Submission to AEMC Reliability Panel
Comprehensive Reliability Review
Interim Paper, March 2007

May 2007

1. INTRODUCTION

This submission from the Energy Users' Association of Australia (EUAA) is made in response to the Australian Energy Markets Commission (AEMC) Reliability Panel's Comprehensive Reliability Review, Interim Report, released in April 2007. The EUAA welcomes the opportunity to comment on the issues raised by the Reliability Panel (Panel) as part of its review.

The EUAA is a non-profit organisation focused entirely on energy issues. Members determine the EUAA's policy and direction, and our activities cover both national and state issues. The membership represents a wide spectrum of end users located in all states. Currently, the EUAA has about 85 members, which are predominantly large business end users with activities across all states and many sectors of the economy.

2. SUMMARY AND GENERAL COMMENTS

The EUAA agrees with the Panel's preliminary conclusion that, against the reliability standard, the reliability mechanisms in the NEM have been satisfactory to date. The EUAA also agrees with the Panel's concerns that there are risks on the horizon which may affect incentives for the installation of further baseload generation capacity in the medium to long term, and these need to be addressed to create appropriate incentives for the installation of any further generation capacity.

While the Review identifies that there are concerns for the future, these concerns relate to external factors, such as possible greenhouse gas policy responses, and the EUAA notes that the Review does not present a case for a fundamental movement in the electricity market away from an energy only market in order to address reliability shortcomings, perceived or otherwise.

As with other market participants, the EUAA takes the view that many of the medium to long-term risks relate to external influences not directly included within the scope of the current review. For example, a consideration of future greenhouse policy responses at both the State and Federal levels, and a consideration of the further development of measures to introduce demand side management into the electricity market, future development of wind generation opportunities and the impact of wind on reliability standards are

key elements in any evaluation of the future effectiveness of the current reliability standard.

Additionally, the continuing existence of retail price caps and consequent lack of incentives for the reduction of peak loads, the introduction of interval metering without adequate price signals (as is currently proposed), and the question of medium term weather trends in Australia are all critical in arriving at a conclusion as to whether the current reliability standards across the NEM will continue to be acceptable and will be (or can be), in practice, met by the market.

To this end, the EUAA had recently written to all State and Federal Ministers requesting expressing its grave concerns about the current persistent high power prices in the NEM and requesting that that the Ministerial Council on Energy (MCE) establish an independent inquiry into the current high prices, their causes and what needs to be done to alleviate them. Obviously, the drought and apparently abnormally high levels of generator maintenance are casual factors. However, in addition to prices, these influences may also impact of generation capacity and reliability. The EUAA has also suggested that the MCE needs to approve the immediate release of the National Electricity Market Management Company's (NEMMCO's) assessment of the impacts of the drought on the level of availability of unconstrained generation capacity throughout the NEM, as a necessary step in improving the transparency of the assessment process of which an examination of reliability standards is but one part. This episode has cast a concern over the availability of good information in relation to the maintenance schedules of NEM generation and the availability of capacity.

Ultimately, without detailed consideration of issues that lie outside of the current review but also impact on reliability, (including consideration of the future role of the National Energy Market Operator – NEMO, and the future interaction of the gas and electricity markets planning functions (if more gas-fired peaking generation is to be built), the EUAA is somewhat surprised that the Paper discusses discreet alternatives to redress perceived reliability concerns.

In the absence of an holistic assessment of the reliability standard which incorporates a discussion of the wider issues identified above, as a general principal the EUAA considers that:

- reliability standards should be determined to address electricity market issues independently of exogenous factors;

- market-based solutions that do not favour one solution over another should be adopted where possible (effectively, solutions to meeting reliability standards should be incentive-based, where all market participants are exposed to the same incentives); and

- a comprehensive market-based solution can only be achieved through a multi-faceted approach

The EUAA is also concerned that the Review has not proposed clear definitions for reliability and security. 'Reliability' in the transmission and generation context usually refers to the amount of electricity that can be made available to a region at any time - 'supply capacity' - whereas security is a 'delivered capacity' measure linked to technical factors. However, if there are multiple contingencies, reliability issues can become security issues. Given the implications for such things as the reserve trader mechanism, it is essential that clear concise definitions be formulated.

The EUAA now turns to consider some of the questions in the Review.

