomes;
- the measures used (for example, SAIDI and SAIFI);
- how the requirements for distribution reliability outcomes are expressed and structured (for example, customer categories and feeder types used);
- any relevant customer service standards and outcomes; and
- the institutional arrangements that apply (for example, the process for amending the approach to, and level of, the distribution reliability outcomes, and reporting requirements)”

In addition, it will take account of:

- “historic levels of distribution reliability performance;
- indicative costs of achieving the distribution reliability outcomes, where information is available;
- the extent to which the distribution reliability outcomes reflect community expectations and willingness to pay;
- the strength of the governance arrangements (for example, whether the body who sets the outcomes is independent from the body which must meet the outcomes);
- the level of transparency in relation to how the distribution reliability outcomes are set and applied; and
- the level of accountability of DNSPs in relation to compliance with the required outcomes”

In general, the MEU agrees that the above listing provides a sound basis for the task, but the MEU considers that the AEMC also needs to address:

- The need to reflect the inter-relationship between the party which sets the measures and the party which provides the resources for their achievement. For example, there is a disconnect between the NSW government which set the current standards in the absence of the cost of achievement and the AER which has to allow adequate funding for their achievement
- Whilst the MEU agrees that indicative costs for the achievement of the standards is an essential component of the work being undertaken, as noted in section 2.2, the accessing of specific data to achieve the service performance can be readily manipulated.
- The implementation of a STPIS which provides a financial incentive for the long term improvement of service performance. Ultimately such a program could result in there not being a need to set minimum standards

as the incentive program has resulted in service performance well in excess of the minimum standards.

- The use of better pricing signals in tariffs to encourage users to reduce peak consumption as an efficient and cost effective way of improving network reliability. For example, one MEU member reports that at one of its sites, the fixed charge component was increased by 357%, while the peak and off-peak components of the charges decreased by over 70%.

3.2 Scenarios

The AEMC considers that up to four different scenarios backed by high level calculations will be adequate to provide guidance. It proposes one scenario which has higher service performance and 2-3 scenarios with lower service standards.

The MEU considers that at least one of the scenarios with lower standards should be symmetrical with the scenario with higher service standards. This will provide two useful outcomes – the first whether the resultant costs are symmetrical (eg would reducing the standards provide a larger benefit to consumers) and, secondly, whether the feedback on cost from the DNSPs is consistent.

The MEU has been advised by its members that with the increasing sensitivities of modern equipment to voltage disturbances, even very short term voltage fluctuations can trip equipment and so cause production to cease. Historically, frequency of outages is measured requiring quite significant durations of the outage before it is recorded as an outage. The AEMC should look at shorter duration of outages as part of the SAIFI calculation.

Similarly, voltage dips and spikes cause production trips but these are not measured as an outage in either SAIDI or SAIFI calculations, yet they can cause considerable harm. These should be considered for inclusion in scenarios as well.

3.4 Estimating costs

The AEMC opines that the efficient costs and their prudence for any expenditure is best assessed by the AER in its revenue reset review. In principle, the MEU would agree with this assessment but in light of the many concerns raised about the current framework that the AER has to work within (NER chapters 6 and 6A) and the very fact that the AER has proposed a suite of rule changes to allow it to better assess efficient and prudent costs, raises doubts about this AEMC assertion.

The MEU considers that any assessment of costs made under the current rules is likely to result in an overstatement of the costs involved.

The Issues Paper observes that there is asymmetry in outcomes in relation to underspending on reliability that is likely to result in a short timeframe before the outcomes of the underspend become apparent, whereas the benefit of any spending on reliability is likely not to be seen for a number of years. The MEU considers that attempting to link the costs incurred now with achievement of service performance in the future will be challenging and there will be potential for considerable error in the outcome.

The MEU agrees with the AEMC that the identification of costs associated with changing reliability levels is affected by the aspects identified in the Issues Paper, but the MEU also considers that the costs are also going to be affected by the aspects noted in section 2.2 above and the MEU considers that the AEMC must include these aspects as well in its deliberations.

The MEU notes that the AEMC will use

“Current and planned capital expenditure, and the associated operational and maintenance expenditure, that will be incurred to meet the existing distribution licence conditions for the remainder of the current regulatory control period (until 30 June 2014).”

