Major Energy Users Inc.

Australian Energy Markets Commission

Reliability Panel

Review of the Operational Arrangements for the Reliability Standard (REL 0035)

and

Review of the Reliability Standard and Settings (REL 0034)

Submission by

The Major Energy Users Inc

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CONTENTS Page

Executive Summary 3

1. Introduction 5

2. Operational Arrangements for the Reliability Standard 29

3. Review of the Reliability Standard and Settings 37

4. MEU conclusions 43

Executive Summary

The Major Energy Users (MEU) considers that the NEM framework is fundamentally flawed in many aspects and is therefore not producing the efficient outcomes envisaged in the Single Market Objective detailed in the National Electricity Law.

These flaws are demonstrably seen in the present reliability reviews.

Firstly, the Reliability Panel (RP) is seeking to maximise electricity supply reliability, yet reliability in the network delivery represents a substantially more critical issue. The RP is not responsible for the network reliability, yet it is the cumulative impact of the reliability in each element of the supply chain that consumers actually see. This raises the question as to how the RP can exercise its role in electricity supply reliability in an efficient manner when its reviews exclude the impacts of reliability in other elements of the supply chain.

Secondly, in common with many ongoing NEM reviews and processes, no cost benefit analysis is undertaken of the proposals put out for review. In these two reviews by the RP, it is assessing reliability of a part of the supply chain, using as a target 99.98% reliability of this element of the supply into the NEM. The cost to consumers to maintain or increase this reliability needs to be assessed in terms whether a reduction might be more reflective of the entire supply chain reliability which shows significantly lower reliability. It is this cumulative reliability that consumers see. There is a wide disconnect between the RP proposals for the additional (but partial) reliability at the supply end of the electricity system and the value to be obtained by consumers who foot the bill and see reliability after the electricity passes through the transmission and distribution networks.

Thirdly, continual denial of the flaws in the NEM **as seen by consumers** which have been expressed in this and other reviews, begs the question that if the NEM is operating effectively and efficiently, why there is a continuing need for interventions being introduced in the NEM to address the obvious shortcomings in the NEM.

Fourthly, the RP has only one instrument available to it to achieve reliability in the energy only market – VoLL or Market Price Cap. This same lever is used by other regulators in the NEM to achieve other outcomes, raising the question whether this is the best tool to achieve reliability. It has been seen both in the NEM and in other jurisdictions that raising the VoLL/MPC accentuates volatility, increases risks and incentivises exercise of generator market power, resulting in massive wealth transfers from consumers and in doing so increases the deadweight losses to the overall economy.

The MEU considers the RP must address its current reviews in a way that:

- Identifies the costs for achieving the reliability setting used and whether this cost is reflective of the benefits it provides to consumers. This implies that a cost/benefit sensitivity analysis is essential to identify the optimum reliability setting for the electricity supply into the market.

- Reliability of the electricity supply element is seen in context with the reliability inherent in the other parts of the supply chain.

- Relates the costs for achieving the overall level of reliability with the reliability settings it uses and the outcomes as seen by consumers at the point of consumption.

- Repairs the NEM framework so that market interventions are eliminated rather than increased as is clearly apparent from the RP Issues papers.

1. Introduction

The Major Energy Users (MEU) made the decision to provide a response to both of these reviews in a single document rather than reiterate many of the same comments and observations in two separate submissions, as the two reviews are closely related. We note that the Reliability Panel (RP) itself sees the close inter-relationship between these two reviews.

The MEU has included a detailed introduction to its response to these reviews so that the commentary on specific matters can be seen in light of the MEU member views of the electricity market and the various observations made about it.

The MEU also notes that the Reliability Panel has the prime responsibility to set the levels of reliability in the NEM and for ensuring that the market performs. The MEU therefore observes that the RP must not be constrained in its role by exogenous forces or by an insistence that it must accept without any reservation the market structure designed.

The MEU considers that the RP would be failing in its duty if it considered that there are better alternative structures for ensuring reliability in the NEM than by blind acceptance of the basic architecture developed in the early 1990s. Other jurisdictions here significantly modified market design when flaws have been identified. The RP must advise the MCE if, in its considered view, there is a more reliable or more cost effective method of ensuring reliability in the NEM, especially now that the MCE has supported the introduction of the CRS and xRET schemes for mitigating carbon emissions.

At the same time, the RP should also ensure that its decisions meet the basic objective of the National Electricity Law, in that its decisions must be demonstrably in "… the long term interests of consumers with respect to price, quality, reliability and security of supply of electricity…"

The RP must have regard to the impact its decisions have on each of these element relating to the long term interests of consumers.

1.1 About the Major Energy Users

The Major Energy Users (MEU) (comprising the Energy Markets Reform Forum (NSW), Energy Consumers Coalition of South Australia and the Energy Users Coalition of Victoria) between them represent over 20 major energy using companies in NSW, Victoria, SA, Tasmania and Queensland. The MEU also has

affiliates representing energy user issues in Western Australia and the Northern Territory.

Analysis of the electricity usage by the members of MEU shows that between them they consume about 7% of the electricity generated in the NEM. Many of the members are located in regional parts of Australia, some distance from the major centres. They are highly dependent on the transmission network to deliver the electricity essential to their operations. Being regionally located, the members have an obligation to represent the views of their local suppliers and of the regionally based workforce on which the companies are dependent. With this in mind, the members require their views to not only represent the views of large energy users but also those of smaller power consumers located near to their regional operations.

The MEU has been prominent in representing consumer views to the Reliability Panel (RP) as it has proceeded through the comprehensive reliability review (CRR) process throughout 2007 and provided comprehensive responses at all stages of that review.

The MEU members are extremely concerned that there is a high risk the current levels of reliability of electricity provision at their facilities might not be available in the future, especially with the impacts of CPRS and xRET, and therefore putting at risk the investments they have made based on the continuing reliability of relatively low cost supply of electricity (undisputedly considered to be an essential service). The MEU members point to the following:

1. The investments they have made exceed by many times[1], the investments made by electricity supply side entities, and that downstream investment will be put at risk by increasing electricity prices and by declining reliability
2. Australia has been blessed with large amounts of easily won energy in the form of black and brown coal and gas (which are all easily converted into electricity), and this has been a benefit which Australian industry has used to provide exports (which benefits the nation as a whole) and import replacement (which reduces the need for imports and so provides the nation with a counter to the need for external ownership of national assets which is the inevitable result of a large current account deficit).

As MEU pointed out to the RP in its responses to the CRR Australia was losing its competitive advantage in energy supply costs compared to overseas

[1] In 2001, the members of ECCSA (an affiliate of MEU) advised their total investment in South Australia exceeded $ 7Bn. This amount is similar to the total of the SA electricity supply industry investments at the same time. The ECCSA members use less than 20% of the electricity generated in SA.

countries, especially those that compete with Australian manufacturing. Recent decisions of government (with the CPRS and xRET legislations), recent determinations by the AER in relation to network costs and the pressure by natural gas producers to increase the costs of gas to world parity pricing, all have combined to reduce Australia's competitive advantage in energy costs.

The import of MEU member concerns is that the RP must assess the commercial impact of its decisions on consumers. A failure to do so will lead to a further decline in Australia's competitive position, and raises the inevitable question as to the overall efficacy of the NEM experiment.

1.2 Electricity supply is not a commodity

In its response to the CRR, the MEU provided a view on the market signals that had applied up to that time. Market design economists along with many other participants and commentators on the NEM have stated that economic signals are the key to generating the desired outcomes for the NEM. They aver that the excessively high spot prices such as in 2007, 2008 and 2009 are an outworking of the market and are needed to signal new investments. Unfortunately (else they might better understand) they do not have to contract for new supplies of power at an increase of $40-50/MWh (or more) above costs of electricity production, which many consumers of electricity are now facing and which is severely impacting their profitability.

The clear exercise of market power by AGL's Torrens Island power station (TIPS) during the summers of 2008 and again in 2009, highlights clearly that the wholesale market design has a fundamental flaw if, as the AER has determined, one generator has the market power to set spot prices at a demand level some 20% or more below the achieved maximum demand as is evidenced in the SA region and again more recently in Tasmania.

Whilst in principle the MEU concurs with attempting to make electricity supply more attuned to market forces, it queries whether delivery of an essential service can ever be subject to true economic theory, especially when the commodity is not capable of being stored. At its most basic, economic theory dictates that when (say) bananas are in short supply as they were late in 2006 and early 2007, consumers had the option to either pay the (inflated) market price or not to purchase at all. This decision could be made in full knowledge that there were adequate alternatives to bananas (such as other fruit) and the price of the bananas was well known prior to any commitment to purchase.

