



Australian Energy Markets Commission

Reliability Panel

Comprehensive Reliability Review

Comments on the Second Interim Report

by

The Major Energy Users Inc

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Executive Summary

In its previous submission to the Reliability Panel (RP) the Major Energy Users (MEU) observed that the signals provided by the NEM to drive adequate investment in generation capacity (particularly base load generation) to meet the future needs of consumers have not achieved the outcomes expected.

These concerns were clearly demonstrated in the NEM during June 2007, but this second interim report from the RP has done little but “tinker at the edges”.

This second interim report introduces some good concepts as far as it goes, but at the most basic level it does not go far enough nor does it carry out any analysis of reliability that has been exposed by the experiences of June 2007. The AER in its report on the June 2007 experiences points to a number of critical factors combining at the one time. These were a long term drought, highest winter demands in NSW and Queensland, and a large amount of generation plant out of service, including a plant that was available but not presented for dispatch.

The outcome of these was to allow large generators (the AER cites Macquarie Generation specifically) using their market power and Rules which permit repricing of bids, to drive prices up to excessive price levels for extended periods of time. Prices were such that the cumulative price threshold (CPT) was nearly breached.

It is accepted that the RP is not to be concerned with market prices, yet it has the responsibility to set key levels which ultimately do affect market prices. The RP is required to set¹:-

- ⇒ an explicit reliability standard for generation and bulk transmission (currently set at 0.002 per cent unserved energy, or USE, over the long term);
- ⇒ *price mechanisms* designed to ensure that the wholesale spot market meets that standard: a price cap (known as the Value of Lost Load or VoLL) with a market floor price and a cap on financial exposure (the cumulative price threshold or CPT); and

¹ Page 1, Reliability Panel, Comprehensive Reliability Review, Issues Paper, May 2006

⇒ an *intervention mechanism* known as the reliability safety net, should the price mechanisms fail.

Thus although the RP is not directly required to assess the pricing outcomes of the NEM, its inputs have a direct impact on these price outcomes. Accordingly, the RP must have a concern as to the outcomes of its decisions. This issue is amplified when it is identified it is market pricing that the market designers and the RP assume will lead to the investment necessary to maintain reliability of supply in the market.

Thus the expectation was that the second interim report would address whether the existing mechanisms were being exemplified and proven in light of the 2007 experiences, or whether they had failed. The MEU is firmly of the view that the current mechanisms are inadequate and that this has been demonstrated by the events of 2007.

There is a view consistently made that the RP has no role other than to set USE, VoLL and CPT. As noted above the RP is also responsible for ensuring there is a safety net should price mechanisms fail – this safety net is the use of Reserve Trader. The MEU observes that this is a very narrow view of the role of the RP. At its most fundamental, the RP is required to ensure that “... the lights stay on ...” as much as possible, and this is consistent with the market objective in the NEL that electricity supply arrangements must be “... in the long term interests of consumers ...”

The MEU considers that the RP must examine issues beyond the close confines of USE, VoLL, CPT and Reserve Trader. Unfortunately, the second interim report does none of this, and this is seen as a major failure of the RP and its comprehensive reliability review, given that the review has been undertaken over the past eighteen months, with numerous submissions and public presentations making recommendations for review of issues that the RP has consistently stated are outside its purview. This view is, of course, contested by the MEU. It is also a disappointment – so far as we are aware – that the RP has apparently made no approach (during the course of its review) to the MCE for policy guidance if it had felt constrained by its terms of reference.

In this submission to the second interim report, the MEU addresses the issues raised in the report and largely supports the changes recommended.

1. Introduction

The MEU has included an expanded introduction to its response to the second interim report so that the commentary on specific matters can be seen in light of the MEU views of the electricity market and the various observations made about it.

The MEU 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. Accordingly, the MEU 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 existing market structure.

The MEU considers that the RP would be failing in its duty if it ignores better alternatives for ensuring reliability in the NEM. 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.

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 to be in "... the long term interests of consumers with respect to price, quality, reliability and security of supply of electricity..."

The Major Energy Users (MEU) (comprising the Energy Markets Reform Forum (NSW), Energy Consumers Coalition of South Australia, the Energy Users Coalition of Victoria, the Cement Industry Federation and the A3P) between them represent a large number of major energy using companies in NSW, Victoria, SA, Tasmania and Queensland.

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 sought to represent consumer views to the Reliability Panel (RP) as it proceeded through the comprehensive reliability review (CRR) process over the

past 18 months or more. The MEU provided a detailed response to the Issues Paper, presented at the first public forum on the CRR in Queensland, provided a supplementary response to the Issues Paper and the Forum, provided a detailed response to the [First] Interim Report, and made a presentation to the Public Forum in September 2007 in Melbourne.

The MEU members are extremely concerned that there is a high risk the current levels of reliability will not be available in the future, and therefore will put at risk the vast investments they have made based on access to the continuing reliability of supply of electricity (undisputedly considered to be an essential service). The MEU members point to the following issues:-

1. The investments they have made exceed by many times², 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 (particularly 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)

² 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.

2. Price Signals in the NEM

In its earlier submission to the RP the MEU provided observations about the market signals in the NEM. These observations pointed to the signals being:-

- Unable to provide most consumers the opportunity to react to them in real time in order to change behaviour. 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 change 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. The June 2007 price hike would seem to support new investment in generation in NSW. It will take 18-24 months for the impact of this price hike to be addressed by the market, yet within months the price in NSW has fallen to near previous levels which to date has not caused new generation in NSW
- For too short a period, preventing sensible reactions to be implemented by consumers or investors. The NEM has been typified by short periods (less than 1-2 hours) of very high prices being followed by a price regime where any reaction is no longer necessary. The MEU provided analysis that showed prices exceed \$300/MWh (ie ~10 times the average price) for less than 0.2% of the time. To expect consumers to be waiting for these periods so as to take action is futile and does not warrant the investment of alternative assets by consumers.

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, VoLL is the only market setting mechanism available to the RP to ensure there is adequate investment to maintain the reliability setting established by the RP (in this case 0.002% USE). The RP therefore must assess whether the VoLL mechanism is ensuring, and will continue to ensure, adequate reliability.

The report by ERIG implies that, to date, the energy only market is performing as intended, but then counsels 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 should therefore, consider (with the benefit of the ERIG report) 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. Unfortunately, the second interim report does not address these very pertinent issues. In fact, the analysis done by MEU and provided to the RP would indicate that most generation investment has not been driven by market signals at all and has been driven by five different drivers:-

1. By governments concerned that “the lights will go out” as is evidenced by the high degree of “encouragement” given by the Queensland government 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 which total nearly 4000 MW .
2. By retailers seeking risk mitigation from the potential impact of the very high prices permitted under the price cap (VoLL) including Hallett, Somerton, and Quarantine. These projects total some 500 MW.
3. By generators seeking risk mitigation from the potential impact of being exposed to the high price spikes permitted under VoLL, including Valley Power and Laverton North owned by Snowy Hydro, of some 700 MW
4. By owners of gas fields seeking to convert readily available gas into power such as at Ladbroke Grove and Braemar PS, some 400 MW.
5. By developers of renewable energy such as wind farms where government incentives have been provided.

Points 1, 4 and 5 are not driven by market signals as such, but either by concern or by opportunity. It has been stated by the retailers of power, their decisions driven by point 2 are more as a tool for risk mitigation rather than to invest in generation per se, and point 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.

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.”

Despite this clear signaling from the NEM (especially in NSW), there has not been the generation investment that such signaling should 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) independent of Australian economists who are obviously wedded to the Australian model of the energy only market, provides a prima facie view that the NEM market signals are inadequate for achieving the reliability 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 is unlikely to be provided under the energy only market VoLL mechanism.

Further, the MEU members have experienced first hand the penalty that the NEM short term signaling causes, with contract prices being \$40-50/MWh higher for 2007/08 and onwards compared to 2006/07 prices.

3. The Australian electricity market

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

MEU members all operate in a competitive market 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 is increased competition and a new entrant. The NEM does not provide this period of forewarning so that new investments can be made in time to meet the increased demand. As the MEU noted in its response to the [First] Interim Report:-

“Unfortunately the RP (as did ERIG in its examination of the NEM) has failed to examine the fundamentals of the NEM, and the ability of the signals provided to achieve the desired outcomes, with the rigour necessary to support its views conclusively ...

The clear requirement of consumers is that there must be adequate signals in the NEM to ensure that new generation can be brought on line *before* there are shortages in the NEM. Unfortunately, due to the experience in the NEM to date, consumers are not convinced that the current approaches used in the NEM will achieve this basic and timely outcome. Of even greater concern to consumers, is that the RP seems to have accepted that the current signaling approach (based on an energy only market) must be maintained regardless of this concern....

Those tasked with the duty to recommend change seem to see that the risks associated with change now is higher than a potential future disaster. Unfortunately, it will not be the groups such as ERIG that will bear the responsibility if they are wrong – it will be consumers who will incur the penalties resulting from the “lights going out”.”

Despite there being significant investigation into the market structure over the past 18 months, there has been little indepth analysis by any party (including the ERIG and RP) to consider whether a different market structure will better

provide for timely investment in new generation. The excuse all too frequently cited is apparently a lack of time and a risk of introducing change!

4. Changes in the NEM since the [First] Interim Report

Since the [First] Interim Report by the RP we have seen a number of significant changes in the NEM.