2.1 Addressing the Risks: Raising VOLL

The EUAA is opposed to any moves to raise VOLL (Value of Lost Load) and, in fact, believes that there is a case for revising the level of VOLL downwards. There is little evidence that demonstrates that the last increase in VoLL (Value of Lost Load) has had any demonstrable positive impact on reliability levels in the NEM, on signaling the need for new investment in peaking plant, or on active participation of the demand side. On the other hand, there is evidence that increases in VoLL exacerbate distortions driven by the presence of market power, ultimately leading to consumers being required to pay higher prices.

The EUAA agrees with the Panel's finding that raising the level of VoLL is, in the short term, likely to be ineffective in delivering appropriate long-term incentives for investment in new generation facilities to deliver reliability improvements over the long term.[1] The EUAA further agrees with the Panel's view that an increase in VoLL is likely to simply increase the returns that generators can receive over the longer term, and also increase spot price volatility for consumers.

2.2 The current form and level of the reliability standard, being USE of no more than 0.002%, should be retained.

The EUAA agrees with the Panel's preliminary conclusion that there is no change needed to the form, level or scope of the standard. In principle the reliability standard should be based upon a least cost combination of reserve capacity and cost of the risk to customer loads.

Specifically, the proper assessment of optimal reliability requires a quantitative approach to the priority and optimising of load shedding arrangements, in addition to consideration of the market mechanisms that can be used to place appropriate incentives on peak load generators to make reserve capacity available. This would require a confidential analysis of the load at risk during capacity shortages and an evaluation of the expected costs faced by customers for various levels of unserved energy. This would be an input into any optimal reliability analysis.

In relation to other changes that would be beneficial, economic assessment of the optimum level of reliability by balancing the value of USE against the cost of increasing capacity would allow the level of USE – and thus VoLL – to be set at a level that would minimized overall costs.

This would deliver reliability settings that enable customers to achieve their desired level of supply reliability. Balancing the value of USE against the cost of increasing capacity would also encourage those who do not need a highly reliable supply to participate on the demand side so as to guarantee the required service levels for others and receive appropriate economic benefit commensurate with the value of demand-side services to the market as a whole.

[1] For example, see comments made in section 6.2.1 of the Interim Report

In relation to the form of the standard, the EUAA supports the continuing use of the USE standard to measure reliability, and considers that the standard is appropriate within the NEM as an energy-only market.

The EUAA also supports the use of forecasts of frequency, duration and depth of possible shortfalls that make up the 0.002% USE to provide stakeholders with a gauge as to the possible nature of USE events, and to provide transparent signals to the market about the opportunities that exist to meet reliability challenges.

The question of whether the standards should be the same for all regions is a complex one. In an analysis undertaken for the EUAA, McLennan Magasanik Associates Pty Ltd (MMA) showed that the current (uniform) NEM standard is not economically optimal and needed to be refined to reflect different patterns of loading, plant mix and load shedding in each state region. MMA calculated that this could save up to $9m per annum in the next five years and up to $40m per annum thereafter compared to achieving the current standard of 0.002% throughout the NEM. The EUAA notes that the Reliability Panel also concludes that, due to differences in load profiles and plant mix within regions, the reliability standard is effectively different in each region. However, given the relatively low level of savings identified by MMA, the EUAA understands the Panel's position that a move away from a uniform reliability level of 0.002% is justified at this time. Nevertheless, this should be kept under review.

The EUAA considers that if regionally based standards are introduced they should reflect local economics but not undermine a national approach. Regions already have their own constraints and supply/demand characteristics, which should determine their own supply standards within the ability to predict and measure them. This is analogous to having different capacity reserve margins in each region.

Similarly, the EUAA questions the value of moving to a hybrid standard such as Loss of Load Probability (LOLP) or Loss of Load Expectation (LOLE). To be beneficial, these standards would need to be applied at the micro level and this could have the effect of encouraging embedded generation at the expense of NEM wide approaches to address reliability issues. Similarly, the specification of a higher capacity reserve would likely encourage embedded

generation and impose higher costs on end users. Achieving localized solutions can adversely impact on wider NEM objectives, such as upgrading interconnectors through the application of the Regulatory Test.

2.3 The current scope of the reliability standard should not be changed

The focus on the bulk system reliability should not be confused with distribution reliability and system security issues. These other aspects of system performance cannot be addressed by building more or less reserve capacity or demand side response (except on a local basis) and therefore should be analysed separately from bulk system reliability.

Distribution and bulk system reliability are themselves separate issues and there is no benefit in arbitrarily linking their reliability standards. Reliability levels should be based upon cost/benefit analysis, where the costs to provide higher reliability are matched to customers' willingness to pay for a given level of reliability, or the demonstrated economic value of their activities as affected by the particular pattern of unreliability of supply. This approach requires a demonstrated link between the aspect of supply disruption that is of concern and the most economic means to reduce that exposure to disruption.