The MEU has a concern with this approach as it presupposes that the AER approved capex and opex are efficient and needed to meet (among other things) the revised reliability standards. The observations of Garnaut, Parry/Duffy and IPART all agree that there is considerable doubt about the efficiency and prudence of the AER approved allowances. This is supported by the AER proposal to change the network revenue rules. Using inflated costs (as is likely) will result in an overestimate of the costs to achieve enhanced reliability.

This concern is amplified by the observation that the service performance of the DNSPs already is better than the minimum standards set by the NSW government. The MEU considered at the time of the AER revenue reset review in 2008, that the capex and opex claims by the DNSPs were excessive and not needed to meet the needs of the networks. The Parry/Duffy review confirmed the MEU observations.

Because of these concerns the MEU does not consider that AEMC should use the current and planned capex and opex allowed for the current regulatory period as the basis for assessing the efficient and prudent costs for meeting the enhanced reliability standards. At its most basic, the MEU has a view that there was no need for additional capex and opex to meet the enhanced service performance because the DNSPs had already exceeded the new requirements.

The Issues Paper also notes that:

“The degree to which capital expenditure can be attributed as a direct result of the need to meet existing distribution licence conditions, as distinct from other drivers such as demand growth.”

The MEU considers that this will be a challenging task although, as noted in section 1.4 above, the DNSPs have already provided some indication as to how they considered the different elements of the capex claim were segmented to various constituent parts including reliability. The variation between the amounts claimed for reliability capex implies that each DNSP has its own approach to developing costs for each capex element. The MEU considers that the AEMC needs to develop a carefully considered chart of regulatory accounts to ensure there is consistency between the approaches of each DNSP.

3.5 Estimating willingness to pay

The Issues Paper rightly identifies the costs to consumers for the loss of supply varies between customer class and the activities each customer undertakes, the duration of an outage, the frequency of these, where the outage occurs and the timing of the outage.

There is even variation within each of these subsets. For example, the actual timing of an outage has different outcomes dependent on the time of a day, different times within a week and different seasons of the year. Equally, a duration of 1 hour would have a different cost impact to one of 3 hours.

As a result there can be no fixed value which addresses the reliability for any one customer as the cost incurred varies with all of these, regardless of the various classes of customer. What is certain is there is no relation between the amount of energy that is unserved with the costs that a consumer will incur from an outage.

The Issues Paper then suggests that the Value of Customer Reliability used by AEMO in Victoria and adjusted for the mix of consumer classes in each DNSP would provide a surrogate for the customer willingness to pay. AEMO has a view that there is a correlation between the cost a consumer incurs and the amount of energy that is unserved. They have developed a price which they consider consumers place on unserved energy in terms of \$/MWh. This value is about 4-5 times the value of the market price cap used for reliability of generation supply. The argument they use to justify this higher figure is that the time frame to rectify a network shortfall is greater than to rectify a generation shortfall and therefore a larger value is appropriate. The MEU (and other stakeholders as well) disagrees and has advised AEMO of this in its responses to the AEMO review of the wider use of VCR in the NEM.

In section 1.3 the MEU observed that ESCoSA has carried out specific surveys seeking to know how much more SA consumers would pay for increased

reliability. The response to this question has been resounding – consumers would not pay for increase reliability!

The MEU is concerned that it is the way that the surveys are carried out that determines the outcome. In the case of the AEMO VCR surveys, there was no specific question asked seeking to find out what was the willingness to pay for increase reliability. In fact, the AEMO survey has a major flaw in that it attempts to relate the costs incurred by consumers to the amount of energy not provided. This calculation results in an extremely distorted outcome. For example, a short outage of one minute can cause an entire production line to cease operation. Because it usually takes production lines many minutes (and in many cases, hours) to return to stable operation, the outage could have been for a much longer period and the same costs would be incurred. Relating the costs to the power not served over the 1 minute outage delivers a cost/MWh up to 60 times that which would have occurred if the outage was of an hour's duration. This very real, but simple, example typifies the problem of using VCR for the purpose the AEMC proposes.

The MEU considers that a cost related to the amount of unserved energy is not a valid basis on which to assess a consumer willingness to pay for improved reliability as the two elements have little relationship to each other. It is noted that AEMO has assumed a relationship because the outworkings provide a mathematical basis for AEMO assessments of cost/benefit studies, but its basis is essentially flawed. The AEMC should approach the use of VCR with extreme care.

3.6 AEMO and VCR.

The Issues paper notes that:

“The only widely used estimate of willingness to pay in Australia is AEMO's estimate of the Victorian VCR, which is updated each year.”

