

30 June 2006

Mr Ian Woodward  
Chairman  
AEMC Reliability Panel  
Australian Energy Market Commission  
PO Box H166  
Australia Square NSW 1215

Dear Mr Woodward

### **NEMMCO Submission to the Comprehensive Reliability Review Issues Paper**

Thank you for the opportunity to make this submission on the Issues Paper concerning the Reliability Panel's Comprehensive Reliability Review.

Based on NEMMCO's operational experience within the reliability framework, as it has existed since the commencement of the NEM, there is no evidence that would prompt significant change to the reliability framework or mechanisms.

A number of refinements could be introduced to the existing framework that would improve transparency and certainty in the operation of the reliability standard. This submission focuses on these operational improvements.

- **Reliability Framework:** Significant alteration of the framework introduces major cost, instability and risk factors to the operation of the NEM. Consequently, alteration must be on the basis that the NEM has historically failed to deliver adequate reliability, or there are circumstances emerging which require action. There is no evidence that justifies significant change to the framework.
- **Reliability Standard:** Unserved energy (USE) is the most appropriate primary measure of reliability. It may be appropriate to introduce secondary measures that limit the expected frequency, duration or severity of reliability incidents, but this would tend to increase reserve requirements, and therefore ultimately costs to consumers.
- **Price Mechanisms:** VoLL needs to be set such that it supports investment to a level that achieves the required reliability standard. The current price mechanism settings should not be changed without considering countervailing measures to address any increased prudential risks in the NEM.

- **Intervention Mechanisms:** The Reliability Safety Net provisions should be reviewed to improve certainty for participants. The options are either significantly extending the timeframe over which they will apply, phasing the provisions out over a defined period or abolishing the reserve trader scheme altogether.

Further details regarding the above are in the attached submission.

NEMMCO would be pleased if you could have these matters considered by the Reliability Panel. For further details, please do not hesitate to contact David Waterson on 03 9648 8812.

Yours faithfully



**Leslie V Hosking**  
Managing Director and  
Chief Executive Officer

Attachment

## **SUBMISSION**

### **1. Reliability Framework**

Significant alteration of the framework introduces major cost, instability and risk factors to the operation of the NEM. For example, introducing a capacity market would alter the value of investments and contracts already made, as well as those being considered. It would also increase regulatory uncertainty by signalling that significant market design changes might be made in the future based on limited evidence of market failure. Consequently, alteration must be on the basis that the NEM has historically failed to deliver adequate reliability, or there are circumstances emerging which require action.

The Reliability Panel's issues paper shows that NEM reliability has significantly surpassed the reliability standard since market commencement. This is primarily due to the fact that considerable excess plant has been available until recent years. As such, there is little experience in testing the adequacy of the framework and intervention measures, and consequently no evidence to prompt change.

Whilst NEMMCO has used the Reliability Safety Net provisions in Victoria and South Australia on two occasions, this is an integral part of the current framework and should not be viewed as a signal that the framework has failed or is moving towards failure.

In summary, from an operational and a risk return basis, it would be inappropriate to make major changes to the current reliability framework.

### **2. Reliability Standard**

Unserved energy (USE) should continue to be used as the primary reliability standard in the NEM. USE is relatively well understood and readily measurable. However, converting the output-based reliability standard (i.e. USE) into input-based minimum reserve levels in each region is complicated and not well understood.

The level of USE, and whether it is set by region or across the NEM, is a policy issue. If a decision is made to vary the settings by region, a number of potential issues would need to be considered including:

- Whether VoLL would also need to vary between regions to allow variations in USE to be satisfied;
- The impact on settlement residues and the approach for dealing with different regional price caps; and
- The impact that such a change would have on generator behaviour.