- Pool prices in June 2007 reached stellar levels and CPT was nearly breached
- There has been even greater than usual price volatility and therefore increased risks which had to be managed, accompanied by an increase in risk management costs
- Contract prices for 2008 and 2009 reached levels that have created angst for many consumers, with increases of \$40-50/MWh from 2006 levels being the norm
- Contracts available are even shorter term, with few being available for more than 3 years and almost none beyond 5 years
- Competition between retailers has evaporated with many consumers getting at best one offer for a supply contract, and some getting no offers
- Some generators have deliberately not contracted forward preferring to sell into the pool. This has caused a reduction of retailer offers and short contract periods.
- During 2007 there were a large number of generators out of service for extended periods of time, particularly in NSW and Qld:-
 - Coal fired plants MM4, VP6, WW8, BW4 and LD4 in NSW (a total > 2000 MW in a peak demand of 13000 MW) and SBB(1), GD(1), TR(2), MM(2) in Qld (a total >1500 MW in a peak demand of 7000 MW)
 - Hydro plants of Southern Hydro in Victoria and Tas Hydro
- Queensland has exported base load power to NSW at 750 MW for winter 2006, falling to 450 MW for winter of 2007
- Retailers who rely on \$200 and \$300 caps to service the market have been left exposed
- Market power of generation has been clearly exemplified (see AER report on June 2007)
- The Queensland government is commissioning another base load power station (750 MW Kogan Creek) to add to the 2600 MW of base load capacity already caused to be brought into service by the government since 2001. This new generation is about 50% of the current Queensland demand, yet the Queensland market has not provided signals for this generation need!
- NSW has had Owen enquiry on new generation needs (which says there is a need for new generation), despite market signals indicating this for over the past 4 years
- The two Qld retailers have been sold to existing retailers - increasing horizontal re-integration

- There has been little investment in inter-regional transmission, leading to no lessening of inter-regional constraint causing price un-couplings
- There have been gas supply constraints in NSW and near constraints in Victoria, caused by gas fired generation, raising the concern that there is inadequate gas supply for the burgeoning gas fired generation promoted by new generation proponents
- There have been significant shortages of water for generation for Snowy, Victorian and Tasmanian hydro's, requiring significant power usage in off peak times to recharge pumped storage facilities
- There have been constraints on some coal fired generators from too little availability of cooling water, particularly in Queensland
- Vertical integration has continued unabated, as this is the only mechanism a retailer has to minimize its risks

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 past 12 months, 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 required to pay well above the price for energy that its international competitors pay for electricity. If Australia with its ability to source energy and sell it to overseas users who can then generate electricity at a lower price than Australia can, there is a fundamental problem in the market design.

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

- ⇒ considerably higher prices (that are unrelated to costs)
- ⇒ market signals which indicate a need for investment which has not eventuated to match the 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 RERM after a decade of operation

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, and why are governments taking action to ensure adequate supplies.

If the market is so soundly based, surely the need for “patches” should now be passed, yet this is obviously not the case.

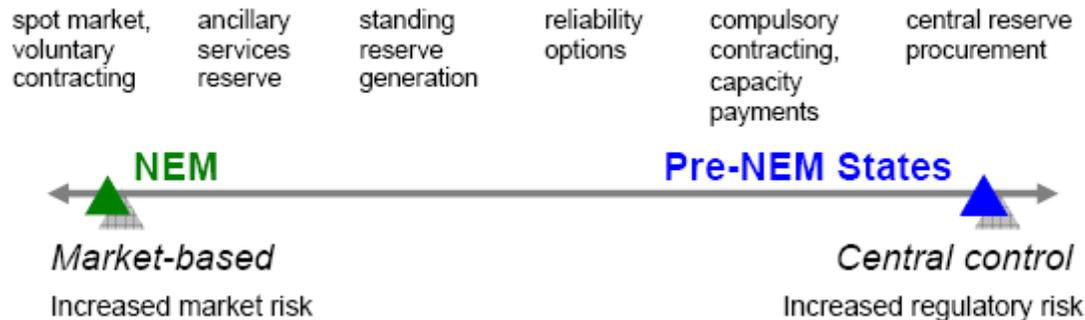
One such market driven “patch” has been the drive for retailers to secure generation by vertical integration with generators. As the MEU observed in earlier submissions, vertical integration has become a “must” in the NEM. An outcome of this is that there are increasingly fewer independent generators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

The MEU has consistently made the observation that the long lead time for new generation could result in loss of reliability as the new generation project nears completion. MEU members have consistently made the observation that if high prices continue (exceeding those of their overseas competition) and the reliability decreases, then an alternative available to them is to cease operations in Australia.

Is this the demand side response sought by the NEM and the RP?

5. Other approaches for reliability

The RP interim reports provide a view of the spectrum of reliability options, with the Australian energy only market located at the far left of the options. By far on an installed generation basis, the market based electricity markets lie towards the centre of the spectrum, with only a very few using the energy only approach used in Australia.



In its letter to the RP on 16 May 2007, the AER made the observation on page 2 and 3 that

Internationally, there appears to be a trend away from centrally managed capacity markets towards greater use of price signals to encourage investment and demand-side response. In the US, the Midwest has recently adopted an energy-only design with no capacity market, while Texas has reaffirmed that approach with the introduction of a higher price cap in its energy-only market. Texas has also introduced a cumulative price threshold, similar to that which applies in the NEM.

This is totally incorrect. MEU sought advice about this observation from its overseas consultant and he advised in a letter of 13 June 2007 to RP Chair that he:-

“... disagree[s] with the statement that “Internationally, there appears to be a trend away from centrally managed capacity markets towards greater use of price signals to encourage investment and demand side response”. In my study “An international assessment of competitive power markets” I studied 16 markets³, and subsequently I have looked at Texas and the Midwest Market. California is implementing a capacity market; Singapore (which has an enormous surplus of capacity because of the distortion in the market) was introducing a mechanism; the Netherlands has introduced

³ Austria, England & Wales, Germany, Netherlands, Nordic market, Spain, Alberta, Ontario, California, the markets of the PJM/New York/New England, Argentina, Australia, New Zealand and Singapore.

a back-stop mechanism; and MISO will be introducing a reserve margin requirement that will de facto be a capacity mechanism. No markets have stripped back to energy-only; several that were energy-only have introduced centralised capacity markets or back-stop mechanisms.”

It is of grave concern that comments made by an important NEM institution, like the AER, can deliver a biased observation which is patently in error and can unduly influence the RP. Even more of concern is that misleading statements such as this can lead the RP to assume that what they are attempting to do has significant rationale and wide support.

The work by MEU and its consultant has provided the RP with very sound reasons why the NEM has not achieved the outcomes expected in terms of new generation investment and why the NEM signals have not been accepted by investors.

It is obvious to designers of most other market based electricity supply arrangements, that reliability cannot be guaranteed using a pure energy only market design. With a very few exceptions, all have decided that reliability is too important to leave to chance, and have taken steps to ensure there is a direct link between new generation investment and reliability.

6. Will increasing VoLL give greater reliability?

In its Second Interim Report, the RP does not address the issue of VoLL in detail, stating on page 36 only that:-

“The Panel also notes that, in the absence of a redesign of the market by jurisdictions to include additional reliability mechanisms, the best alternative the Panel has at its disposal may be to raise VoLL. The Panel stated in its first Interim Report that:

“On balance, the Panel has formed a preliminary view that raising VoLL at this stage is not the preferred approach and that other options should be considered first. However, given the risks identified, if other options for the reliability mechanisms are not progressed, then an increase in the level of VoLL may need to be contemplated in order to provide the necessary market signals for investment.” ”

The clear import of this statement is that, as the RP has only the one lever to adjust to ensure reliability, the RP must recommend an increased level of VoLL. Intuitively an increase in VoLL must result in higher costs for consumers, and the resultant increase in reliability is likely to be marginal.

The CRA report attached to the [First] Interim Report provides some quantification of these intuitive outcomes. Figure 26 in the CRA report indicates that increasing VoLL by 25% would reduce USE by 16% and figure 27 indicates that costs would increase by 7%.

Figure 26: Summary of USE and Reserve Margin (50% POE Demand) by Design Option

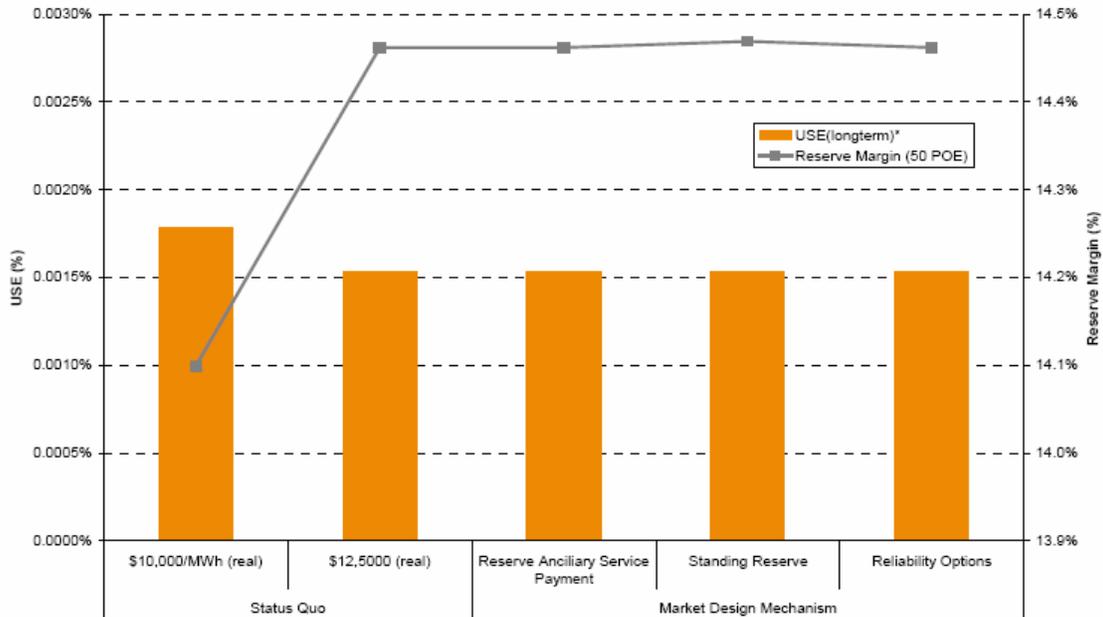
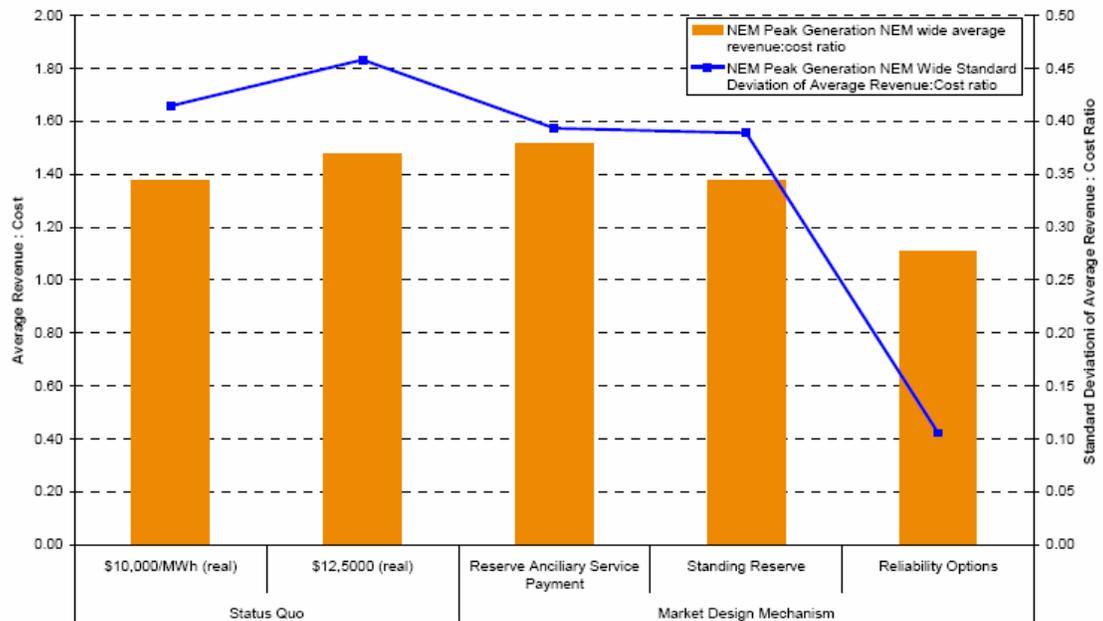