This is not correct as ESCoSA recognised that there was little willingness to pay for improved reliability. The fact that the VCR is updated each year is concerning as this implies its value changes rapidly. VCR should be seen much as a long term fixed value (more like the Market Price Cap which is fixed for long periods of time) than one which needs to be regularly updated.

In its response to the AEMO background paper on the issue of VCR, its derivation and comparisons, the MEU commented:

“While the MEU sees that the Oakley Greenwood report rigorously addressed VCR in terms of the NEM, it did not look at VCR values used in other electricity markets, nor how these other markets calculated their VCRs. The AEMO background report does provide comparisons with values for VCR used in other

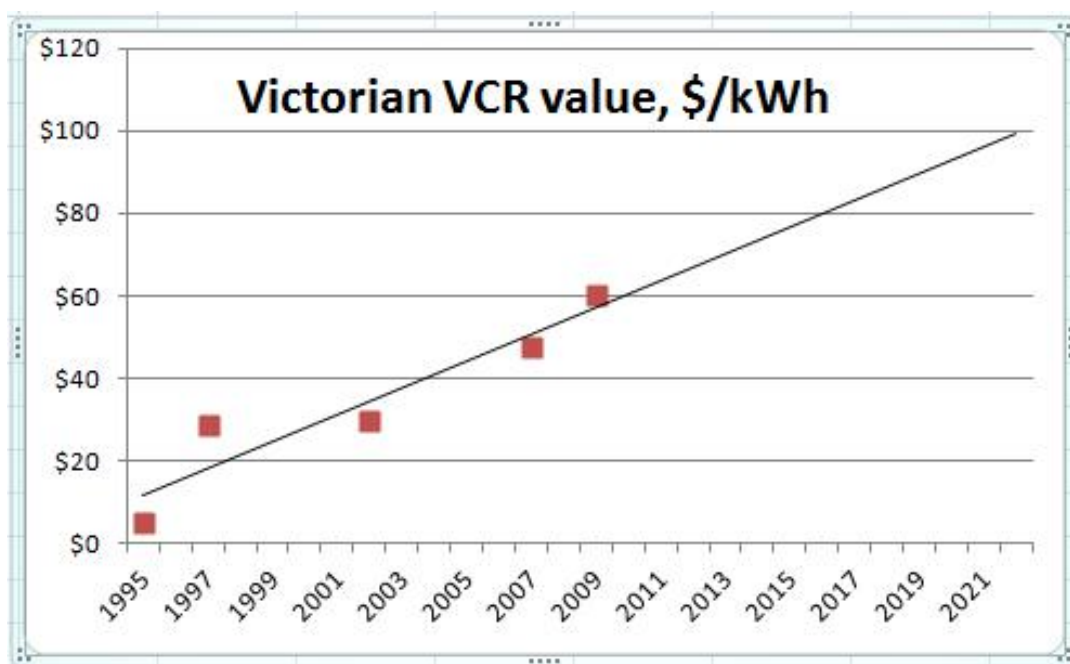
countries. Overwhelmingly, the international VCR values are well below that used in Victoria.

The AEMO report does little to explain why there is such a massive difference between its values for VCR and those used overseas, other than to rationalise why they are much lower than the Victorian VCR. Rather than rationalising, it could well be that the Victorian VCR is too high!

The issue of international comparisons has pertinence in other areas – whether there should be a national value for VCR or whether each region should have a separate VCR which addresses the unique circumstances for each region, based on, for example, the types of consumers in each region or sub-region.”

The MEU has not seen any arguments from AEMO that would change its current view on VCR.

Another major concern the MEU has with the AEMO VCR is that it has changed dramatically over a relative short period of time, as the following chart highlights:



Source: VENCORP and AEMO data

In a period of 14 years the assessment of VCR has increased by a factor of 12!

In its Issues on VCR, by using its approach to VCR, AEMO calculated that the VCR applicable to SA would be \$44.30/kWh, implying a willingness to pay for increased reliability. This is in direct contradiction to the surveys carried out by

ESCoSA about willingness to pay for increased reliability which both concluded that there was no willingness to pay.

In its Issues Paper on VCR, AEMO calculated that the VCR between regions varied from a low of \$41.53/kWh in NSW to a high of \$57.29/kWh in Victoria, with values for Queensland, SA and Tasmania falling between these two values. Yet the value of reliability in the supply of generation (as set by the Market Price Cap) is a common value for all regions. This raises the concern that the development of the VCR for Victoria, and its extrapolation, is flawed. The MEU considers that this is the case, particularly when the VCR has increased in value by so much in a short period of time.