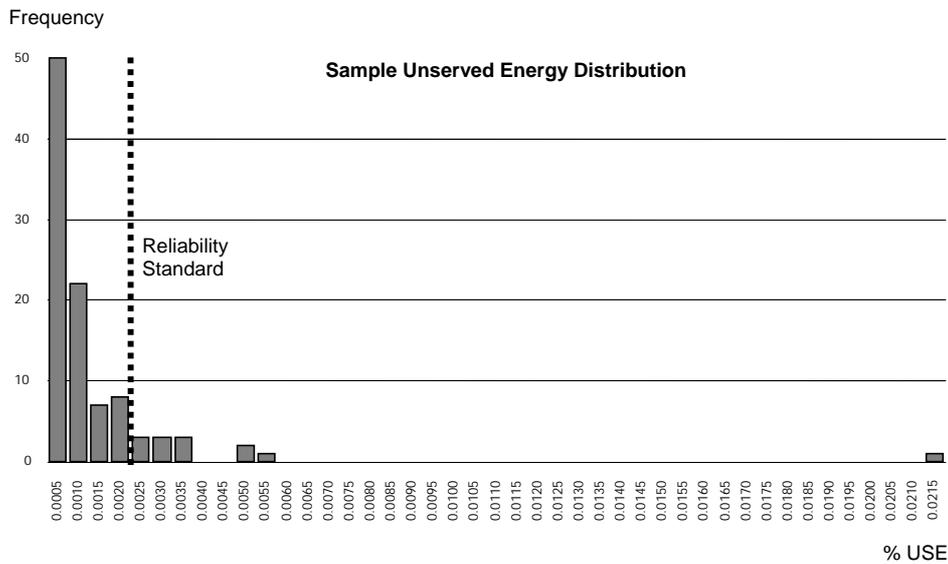
It should be noted, that even significant increases in NEM reliability are likely to have only a marginal influence on customer USE since as discussed in the Reliability Panel issues paper generation and transmission reliability failures account for only about 0.5% of total consumer USE in the United States.

The USE from power system security events should not be considered when assessing reliability in the NEM. There is minimal linkage between the reliability settings and power system security events. The reliability settings are intended to drive generation and demand-side investment in the NEM, but generation and demand-side investment has a negligible impact on power system security-related USE. However because all USE is important to customers, USE for power system security events in the NEM should continue to be

measured, reported, and managed. There is also no linkage between the NEM reliability settings and transmission investment, which affects reliability but is driven by the regulatory test.

A number of key operational issues are important in the process of converting the reliability standard into minimum reserve levels.

- Because the standard is expressed as a long-term annual average, the actual annual USE may be well below the 0.002% limit in most years but significantly above that limit in other years while still meeting the standard (see diagram below). In this sample regional distribution, the long term average USE and the modelled USE in most years is below the 0.002% limit, which is shown as a heavy dashed line. However, in a small proportion of years the modelled USE is above the 0.002% limit, and in one of the years, that is in a 1-in-100 year event, the modelled USE is ten times the 0.002% limit.



- Reliability events of markedly different frequency, duration or severity can be treated as equally significant if they produce the same aggregate amount of USE. For example, a 1 hour blackout in Sydney, with a maximum load of around 6,500MW, might produce a similar amount of USE as a 10 hour blackout of the Gold Coast, which has a maximum load of around 700MW.
- Conversion of the reliability standard into minimum reserve levels has been continually refined so that each recalculation of minimum reserve levels has brought the expected USE closer to the limit set by the Reliability Panel.
- Accurate conversion of the reliability standard into minimum reserve levels depends on the quality of the data used in the process, particularly regional demand diversity and the effective forced outage rates for scheduled generation.
- Any additional qualifications to the reliability standard, such as limits to the frequency, duration or severity of reliability incidents, can be converted to reserve requirements if they are sufficiently well specified, but the resulting reserve requirements are likely to be more stringent.
- Minimum reserve levels are applied across a variety of time frames to assess supply adequacy, ranging from the ten year outlook presented in the SOO to the 48 hour outlook presented in Predispatch. Although the minimum reserve levels are better aligned with providing a longer-term outlook (looking at seasonal peak demands), for simplicity NEMMCO uses the same levels in the short term (down to 30 minutes ahead

of dispatch). NEMMCO manages these processes to avoid any operational issues arising from this simplification.