Figure 27: Revenue:Cost Ratio and Variability by Design Option



That USE of 0.0018% is in theory achieved by a VoLL at \$10,000/MWh indicates that this level of VoLL 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 must take into account whether an increase in VoLL will achieve the stated outcomes at all, considering that the theoretical work by CRA indicates that VoLL is already more than sufficient to provide the USE desired. To increase VoLL in the vain hope of increasing investment appears to counter to the theory.

Certainly MEU would point out that the increase in VoLL in 2002 (but foreshadowed to increase to this level in 1999) has not provided the outcomes expected. As noted earlier, 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.

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 VoLL is the least certain of 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 CRA report indicates that moving to a capacity payment or some other form of 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.

7. What about VoLL and DSR?

Proponents for increasing VoLL 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 VoLL 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 stranding costs associated with their business. Given a choice 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.

For example, if the spot price rises in the first 5 minute period of the settlement half hour, as the price is ex post, the business has incurred the costs associated with its demand at the high price. How the business then addresses the high price incident, is that for the remaining half hour, the business reduces its demand regardless of what the spot price is for the remaining 5 minute periods. This outcome provides the best a demand side respondent can hope for.

However, if the high price occurs in the last 5 minute period of the settlement period, then the business gets no value for reducing its demand unless the high price continues into the next half hour settlement period. The outcome is that demand has reduced as an ex post signal, and potentially the price will fall in the next 5 minute period (ie in the first 5 minute period of the next settlement period) as a result of the demand reduction that has occurred.

Analysis over the eight years of the NEM of the half hour periods where the price has spiked to a level where a business might provide a DSR, indicates that for a number of the 5 minute periods of the settlement period, the 5 minute

dispatch price has not been excessive, and certainly not at a level where a business might consider the benefits from ceasing production are outweighed by the saving in costs.

Thus demand side responsiveness can cause a business to lose production but with no benefit from responding to prices. The benefit to the demand side responder can be effectively be halved as a result of the market design (ie 5 minute dispatch, ex post pricing and half hour settlement periods).

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.

Prima facie, increasing VoLL 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 VoLL increase in 2002, indicates that the number of high priced incidents reduced with the higher VoLL as did the severity of each incident.

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 electricity price through 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 VoLL as this reduces volatility and their exposure to very high priced incidents.

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

8. Long term contracting and reliability

MEU members have made a long term investment in their production facilities, an investment 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 noted 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 for the market designers that this can be achieved by agreeing on a strike price in the pool, the actuality is not quite as perceived.

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 counter party risk inherent in a contract with a large consumer as 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 VoLL 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 (the BlueScope Steel concept)
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 (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 VoLL is an indirect (and not very “bankable”) method of increasing potential revenue.

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

- ❖ Increasing VoLL 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 security of cash flow, 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 VoLL 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.

9. Views from the US

It is interesting to note observations of large consumers in the PJM. The following words were presented on behalf of the 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.

10. Market risk and VoLL

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

In previous submissions MEU drew 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 VoLL will exacerbate these risks from the already demonstrably high risk regime, and create further risk premiums for consumers.

11. The changes proposed in the Second Interim Report

In its second interim report the RP posits that:-

- USE will be 0.002%
- NEMMCo will still be able to issue “reliability directions”
- The NEMMCo approach to forecasting needs to be refined, by adding to MT PASA, the new “Energy Adequacy Assessment Projection” (EAAP) which is a quarterly two year look ahead, but which does not replace MT PASA as the tool to initiate Reserve Trader
- The Reserve Trader should be scrapped and replaced with Reliability Emergency Reserve Mechanism (RERM) which changes the RT from a 6 month program to a 9 month program
- RERM is still to be an interim tool and will be phased out
- And waiting in the wings, VoLL might have to increase

11.1 Unserved Energy (USE) setting

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

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. However, this 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. By taking these factors into account, the 0.002% USE setting results in an expectation that power supply loss might be 3.5 hours per year. Both the simplistic and the expectation calculations give acceptable levels of reliability of supply

The MEU agrees that USE should be set at 0.002%. It notes that other forms of assessing reliability are used elsewhere, but there is effectively a correlation between the various forms of reliability used.

In providing support for USE at 0.002%, the MEU points to the fact that this level has been consistently achieved over many years and is therefore likely to be achievable into the future. The MEU considers that any thing more than 0.002% USE is not in keeping with supply reliability which should be available in a first world economy

11.2 Jurisdictional reliability settings

In addition to setting USE, various jurisdictions in the NEM have set additional reliability standards, most commonly N-x approaches. What is not developed by the RP in its report is the impact that such additional reliability settings have with regard to the USE value set for the region. This then causes some concern if the jurisdictions require N-x reliability in specific parts of the NEM (most commonly for the CBDs in each jurisdiction). The concern is that if higher reliability is provided for specific parts of the jurisdiction supply arrangements, and USE is set on a regional basis, the natural outworking is that those parts of the region without the additional reliability provision will effectively receive a USE level higher than the average for the region.

The RP should examine if additional reliability settings established by jurisdictions should be considered within the entire framework of the reliability settings set by the RP.

11.3 USE is an average not a target

The RP provides a view that the level of USE is intended to be a target for the future, but evaluated over the previous decade to identify if there are issues which should lead to changing its calculation or if the outcome does not meet the intentions of the setting.

The RP notes that the USE should not be a cap as this implies that USE cannot be exceeded. The MEU would point out that taking such a view implicitly sets USE in terms of the supply of power, yet USE is all about how consumers are impacted by less than perfectly reliable electricity supplies. Such a view is contrary to the NEL objective which requires decisions to be made in the long term interests of consumers.

USE is the amount of electricity that a consumer is not going to be supplied. This means that a consumer can make its investment decisions in light of an expectation that power will be available for given amount of time.

It is accepted that supply of electricity is an essential input for almost every investor in the country – be they residential, commercial or industrial. If the actual USE is consistently higher than the benchmark used by the consumer for its investment decisions, then there is potential for the consumer to recover less from its investment than was forecast.

Therefore USE must be seen as a long term average, and if in one year USE exceeds the benchmark, then there is an expectation that in following years USE will be less than the benchmark so as to allow the consumer to recover its expected return on investment.

If USE is seen as a target only, then USE can consistently exceed the benchmark and so result in the consumer never recovering the forecast return on its investment. This does not equate to the NEL objective.

The MEU therefore accepts that the level of USE must be seen in light of the long term and agrees that a 10 year period is appropriate. But the MEU does not accept the arguments of the RP that USE should be a target.

The RP notes that the MEU observed that USE should be an average over the long term. The RP goes 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. The MEU recognises that this does create challenges in relation to setting the USE but it reiterates that reliability does impact consumers directly and on their investment decisions.

The RP approach effectively determines that consumer investments have less value than investments made by others, and that the difficulties faced by NEMMCo in setting minimum reserve levels on an annual basis in an attempt to achieve an average USE would require too much effort to be worth the benefit.

11.4 What is included in USE?

The RP posits that the historical assessment of USE must be discounted by events which it classifies as security (such as the Victorian bushfire outage in January 2007) and other external factors such as terrorism, industrial action and "Acts of God".

However, 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 of 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. The lender does not concede that it should have a lesser rate of interest on its loan because there was a bushfire.

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.

The RP opines that the Victorian bushfire outage was a security issue. This is not correct. It is a network design issue as the power line could have been built underground for instance and so avoided being shut down due to the fire nearby. It is accepted that this would have resulted in significantly higher costs to consumers, but as a result the USE would be much lower due to the lower risk of an outage. The consumer accepts that USE of 0.002% includes for the risk of losing supply due to a bushfire, and this then provides the balance of cost versus benefit – a higher USE at a lower cost, or a lower USE at a higher cost.

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.

11.5 Reserve Trader

The concept of Reserve Trader was that under an energy only market there was a need for a transition from centrally controlled to a market based supply arrangement. As there was a concern that there might not be sufficient history of market signals to provide a reliable basis for new investment, and that there might not be sufficient time to build new investment, the concept of Reserve Trader to be operated by NEMMCo was seen as a sound approach to ensure continued reliability of supply.

The NEM and its precursor NEM1 (which included NSW and Victoria) have now been operating since 1996. In the time since, we have seen an increasing

need for Reserve Trader rather than a decline as might be expected as the market matured. As noted earlier, we have seen governments (particularly the Queensland and NSW governments and even the SA government with its decision to drive the building of Pelican Point) take unilateral actions to ensure there is adequate generation in each region.

The continued need for Reserve Trader and unilateral government action flies in the face of the expectation that that the market structure would deliver timely investment and allow the sunset provisions for Reserve Trader to apply.

The RP sees the need for Reserve Trader to continue until 2012, some 16 years from the introduction of the competitive market. The RP does not delve into the reasons for the need to have Reserve Trader operate for such a long time after inauguration of the NEM, yet the MEU considers that a review such as this is essential.