The NEM is totally unrelated to such price comparisons extant in a competitive market, as there are no realistic energy alternatives available to consumers to

replace electricity nor is there an easy opportunity for electricity users to wait until prices are at an acceptable level. This implies a prima facie concern that reliance on economic market forces, on their own, might not be appropriate for a market such as the NEM.

Firstly and most importantly, there is no adequate alternative to the use of electricity. Despite protestations to the contrary by market participants, there is no real competition to the use of electricity, and what competition there might be takes time to implement. Lighting for example is almost exclusively provided by electricity. The economic answer to competition to electricity is the use of gas, kerosene, candles and so forth, but all of these either require the supply of electricity to manufacture the new fuel source (eg kerosene, candles) or significant investment by the consumer to convert its lighting (eg to gas fired lighting). A similar exercise can be carried out to demonstrate that motive power, such as electric motors fall into the same category as lighting. Yes, steam turbines can be used for motive power but the costs are significant, and the thermal efficiency is much lower.

Having accepted that there is no sensible alternative to electricity for many purposes (ie that we have to buy the bananas) we still do not know the price of electricity until we have used it, as the NEM operates on an ex post basis for setting price[2]. For some, accessing and using data which is available in real time, is a viable approach to assessing the cost/benefit from using electricity, but these users are in a very small minority. Even when they do decide to cease using electricity, it is debatable whether the interests of Australia is better served by such users letting their investment assets lie idle, so that the price of electricity might be a little lower for those who cannot avoid using electricity.

Most users of electricity have neither the time nor the resources to access the data (eg residential consumers and small businesses) and so make an informed decision as to either use electricity or to be in the dark. Additionally, many users of electricity have no option, having once made the decision to use electricity, they can not elect to cease using it for very sound economic and safety reasons.

Thus for the RP to consider that consumers of electricity will, or even can, operate as if electricity were a commodity like any other and therefore subject to unconstrained market forces, is fallacious in the extreme.

In fact it is recognised that there needs to be a number of external controls that need to be placed on the NEM in order to prevent the exercise of market power for the delivery of this essential service. Thus having accepted that external controls are necessary, it is essential that these controls are neither too

[2] This compares to the Victorian gas market and the proposed gas STTM which are both ex ante markets where the daily price is set ahead of usage.

constraining preventing needed investment nor too loose permitting exercise of market power.

Economists have stated that the controls of the NEM are intimately related to the signals that the NEM generates, but as the NEM is not (and cannot be) a pure market, the controls are applied to constrain exercise of market power. That economists still persist in this misapprehension (and as a result continue to persist in maintaining that any intervention is unnecessary) has resulted in severe commercial disadvantage to the Australian economy.

This is a direct result of the NEM proponents consistently only addressing the NEM in isolation and failing to examine the impact of their decisions on the downstream economy.

1.3 Signals in the NEM

The MEU considers that any assessment of market controls and signals must have regard to the current signals being:

- Unable to provide most consumers with the opportunity to react to them in real time in order to make a difference (or a choice). For example, in NSW the winter peak demand coincides with people returning home to warm their houses and cook the evening meal. For consumers to react would require consumers to delay warming themselves and delaying their evening meal.

- Too late and then too severe to provide adequate time to provide for the inevitable lead time necessary to allow the provision of generation needed to provide long term reliability of supply, and there is doubt as to whether the signals are based on scarcity (as suggested by economic theory) rather than the exercise of market power.

  For example, the average of the 2008 spot market prices in SA would seem to support a need for new investment in generation in the SA region, yet there is clear evidence that the SA region is adequately supplied with dispatchable and intermittent generation and interconnection to other regions. It would take 18-24 months for the impact of this price hike to be addressed by the market on a supply side basis, yet within weeks after the summer quarter the price in SA fell to its near previous levels. Thus the market signals would appear to be spurious in signaling new investment[3] as it was driven by other

[3] In fact, the AER identified that the high average price in SA was attributable to market power being exercised.

flaws in the market. In fact this market signal in SA did not achieve its goal of encouraging new investment at all as no sensible investor would build new generation when it could clearly see the market signal was really due to the exercise of market power.

- For too short a period, preventing sensible reactions to be implemented by consumers or investors. The NEM has been typified by short periods (usually less than 1-2 hours) of very high prices being followed by a price regime where any reaction is no longer necessary. The MEU has previously provided the RP with analysis that shows spot prices exceed $300/MWh (ie ~8 times the average price) for less than 0.2% of the time. Thus to expect consumers to be waiting for these periods so as to take action smacks of absurdity, and does not warrant the investment of alternative assets by consumers or generator investment.

As noted above, electricity supply is essential to modern day living. The concept of seeking consumers (particularly manufacturing enterprises) to forego electricity usage needs to be assessed on a holistic basis not just an electricity supply basis.

It is pertinent to assess whether the market signals are achieving the outcomes expected. Under an energy-only market, the market price cap (MPC and erstwhile called value of lost load – VoLL) is the only market setting the RP has to ensure there is adequate investment to maintain the reliability setting established by the RP (currently 0.002% USE). The RP therefore must assess whether the setting of MPC is ensuring, and will continue to ensure, adequate reliability.

The report by ERIG issued in January 2007 implies that, to that time, the energy only market had performed as intended, but then it counseled concern about the future. On page 65 of its report ERIG comments:-

> "For long-term investments such as generation, it will be *expected* prices, inclusive of required risk margins, that will drive new investment…
>
> The key question is whether the observed volatility [in the NEM] is considered efficient (that is, enough to provide the right investment signals), or excessive (that is, too high, and/or lasting too long, suggesting some form of market power or barriers to entry into the market on the supply side)."

The RP is therefore effectively counseled by ERIG to consider whether the observed volatility in the NEM provides *the right* investment signals for providing the *expected* prices in the NEM that will drive new investment. Analysis done by MEU would indicate that most generation investment has not been driven by market signals at all and has been driven by five different drivers, viz:

1. **By governments concerned that "the lights will go out" as is evidenced by the high degree of "encouragement" given by the Queensland and SA governments for the large generation plants built since the NEM commenced in late 1998, including Callide C, Milmerran, Swanbank E, Tarong North, Kogan Creek and Pelican Point.**
2. **By retailers seeking risk mitigation from the potential impact of the very high prices permitted under the price cap (MPC) including Hallett, Somerton, Uranquinty and Quarantine.**
3. **By generators seeking risk mitigation from the potential impact of being exposed to the high price spikes permitted under MPC, including Valley Power and Laverton North owned by Snowy Hydro**
4. **By owners of gas fields seeking to convert readily available gas into power such as at Ladbroke Grove and Braemar PS.**
5. **By developers of renewable energy such as wind farms where government incentives through the MRET scheme have been provided.**

Drivers 1, 4 and 5 are not driven by market signals as such, but fiat, concern or opportunity. It has been stated by the retailers of power, their decisions driven by option 2 are more as a tool for risk mitigation rather than to invest in generation per se, and option 3 falls into the same category.

ERIG goes to state on page 71 that:-

> "In assessing market performance overall, ERIG accepts that, in the NEM, there is some evidence of the on-going exercise of market power. This appears to be persistent, but intermittent. The magnitude of non-competitive outcomes appears to be such as to have a material adverse impact on the economic performance of the market. This appears to be most significant in New South Wales."[4]

[4] The MEU believes that ERIG would also now add SA and Tasmania to this list as a result of experiences in 2008 and 2009

It is important to note that ERIG identifies NSW as exhibiting the highest degree of market power, as ERIG also notes on page 64 that the market signals for new generation have also been strongest in that region.

> "… spot market outcomes in New South Wales seem to have signalled that a new base load plant would have covered its annual investment costs in three out of the last four years. Further, it would seem that, on the face of it, from 2002 to 2005, investment in additional peaking capacity would also have earned a sufficient return on investment in both in NSW and in Queensland."

That such base load generation had not occurred prior to the ERIG review was seen as a point of concern, yet even though demand in NSW has increased since ERIG released its report, other than the TRUenergy 450 MW mid merit plant built at Tallawarra, no new base load or mid merit generation plant has been announced as likely to be built in NSW in the subsequent

What ERIG did not have was the experiences of the South Australian region in summers of 2008 and 2009, where there is no doubt that the AGL owned TIPS did exercise market power, and that the AER identified that at SA regional demands above 2500 MW, TIPS could and did exercise market power in setting spot prices. As a result of these two summers, average annual spot and contract prices have risen dramatically (by 50% or more) despite there being only a modest increase in the maximum regional demand. It is clear that the current market structure, signals and controls have failed to provide adequate protection for end users and have resulted in a lessening of competition in the electricity market. And it is very clear that the Rules and the TPA are not designed to protect consumers from such exploitation of market power..

Despite this clear signaling from the NEM, there has not been the generation investment that such signaling was expected to have delivered.