In relation to supply interruption classes that should be considered as part of the standard, the EUAA supports the continuing categorization of causes of interrupted supply into 'reliability events' and 'security events' and 'external events' that cannot be mitigated by adding more reserve capacity.

For example, it is not normally economic to fix industrial relations problems by building extra reserve capacity; this is more effectively accomplished by attending to union and company management and industrial relations law. Therefore, the standard would not normally include unserved energy due to industrial relations causes unless the problem was so endemic that it could not be addressed by other means.

Some of the other types of exogenous events (lightning strikes, bush fires and other weather related events, animal interference with equipment), commonly used as reasons for interruptions, are credible contingency events; they can be foreseen (at least in a statistical senses). The interconnection between SA

and Victoria is overrated under certain weather conditions because of the likelihood of lightning activity in the vicinity of the equipment. Redundancies in the system, equipment protection and work practices defining how the equipment is to be operated should be able to deal with these events. To the extent that these approaches cannot address the system performance, the remaining outage events would be included as contributing to bulk system unreliability.

However, the EUAA considers that it is insufficient to look at the "expected" unserved energy alone because of the asymmetry of impacts. More extreme events should also be a focus with greater reliance on demand side withdrawal to respond to minor and more frequent shortages. The risk of extreme events is more important to customers because of the flow-on effect on the economy generally.

Causes of unserved energy events emanating from the bulk transmission system should also be recorded so that useful information is available when standards are to be reviewed, to assisting with policy making, and to provide market participants with transparent information about the reliability conditions of different regions within the market.

2.4 The form, level and scope of the reliability standard should be reconsidered within the next 3 years as part of a review of the overall package of reliability settings.

The EUAA supports such a review as part of a review of the overall package of reliability settings. The current review should confirm the extent to which it will base the reliability target and its operational management on economic criteria, and permit the variation of the standard and cap according to the applicable NEM region.

2.5 A hybrid form of standard should not be adopted. Instead, the Panel should regularly prepare forecasts of frequency, duration and depth of possible shortfalls that make up the 0.002% USE, to provide jurisdictions, consumers and industry with a gauge as to the possible nature of USE events.

The EUAA considers that defining the reliability standard in terms of unserved energy levels is useful because it can be related to the costs of interruption

experienced by customers and through market modeling as to the amount of reserve capacity needed to meet a reliability standard.

The USE measure is also useful because it combines the magnitude and duration of exposure to loss of supply. However, the values of the measure used for monitoring and intervention in the NEM must be based upon economic analysis and not arbitrary numbers or simplistic concepts that fail to consider the complex economic relationships that determine the behaviour of players in the NEM. Loss of load hours could also be used if properly based on such an economic analysis.

As previously discussed, the EUAA supports measures that will improve the transparency and availability of reliability-based information, and supports the augmentation of the USE standard as necessary to this end.

2.6 The potential to add to the standard of demand or duration parameters for each jurisdictional region to provide for the fact that a single reliability standard may have different impacts for each region. The jurisdictions would then contract for additional reserve plant to meet these augmented standards.

The proposal that the standard of reliability should be adjusted according to the specific circumstances applying in different regions needs to be examined carefully, and the EUAA would not necessarily support jurisdictional contracting where this would have an adverse financial impact upon members relative to other solutions.

3. SECURING RELIABILITY: DRAFT ALTERNATIVES

The following comments are made in relation to each of the Reliability Panel's alternatives proposed in the Interim Paper.

Up to a point, the EUAA agrees with the Panel's observations that the fundamentals of the market design are sound (we would rate them as historically acceptable but not without blemish and would point to the current extreme prices as one major blemish) and, with the current settings, the reliability standard is likely to be met in the near term, provided the fundamentals of the mechanism underpinning the standard occur in practice.

However, there is increasing risk, in the medium to long term that reliability may be compromised if reduced investor confidence as a result of uncertainty about other policy settings created potential delays with new generation investment. [2]

The best way to meet these challenges is to work at implementing a framework that incorporates an emphasis on market solutions, rather than on developing further regulatory approaches which are susceptible to political interference and therefore do not provide appropriate, unbiased long term pricing signals to the market. As noted previously, the Reliability Standard is not the appropriate mechanism to be addressing external issues.