The RP should include in its Final Report an assessment as why there has been a continuing need for Reserve Trader, and what are the causes of the need. The MEU has provided in previous submissions its view that the market structure with its very blunt but indirect signaling tool of VoLL is the main cause of the continuing need for Reserve Trader.

The MEU supports that continuation of Reserve Trader rebadged as Reliability Emergency Reserve Mechanism (RERM), and is strongly of the view that such a mechanism will always be required under the current market structure. Because of this MEU suggests that rather than establishing a binding sunset provision for terminating RERM (ie in 2012) but leave this sunset provision out of the proposed Report, relying purely on the requirement of a future comprehensive reliability review to determine if and when RERM should be discontinued.

The RP flags that RERM will be discontinued in 2012, although there will be a future review which might discontinue it earlier or extend its life. The MUE considers that the benefit of providing a definite sunset for RERM with the potential for it not to be discontinued is far less than the benefit of setting a time for a future RP to determine its discontinuation and the timing for this.

Simply put the MEU sees no value in providing a sunset clause for RERM as a future review of REM in three years time will require the life of RERM to be determined then.

11.6 Reliability Emergency Reserve Mechanism (RERM)

The MEU sees the RERM as the Reserve Trader rebadged, with some (good) refinements and it looks ahead by 9 months (not 6 as now).

The MEU supports the concept of RERM, but as noted above, because the RP will review RERM in three years time with a view to:-

- confirming the sunset date,
- shortening the sunset period, or
- extending the sunset period,

the MEU does not consider the imposition of a sunset of 2012 appropriate.

Despite its shortcomings, the proposal for RERM has some better features that the Reserve Trader, and on this basis MEU supports the change. In particular MEU supports the concept that NEMMCo has the requirement to continually update its forecasts of reserve margins and the accompanying ability to modify its approach for securing (or revoking) RERM bids.

The areas where MEU has concerns are:-

1. There is still insufficient time for a bidder for RERM, to build new a new generator before the dispatch might be called. Although RERM allows NEMMCo an additional 3 months to source RERM bids, the additional time does not in practice allow alternatives to the bidders that would widen the pool of RERM bidders from those that could bid to Reserve Trader. The additional 3 months will allow NEMMCo more time to call for and assess offers, but it is still too short to allow construction of a new generator - therefore the source of bidders for RERM will still be from existing generators and DSR.
2. The MEU supports the use of DSR in such reserve trading as the alternative to providing DSR is the potential for other consumers to be unwilling parties to load shedding without the benefit of any compensation. However, the MEU still points to the fundamental flaw in using DSR as a prop for lack of generation, as it causes a loss of productivity on a national basis.
3. Bids for reserve trader will be sourced competitively and in many cases will result in prices significantly lower than VoLL being available for dispatch. Despite this, NEMMCo is precluded from bidding these RERM

offers on the grounds that NEMMCo must minimize any distortions to the market. This is despite the fact that incumbent generators can seek to use the increased market power they have as minimum reserve levels are approached.

The MEU would like to see RERM offers bid into the market at the prices offered to NEMMCo, as these prices have been sought on a competitive basis and can therefore be bid in accordance with the bid stack. If incumbent generators wish to reprice their bids (ie use market power to drive prices up) then NEMMCo as the holder of reserve generation should be able to bid these offers in accordance with the bid stack⁴. This is not a distortion of the market but a sensible use of assets available to be used.

4. The draft of the Rule change to introduce RERM requires NEMMCo to allocate the costs of securing RERM bids to the region which required this reserve level. Prima facie this approach has some merit, but when the actual operation of the NEM is more closely analysed, it does not replicate the concepts inherent in the NEM.

The NEM is about sharing resources to the maximum extent possible. The MEU has been a consistent supporter of ensuring the Rules maximise the benefits of increased interconnection between regions. Currently reserves in one region are provided to another region in order to minimize costs to all consumers.

For example, region 1 may be identified as requiring additional reserves due to an insufficient reserve margin. In practice the reserve is not needed but has to be paid for. The forecast for an adjacent region (region 2) does not warrant RERM but due to circumstance requires greater imports from region 1 which has incurred the cost for additional reserves. Thus the reserves initially contemplated for region 1 are in fact used for region 2, but under the Rules, the region 2 gets a windfall benefit at the expense of region 1.

The MEU considers that a more rigorous approach to cost sharing must be implemented so that one region is not penalized for providing a benefit for another region.

⁴ In its response to the RP Issues Paper, MEU provided data about the approaches used in overseas jurisdictions to secure minimum reserve levels. In particular, MEU provided information on the Netherlands approach which allows the ISO to seek reserve offers and to bid them in accordance with the bid stack. It was not clear if this was an approach to reduce market power or based on the logic.

5. It is noted that NEMMCo retains its powers to direct dispatch of generators and that it is required to reimburse parties negatively impacted by this direction to be compensated. Whilst supporting the concept of NEMMCo being able to direct generation and for compensation for loss incurred to be reimbursed by NEMMCo MEU has a concern that compensation from this fund can be allocated to another fund. The concern is that if a generator suffers loss from being directed by NEMMCo, there is potential for another generator to make a windfall profit from such a direction. The MEU notes that there is no provision for such windfall benefits to be released and incorporated into the fund. This smacks of “heads they win, tails we lose”.
6. It is noted that the Rule change permits NEMMCo to establish a number of funds, and in particular a fund to manage the costs associated with RERM. The MEU considers the concept acceptable it that it allows the averaging of costs over a number of years, but at the same time MEU has severe doubts about the execution of such a fund. Such doubts cover what happens during the build up of the fund if there is too little in it for the costs incurred, how to ascertain the acceptable maximum holding in the fund, how are the funds to be managed, how much should be contributed each year and over how many years.

The MEU considers that the proposal as developed by the RP has not addressed a range of issues (see above) nor sought input as to the acceptability of the detailed management of the fund. On this basis the MEU, whilst supporting the principle, does not support the detail provided as an alternative in Rule 3.20.6

11.7 Better assessments by NEMMCo

In RP documentation, there has been criticism of the forecasting ability of NEMMCo as it attempted to ensure that there were minimum reserve levels for the coming summer period. The RP has also observed (page 41) that:-

“...to date the NEM has been very reliable, with the greatest risk to the ongoing reliability being whether the market delivers sufficient new generating capacity in a timely manner.

...[It] is concerned that the current market arrangements do not explicitly address the generation input constraints of the type (energy rather than installed capacity) being witnessed within the present drought.”

As a result of these observations the RP has decided that there needs to be a better medium term projected assessment of system adequacy (MT PASA) and a more wide ranging Statement of Opportunities.

11.8 Energy Adequacy Assessment Projection (EAAP)

The RP has decided that in addition to the MT PASA, there should be an Energy Adequacy Assessment Projection (EAAP) which is carried out on a quarterly basis for the coming 2 years. This adds to the medium term forecasting by adding to MT PASA (which looks primarily at generation capacity availability) the EAAP (which looks at the available energy).

The MEU agrees with the reasons behind the decision to add EAAP to the forecasting by NEMMCo.

As part of developing a realistic and well based EAAP, the RP recognises the need for NEMMCo to understand the constraints which a generator faces in providing the forecasts of energy availability. The RP refers to this provision of understanding the Generator Energy Model (GEM) which would be unique for each and every generator. Not only would each generator have to provide the basic model which gives the understanding of the constraints a generator faces, but each generator would have to provide updates in order for NEMMCo to develop each quarterly EAAP.

At the public forum on 13 September 2007, generators provided a number of reasons as why the GEM and quarterly inputs would not provide NEMMCo with a better understanding of the potential energy output from all generators, and so make the EAAP a less valuable tool for forecasting. In particular the generators noted that such information as was requested is confidential and divulging this information could harm their ability to maximise returns from the electricity market. They also commented that:-

“NGF objects to NEMMCO publishing forecasts of duration & depth of possible shortfalls, [as] multiple simulation models create a small number of hypothetical “doomsday” scenarios, [which] when considered in isolation these have no meaning and their presentation creates a dangerous distraction, misleading stakeholders, e.g. media”.

NGF went on to state:-

“There is no discrete solution to these energy limits, [as] its all a function of electricity price, not fuel or water availability. Price forecasting [is] neither a role nor skill of NEMMCO and assessing energy reliability

requires price modeling of the entire electricity, gas and irrigation markets [which is] unrealistic”.

The MEU reverts to the NEL objective which is focused on the long term interests of consumers. Providing that NEMMCo keeps information from generators as confidential, and only publishes the output in aggregate terms, then generators should not be concerned about confidentiality. Such assumed intrusions are already part of being involved in the NEM, and these additional requirements are not onerous.

The other significant reason for opposition of providing the data needed to generate EAAP, was that it might not meet the need and that NEMMCo might not be able to use it appropriately. Rather than accepting the view of NGF, it is more appropriate to seek advice from NEMMCo as to whether they can use the information in a useful and sound manner to generate a valuable additional tool for forecasting based on energy rather than capacity.

The MEU considers that if NEMMCo can develop a useful forecasting tool for energy supplies, then there is no reason not to proceed with the RP proposal.

What might be an outcome of providing such information to NEMMCo is that NEMMCo will be able to better see how some generators use their undoubted market power to the detriment of consumers. The MEU has considerable concerns about generator market power and their ability to exercise this power, but the MEU does not see that providing the required information will reduce the generator’s abilities in this arena.

The MEU considers that the EAAP is an essential step in ensuring long term future reliability of power supplies and supports the RP in having the provision of the information needed to generate the EAAP is a sensible and necessary step for the NEM.

11.9 A 10 year outlook

The RP notes that although NEMMCo does receive sufficient data for it to be able to generate a 10 year look ahead for energy adequacy, the current ANTS process does not require NEMMCo to address this element of a long term view of energy adequacy. The RP considers that NEMMCo should address not only capacity adequacy in its long term outlooks, but also energy adequacy.

The MEU supports this additional requirement, and considers that a 10 year energy adequacy will assist in providing a clearer understanding of the likely aspects of the energy market that need attention.

The MEU notes that the RP tends to concentrate on water levels and stream inflows as the core of this 10 year projection. The MEU would also recommend that the 10 year outlook also address the availability of natural and coal seam gas (and the infrastructure to deliver it) to ensure that gas fired generation will be able to provide energy into the future.