This actual performance of the NEM responsiveness to the market signals processes combined with views of eminent economists (such as Jaskow of MIT and Tirole of University Toulouse mentioned in previous MEU submissions) provides a prima facie view that the NEM market signals are inadequate for achieving the price/reliability balance expected by consumers.

It was on this basis, and accepting that, if anything, all additional evidence which has arisen since, that MEU has come to the conclusion that long term reliability in the NEM will not be provided under the energy-only market signal of MPC.

Further the MEU members have experienced first hand the penalty that the NEM short term signaling causes, with their contract prices now being up to 50%

higher compared to 2006/07 prices. As a result of this many MEU members are seriously contemplating operating (or have decided to operate) in the spot market as they see the approach taken by retailers to either exit the market or build such high risk premiums into their offers, that they are uncompetitive. The market design is supposed to deliver efficient outcomes to consumers based on the assumption that competition will be enhanced by the market. That retailers are exiting the market due to uncompetitive wholesale markets or risks being too high, signals that there is a market flaw. Whilst retailers can exit the market, large consumers have large sunk investments and so are bound into the market structure that exists. If the market is too risky for retailers who base their business on being expert in the electricity market, it is bizarre that large consumers should be expected manage these risks or be at risk of being uncompetitive in their own markets.

The original concept behind the NEM structure was that generators would provide hedges to retailers who would pass these onto end users in contracts. This would allow generators to secure adequate certainty of a revenue stream needed to reflect their long term investments. What we are now seeing is the uncertainty in the market combined with its extreme price volatility (which introduces risks not originally expected in the market design) has increased uncertainty and an overall reduction in competition. The outcome of this excessive volatility is higher prices to accommodate high risk premiums. Despite the loss of market efficiency this volatility causes, the MEU has yet to see any analysis by relevant NEM institutions, such as the AEMC, or even the RP, that demonstrates that the NEM market outcomes have been achieved at “efficient prices”. All we have been exposed to have been assertions that this is expected of an efficient market rather than analysis. The MEU members point out that no other market exhibits such volatility or such large risks coupled to such commercially severe outcomes..

An adjunct to this volatility is the observation that generators are contracting for much shorter terms and less of their output. Economic theory would suggest that generators, with their high fixed costs and long term investments would seek long term contracts reflecting their expected costs so as to satisfy the cash flow certainty equity providers and lenders would expect. This is in direct contrast to what is being actually observed in the NEM. This is in stark contrast to the WEM where long term contracts and high commitment of output is the norm.

Such observations of actual activity provide a clear signal that the NEM is not working as well as planned.

1.4 The National Electricity Market

The NEM is an attempt to construct a competitive market in the supply of electricity.

MEU members all operate in a competitive market for their products and they advise that to be continuously competitive requires early identification of future needs so that sufficient investments can be put in place early enough to maintain the market position of the investor. They all advise that certainty of supply is critical to all customers and failure to provide product to meet the needs of their customers creates concern for future supplies. The result of such an outcome is that their customers are likely to enter into contracts with other suppliers.

Thus, the signal for continued reliability of supply must provide adequate forewarning before there is insufficiency of supply, because failure to meet demand, should be increased competition and new entrants. The NEM does not provide this period of forewarning so that new investments can be made in time to meet the increased demand. The only timely signal is the NEMMCo Statement of Opportunities which is effectively only a NEMMCo surmise of the future needs.

The AEMC has clearly indicated that these concerns raised by end users are considered to have little merit, because during its review of the impact of CPRS and xRET on the electricity market AEMC has determined that except for a little “tweaking” to accommodate these new exogenous impacts, the current NEM design is considered to be working well.

This seems to be in stark contrast to the concerns being regularly voiced by electricity consumers (whether they are large industrial concerns or representatives of small consumers) that the electricity market is flawed.

For example, despite the views of small end users providing significant concerns and reasons for not removing the retail price cap in SA, the AEMC determined there was more than adequate competition in the SA market to justify its removal. Fortunately, the SA Minister for Energy did not agree with the AEMC!

There is a clear disconnect between the views of those for whom the new electricity market was introduced to benefit, and the views of the economic rationalists who believe that the market is near perfect, and all that is needed is a little “tweaking”.

1.5 A helicopter view of the NEM

The supporters of the NEM consider that it works well, and one major supporter of the NEM as it is, is the AEMC as can be seen from its views on the impacts of CPRS and xRET. Yet even the RP was moved to observe in the review of operational arrangements (page 41) that

> "When it proposed the RERT in its CRR, the Panel expressed its concern that any form of reserve trader was a distortion to operation of the energy-only wholesale market."

The MEU asks the very basic question. If the market has operated appropriately for more than a decade (noting that NEM1 operated for three years before the NEM started in late 1998), why is there a continuing need for reserve trader (in its various guises), and why are governments taking action to ensure adequate supplies?

If the market is so soundly based, surely the need for "patches" and "tweaking" should now have passed, yet this is obviously not the case.

MEU has commented to the RP on a number of occasions that there are many issues being blamed for the market performing badly for consumers (including retail price caps, ETEF and BPA, and insufficient disaggregation of NSW and Qld generators). To these we can now add drought, constraints in gas supply/infrastructure, and even more government interference.

Despite all of the negative issues identified previously and now added to from the review by AEMC as to the impacts of CPRS and xRET, the view still persists that it is not the market design that is causing these inappropriate outcomes. From a consumer viewpoint the market is not working well if Australian consumers are subject to such volatility and risks as can be observed in the NEM and to the excessive exercise of market power. There have been very massive transfers of wealth and deadweight losses to the economy.

From the viewpoint of reliability, Australia should be able to secure long term reliable supplies of power at substantially lower than overseas costs, yet what we see is the electricity market is facing:-

- ⇒ considerably higher costs
- ⇒ market signals which indicate a need for investment which has not eventuated to match the implied need
- ⇒ governments taking unilateral actions because they fear that the market signals will/are not providing the outcomes needed

⇒ a continuing need for reserve trader cum RERT after a decade of operation

One such market driven "patch" has been the drive for retailers to secure generation by vertical integration with generators. As the MEU observed in earlier submissions to the RP, vertical integration has become a "must" in the NEM. An outcome of this is that there are increasingly fewer independent generators with whom new entrant retailers can contract with for supplies.

The MEU has consistently observed that the long lead time for new generation could itself result in loss of reliability of supply as each new generation project goes through the development processes needed before its is able to commence operation. MEU members themselves have also consistently made the observation that if high prices continue (exceeding those of their overseas competition) and reliability decreases, then an alternative available to them is to cease operations in Australia.

Surely this is not the demand side response sought by the NEM and the RP.

Why is it that the designers and supporters of the NEM design consistently avoid assessing the outcomes of the market design as seen by consumers and slavishly hold to the view that the market is working well?

A well designed market should:

Expected market outcome	Actual NEM outcome
Be able to sell long term contracts to end users reflecting LRMC of generators	The longest term contract available to consumers reflecting LRMC is 2 years. Current contracts are significantly in excess of LRMC
Not need to retain short term market distortions	Aspects such as RERT are still needed. Market caps are needed to 'protect' consumers as there is a lack of competition
Encourage competition in generation and retail which should reduce the need for distortions such as ETEF and BPA	There has been minimal increase in base and mid merit generation Competition among retailers is reducing Vertical integration of retail and generation is increasing, reducing competition and replicating the distortions like ETEF and BPA
See competition minimising risk	CPT is essential to limit the risk to

	retailers
Not allow market power to be present or to be exercised	AER has identified that market power exists (eg in SA) and that it has been used
High market prices should reflect a scarcity of generation	High market prices are caused by exercise of market power
See high market prices be reduced by investment is new generation	Only peak generation has been built with almost no base or mid merit generation driven by market signals
Allow voluntary load shedding when short term prices are high	Voluntary load shedding is effectively prevented in most cases because retailers would prefer involuntary load shedding as this reduces their risk profile.
Allow voluntary load shedding to be rewarded as this provides higher reliability to those who value it	There is no reward for voluntary load shedding other than not having to pay the high market price for demand

There is clearly a disconnect between what the market supporters assert about the NEM and what consumers see as an outcome.

1.6 Other aspects of reliability

The RP is focusing on the reliability of supply as measured by the amount of unserved energy (USE) and currently set at 0.002% of all electricity supplied. The implication of this measure is that, at its most obvious, for a continuous fixed demand, USE at 0.002% is equivalent to advising that on average every consumer will lose 10.5 minutes of supply each year of electricity. It is simple, easily understood and consumers can relate to it. It is recognised that this assessment is simplistic and does not recognise that there is variable demand, and that even when some electricity is not available to some, it is available to others.