3.1 Group 1 options: Incremental change to existing mechanisms: Increasing VoLL and introducing mandatory long term contracting

Increasing VOLL

As noted previously, the EUAA is strongly opposed to an increase in VoLL. There is no evidence to show that increasing the VoLL from $5,000 to $10,00 has resulted in providing clearer price signals to potential investors in generation. Indeed as identified by the Panel evidence suggests that the increase has increased financial risk, increased the level of uncertainty and increased the level of volatility experienced by consumers. Research undertaken for the EUAA by Bardak consulting[3] found that the change in VoLL from $5,000 per MWh to $10,000 per MWh in 2002 coincided with the number of price spikes roughly halving but a doubling in their value, achieving about the same level of annual revenue. The period examined was marked by mild weather conditions and the coincidence of a number of high temperature days falling on weekends or public holidays. If it had not been for

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2 We note the recent inquiry (the Owen Review) instigated by the New South Wales Government to investigate this matter. Whilst we support the need for such a review, the fact that it has been set up demonstrates that the New South Wales Government is itself concerned.

3 Bardak Ventures Pty Ltd, *'The Effect of Industry Structure on Generation Competition and End-User Prices in the National Electricity Market'* (a report for the Energy Users Association of Australia, Energy Action Group, Energy Markets Reform Forum, Electricity Consumers Coalition of South Australia and Energy Users Coalition of Victoria), 2 May 2005

these fortuitous circumstances, it is most likely that generators would have gamed the system to a greater extent at the expense of users.

Introduce mandatory long term contracting

The EUAA broadly agrees with the Panel's observations that introducing mandatory long term contracting into the market that is driven by obligation rather than commercially driven is likely to be problematic, distortionary and restrictive. A centralised market operator being able to completely over ride commercial decision-making is completely opposite to what Governments have tried to achieve with the creation of the NEM.

3.2 Group 2 options: Targeted reliability reserve mechanisms

Introduction of a Reliability Ancillary Service

In relation to the introduction of a Reliability Ancillary Reserve (RAS), the EUAA is of the view that this solution may be part of the answer to ensuring that reliability standards continue to be met into the future, although the proposal requires further investigation, particularly an investigation into any distortionary effects that it may introduce into the market, and the payment mechanisms associated with RAS.

For example, the EUAA notes that the RAS measure includes a proposal whereby customers would pay a new charge for this facility that is not payable at present. The EUAA also considers that proposals to include RAS bidding for periods longer than the next 5 minute dispatch period should be investigated, but, once again, the attractiveness of this option to users would depend on the costs that might accompany this service compared to the benefits it provides.

The EUAA further notes that such an option only offers incentives for the availability of increased peaking capacity, and does not address any deficiencies in providing base load plant. The existence of such differential incentives has the potential to distort investment decisions.

Introduction of a Standing Reserve

Under this option, contracts for a standing level of reserve capacity over several years would be introduced. However, as noted by the Panel, decoupling the timing of purchases of energy from reserve in this way inevitably risks introducing inefficiencies because plant that is reserve capacity at one point can rapidly move to providing energy. For this reason the EUAA considers that the implementation of a standing reserve capacity mechanism, where the level of reserve is determined centrally, rather than by the market, is less desirable, and will lead to the distortion of incentives for investment.

Additionally, as with the RAS proposal discussed above, this mechanism only provides incentives for peaking capacity and does not recognize the contribution of base load capacity to meeting demand requirements and the alleviation of reliability constraints.

We further note that this is only a supply side solution and does not provide equal incentives for demand side measures that could be more efficiently deployed to ensure that reliability standards are met. This comment is common to many of the Panel's proposals and the EUAA makes some further comments about demand side options at the conclusion of this paper.

Finally, the EUAA notes comments from the Panel that the improvement in USE under a standing reserve scenario would be highly dependant on the amounts and the location of extra plant. It appears to the EUAA that the standing contract model, depending on design, may lack the regional flexibility of market driven / demand side solutions.

3.3 Group 3: General Reserve Mechanisms: Facilitated central financial hedge agreements or central payments

The EUAA notes the Panel's description of these options as options under which general payments for capacity would be made, regardless of whether a payment was also made for dispatch. The EUAA also notes that options in this category would require a fundamental change in the gross energy market model.

As a result of the regulatory intervention implied by the capacity reserve model, customers are required to buy top-up capacity at a premium price ahead of time whether it is needed or not in real time. This simply adds to the

cost of energy through up-lifts in the market price (eg NEMMCO is known to have paid nearly $5m for its contracts for reserves last summer).