The MEU raises this concern in light of a number of features of the gas market which have been, or are likely to be, influential in this aspect of forecasting.

- ❖ NSW experienced a shortfall of gas in 2007 constraining off a large number of gas consumers, but which was not related to availability of gas from the gas producers, but more from gas marketing approaches
- ❖ Victoria regularly faces near gas constraints due to its lack of line pack, and gas fired generation can both contribute to the problem and also be the first to be constrained off the gas supply, resulting in an unexpected shortage of electrical energy
- ❖ Coal seam methane is becoming more consistently used as part of the gas supply mix, but there are doubts about its ability to consistently deliver high levels of gas for industry as well as for gas fired generation
- ❖ Gas fields (particularly smaller fields) can quickly and unexpectedly “run out of gas”, resulting in a sudden loss of energy thought to be available
- ❖ Gas reserves identified now are, in large part, a direct outcome of the high prices for oil. Gas is commonly a byproduct of oil recovery and if oil recovery reduces because of lower world oil prices, this will impact on the availability of commercial reserves of gas
- ❖ Gas supply infrastructure will need to be expanded significantly to match the amount of gas needed if current forecasts for gas fired generation eventuate. In Western Australia the current gas infrastructure is inadequate for the gas demand – most of capacity has been used by gas fired generation which has recently proliferated in that state. In like manner, if all future generation in NSW is to be gas fired (as some would like) then the gas market in NSW will double within the next 6-8 years, requiring significant gas infrastructure expansion
- ❖ Gas fired generation is significantly more expensive than coal fired generation. With an increase in gas demand for generation, it is probable that gas prices will rise making commercial generation from gas less viable.

These observations are from actual experiences of MEU members and are therefore not supposition but reality.

The MEU supports a 10 year outlook for assessing energy availability but considers that NEMMCo must also address the availability of commercial gas supplies for gas fired generation

11.10 Demand forecasting

The RP effectively concurs with others in the view that NEMMCo is too conservative in its forecasting, and points to the fact that NEMMCo has previously initiated Reserve Trader, which was subsequently not required.

The MEU is aware of this criticism but tends to support the NEMMCo conservative approach to forecasting and initiating actions to address potential loss of plant reserve margins. The MEU points to the asymmetric outcomes if there are insufficient reserves to maintain supply. The cost to a constrained off consumer can be massive ranging from a short term loss of production, to the need to replace all assets because product has “frozen” in the assets such as can occur in the aluminium, steel and glass industries.

The modest premium to have such reserves available when needed pales into insignificance when measured against the potential cost of power supply failure.

11.11 Setting VoLL and CPT every three years

The RP signals an intention to have a deep analysis of the market each three years and then to set VoLL and CPT until the next review.

In its response to the [First] Interim Report, MEU agreed that a deeper analysis of VoLL and CPT are required in order to ensure settings are appropriate and reflect the needs of the market. This approach is the antithesis of the current approach where an almost cursory review is carried out annually.

The current arrangements allow for changes to VoLL and CPT to be set for some time into the future, about three years ahead. The purpose of this is to allow the market to digest the changes before they are enacted and to allow adequate time to make any needed investments, adjustments to contract positions and the like before the change is implemented.

Although the Second Interim report states that a comprehensive review would be carried out every three years in order to set levels for VoLL and CPT, it does not indicate when the changes would be introduced.

If the current process is maintained, the RP would be carrying out its next comprehensive review at the time the past review settings would be being implemented, giving the RP very little opportunity to examine if the settings made had achieved the desired outcome.

Equally if the settings are implemented immediately the decision on VoLL and CPT is made, then the market has little opportunity to make any adjustments before being exposed to the new values. The longer the RP allows for the implementation of the new settings, the less market data is available for the RP to consider if the previous settings were appropriate.

When the RP made the decision to allow the market time to adjust to the new settings, this decision was made as a result of strong advocacy from Market Participants about the need for investor certainty about what was to be changed, by how much and when would it apply.

The RP has made no attempt to explain the implementation element of the three year comprehensive review cycle. The MEU is of the view that this part of the three year cycle is fully explained with the opportunity for stakeholders to explain how the proposed implementation element will impact each of them.

As an example of the concern about implementation, the MEU notes that, allowing for planning permits and the like, it will take about three years to build a peaking gas turbine plant. A step increase in VoLL will increase the risk exposure of a retailer who has in place a contract to supply electricity to a consumer. If there is no forewarning period then the retailer has to absorb this risk until it has an opportunity to seek risk mitigation. Even then the retailer has to absorb the costs of this risk mitigation until the contract with the consumer is at an end.

The outcome of this exposure is that retailers will tend to reduce the period of contracts with consumers so that they can minimize their risk. This flies in the face of a desire of generators and consumers to seek longer term contracts as the basis for new generator investment.

It is decisions such as that proposed by the RP which can have unintended consequences and provide countervailing pressure to prevent exactly what the RP wishes to see as an outcome.

In its papers and interim reports, the RP makes references to the views of some supply side entities, in that increased intervention in the NEM is to be deplored as this creates less and less of a competitive market.

Whilst the MEU does not necessarily agree that less intervention is desirable in a market that can never even come close to competitive, it notes that intervention might provide a disincentive to invest. The whole purpose of a competitive market is that signals are provided in order to create an environment where investment will occur (as it must in the NEM to meet increasing demand). If intervention reduces the impact of market signals or mutes them, then intervention needs to be carefully considered.

The MEU supports the principle of fewer but more comprehensive reviews on VoLL and CPT, but requires the ability to evaluate the proposed implementation program before fully endorsing the RP concept. In addition, there is probably a need to consider very carefully how the reviews are undertaken and the inclusion of independent experts (including overseas experts) in the review teams.

12. Setting VoLL and CPT

The Value for Lost Load (VoLL) is a construct for placing a value from a consumer's viewpoint of the loss of supply of electricity. This value has been the topic of many informed papers. Suffice the state that VoLL can never be a single figure, and it is a value which varies between all types of consumer, even between consumers of the same classification, the degree of forewarning of the loss, and perhaps most importantly the duration of the loss of supply.

In practice VoLL on the terms of the RP deliberations is in fact a cap placed on the price of electricity. Seen from the viewpoint of a generator, VoLL is derived from the cost of having an open cycle gas turbine generator continuously available for dispatch but actually dispatched for a very few hours each year.

In its review of VoLL in 2002, the RP noted (page 24) that if VoLL is set too low

“...retailers would have little incentive to contract with generators, however, the existing level of VoLL is likely to be more than adequate to drive retailers to seek such contracts. It may be argued that a high level of VoLL is a disincentive to generators to contract their plant due to the high revenues potentially available from the spot market. In practice, this is an extremely high risk strategy, which is unlikely to be acceptable to lending institutions.”

As noted earlier, consumers have seen a reduction in generators desiring to contract forward – a view which the RP noted was a “high risk strategy”. Equally with the current level of VoLL retailers are seeking contracts (albeit short term) but they report that contracts are most difficult to come by.

As the economists would have it, it is the market that determines the actions of the parties involved, and there is now a view that as generators have taken the step which the RP considers indicates VoLL is too high, then on the basis of the RP assessment of 2002, there is a strong indication is too high at \$10,000/MWh.

The setting for VoLL does impact on the financial viability of a generator. VoLL set at less than the SRMC of the lowest cost generator will prevent new investment in generation and will send many generators into insolvency.

As VoLL increases from this point more generators become viable, and it makes new investment more probable. As VoLL increases it also exposes existing generators and retailers to greater risks, as unhedged generators and retailers might have to pay for power used above their contracted positions. Thus

increasing VoLL can encourage new investment but also creates greater risks to all involved in the market.

New investment (as discussed earlier) is risk averse. Thus increasing VoLL provides both an incentive and at the same time a disincentive for new investment in generation. The challenge is to set VoLL at a level which is the optimum point.

Alternatively VoLL can be set at a much lower figure and an alternative method developed for providing greater investment certainty.

12.1 Adjusting the value of VoLL

In the second Interim report (page 45) the RP restates a view from the [First] Interim Report:-

“On balance, the Panel has formed a preliminary view that raising VoLL at this stage is not the preferred approach and that other options should be considered first. However, given the risks identified, if other options for the reliability mechanisms are not progressed, then an increase in the level of VoLL may need to be contemplated in order to provide the necessary market signals for investment.”

Notwithstanding this statement, the RP has foreshadowed increasing the current level of VoLL at least by some inflation related index. This view was supported by a presentation from ESIPC at the 13 September 2007 public forum and is implicit in the CRA report to the RP (included with the [First] Interim report where it consistently refers to the “real” value of VoLL.

The RP has also observed that the only lever it has to manage reliability is the setting of VoLL. This statement has validity only if it is accepted that the energy only market is the only market structure that the RP can consider.

The MEU is concerned that by indexing VoLL it is merely providing a notional adjustment to a figure which is developed based on very wide assumptions. The concept of indexation assumes that the base figure is an accurate one and that there is a need to maintain this accurate amount into the future.

As noted above the development of \$10,000/MWh set for VoLL for 2002 was based on inaccurate science, with very broad assumptions made about the cost to install an open cycle gas turbine generator, the rate of return such an investment should make and even on the number of hours each year the power plant would run. Matters such as the thermal efficiency of operation and the

costs for fuels, maintenance and labour were (probably correctly so) assumed to be negligible.

Rather than index the value of VoLL it might be better to adjust VoLL based on realistic current input costs, but using the same the basic assumptions. The MEU is aware that the current cost for constructing an open cycle gas turbine plant is about \$600-650k per MW installed. Allowing a nominal WACC of 10% and assuming 8 hours running each year, gives a current value for VoLL of \$7500-8200/MWh, an amount significantly lower than the current \$10,000/MWh.

The RP should be aware that it is the capital cost that is the most important element of calculating VoLL in this way. The amount quoted above is for new plant which would be expected to operate nearly continuously. As the VoLL setting generation plant is assumed to only operate for 8 hours each year, then there is validity in assuming that the capital cost for the generator should be based on this amount of running. Following this assumption Market Participants have actually sourced second hand equipment to provide for their hedge against the high prices VoLL at \$10,000/MWh permits.