AEMO advised in its Background Paper that international values for VCR are much more stable and much lower than the value AEMO uses for Victoria. This is shown in the following table provided in the Background Paper. This table highlights that the VCR used by AEMO for Victoria is not replicated elsewhere and therefore there is considerable doubt as to the value calculated by AEMO.

Table 3 Comparative estimates of the VCR (2009 AUD/kWh)

Region	Sectors	Source	Original Value	Year	AUD/kWh
Sweden	Residential	Carlsson and Martinsson (2008)	kr 61.16	2004	13.00
Chile	Industrial	Serra and Fierro (1997)	\$US 0.22	1989	0.49
Indian States	Industrial	TERI (2001)	Rs 24.71	2001	1.35
Thailand	All	ERI (2001)	60 Baht	2000	3.22
France	All	Gouni and Torrion (1988)	\$US 3.60	1988	7.96
NE USA	All	ICF Consulting (2004)	\$US 4.11	1977	15.84
Netherlands	All	de Nooji et al. (2007)	€ 8.56	2001	17.98
Great Britain	All	Redpoint Energy and Energy Strategies (2007)	£ 10.00	2006	26.09
Ontario	All	Bhavaraju (2004)	\$US 10.00	1980	33.00
NW USA	All	Bhavaraju (2004)	\$US 16.93	1990	36.57
Ontario	All	Wacker and Billington (1989)	\$US 17.00	1989	37.58
USA	All	Sullivan (2009)	\$US 33.01 ⁷	2008	37.63
Ireland	All	Tol (2007)	€ 40.00	2005	76.39

The AEMC proposes to use the AEMO VCR calculated for Victoria and adjusted for NSW, as the value of consumer willingness to pay. The MEU considers that this is not appropriate for the reasons provided above.

The AEMC then posits that it could use the AEMO approach and adjust the Victorian values for each consumer sector, and develop a VCR for each of the NSW DNSPs. Such an approach follows the suggestion that AEMO has proposed, to use Victorian data to develop VCRs for each NEM state. Prima facie, such an approach seems reasonable if the input data can be assumed to

be correct. As the MEU has shown there is considerable doubt about the veracity of the input data.

The MEU considers that the approach proposed is flawed as the input data is flawed.

In assessing the utilisation of the Victorian data it is appropriate to assess the variation of VCR between the different consumer types – agricultural, residential, commercial and industrial. AEMO posits that industrial users value reliability at about 3 times what residential consumers do, that agricultural consumers value reliability 7 times more than residential users and 2.5 times industrial users. Commercial users apparently value reliability more than 8 times residential users and 3 times as much as industrial users.

Intuitively these ratios do not seem appropriate. For example, whilst a dairy farmer would see the supply of electricity critical when milking, the supply is not so critical between milkings and the supply would be much the same as for residential consumers. Similarly, the milk processing factory would tend to have a similar reliability need to that of an industrial processing plant. On this basis, the expectation of agriculture (as represented by the dairy industry) supposedly displaying such a high VCR would appear to be too high except at the critical time of milking. Such an outcome would be much more aligned to the results of the two ESCoSA surveys.

What this indicates is that it appears that the AEMO assessments might better relate only to critical time usage and therefore is not representative of an average over time.

As it advised AEMO during its review of the transmission of VCR from Victoria to a national basis, the MEU considers that a much more comprehensive approach to assessing willingness to pay is required. Because of this the MEU (along with many other respondents to the AEMO review) considers that a detailed survey of consumers is undertaken, and that such a survey must include asking the basic question – is the consumer willing to pay more for better reliability?

The MEU also notes that in the current climate of consumer concern with rapidly rising electricity prices (especially in NSW), the outcome of such a survey asking about willingness to pay for improved reliability, would be that consumers would say “No” and that current prices are too high already.

3.7 Segmentation of customer types

The premise implicit in the AEMC Issues Paper, is that willingness to pay for improved reliability might vary from network to network, or even feeder to feeder. The MEU agrees that this might be true, but that such an outcome would relate more to the service performance received. Intuitively, a customer

connected to a poorly performing feeder would be more likely to seek better performance and those receiving average or better performance are unlikely to do so. The ESCoSA surveys confirm this intuitive assessment.