However, when this measure of supply availability is compared to the availability for the delivery of power to consumers via the transmission and distribution networks, this simple assessment becomes much less of an issue. In this regard it is important to note that the vast majority of consumers are embedded within the distribution networks and as a result only see the reliability of the electricity supply system in relation to **delivered** electricity. Thus consumers measure reliability in terms of what they see directly and not in the discrete reliability element of generation and the reliability of the two separate delivery mechanisms – transmission and distribution. This view is supported by the fact that during January of 2009, there was load shedding implemented in SA and

Victoria. In theory, if the transmission system had been adequate and some failures on interconnectors had not occurred, then load shedding might have been avoided, as there was potentially sufficient generation available. At times when the spot price in SA and Victoria was very high, the Tasmanian spot price was negative due to the failure of Basslink.

Reliability of the transmission system (as measured by the time the transmission network is available) shows that typically transmission reliability is a number of multiples larger than USE. For example, TransGrid in NSW is targeting an average availability of 99.26% implying a transmission network USE of 0.0074%, nearly 4 times higher than USE of supply at 0.002%, as included in the AER reset price review of TransGrid revenue and service[5] completed in 2009.

Table 8.1: AER draft decision on TransGrid's service component performance targets, caps, collars, and weightings

Parameter	Collar	Target	Cap	Weighting
Transmission circuit availability (%)				*MAR (%)*
Transmission line availability	99.05	99.26	99.36	0.20
Transformer availability	97.26	98.55	98.84	0.15
Reactive plant availability	98.65	99.12	99.33	0.10

But of greatest impact to reliability is the service performance in the distribution network. It is necessary to recognise that the greatest aspect of reliability lies within the distribution network. For example, the following table is an extract from the NSW Design, reliability and performance licence conditions for Distribution network service providers as issued by Ian Macdonald, MLC Minister for Energy on 1 December 2007.

In this, reliability as measured by SAIDI (System Average Interruption Duration Index), shows the base average allowance for minutes off supply each year. They imply an average reliability of ~98% for urban network reliability. This is a reliability standard which 10 times less demanding than the USE allowance for supply.

[5] The Final Decision for TransGrid in relation to service standards is identical to the draft decision in relation to network availability

SAIDI – Average Reliability Duration Standards (Minutes per *customer*)						
EnergyAustralia						
Feeder Type	2005/06	2006/07	2007/08	2008/09	2009/10	From 2010/11
CBD	60	57	54	51	48	45
Urban	90	88	86	84	82	80
Short-rural	400	380	360	340	320	300
Long-rural	900	860	820	780	740	700
Integral Energy						
Feeder Type	2005/06	2006/07	2007/08	2008/09	2009/10	From 2010/11
Urban	90	88	86	84	82	80
Short-rural	300	300	300	300	300	300
Long-rural	n/a	n/a	n/a	n/a	n/a	n/a
Country Energy						
Feeder Type	2005/06	2006/07	2007/08	2008/09	2009/10	From 2010/11
Urban	140	137	134	131	128	125
Short-rural	340	332	324	316	308	300
Long-rural	750	740	730	720	710	700

Therefore, a consumer reliability measure reflects the multiple effects of reliability in each stage of the process. For example, if reliability for supply is 99.98%, reliability for transmission is 99.25% and reliability for distribution is 98%, the overall implied reliability for delivery for a consumer is 97.25%. Reducing supply reliability from 99.98% to 99.96% (ie doubling the current level of USE for supply from 0.002 to 0.004) reduces overall reliability to 97.23%. This reduction is so small as to be insignificant from a consumer's viewpoint. **Yet the cost to achieve 99.98% reliability would appear to be extremely high in terms of volatility and risks.**

It is essential to keep this relativity in mind when decisions are made about marginal changes to USE of supply.

1.7 Will increasing MPC give greater reliability?

The RP has really only one tool available to it to increase reliability – that is to increase MPC.

Increasing MPC will increase the impact of any volatility in the market, and therefore increase risk. To manage this increase in risk must result in increased costs for supply of power.

Therefore any decision to increase reliability must include an assessment of the cost benefits of any increase in supply reliability **at the point of connection to**

the consumer against the increased costs resulting from the increased supply reliability.

Intuitively an increase in MPC must result in higher costs for consumers, although the resultant increase in reliability at the consumer's point of supply will only be marginal. As the level of USE is now very small any marginal reduction will be very small but the costs associated with achieving this improvement will be very high.

In its Comprehensive Reliability Review, the RP provided a report by CRA[6] that a USE of 0.0018% is in theory achieved by a MPC at $10,000/MWh. This implies that this level of MPC should result in the expected outcome of increased generation to match need and maintain a reserve margin of >14%, and so provide a USE of 0.002% which has been accepted as the standard. The RP then went on to recommend an increase in MPC of 25% to $12,500/MWh and to index this to CPI.

The RP must take into account whether an increase in MPC will achieve the stated outcomes at all, considering that the theoretical work by CRA indicates that MPC is already more than sufficient to provide the USE desired. To increase MPC in the vain hope of increasing investment appears to counter the theory behind the concept, especially as the observed outcome is that new generation is not being provided other than as a physical hedge against risk.

Certainly MEU would point out that the increase in MPC in 2002 (but foreshadowed to increase to this level in 1999) has not provided the outcomes anticipated. As noted in section 1.3 above, little of the new generation provided since 1999 can be attributed to investment driven by market signals as such. By far the greatest amount of investment in new generation was driven or encouraged by government – some 4000 MW in a NEM peak demand of 33,000 MW. The bulk of peaking generation provided is the result of retailer investment rather than new entrants to the NEM. This leads to the conclusion that this generation investment has a different driver than responding to market investment signals as such. The MEU has been advised by retailers that they invest in new peaking generation more as a hedge against high spot prices rather than a desire to be a generator as such. That retailers have invested little in base or mid merit generation tends to support this observation.

What the outcome of the CRA modeling work does, is to provide a relativity between the various options of providing incentives for investment. Of the options modeled, the degree of certainty of new investment occurring (and so maintaining USE at a constant level), it is quite clear that using an energy only market supported by ever increasing values for MPC is the least certain of

[6] Modelling Methods, Input assumptions and Results March 2007

achieving needed investment than other options examined. As might be expected, paying for capacity to be present provides the highest degree of certainty that power will be provided as and when it is needed.

What is extremely important is that the report indicates that moving to a capacity payment or some other form of providing increased reliability does not result in a higher cost to consumers. This modeling outcome provides quantification which counters the so-called "intuitive observations" by many energy-only market proponents (including ERIG) that moving to some form of capacity payment to provide long term certainty of electricity supply, does not have to result in increased costs to consumers.

1.8 What about MPC and DSR?

Proponents for increasing MPC have stated that an outcome will be that consumers will more openly be responsive to voluntary load shedding and load shifting so that demand reduces at peak times resulting in lower overall costs.

Members of MEU have advised that the costs to cease production are extremely high. Proponents of DSR point to this and state this implies that MPC must be higher to allow DSR. But the actuality is that most businesses want to maintain continuity of their operations rather than have random stoppages.

Some consumers are interested in reducing their overall energy costs by such means. At the same time, they also note that whilst this might make economic sense in as much as they have lower power prices, it also means that their investment is idle for such times, they incur costs for being on standby (such costs include labour and materials inventory) and do not recover any standing costs associated with their business. Given the preference most businesses would prefer their operations to be within their control, rather than be at the whim of the electricity market.

Those consumers that do provide a response to NEM prices by reducing demand when prices rise, have observed that to be responsive in this way does not always provide the outcomes implicit in the spot price movements and expected by the market designers and supporters of DSR.

As noted above, most businesses do not have the ability to instantaneously reduce demand and most of those do not have the time, resources or ability to respond to pricing signals. The proponents of market signaling point out that most consumers do not see the signals and therefore have supported the [expensive] roll out of time of use (ToU) metering. Again, observation of the

market provides a clear indication that such metering does not result in the outcomes anticipated. Large consumers have been exposed to ToU metering from the mid 1990s (ie for nearly 15 years). Initially, retail offers provided clear pricing offers, with prices for many times in the day, different prices for weeks and weekends, and by season. One retailer even offered a 48 part tariff. Currently, retailers offer 2 part tariffs, indicating that most consumers are not interested in price shaping their demand as a response to the short term price signals.

Prima facie, increasing MPC would appear to allow a better return to businesses operating a DSR approach. Yet the analysis above indicates that that this might not be so. Analysis of the NEM pre and post the MPC increase in 2002, indicates that the number of high priced incidents reduced with the higher MPC but the severity of each incident increased to compensate for the reduction in frequency. The summers of 2008 and 2009 in SA region has an increase in both the frequency and severity of high price incidents.