The MEU would suggest that there is validity in using the cost of second hand equipment as the basis for setting VoLL. Further, the MEU suggests that rather than indexing an imprecise figure, it would be more appropriate for the RP to set the input assumptions for calculation of VoLL and use current market values to revalue VoLL.

Thus the concept for indexing VoLL is not supported, and if the RP sees that VoLL should be adjusted to reflect current conditions, it should set the process for valuing VoLL and seek current prices and returns for providing the input to the methodology.

12.2 The consequences of increasing VoLL

The MEU has commented consistently that it does not support an increase in VoLL and is firmly of the view that reliability will not be ensured at the level of 0.002% by further increases in VoLL.

Equally, the MEU accepts that, in the absence of any changes to the market structure, the RP only has one lever to use to ensure reliability, ie by changing the value of VoLL.

One matter that the RP has not addressed in its deliberations is what will be the consequences of increasing VoLL. The bland assumption made is that by

increasing VoLL this will result in increased reliability. That this is the assumption is clear from the theoretical work by CRA attached to the [First] Interim Report. CRA has calculated that an increase in VoLL from \$10,000/MWh to \$12,500/MWh will reduce USE from 0.0018% to 0.0015%.

This theoretical assumption is based on economic theory, but in practice, it would appear that theory is not proven, as the lack of generation investment in NSW shows.

As noted above, MEU members have consistently observed that it is not high prices *that apply 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 VoLL set high allows for very high prices to apply but for very short periods. The overall impact of these extreme prices for short times⁵ 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 VoLL 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.

Combined with this lack of certainty, interposing retailers between generators and consumers and so preventing generators having this certainty by preventing bi-lateral contracting with a consumer, the market approach does not replicate what happens in normal competitive business.

If the RP can find a way to permit bi-lateral contracting and/or to allow some certainty of revenue for a new generator, then reliability will be immediately enhanced.

To persist in assuming that increasing VoLL will result in increased reliability flies in the face of the way business thinks and acts.

⁵ 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.

12.3 An incumbent generator view of VoLL

Incumbent generators do not face the need to have investment signals as their investment is already sunk. Therefore incumbent generators seek primarily to increase revenue, regardless of any market development. That this is the case can be seen for the way the NEM has operated during 2007.

Coal fired generators have consistently been the providers of the bulk of electricity sold in the NEM. During 2007, the spot price has risen dramatically as the following table of annual average spot prices show.

Year\Region	Queensland	NSW	Victoria	SA
2002/03	\$37.79	\$32.91	\$27.56	\$30.11
2003/04	\$28.18	\$32.37	\$25.38	\$34.86
2004/05	\$28.96	\$39.33	\$27.62	\$36.07
2005/06	\$28.12	\$37.24	\$32.47	\$37.76
2006/07	\$52.14	\$58.72	\$54.80	\$51.61
2002/06 average	\$30.76	\$35.46	\$28.26	\$34.70
2006/07 rise	169%	166%	194%	149%

Source: NEM Review

The table demonstrates that particularly the coal fired generators in each region have made massive gains in their revenues. Further, as retailers have expressed to MEU members, the contract prices offered to retailers from generators for future contracts have risen commensurately with the 2006/07 spot market. It has been seen that generators have locked in these spot prices rises into the next year's contract prices, delivering a handsome return. These observations of price rises can be further demonstrated by reference to the futures market.

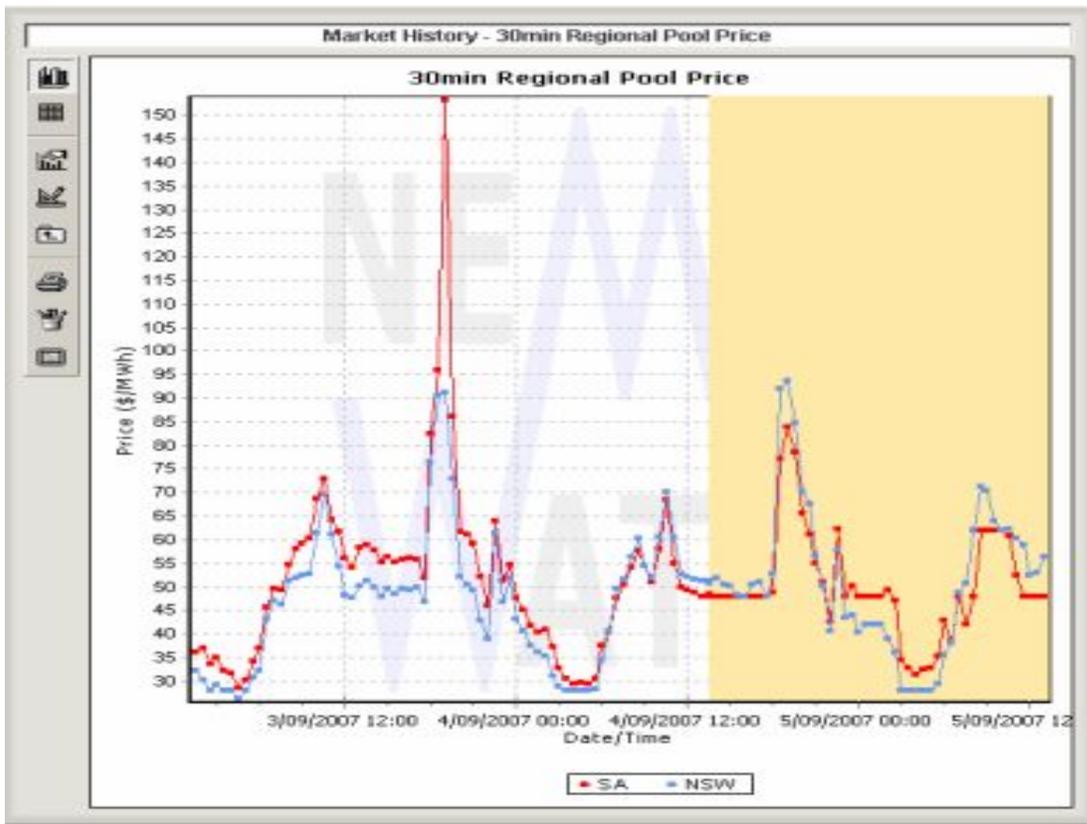
At the same time the cost structure for coal fired generators have risen but marginally, yet they also receive the payment attributable to the last generator dispatched, which in an energy only market for much of the time is likely to be gas fired due to the type of generator needed for mid merit, peaking or fast start purposes. This point is recognised by Peterson, White, Roschelle and Biewald⁶ who observe:-

“Unfortunately the cost payments to the existing resources will be substantial and mostly unnecessary, because they have already recovered most of the costs associated with their capacity. Providing additional payment, under most circumstances, would fail to meet the standard of

⁶ Page 3 Capacity for the Future: Kinky Curves and Other Reliability Options, Synapse Energy Economics, December 20, 2004

“just and reasonable” costs under the Federal Power Act. In other words, providing new entry payments to existing resources results in a windfall for those resources, as they do not “need” this money to operate – the plants are already built and operating in the marketplace.”

It would be expected that if the market was operating properly off peak demand (normally provided by coal fired baseload generation) would be significantly under the LMRC. Yet analysis of the market does not support this contention, especially to date in 2007. In fact it appears that the coal fired generators are working to have an off peak floor price of ~\$28/MWh as the following chart shows. This runs counter to the economic concept that the energy only market should (in the absence of exercising market power) return only the LRMC to generators over the long term, rather than return the LRMC or better at all times.



Source: NEM Watch

The import of these observations is that incumbent generators do not seek to have market signals that really do encourage new entrants. Incumbent generators want a market that allows them to earn well above LRMC and in this they are no different to any other business. But, whereas most businesses operate in a true competitive environment where super profits are quickly

eroded by new entrants seeking a share of the action, the electricity market is typified by an ability to have few but very large occasional prices, which allow incumbents only to benefit. New entrants see this and have concerns that they will not be able to share in the super profits.

Further, incumbent generators see new generation as at threat, as new generation will reduce their revenue in two ways – reducing the amount of sales and introducing new or better technology that allows the new entrant to operate profitably at lower prices.

The RP is encouraged to see the observations of incumbent generators in this light, rather than being seen to represent the views of new entrant generation.

12.4 Cumulative Price Threshold (CPT)

In 1999, the retailers stated that they were concerned the prospective increase in VoLL would increase their risk exposure. As a result the RP implemented the cumulative price threshold, which if breached would result in NEMMCo administering prices until the reason for the continued high spot price was resolved, and the market allowed to resume normal operations.

In SA in 2001 the CP reached its previous highest level of \$125k and the RP notes that in June 2007, the CPT was nearly breached – this would have been the first such experience in the NEM, as CP prior to the introduction of CPT can still be calculated.

The current setting of CPT is a point at which VoLL is the market price for a period of 15 hours in a seven day period. In its second interim report the RP notes on page 12 that CPT

“... is an explicit risk management mechanism. If the half-hourly wholesale market spot prices over a rolling seven day period total or exceed this threshold, then NEMMCO must impose an administered price cap such that spot market prices do not exceed \$100/MWh during peak times and \$50/MWh in off-peak times until the sustained high prices fall away. Some market participants [ERAA] have, however, complained that the CPT does not actually assist in the management of risks. In particular the level of potential administered prices, combined with an open ended compensation regime for generators, means that prudently hedged retailers may suffer increased losses if the CPT is exceeded. This concern was exacerbated when such an event almost occurred in June 2007.”

As a result of this concern, the RP notes that the

“... Panel recommends that, in light of the high spot prices in June 2007 nearly causing such an exceedence of the CPT, that as a matter of priority the AEMC initiate a consultation process to reexamine the [Administered Price Cap] and publish a new schedule if necessary.”

This is somewhat confusing as in its 2002 Consultation Paper (page 4), the RP observed:-

“The CPT forms the primary Code mechanism by which market customer’s risk exposure is controlled. It is necessary for high market prices to exist for short durations in order to encourage the development of peaking plant and demand side response to meet increasing demand which exists for those short periods. The CPT is thus designed to permit short duration price spikes whilst preventing long periods at high prices which cannot be justified in terms of securing a return for market investments. The arrangements also provide protection against force majeure, which might result, for example, from a catastrophic failure of the transmission network.”

The CPT has always been considered a risk mitigation management tool. It would seem that it is not so much the level of CPT that is the issue, but the level of the administered prices (the APC regime) that result from it exceeding the threshold that is the concern of the ERAA.