NEMMCO should maintain responsibility for converting the reliability standard into reserve requirements. The advantages include:

- extensive knowledge of system operations;
- experience with the conversion process to date;
- consistency in deriving the minimum reserve levels in future;
- incentives to ensure the minimum reserve levels are practicable; and
- synergies with the market and system modelling required for the SOO / ANTS.

The main role of the minimum reserve levels derived from the reliability standard is to set the trigger levels for the Reliability Safety Net.

### **3. Price Mechanisms**

VoLL should not be increased without considering countervailing measures to address any increased prudential risks and the costs associated with mitigating those risks. As manager of the financial arrangements of the Spot Market since NEM commencement, NEMMCO has initiated a number of enhancements to, and reviews of, the arrangements to improve the robustness and cost efficiency of the system. However, an increase in VoLL would extend our underlying concerns, for instance over the current limitations in the availability of credit support against significant price spikes and the overall robustness of the structural design of the financial arrangements generally. We note that these issues are now being considered by the Energy Reform Implementation Group.

Modelling performed for the latest ANTS indicates that the current level of VoLL will attract sufficient investment to meet the reliability standard in the medium term. As with all modelling though, the results depend on the assumptions. The ANTS modelling assumes that the market will function as designed, whereby the level of VoLL will drive spot price risk, spot price risk will drive financial contracts, and financial contracts will drive physical investment, leading to the required level of reliability in the NEM.

VoLL needs to be set such that it supports investment to a level that achieves the required reliability standard. While investments are made for many different reasons, they are unlikely to be driven by minimum reserve levels. Investments are more likely to be based on expected returns and risk management. Of all the reliability settings, VoLL will have the greatest influence on expected return and risk.

It is not clear whether the market is working precisely as designed. The trend towards vertical integration suggests that the intended role of financial contracting is being diminished, and spot price risk is driving this risk management strategy which could otherwise be managed through the financial markets. This could lead to financial contracting becoming increasingly less liquid, and the trend towards vertical integration accelerating. Simply increasing VoLL is unlikely to strengthen the role of financial markets in the NEM.

NEMMCO analysis shows that high price events are most often caused by high demand, lack of generation and/or transmission limitations. For example, about 75% of the high regional priced events in 2005/2006, would have been relieved by additional generation, while transmission limitations were clearly involved in a little over half of these events. As transmission events were generally for a shorter period of time, when assessed by value the

proportion of high priced periods appropriately driving more investment in generation represents about 90% of these periods.

#### **4. Intervention Mechanisms**

NEMMCO rarely intervenes in the market for reliability reasons except under the reserve trader provision of the Reliability Safety Net. This has been invoked in Victoria and South Australia for each of the past two summers. In neither summer was the reserve capacity actually called upon.

Invoking the Reliability Safety Net provisions could be perceived as evidence that the NEM might be failing to attract sufficient investment under the existing reliability framework. Invoking the Reliability Safety Net provisions indicates a mismatch between the market's perception of reserve adequacy and the market's reliability settings. However, the reserve trader provisions depend on forecast reserve margins and the intervention trigger levels. Forecast reserve margins depend in turn on the forecast demands provided by the Jurisdictional Planning Bodies, and the market may take a different view of probable demand. Furthermore, most of the Reliability Safety Net reserve procured by NEMMCO has been demand side response, and the market may have placed a different value on securing that capacity.

The Reliability Safety Net arrangements should be reviewed to improve certainty for participants. The options are either significantly extending the timeframe over which they apply, phasing the provisions out over a defined period, or abolishing the Reliability Safety Net altogether. If the timeframe over which the Reliability Safety Net provisions apply was extended, it might encourage the development of more reserve capacity, and consequently greater competition. Alternatively, if the Reliability Safety Net was phased out or abolished, it would provide the market with firmer signals of the need to develop market-based solutions, if any such solutions were necessary.