Those MEU members who do operate a DSR (and are exposed to the spot prices in the NEM) indicate that the bulk of their commercial benefit comes from purchasing spot priced electricity rather than using the electricity price provided by retailers. Countering this saving, they point to the potential for them to have very high priced electricity for short times, impacting their short term cash flow.

On balance those MEU members who can provide rapid DSR indicate a preference for a lower MPC as this reduces volatility and their exposure to very high priced incidents.

To put the issue bluntly – using DSR to increase system reliability is akin to increasing reliability for those that seek it but are not allowed to benefit from it.

DSR should at most provide an ability to maintain reliability of supply, yet the NEM encourages the use of DSR primarily by the high price in the spot market. The assumption made is that the shortage of supply is coincident with the high prices. Yet analysis of the NEM shows that high prices can and do occur at demand levels well below the high demand periods, when supply shortages prevail.

For example, the AER has identified that AGL's Torrens Island power station (TIPS) has the ability to set the spot price at MPC when SA demand exceeds 2500 MW, and has done so. 2500 MW is some 20% below the SA regional peak demand and even at that peak, TIPS still had some 20% of its capacity undispatched, but the spot price was at MPC. That this can occur puts the lie to the economic assumption that price and demand are closely aligned and

therefore the assumption that increasing the value of MPC will signal new capacity may well be false, at least in part.

1.9 Long term contracting and reliability

MEU members have made long term investments in their production facilities investments exceeding by many times the electricity supply industry investments. They all note that electricity supply is essential to utilize these investments. Their stated aim is that they would prefer to contract long term with electricity providers to match the life of their investments, yet the market does not readily accommodate such an arrangement.

The MEU has also observed that in overseas jurisdictions, the less volatility in the market, the more long term contracting that is undertaken. This is a rational outcome when considered and reflects the actual experiences of consumers. Consumers see that the prices offered for longer than 3 years in the NEM show a marked increase compared to those for shorter periods. Less volatility provides greater certainty that longer term prices reflect market fundamentals rather than include premiums for future risks. Longer term contracting provides generators and new entrants with longer term certainty about their revenue reducing their risks.

The Australian electricity market structure does not lend itself to long term contracting between generators and large consumers. Despite protestations from the market designers that this can be achieved by agreeing on a strike price in the pool, the actuality is not quite as was anticipated.

It is realised that a long term contract can be implied by entering into a financial hedge arrangement. But to do this requires the two parties to be Market Participants. Whilst generators perforce have to be market participants, consumers do not want to enter into the complex and financially challenging arrangements that market participation requires.

Thus a financial hedge must be managed by a retailer. A retailer does not have the investments that a generator and a consumer have, and is keen only to manage the trades. If an outcome is the need for an intermediary, this implicitly destroys the benefits of direct bi-lateral trades.

At the same time it must also be noted that a bi-lateral trade between a generator and a consumer provides the essential basis for new investment by a generator.

It is axiomatic that a lender seeks security for its loan, and the greater the security, the better terms for a loan eventuate.

A generator can use the lower counterparty risk inherent in a contract with a large consumer as the basis for maximizing debt financing for new generation investment – a single contract with (say) a BlueScope Steel has much greater value to a generator in securing debt for an investment than does a large number of smaller contracts that a retailer might offer. Even if the BlueScope contract referred to above was handled through a retailer, this will not provide as much security to a lender that a direct contract with the large business provides.

In terms of increasing reliability in the market, a lender sees that direct contracts with a "bankable" counterparty provide much greater security than trades through a spot market, however hedged. Thus the ability of a generator to secure the necessary debt needed for generation investment is much reduced if the counterparty is an amorphous spot market compared to a firm contract.

This provides a view as to the undoubted rank a "bankable" counterparty has in terms of a generator securing loan funds compared to the ability of a generator (particularly a new entrant generator) to secure loan funds just because the level of MPC has been increased.

The concept of bi-lateral contracting between generator and "bankable" counterparty provides the following observations for consideration by the RP.

1. A generator will more readily secure debt from a lender if there is a direct relationship between a generator and a "bankable" counterparty
2. A generator will more readily secure debt from a lender if there is certainty of at least some revenue that will accrue to a generator such as with the capacity payment concept
3. A lender will look very closely and possibly discount its offer for loan funds, if the potential for providing certainty of revenue is reduced. Increasing MPC is an indirect (and not very "bankable") method of increasing potential revenue.

This simplistic but realistic scenario provides the RP with significant issues.

- Increasing MPC has the potential to increase the desire of a generator to invest
- The generator will most likely need to secure loan funds
- The lender will require some security for the loan funds.
- Security might be

  - a charge over existing generation assets which might be seen to lose some value as prices are likely to fall with increased generation
  - some form of "bankable" agreement with a counterparty of standing
  - a guarantee of revenue from the market
- The energy only market does not provide as high a security of cash flow to a generator that a capacity payment and/or firm contract with a bankable entity does, although it is accepted that some cash flow will result from generation in the NEM.
- The less secure the revenue the higher will be the cost of debt and the lower the amount of debt provided

Under this scenario, increasing MPC is too indirect a form of providing the necessary security of revenue to underpin loans needed for new investment. To put the long term reliability of supply using such an indirect form of security needed to support new investment, is an extremely "courageous" decision.

1.10 Views from the US

It is interesting to note observations of large consumers in the PJM. The following was presented on behalf of PJM Industrial Customer Coalition, Electricity Consumers Resource Council, Illinois Industrial Energy Consumers, Industrial Energy Consumers of Pennsylvania, Industrial Energy Users-Ohio, West Virginia Energy Users Group, and the Portland Cement Association:-

> "The suggested market-based solutions are plentiful and large customers have seen all of them – LICAP, demand curves, RPM, reliability options contracts, energy-only approaches – each supported by a different school of economics. The theorists are not on the same page – are not even close to being on the same page – as to a reasonable market-based approach to resource adequacy. And, after 10 years of in-the-trenches grappling with these issues, one is left to wonder whether a centrally coordinated market approach to generation resource adequacy is even possible in an industry that is both capital-intensive and politically sensitive. One is left to wonder whether the extraordinary resource burn toward developing a central market approach to generation resource adequacy should be treated as an accounting write-off and the industry should take a new perspective. Large customers suggest this may be the next prudent step.

> Large customers are not PhD economists. No, they tend to operate from a more practical perspective. They need to budget electricity expenditures year-to-year. They need to ensure that their capital investment is not undermined by unpredictable electricity prices or, worse, the unavailability of energy. For this reason, manufacturers have begun to flee RTO-market regions in favor of regions where electricity supply is stable, capital investment in generation occurs regularly, generation and transmission are planned together, and ratepayers pay the actual cost of each of these components. These are present-day realities. Some may claim that this ultimate form of demand response is economically rational; large customers view it as an overwhelming signal that the current approach to pricing electricity may be broken.
>
> ….After 10 years of exploring market-based models to resource adequacy, large customers urge a more rational, proven approach. This may not be a message that fits well into the existing paradigm, but it is a message that warrants attention."

It would seem that Australian energy consumers and their US counterparts have much in common.

1.11 Market risk and MPC

The MEU members have seen prices escalate at an extraordinary rate over the middle months of 2007.

In previous submissions MEU has drawn to the attention of the RP the high level of risk extant in the NEM – risk that drives:-

- Base load generators to either increase their wholesale prices to retailers or which drives them to minimize the amount of generation they will contract, due to the fear of plant failure exposing them to unacceptable spot prices
- peaking generators to increase their price caps or even not to offer them due to the risks of plant failure creating an inability to provide the service, or for the potential rewards from getting full value from an extraordinarily volatile spot market
- retailers to limit the validity of offers, to limit the life of contracts, to add high risk premiums should there been even minimal exposure to variable demand from a consumer

Eventually all of these risks and risk premiums are borne by the consumer. Increasing MPC will exacerbate these risks from the already demonstrably high risk regime, and create further risk premiums for consumers.

1.12 An assessment of these reviews by the Reliability Panel

Firstly, the context for these reviews are concerns about reliability, particularly in the light of the impacts of CPRS and xRET on the electricity market, but it does not consider reliability issues concerning gas pipelines, nor does it assess reliability in the event of arbitrage activities between gas, electricity and wind.

Secondly, the massive distortions caused by CPRS and xRET show, we believe, that the energy market framework that is not robust despite the stated views and assertions of AEMC to the contrary. In particular, consumers are seeing the market framework failing because of:

- ample opportunities for the exercise of market power;
- likely closure of uneconomic generators (post CPRS);
- the need for certain generators with a sharply reducing economic life due to CPRS, to exercise market power and game the market.