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 VoLL is set as high as it is. If VoLL 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.

In its presentation to the public forum the MEU raised this concern – that the fact that CPT and APC are even considered necessary, is the result of a deeper issue which can be directly related to the high value set on VoLL

12.5 Summary on VoLL and CPT

The MEU considers that the entire concept of VoLL being the only lever available to ensure reliability in the NEM is a significant concern as its use would appear to lead to other unintended and contrary outcomes.

It is accepted that a VoLL which is too low will not result in the investment needed to ensure reliability that will come from new investment, and nor will it encourage the market to operate in the most economic fashion.

Equally, a VoLL which is too high will encourage outcomes that are also not economically efficient, and even worse, require the establishment of interventions (such as CPT and APC) to prevent inefficient outcomes.

The MEU is convinced that the current level of VoLL is too high, and that an alternative mechanism is required to allow market forces to operate but also to ensure that equity is an outcome of the market.

13. Options for Change

In its [First] Interim Report the RP posited three basic groups of options:-

- Group 1 Status quo with adjustments (VoLL, mandate long term contracting)
- Group 2 Provide reliability as an ancillary service
- Group 3 Capacity payments, availability payments

The RP also stated on page 56 of that Report:-

“...a fundamental change to the NEM design is not part of the terms of reference of this Review and is a matter for policy makers. This Review has considered options which are generally based on the existing energy-only market design.”

The MEU sees no change to this position developed in the Second Interim Report and when analysed the Second Interim Report merely “nibbles at the edges” of the problem.

The fundamental issue is to ensure reliability in the NEM. The RP is suggesting that:-

- ⇒ improved forecasting (EAAP)
- ⇒ a marginally better Reserve Trader (RERM)
- ⇒ indexing VoLL

will ensure reliability of supply into the future. The RP tacitly accepts that the energy only market can provide reliability for the RP notes that it sees RERM being phased out by 2012, leaving NEMMCo with no ability to take positive action should it become apparent that the VoLL approach to ensuring reliability will continue as it has, and not produce the outcomes desired, and therefore require continued intervention by governments.

The MEU has provided the RP with a solution that does result in a direct approach to ensuring reliability in the long term rather than just hoping that VoLL will encourage the outcome economic theory predicts but so far has not achieved.

The MEU is well aware that capacity payments for generators have been abused and that there are economists that think they have a better solution than such a positive (but flawed) approach. The MEU has sought to provide a solution (Reliability Options) which gives positive direction but limits the ability of providers to abuse the system.

Unfortunately, the RP has taken a view that to depart from the energy only market is not permissible as it is not part of its terms of reference.

The MEU points out that the RP has the primary responsibility to ensure that investment in new generation is achieved so that the level of USE is maintained at 0.002%. This implicitly requires the RP to advise on two matters:-

1. That they are convinced that reliability has been achieved in the NEM by the sole action of setting VoLL. They are also required as part of this statement to advise that the associated detriments of the preferred setting of VoLL will not unduly increase prices in the NEM and that any risks inherent in the approach can be managed at a low cost.
2. If the RP cannot state that they are wholly convinced of the rightness of the points made in 1 above, then they must clearly state what should, in its view, be done to achieve certainty on ongoing reliability.

13.1 ESIPC views

In discussions with ESIPC after the public forum, it became apparent that the stated view of ESIPC for indexing VoLL (and the CPT) was made under the constraint that an energy only market was “de rigeur” and that no other option could be countenanced. This is in keeping with the ESIPC submission to the RP dated 5 July 2006 where ESIPC stated:-

“The Planning Council considers the following options to be worth considering:

- ⇒ an increase in VoLL;
- ⇒ a capacity support mechanisms such as
 - a variable wholesale market price escalator driven by the Loss Of Load Probability; or
 - a co-optimised available capacity market; or
- ⇒ a standing reserve capacity offer.

In their view:-

“A change to VoLL would, in the opinion of the Planning Council, have a significant but unpredictable impact on both market behaviour and prices. While an increase to VoLL may deliver higher returns to generators on the occasions when they occur, the rarity of these occasions would not, of itself, increase investment certainty for a new entrant. The higher risks to retailers and generators holding contracts may, however, lead to a change in the contract volumes sought by retailers and a reduction in the number of cap contracts being offered by generators for a given level of plant. The Planning Council therefore does not consider this as the best option to pursue at this stage”

The ESIPC is an independent advisory body established by the South Australian government and is not replicated elsewhere in the NEM. That it suggests alternatives to the basic energy only VoLL driven market (some of which are in line with MEU views) should encourage the RP to take the hard decision and advise that perhaps there are better solutions than holding or raising VoLL. It is noted that in separate discussion with the MEU, the CEO of ESIPC confirmed that its advocacy for an increase VoLL reflected the lack of alternative options that could be countenanced by the RP under its present energy-only market approach.

If the RP has doubts about the efficacy of the only lever it has to use to deliver reliability then the RP has no other path than to advise that it sees the need for alternative approaches.

13.2 NewGen views

NewGen is a new entrant generator to the NEM and is part owned by investment bank Babcock and Brown. The views of such a company provide a clear statement as to how a new entrant generator views the NEM and the needs it has for ensuring the new generation needed to retain reliability of supply.

In its submission to the RP on 30 June 2006, it stated:-

“While thus far the NEM seems to have delivered reliable supplies, as Peluchon (2003) has noted in the case of Europe, this is because newly deregulated energy-only markets have largely thrived on generation over-capacity built up by the public monopolies that previously existed. In the case of the NEM, this came in the form of a substantial overinvestment in base plant in New South Wales and Victoria.

But most of the oversupply outlined above has been absorbed at the aggregate level, and there is an issue as to whether adequate supplies will

be installed in a timely manner in the future. Certainly, this is a well-known concern of the Queensland Government, and presumably a possibility not ignored by other jurisdictions. Thus, a serious issue that faces the deregulated NEM is whether the energy-only price mechanism is capable of signalling for new plant in a timely manner, and in line with societal (and therefore political) expectations. Our organisation would argue that the financial conditions necessary for new plant entry lag, by some years,

Note that it is not NewGen's contention that insufficient plant capacity will become an inherent problem in absolute terms. The issue here is one of timing. That is, will new plant arrive in a timely manner, and in a manner consistent with that envisaged by power system stakeholders."

NewGen concludes with:-

"An emphasis of this submission is the introduction of capacity payments as a mechanism to enhance the timeliness of resource adequacy in the NEM, which in turn, should ensure that reliability of supply meets the requisite benchmarks.

... What this submission has questioned is whether an energy-only market can result in a stable equilibrium and deliver satisfactory outcomes from a reliability of supply perspective – be it a gross pool, a net pool, a regional market, a nodal market, with- or without FRC and VI. And the results of the quantitative analysis were clear enough – competitive energy-only markets do not have a stable or definable equilibrium."

In a separate submission, Simshauser of NewGen assets:-

"However, while the energy-only gross pool market has served Eastern Australia well over the past decade, deep structural faults on the supply-side remain, and appear to be deteriorating. The reason for this outcome is that competitive energy-only markets do not have a definable equilibrium solution unless reliability constraints are violated, or market power is exercised. ... Without policy intervention, the NEM is headed for periods of supply shortages and unacceptable levels of load shedding. This represents a political hazard for State Governments, who are ultimately held accountable for the performance of the deregulated NEM. This research finds that by reducing the Value of Lost Load and introducing a Capacity Payments Pool, a tractable equilibrium can be established that will ensure the timely entry of new plant."

The MEU shares these views.

13.3 MEU conclusion of other views

The MEU notes that the RP has identified that to deviate from the energy only market is not in its terms of reference and therefore it cannot deviate from this market structure.

In its submission to the [First] Interim Report the MEU stated that:-

“The review by the RP was to be a comprehensive review, with the clear understanding that, if to achieve reliability in the NEM a fundamental change was required, the RP would recommend such a change. ...[The MEU considers that] the RP cannot be required to accept responsibility for maintaining reliability in the NEM if it is required to operate only within the confines of a structure which may be incompatible with achieving the goals of the RP.”

The submissions from ESIPC and NewGen are referred to above because ESIPC is an independent body and NewGen is a new entrant generator. It is interesting that consumers, and independent advisory body and a new entrant generator have by and large reached the same conclusion – that reliability into the future is fraught, that the current mechanisms might not work and that greater certainty is required to ensure both the investment and the timing of this investment might be better served by a more direct method of signaling need.

A review of the submissions by retailers (ERAA) and incumbent generators (NGF) reflect the views of incumbents rather than those ultimately paying for the service and those considering entering the market.

The MEU considers that the RP has been provided with well reasoned arguments from three different sources – the independent advisor, the consumer and the new entrant generator – all proposing an alternative to the energy only market with VoLL driving reliability, to give the RP a sufficient basis to advise that the current arrangements are inadequate for ensuring continued reliability in the NEM, and that a new approach is needed.

14. MEU Conclusions

Too often consumers see the reviews of the NEM to be undertaken from the stand-point of the status quo - what does the supply side need in order to invest sufficiently, but without ever considering the impact of their decisions in terms of the impact on consumers and their investments? The current RP review is no different.

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.

The tools available in the market are too indirect in their operation to achieve the needed outcomes. The MEU considers that a more direct method for encouraging investment is needed, rather than leaving the matter to chance.

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. Is economic theory adequate to balance this asymmetry?

The concept of demand side response requires foreknowledge in order to act, yet the NEM does not provide this. Most DSR requires an extended time to respond yet the market signals do not commonly last long enough for sensible response.

The needs of consumers with regard to reliability might be better served by allowing large consumers to bi-laterally trade with generators, without having to use retailers as an intermediary.

Economic theory suggests that generators should seek longer term contracts to underwrite their investments yet consumers are seeing the reverse. It is considered that this is an outworking of a high VoLL and an ability of generators to exercise market power, especially supply and demand reach equilibrium.

Increasing VoLL increases risks and therefore the costs for managing risk increase. At what point do these costs exceed the costs of an alternative?

The decision to set USE at 0.002% is supported as are the improvements to forecasting (EAAP) and Reserve Trader (RERM). The decision to assess the outcomes of USE over the previous 10 years is supported, but the decision to only address USE in the future as a target is rejected.