A fundamental flaw in all the group 3 options is that all these mechanisms are non-market based and discriminate against other measures that could be taken to reinforce reliability standards – notably demand side management options. Group 3 options explicitly favour generators with peaking capacity to the detriment of generators supplying base load capacity into the market, and group 3 options are flawed as they leave no room for consideration of demand side measures that could be implemented to meet reliability requirements in a more cost-effective manner.
Additionally, the EUAA has serious doubts about whether NEMMCO would be in a position to accurately calculate an 'efficient' level of contracting in each region. This would introduce further distortions into the market and consumers would be required to meet the costs associated with 'inefficient' contracting.

Moreover, permanent contract arrangements are much less flexible than the RAS option considered earlier in the paper.

The introduction of a capacity market has been advanced as a possible option. However, a capacity market only works if it is compulsory and the energy market has a low cap. Some argue that they will result in more stable and (possibly) lower overall prices. But, customers may be worse off by locking in the LRMC structure if a long-term capacity market is implemented. A short-term capacity market would retain much of the volatility of the price spikes in the current energy market. The benefits of capacity market arrangements are still a matter of conjecture and disputed by some commentators, and overseas experience has not yet clearly demonstrated that capacity markets deliver favourable outcomes. Overall, this is a complex matter and would require a detailed review to substantiate the case.

As to changes needed to impose a capacity obligation in the form of a hedge on retailers and generators, the case for this level of intervention has also not been established, and a comprehensive case justifying the workings and level of such a market, and the obligations of players in this market, have not been specified. What would be the legal basis to make such a market viable? How and at what level would market obligations be set? How arbitrary would these

levels be and what distortions would be introduced into the market? These are all important questions that would need to be addressed.

The market power capacity market mechanisms afford generators if there is insufficient generation capacity available means that a capacity market could still fail to deliver value to customers if new entry is delayed and capacity prices are based on a prevailing capacity shortage. This could have a similar (or even worse) impact on underlying prices to that of price spikes in an energy only market. In any case, a thorough investigation would be needed.

4. ADDITIONAL COMMENTS

The EUAA now makes some additional comments on measures proposed in the Panel's review, which have not been covered off in the preceding sections.

4.1 Reserve trader

The EUAA notes that the Panel's preliminary view is that: the reserve trader should be redesigned, and that the redesigned emergency reserve trader should be retained for a five year sunset period and that its operation should be reviewed after three years.

In principle, the EUAA considers that there could be merit in providing that intervention in the market should be based upon first allowing for a risk margin in stated reserve capacity to reflect the uncertainty in measuring and predicting reliability.

The basis for intervention by NEMMCO as the Reserve Trader should be minimised by making an allowance for the uncertainty in the measurement and estimation of unserved energy. This would reduce the risk of intervention if the target reliability level were being achieved. To this end, the assessed intervention level for unserved energy should be higher by about 30% and the intervention level for capacity should be lower by about 50 to 100 MW depending on the NEM region.

A proper process is also needed to finalise a strategy for developing efficient reliability targets and appropriate capacity levels for intervention by NEMMCO as Reserve Trader or operator. This process would examine the costs and

benefits of moving toward an economic reliability standard adapted by time and NEM region. It would determine suitable risk margins to provide the basis for intervention by NEMMCO in the short to medium term, and the evaluation of the effectiveness of the new capacity development pipeline to manage the risk of higher economic growth.

4.2 Review period

The EUAA notes that the Panel's preliminary view is that the current annual review of VoLL should be replaced by a comprehensive and holistic review every 3-5 years of all the reliability settings (the reliability standard, VoLL, CPT (the Cumulative Price Threshold), the market floor price, and the redesigned emergency safety net). This will offer increased certainty for potential investors and consumers, which in turn will benefit reliability.

The EUAA recognises the advantages in a holistic review of reliability measures and, commensurately, that a review of only one or a few of the measures that relate to the establishment of appropriate reliability safeguards is likely to lead to a distorted, inefficient outcome and result in users bearing inefficient costs.

After the next round of capacity enhancements, particularly after Kogan Creek performance settles down in 2008/09, might be a useful time frame for such a review.

Without being too critical of the Panel, given that this has been a seminal comprehensive reliability review with much learning also done during the process, it will be important to ensure that future reviews are handled in an efficient and timely manner. Lessons learnt this time round, information gathered and experience with process would be well applied next time.

Reliability targets and risk margins should be re-optimised for prevailing reserve costs, VCR, supply mix and demand patterns. The current review should confirm the extent to which it will base the reliability target and its operational management on economic criteria, and permit the variation of the standard and cap according to the applicable NEM region and time.