Thirdly, the focus of reliability in this review is only on one small aspect – electricity generation – and ignores cost issues as well as electricity transmission and distribution network issues. It also ignores all the other forms of interventions by governments such as energy efficient programs, distributed tariffs and the DSM programs.

1.13 Summary

- ❖ Consumers are already facing higher electricity costs than their overseas competitors. The RP should focus on not increasing costs to retain reliability at current levels
- ❖ Reliability cannot be seen as an “electricity market issue” but must be assessed in terms of the downstream impacts on consumers
- ❖ Electricity supply should not be treated as a commodity when it is realistically an essential service
- ❖ Financial signals only have value if they can be readily seen and acted upon before the costs are incurred
- ❖ There have been a number of telling events and outcomes over the past years that must be incorporated into any decision by the RP
- ❖ The RP should look at alternatives and not be hide-bound by trying to operate within a structure that is not delivering/cannot deliver the outcomes needed

- Modelling by CRA supports the view that increasing MPC will increase costs, but the RP needs to assess whether there are other lower cost options which could deliver the same or increased reliability
- Risk premiums are already too high, and increasing MPC in the current climate, can only increase the risk premiums and exposure to all parties involved in the NEM
- In principle, DSR is not a tool that should be used as part of reliability as it is both an indirect method to increase reliability and one which implicitly places the value of generation investment above the value of investments made by consumers. Equally DSR can provide a solution which is quick acting and may avoid the need for involuntary load shedding when supply is not available
- The RP should accept the reality that MPC is not the most appropriate tool to encourage generation investment

2. Operational Arrangements for the Reliability Standard

2.1 The Reliability Standard and its Operationalisation

As RP notes there are many shortcomings in relation to the setting and measurement of the reliability standard and the tools and calculations used to achieve it. The MEU agrees with the assessment by the RP that there area number of inconsistencies within the development and achievement of the reliability standard.

The RP has a view that achieving the reliability standard under the current approach is quite indirect and should be reviewed. The MEU would concur with this.

In particular, the MEU would comment that the current NEM design does not provide end users with the ability to voluntarily load shed (with recompense) in order to maintain supply security across regions at risk of losing supply whether this risk is from a loss of generation or transmission.

A market solution to involuntary load shedding is for users to offer their capacity into the market if the cost will be less than the market price cap and so avoid the need for involuntary load shedding. The MEU considers that AEMO should be provided with the tools to access and call end users to voluntarily reduce demand (for a payment) rather than require involuntary load shedding. That such provision is absent in the current market design is a failure of the system designers and those that persist in maintaining the current approaches.

In this regard, the RP should be made aware that in the new gas short term trading market, the concept of “Contingency Gas” has been developed and allows voluntary curtailment for a price rather than face involuntary load shedding. The MEU is of the view that if such an approach was permitted in the NEM, then potentially the load shedding in SA and Victoria in January 2009 could have been avoided.

As noted in the foregoing section, the level of USE is calculated as the availability of generation into the NEM. It is not a reflection of the reliability as seen by consumers. What was absent from the RP’s CRR was the cost to achieve the target level of 0.002% USE and whether when considering the entire reliability of the supply and delivery chain, the level determined is economically efficient. The MEU would suggest that this aspect must be taken into account when assessing what options should be considered.

2.2 NEMMCO Methodology for Calculating MRLs

As the approach to setting MRLs is a staitiscal one, there needs to be a decision made as to the expected frequency of the highest reserve level set as part of the assessment. Currently AEMO uses a notional 10% PoE or 11 in 10 year expectation of exceedence.

As alternative to a statistically set reserve level is to use a more tradional approach which is a percentage of generation available above the expected annusl peak in demand – this percentage of reserve generation is usually considered to be in the range of 20-30% above the expected peak demand in a year.

There was considerable debate in the early years of the RP as to whether the statiscal approach or the tradiaional approach should be used, and eventually the statistical approach was deemed to be a better approach, although the final decision reflects a mix of the two approaches, with the statiscal approach defining the anticipated reserve level but this being modified by recognsing that the loss of the largest generator in a region has the same statistical likelyihood as lossing a smaller generator. The RP decided then that using the higher of the statistical approach or the largest single generator in a region provided sifficient confidence in the continued availaibility of generation.

Since that time NEMMCo has further refined its approach.

2.2.1 Questions asked

The Panel is seeking stakeholders' views on the methodology, in particular on whether:

- it is sufficient to consider just the typical and one in ten year demand conditions, or whether additional demand conditions should be considered when calculating the most appropriate MRLs;
- an appropriate weighting methodology is being used;

The MEU considers that a one in ten year expectation of exceedence provides a reasonable basis for a statistical approach to setting the expected maximum reserve margin. The current approach is to use a mix of both the 10% PoE and 50% PoE to develop the MRLs.

Including additional PoE levels as part of the mix might give an impression of providing greater accuracy for setting the MRLs, but what is missing from the

analysis is the cost each option might deliver and the extent to which each impacts on the expected value of USE.

The MEU is concerned that increasing the refinement of the calculation has the potential to provide an impression of greater exactitude, but the variability of peak demands over time is such that increasing the refinement might not deliver higher accuracy.

Prior to the introduction of statistical assessments, historical levels of needed reserve plant margin were used as the basis for future MRLs. This was identified as potentially resulting in a higher cost for consumers due to there being too much generation available. Because of this consumers agreed to the statistical approach being used to set MRLs

Implicit in the question raised by the RP is would a different mix result in a lower cost to consumers than the current approach. Before the question raised by the RP can be answered, it is necessary to identify the risks implicit in a more refined approach. This starts to lose focus when the basis for the setting of the 0.002% USE is considered.

If the setting of the 0.002% USE is developed on a coarse basis (as it probably is) what is the benefit of refining the calculation of MRL to achieve this level.

Overall, the MEU considers that the degree of refinement of the calculation of the MRL should equate to the level of refinement in the development of the level of USE set.

The Panel is seeking stakeholder views on NEMMCO's approach for treating load diversity and what alternative approaches could be applied.

There is historical evidence to support a view that there is peak demand diversity between regions, but the ability of one region to support another region is dependent on the reliability and capacity of interconnectors. Currently, the AEMC in its RIT-T does not recognise the value of differential spot prices between regions as supporting the economic case for increasing reliability and capacity on interconnectors, considering the regional price difference delivers a transfer of wealth rather than a signal for investment. Because of this the value of diversity is muted.

There are already signs that the increasing use of intermittent generation is reducing the values of inter-regional connectors and reducing the ability to transfer power when diversity adds value. It is expected that AEMO will take the

increasing constraints on inter-regional power transfers when assessing the value of diversity.

Notwithstanding this concern, the MEU supports the continuation of the practice of assuming there is diversity of peak demands between regions.

That a greater value for diversity could be delivered by recognising the value of inter-regional pricing between regions in the RIT-T should be investigated as part of the benefits of increasing the value of diversity

The Panel is seeking stakeholder views on NEMMCO's proposal to adopt the approach of modelling wind generator output used in the NTS is appropriate for the calculation of the MRLs;

Along with other intermittent generation, wind generation provides both some benefits as well as some detriments. Such detriments include its essential variability, its ability to constraint inter-regional transfers and the network costs (borne by consumers) to reflect the very poor load factor.

Increasing use of wind generation is now an established fact and will become even more so with the implementation of the xRET program. It is therefore incumbent on AEMO to use whatever tools it has available to model its MRL calculations. The MEU sees that using reliable forecasting is such a tool.

Although there is support for the use of such tools, the MEU notes the point above, as to whether the refinement of the MRL calculation will get to the stage where there is increased risk of there being insufficient generation and whether the refinement of the MRL calculation exceeds that of the setting of the target.

The Panel is seeking stakeholder comments on whether medium-term PASA should include MRLs that specify dynamic joint regional reserve requirements, rather than single fixed regional MRLs.

The MEU is concerned that this approach does not recognise that the increasing use of intermittent generation is appearing to reduce the amount of inter-regional transfers, especially between SA and Victoria where the large amount of wind generation connected at Snuggery substation provides a constraint on the power flows between Heywood in Victoria and South East substation in SA.

2.3 Short-term Reserve Assessment of Reliability

The RP issues Paper highlights that AEMO is constrained in the dichotomy between medium term settings and short term needs. As a result it has identified that the ability to meet STPASA needs to be readdressed.

What is absent from the assessment is the cost to provide such a solution. As noted in the introduction, the MEU considers that there is a gap in the tools available to AEMO to use when there is a short term need for increased generation or reduced demand. Once the trigger is reached and action is required, AEMO has as its only tool, involuntary load shedding.

As also noted earlier some consumers effectively provide some voluntary load shedding when the spot price is high, and if the need for load shedding and the high spot price coincide, then the voluntary load shedding is delivered. However where such load shedding is needed which is not accompanied by a high spot price, then voluntary load shedding is not provided.