However, the MEU is convinced that the RP should look at alternatives to ensure long term reliability and not be hide-bound by trying to operate within a structure that is not delivering/cannot deliver the outcomes needed.

APPENDIX

The MEU presentation to the Reliability Panel 13 September 2007

Major Energy Users, Inc
The voice of energy consumers

**AEMC Reliability Panel
Comprehensive Reliability
Review**

2ND Interim Report Forum 13 September 2007

Presented by David Headberry, Public Officer, MEU



The Major Energy Users Inc

- A member driven organization, comprising large energy consumers
- 20 members with operations NSW, Vic, SA, Tasmania and Queensland
- Industries cover paper and cardboard, aluminium, steel, auto manufacture and suppliers, cement, mining, plastics and chemicals, consumer electronics
- Many members are regionally based such as Whyalla, Mt Gambier, Westernport, north and western Tasmania, Pt Kembla, Newcastle and regional Queensland
- Because of this, members require MEU to ensure that views support regional and residential views as well
- MEU members represent over 7% of all electricity used in the NEM



The NEL Objective

“The national electricity market objective is to promote efficient investment in, and efficient use of, electricity services for the long-term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity and the reliability, safety and security of the national electricity system.”

The emphasis is intentional and a reminder of the raison d'être for this Reliability Review



What has changed since the last presentation from MEU (1)?

- Pool prices in June 2007 reached stellar levels and CPT was nearly breached
- Even more price volatility and therefore risk
- Contract prices for 2008 and 2009 reached levels that have created angst for many consumers
- Contracts available are even shorter term
- Competition has evaporated with many consumers getting at best one offer
- Retailers who rely on \$200 and \$300 caps to service the market have been left exposed
- Some generators lately have deliberately not contracted forward preferring to sell into the pool – to get better returns
- Market power of generation has been exemplified (see AER report on June 2007)



What has changed since the last presentation from MEU (2)?

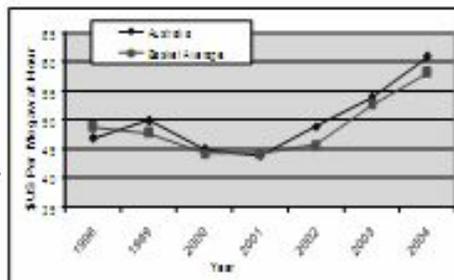
- Old government is commissioning 750 MW Kogan Creek PS
- NSW has had Owen enquiry on new generation needs (which says there is a need for new generation)
- The two Old retailers have been sold to existing retailers – increasing horizontal re-integration
- Still too much inter-regional constraint causing price un-couplings
- Gas supply constraints in NSW and near constraints in Victoria – caused by gas fired generation
- Shortage of water for generation for Snowy, Vic and Tas hydro's
- Constraints on some coal fired generators from too little cooling water



Is the NEM competitive?

It is still argued that Australia has cheap electricity when compared with the rest of the world.

Recent MEU research shows this is clearly not the case, and given the basket average includes countries with nuclear in the mix, the comparison is more stark



The data has been sourced from the IEA. The data covers electricity delivered to industrial users. The basket includes data from Canada, US, UK, New Zealand, Germany, France, South Korea and Thailand. Japan has been excluded as its energy costs are significantly higher and so such impacts the sample. There is no data for Australia beyond 2008.



MEU observations of the market

- At the last presentation MEU observed there are many issues blamed for the market performing badly for consumers (including retail price caps, ETEF and BPA, insufficient disaggregation of NSW and Qld generators)
- To these we can now add drought, constraints in gas supply/infrastructure, and government interference
- Despite all of the negatives observed previously and now added from the past 12 months, the view persists that it is not the market design that might be wrong
- Yet to ensure reliability of power supplies, we see more and more intervention in generation supply (eg Owen enquiry, Kogan Creek, reserve trader cum RERM)
- We also see consumers being required to pay increasingly exorbitant amounts for power



Reliability and generators out of service

- During 2007 there has been a large number of generators out of service, particularly in NSW and Qld
- Coal fired
 - MM4, VPS, WWS, BW4 LD4 in NSW (total > 2000 MW in 13000 MW)
 - SBB(1), GD(1), TR(2), MM(2) in Qld (total > 1500 MW in 7000 MW)
 - The AER noted that MacGen's Back Water 1 plant was available within 24 hours notice but was not switched on until 21 June.
- Hydro
 - Southern hydro in Vic
 - Tas Hydro in Tas
- SA and Vic baseload generation has been available most of the time, as was pumped storage in Snowy and Wivenhoe
- A significant proportion of generation lost in NSW and Qld was not forecast (extended maintenance, cooling water, etc) and neither were the hydro schemes
- These are multiple contingency events, yet reliability was maintained – at a high cost
- There was no market signal for new generation prior to 2007 except in NSW which did nothing except to encourage price rebidding. See AER report on June 2007, naming MacGen repricing



What is the Reliability Panel response to consumer concerns?

- NEMMCo will still be able to issue “reliability directions”
- The NEMMCo approach to forecasting needs to be refined, by adding to MT PASA, the new “Energy Adequacy Assessment Projection” (EAAP) which is a quarterly two year look ahead
- The Reserve Trader should be scrapped and replaced with Reliability Emergency Reserve Mechanism (RERM) which changes the RT from a 6 month program to a 9 month program
- RERM is still an interim tool and will be phased out
- And waiting in the wings, VoLL might have to increase



The RP continuum

Figure 2.3



- The RP provides a view that the NEM will operate well on a totally market based approach
- But it overlooks the fact that unlike consumers electing to not have (say) bananas, consumers have little choice in using electricity and a demand side response is based on ex post data, not ex ante
- NSW and Qld governments have realised that reliability is not served by the current market, and losing supply is not acceptable



Consumers and reliability

- Consumers are generally satisfied with the current reliability achieved, and view any reduction as unacceptable for a first world economy
- The current level of 0.002% for USE is seen as appropriate
- Against this backdrop, the reserves forecast by NEMMCo have been adequate to maintain this level of reliability
- Every year of the NEM except 2005/06, NEMMCo has forecast availability less than the reliability standard, and this has been demonstrated as true except for 2001/02 (RP table 1)
- In the IR 2, the RP supports criticism of supposed NEMMCo conservatism



Views on reliability

- The RP notes that a market cannot always accommodate "exogenous" events, and therefore reliability is not certain to be at the benchmark
- But consumers assume that power will be available to 0.002% USE so that their investments can be productive
- The market based solution has not provided this certainty and Reserve Trader/RERM is the outcome
- NSW and Qld gov'ts have addressed the issue in an interventionist way, because they see the potential for increased USE
- The RP notes that NEMMCo is conservative, but this conservatism has resulted in USE being 0.002%, but there is asymmetry of impact from not being conservative



The Reliability Standard

- Consumers see that 0.002% USE as a benchmark has provided adequate reliability and that this is relatively consistent internationally, although other forms (eg LOLP, LOLE) are used
- The RP sees the continued use of USE is appropriate as a target but that performance be assessed in retrospect over the previous decade
- It must be a forward looking measure to assess the availability of future supplies
- Its performance must be assessed in light of the immediate needs, to signal future generation and transmission investment which all take time to implement
- The RP has decided that certain outages should not be assessed within USE. This disregards the consumer impact which is that power has been lost regardless of cause (eg the Victorian bushfire in 2007 was a failure to take precautions, not an Act of God, generator IR impacts will still stop power supplies)



The RERM

- Is the Reserve Trader rebadged, with some (good) refinements
- Looks ahead by 9 months (not 6 as now)
- This is still too short to allow construction of a new generator – therefore the outcome is from existing generators or DSR
- Issues:
 - Lack of strong competition for RERM bids
 - If a RERM bid is lower cost than a bid from the market, allow NEMMCo to dispatch it as a market bid
 - DSR is seen as a logical option but it is based on a consumer being less productive



The VoLL threat

- “On balance, the Panel has formed a preliminary view that raising VoLL at this stage is not the preferred approach and that other options should be considered first. However, given the risks identified, if other options for the reliability mechanisms are not progressed, then an increase in the level of VoLL may need to be contemplated in order to provide the necessary market signals for investment.” (RP page 36)
- The RP has not addressed the consequences of raising VoLL, which would/could act against the outcome desired (eg increasing VoLL increases risks of operating in the NEM impacting new generation)
- MEU has offered a solution which provides greater certainty for new generation and reduces the risks inherent in increasing VoLL



The CPT and reviews

- CPT is a market risk mitigation approach and was implemented in the 1999 decision of RP at the request of retailers
- ERAA now says this doesn't work, and points out that there was an instance in June 2007 which almost triggered administered prices resulting from CPT being exceeded
- The RP response is to have an AEMC review
- MEU does not object to a review of CPT, but queries if one near miss in seven years, is sufficient to trigger a review – or is there a deeper issue?

- There is a plan to set VoLL and CPT on a three year basis, not annually
- Currently changes are made annually for three years hence, to allow time to manage the changes
- More explanation is required of the proposal
- Does three year assessments meet investor certainty and consumer needs?
- A three year window allows the time only to decide and build a peaking gas turbine plant, so allowing for three year reviews could mean that needed plant could be delayed by up to six years, rather than three.



In Interim Report 2, the RP proposes to

- **Hold USE at 0.002%, but exclude exogenous impacts (eg bush fires, IR)**
- **Have USE as a forward target, not a forward cap**
- **Set USE on a long term historic average**
- **Support NEMMCo to develop better forecasting**
- **Marginally improve Reserve Trader with RERM**
- **Marginally improve MT PASA with EAAP**
- **Look at better ST PASA arrangements**
- **Look at the level of CPT**
- **Consider the concept of increasing VoLL, due to a lack of other levers**
- **Set VoLL and CPT every three years – with lead in construction time this can stretch effectively to a 6 year time impact**



The issues the Reliability Panel should look at:-

- **Alternatives to increasing VoLL – there are major downsides to increasing VoLL – how often does this need to be said???**
- **Implementing a process which gives future certainty of supply to match a forward looking reliability standard**
- **The need for allowing time to implement needed investment – all actions proposed are short term, even VoLL!**

Our bottom line is that the Reliability Panel (unlike gov'ts of years past) does not face any ultimate accountability – so it needs to address the issue of reliability with real rigour!