As the networks in NSW (and in many other NEM regions) are either CBD/urban or regional/rural then there is likely to be a difference in mix of consumer types and therefore, on the AEMO assessment, a difference in VCR. Extending this concept further into each feeder is likely to increase this differential in consumer types using each feeder.

Therefore any assessment of consumer willingness to pay, based on a network or feeder by feeder basis, is likely to be skewed if the AEMO segmentation is to be believed.

However, such an outcome runs contrary to the view that the entire market operates with one fixed Market Price Cap. It must be remembered that the original name for the market price cap was “Value of Lost Load” which was to set a NEM wide value for the consumer value of losing supply. If such a concept is applicable on a NEM wide basis, then it raises a concern that VCR should be common across the NEM and not display variation from network to network or feeder to feeder.

3.8 Conclusions

Overall, the MEU is of the view that:

- The scenarios for different reliability service levels needs at least one lower level to be symmetrical with the one higher level
- Careful development of regulatory charts of accounts is needed to ensure that the expenditures for reliability are truly reflective.
- Willingness to pay for improved reliability is a critical element that depends on the questions asked. Surveys where the question is asked “what are you willing to pay for improved reliability?” most frequently show there is no such willingness.
- The MEU (and other stakeholders) considers that the AEMO VCR approach is flawed and great care is urged.
- Care is needed in further segmenting willingness to pay below a regional level.

4. Responses to AEMC questions

Chapter	#	AEMC question	MEU response
2	1	Are there any other issues which should be considered within the scope of the MCE's terms of reference?	The MEU considers that great care is needed in assessing the willingness of consumers to pay. The AEMC should concentrate more on the reliability issues for the worst performing elements of the networks as these would be operating at less than the targeted reliability
	2	Should the AEMC have regard to any other factors to those outlined in the MCE's terms of reference in undertaking the NSW workstream?	Yes, see section 2.2 above. The MEU considers the AEMC must also address the various influences on measuring average service performance that is affected by other capex elements other than that dedicated to achievement of minimum reliability standards.
3	3	Should customer service standards be considered within the scope of the NSW workstream?	Customer reliability service standards provide an incentive (albeit quite low powered) on the DNSP to improve the service performance in poorly served areas of the network. However, the incentive to achieve a target has little bearing on the setting of the target and is therefore more related to a STPIS than the setting of the actual target. On this basis the MEU agrees that customer reliability service standards should not be included in the AEMC review.
4	4	Are there any other criteria we should take into account in reviewing national and international approaches to distribution reliability?	Yes. These are included in section 3.1
	5	What scenarios should be considered? What kinds of changes to the components in the existing NSW distribution licence conditions should be assessed?	See section 3.2

	<p>6a Are any other factors likely to affect the degree of accuracy of the cost estimates? What measures could be taken to improve the accuracy of the estimates?</p>	<p>See section 3.4</p>
	<p>6b Should we consider any other factors in estimating the costs of meeting the alternative distribution reliability outcomes?</p>	<p>See section 3.4</p>
	<p>7a Are there any potential issues with the use of AEMO's Victorian VCR methodology in estimating the willingness of NSW customers to pay? If so, how should the Victorian VCR methodology be adapted to ensure that it reflects the characteristics of NSW customers?</p>	<p>Yes. See comments in sections 3.5 and 3.6 The MEU does not consider that the AEMO approach is an appropriate tool for the purpose and the AEMC should carry out its own survey and integrate this with the results of the surveys carried out by ESCoSA (KPMG and McGregor Tan)</p>
	<p>7b Should additional or alternative customer types to the customer types used by AEMO (that is, residential, industrial, commercial and agricultural) be considered?</p>	<p>See section 3.7 The MEU is concerned that if market wide assessments of the value of lost load have been seen as appropriate in the past, then why is there consideration of quite significantly variable values for the values of customer reliability.</p>
	<p>7c Should willingness to pay by customer type be further segmented by distribution area or feeder type? If so, for which customer types would this be most relevant and feasible?</p>	<p>See sections 3.6 and 3.7 The MEU is concerned that greater segregation will provide a skewed outcome because the consumers served by poorly serviced networks or feeders are more likely to see a need to improved reliability whereas consumers on well performing networks and feeders are more likely to express a view that existing reliability is adequate.</p>

	8 Should we consider any other factors in our cost-benefit assessment of alternative scenarios for NSW distribution reliability outcomes?	The MEU considers that the current factors are sufficient for the review of the NSW networks, considering the time available.
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