The WEM provides a tool to the system operator to call voluntary load shedding in the event of a supply shortage whether this is local or region wide, and this has proven to be successful. This feature is not permitted in the NEM except under the RERT scheme – and the RERT scheme is quite limited in its functionability in this regard.

The Panel is particularly interested in whether:
- an additional short term intervention trigger should be introduced to work in tandem with the current lack of reserve trigger (LOR2), which would be more conservative by its nature (than the LOR2 trigger); and
- the Panel should define a specific short-term intervention trigger in the Reliability Standard as meeting the current standard cannot be assured by a methodology which operates only in the short-term.

It is quite clear that, in the event of an LOR3 (or even perhaps an LOR2) condition when there is limited time for supplying power to meet demand (such as less than 24 hours), the only feasible solution is to reduce demand rather than finding a supply side option for more generation to be provided. Such an approach can be implemented in a mater of a few hours.

The MEU considers that AEMO should (like IMO in the WEM) have the power to contract directly with consumers to voluntarily load shed when directed by

AEMO. AEMO should only have this power to direct voluntary load shedding when the alternative is that there would be involuntary load shedding.

Payment to those end users providing this voluntary load shedding should be the lesser of an amount sought by the consumer offering this service and MPC and the voluntary curtailment would be paid against the actual measured amount of demand reduced.

2.4 Guidelines for Management of Electricity Supply Shortfall Events

As a matter of principle, no one consumer should be expected to carry a greater share of "pain" (ie lose more power) than any other consumer. This is a basic view from equity. Equity implies that on a proportionate basis each consumer should carry some of the "pain" or cost for accepting that there will be energy supply losses over time, as the cost to provide a perfectly secure power supply is too great.

The approach suggested by the RP is that SA and Victoria are essentially one region. In the past this was accepted wisdom as the frequency of inter-regional constraints was low, and with the supposed increase in inter-regional capacity by the building of Murraylink, there was little chance of the two regions being separated electrically.

Recent network performance puts the lie to this assumption. All too frequently the Heywood interconnector is constrained due to derating of some network assets combed with network capacity constraints in the south east of SA due to the large increase in intermittent wind generation connected at Snuggery substation.

Power flow through Murraylink is regularly constrained due to capacity constraints within the Victorian and SA networks at either end of Murraylink. These constraints were indentified at the time of building Murraylink as a market interconnector and to avoid the negative commercial impact of this, the better solution for power supply reliability of a connection between SA and NSW was prevented. When Murraylink was transferred to be a regulated link, it was noted that work in both the SA and Victorian networks had to be carried out to allow Murraylink to perform at near capacity, but this work has not been carried out to the extent needed.

With the increasing amount of new wind generation planned for the SA region, it is probable that there will be an even higher frequency of power separation between the regions. Additionally there is likely to be less flow from Victoria to SA as SA will be dispatching much of its wind generation to other regions.

Due to the increasing frequency of electricity separation between the two regions, the MEU considers that the SA region should be considered to be a separate region and its MRLs be set on a stand alone basis as with all other regions

The Panel is seeking stakeholder comment on:
- whether the proposed amendments from TRUenergy would be practical to implement operationally and be a more equitable method of sharing the burden of shortfall, while increasing the chance of actual performance meeting the 0.002% USE Reliability Standard;
- whether NEMMCO's proposed changes to recognise the use of mandatory restrictions, and its further definition of what demand should be included in the load shedding sharing calculations, are appropriate; and
- any other issues in respect of the guidelines for managing electricity supply shortfall events that stakeholders consider are relevant.

Because the MEU considers SA should be assessed as a stand alone region rather than a part of a SAVic region, the MEU considers that there is no need to implement a new "patch" onto the NEM to address the concepts proposed by TRUenergy.

To ensure that the target level of USE in SA is achieved, the MEU reiterates that it considers there is a prima facie case for AEMO to have the power to call demand side voluntary curtailment when there is a low reserve level and to reimburse this voluntary curtailment as suggested earlier.

2.5 Short-term RERT for Critical Emergencies

AS noted above the MEU considers that the RP should look at making it possible for AEMO to contract with end users to provide voluntary load shedding when needed rather than continually relying on more expensive supply side options for ensuring the target level of USE set.

The MEU considers that the RP should be examining why there is a continuing need to include interventions such as Reserve Trader in its various guises such as RERT. It is quite clear that if such interventions are still needed after so many years of operation of NEM1 and NEM there is a fundamental flaw in the market design. In this regard a review of the WEM and other overseas markets could provide guidance to the RP.

2.6 Clarification of the Reliability Standard

The MEU is concerned that the proposed changes to the wording of the reliability standard have the potential to reduce the effectiveness of the target.

As a basic approach the RP should be looking at the USE as seen by consumers as the starting point, as the NEL objective is written in terms of the market to perform in the long term interests of consumers. To focus reliability in terms of supply into the electricity wholesale "pool" as the current approach does, does little to relate to what consumers actually experience for most of the time.

> The Panel is proposing a number of clarifications to the wording of the Reliability Standard that are not intended to change the policy decisions made by the Panel as part of the CRR. The Panel is seeking stakeholders' comments on these proposed changes to the wording.

The MEU considers that the wording of the reliability standard should:

- Be a target to be achieved as an average over a number of years
- Reflect performance of the wholesale market for all incidents, as consumers do not differentiate between losses of supply due to different causes. Therefore to limit USE to only single credible contingencies is a distortion which provides a benefit to supply side entities rather than consumers
- Limiting events to exclude network outages is a construct which does not recognise that despite the cause, consumers are still curtailed.

3. Review of the Reliability Standard and Settings

3.1 A consumer's view of reliability

Reliability is determined as the amount of energy which is not delivered to consumers. As such, it should not exclude any factors, regardless of reason. It is a measure what the consumer does not receive. The investment made by the consumer does not look at the reasons why it does not provide the return expected – and allocate different returns based on different reasons for not providing the return.

During the CRR, the RP noted that the MEU considered USE should be an average over the long term. The RP went on to state that this creates challenges for the supply of electricity and that USE settings would have to change on a yearly basis to reflect previous outcomes. What the RP overlooks is that by not doing so, there is a clear implication that consumer investments have less value than investments made by electricity supply investments.

The concept that the RP has is focused on the needs and desires of the supply of energy rather than on the requirements of a downstream investor. The suppliers of energy assets do not give consumers a cost reduction because the consumer had industrial action at its premises or that an Act of God caused part of the plant to fail. The only benefit granted is that the consumer does not have to pay for what it did not consume but it still has to pay for assets built to provide the service it would use if it could.

Thus to exclude matters which do impact the observed value of USE is again to put the consumer as a second class party in the electricity supply stakes. That the RP should consider excluding actual causes of loss of supply events which do cause an increase in actual USE, puts the concept of measuring a realistic and true amount of energy supply to consumers, as an arbitrarily understated value, and therefore does not provide consumers with a realistic assessment as to the actual target for energy delivery.

Again the RP has failed to accept that consumers make investment decisions based on a variety of inputs – one of the most critical of which is the reliability of the power supply and the expectation of it being available to make the investment viable.

3.2 The costs of reliability

As noted in section 1 there is considerable reason to re-address the reliability standard. The MEU supports the view that the reliability standard should be

assessed in terms of the impact of users, but there remains the question as to whether the reliability of generation matches the reliability provided in the delivery systems. The cost to deliver reliability increases the closer the reliability level approaches 100%. The cost to deliver the last 0.002% of reliability could be such that the benefits of providing this reliability in generation exceed the benefits when measured in terms of the overall reliability of delivered power.

The MEU has consistently provided a view that reliability driven by expensive mechanisms is not in the long term interests of consumers which is the focus of the NEL objective. What is absent from the RP reviews is an assessment of generator reliability as measured by USE in terms of the reliability of delivered electricity and the costs incurred in its achievement.

The RP recommended and the AEMC implemented a reliability standard of 0.002% USE, and to achieve this increased the MPC (or VoLL) to $12,500/MWh indexed to CPI from July 1, 2010. As a risk mitigation measure, the CPT was increased from $150,000 to $187,500 and the administered price cap was increased to $300/MWh from $50/MWh off peak and $100/MWh peak times.

The MEU does not object to the use of CPT nor of the concept of administered prices if there is an event that can cause significant risk exposure. But the MEU does note that the implementation of CPT and APC are distortions of the market that are deemed necessary because the level of MPC is set as high as it is. If MPC were set lower, and there were some other mechanism for ensuring reliability, such market mechanisms (distortions) would assume a less important element, and perhaps not be needed at all.

To provide some further protection to participants, the AEMC implemented expansions of the reserve Trader scheme because it was identified there was a continuing need for such as the NEM was not delivering these needed protections for reliability from its basic design.

The decisions made increase the risk to participants and the costs for managing the increased risks are passed onto consumers.

The continuing need for Reserve Trader (in its various guises) indicates there is a need to modify the market design to make it more conducive to achieving system reliability using market incentives. These interventions do add costs and reduce competition, and therefore probably also increase costs to consumers.

3.3 Recent reliability performance

The RP has noted that a review of the reliability standard was initiated by the recent outcomes in SA and Victoria where USE exceeded, in 2000 and again in 2009, the target level of 0.002% by a factor of nearly twice. NSW and Queensland have remained within the target for the past decade but over the same period have exceeded the target in SA marginally, and in Victoria by a factor of 3-4 times. The RP points out that if the industrial action in Victoria during 2000 was excluded, both SA and Victoria have USE levels within the standard for the past decade.

It is implicit in the outworkings the current reliability level for the NEM of 0.002% is consistently achievable, extant industrial action. What is absent from the RP assessment is the cost to consumers of the achievement of this standard, and what the costs would be if the standard was varied.

At the same time the RP notes that it is not responsible for the reliability in the distribution networks, yet consumers see reliability in terms of power delivered. Therefore the RP approach shows only half of the issues. For the RP to make decisions based on half the outcomes, potentially exposes consumers to costs that might be unnecessary. The MEU therefore suggests that even though the RP has no jurisdictional controls over reliability in distribution networks, it should still set its reliability for those aspects where it has control, in terms of reliability as seen by the consumer for delivered electricity.

3.4 Changing the reliability measurement and setting

The MEU considers that USE is a tool that has a direct relation to the way consumers see reliability.

Is the current form of the Standard appropriate for current and projected market arrangements or should it be replaced by another form such as LOLE or LOLP?
If the current form is considered acceptable is:
- the level considered appropriate?
- the current practice of judging compliance over a long term (10 year) timeframe appropriate?
- the operational practice of planning to achieve expected USE each financial year that is within the Standard appropriate?

As an alternative to using USE as the primary reliability standard, there are other forms of reliability used such as LOLE and LOLP. During the RP's CRR this question was raised as to whether these alternative forms of reliability should be used in preference to USE.

The MEU has previously supported the USE as the basis for setting reliability as this assesses the availability of power in the wholesale market. How this lack of overall supply is distributed by AEMO amongst consumers in a region, is not addressed by the use of USE, but traditionally NEMMCo has implemented rolling outages to minimise the impact of loss of supply on any one group of consumers and by doing so attempts to provide a degree of equity in sharing the "pain". What is absent from the NEMMCo past practices is an ability to call on consumers able and willing (for a price) to curtail demand when there is a shortage.

Equally, the MEU does consider that a measure of the frequency of power losses is an important factor. The implication of the RP CRR, and again in this review, is that there must be only one setting. In comparison, networks use a number of reliability settings to assess performance, including the amount of time supply is lost (eg SAIDI) and the frequency of these losses (SAIFI). This raises the question as to whether the RP should look at a composite reliability setting which addresses both duration and frequency of the loss of supply. The MEU considers that such an approach has considerable merit

Such a composite approach would be consistent with the measures used in networks and would therefore recognise the importance of both these factors to consumers as often the frequency of loss of supply for short durations can have a greater impact on consumers than a single longer loss of supply.

The MEU is of the view that a composite measure reflecting duration and frequency of supply losses would be an overall better measure of supply reliability.

The RP then asks three questions:

Question	MEU response
Is the current level of USE is appropriate?	The MEU has commented above that the USE should be assessed in terms of its impact at the point the consumers sees it (ie at the point where the power is delivered). This then allows a setting which is consistent across the entire supply chain, rather than at a point along it By assessing the impact on a holistic basis, it allows for an assessment as to whether the costs of applying too high a performance level are inconsistent with the overall costs

	incurred for a segment of the supply chain. In this regard it is accepted that the higher the performance required, the higher the costs for its achievement. Up to now, the question of the costs to achieve such a high performance in the wholesale element of the supply chain has not been queried. On this basis the cost premium for achieving 0.002% USE should be assessed against the cost of achieving (say) 0.004% USE, as a relaxation of 0.002% USE to 0.004% USE appears to have little impact on the overall performance of delivered power as seen by the consumer.
Should it apply over a long period (eg 10 years)	In its response to the CRR, the MEU considered that the performance as measured by USE should be seen as a long term average, even if this meant that for some years, USE in a region might have to be set at a more aggressive level to achieve the long term average. The MEU considers that achievement of an aggressive level of USE could be made more viable by the implementation of a program of allowing voluntary curtailment rather than consistently seeking supply side options.
Are the current operational approaches to its achievement appropriate	Under the approach proposed by the MEU, there would need to be changes to operational approaches to allow the long term average USE to be achieved and to allow greater use of demand side offers for voluntary curtailment as an alternative to always seeking supply side solutions.

3.5 Reliability settings

The current design of the NEM is based on using the value of lost load - VoLL – (now termed the market price cap - MPC) as the sole tool to achieve the reliability determined for the NEM. This is a quite indirect method of achieving reliability and causes a number of other problems, such as increased risk and costs to manage the price volatility and severity seen in the NEM. It is in stark contrast to other approaches used which ensure reliability by much more direct means such as seen in the WEM and in overseas jurisdictions.

Effectively, increasing MPC results in a need to apply other controls, such as CPT, to limit the risk implicit in a high MPC. Yet it is the value of MPC that is

seen as the driver of encouraging the new generation needed to achieve the reliability level set. In its response to the CRR, the MEU noted that it is not high prices now for a product that will drive investment. It is the degree of certainty that the price in the future will be high as well, coupled with the degree of certainty that there will be an adequate return on the investment.

What is of concern is that MPC set high allows for very high prices to apply but for very short periods. The overall impact of these extreme prices for short times[7] is that there is a heightened risk for the investor that these few short periods of high prices will not be replicated in the future, creating less certainty for the expected return. By further increasing MPC will only lead to an increase in a market that is already excessively volatile. Increased volatility acts against long term certainty and reduces the certainty business requires as a fundamental for an investment decision.

> Given the Reliability Standard that stakeholders consider appropriate, what are the levels of the reliability settings (consisting of the market price cap, market floor price and cumulative price threshold) required to deliver that Reliability Standard?

Given that increasing the reliability level set can only be achieved by increasing MPC (and indirectly increasing CPT), this will increase risk to participants. To mange this increased risk participants will pass onto consumers the increased costs to manage that increased risk. Ii is therefore axiomatic that increasing the reliability setting will increase costs to consumers unless there is a change to the market to manage that increased risk in another way. The MEU has provided the RP with its views on the risk profile of the energy-only market previously and the risks inherent in it.

The RP advises that it is not within the scope of this review to assess new values for the market setting and that the AEMC is doing this as part of the AEMC review of the impacts of CPRS and xRET. Therefore it appears pointless to advise a view as to what the market settings should be.

Notwithstanding this, the MEU considers that increasing MPC and CPT are not the most economically efficient outcomes for consumers. The MEU considers that there are other approaches that can achieve the same outcome as increasing MPC and CPT, but at a much lower cost such as permitting AEMO to seek and implement voluntary curtailment, or even modifying the market structure.

[7] MEU previously provided data which shows that 20-25% of the annual average spot price is driven by less than 0.2% of the time.

4. MEU Conclusions

If there is a supply failure it is consumers that will incur the costs for the loss of supply, and the costs can be massively out of proportion to the cost of the supply.

Too often consumers see consideration of NEM issues stem from the viewpoint of the supply side (What does the supply side need to invest?) without considering the impact of their decisions in terms of the impact on consumers and their investments. The RP must address reliability in terms of consumers rather than economic theory as pertaining to the supply side exclusively.

The MEU considers that the wholesale market reliability level needs to be assessed in light of the reliability inherent in the delivery systems, with perhaps a view to increasing the level of the USE used currently to match the reliability in the delivery systems. It is inappropriate to impose an excessively high level of reliability on one element of the supply chain when the overall impact of this high setting has negligible impact on the overall reliability at the consumer end.

It is recognised that the higher the reliability level, the higher the cost to attain that level. The energy-only market provides signals for the need for increased investment in generation that at the same time are too severe, too short term and too volatile to achieve the outcomes for long term reliability and the only tool available to the RP to increase reliability is to increase MPC. Increasing MPC will increase costs to consumers.

The tools available in the NEM are too indirect in their operation to achieve the needed outcomes. The MEU considers that more direct methods for encouraging investment and reliability are needed.

The RP should examine if there are other approaches (such as voluntary consumer curtailment) that will lead to an overall reduction in costs seen by consumers, other than just increasing MPC.