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Mr Ian Woodward
Chairman
AEMC Reliability Panel
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Dear Ian

Submission on Comprehensive Reliability Review – Interim Report

Thank you for the opportunity to make the attached submission regarding the Reliability Panel's Interim Report.

Based on NEMMCO's experience in modelling NEM reserve requirements to meet the reliability standard of 0.002% unserved energy, and application of the resulting reserve thresholds in a real time operational environment, there are a number of material matters that the Panel may wish to further consider. The main matters raised in this submission are:

- **Market Simulation Modelling:** The Interim Report does not contain enough detail on the model inputs, assumptions and methodology used by CRA to enable it to be publicly tested. Nevertheless, NEMMCO has identified a number of potential issues with the modelling that the panel should investigate prior to basing conclusions on it.

- **Form and Scope of the Reliability Standard:** Application of the Reliability Standard on a jurisdictional rather than national basis would be difficult to implement in practice due to potential 'free rider' issues and complication of the 'pain sharing' rule. The proposal to have NEMMCO report on distribution system constraints does not appear to be practical.

- **Options for Change to the Reliability Mechanisms:** The 30 minute Reserve Ancillary Service option, while presented as simple in principle, is likely to present design challenges that are not identified in the Report. The NEM spot market is based on a 5 minute optimal dispatch process, with no optimisation across time. It is not clear from the Report how a 30 minute service would be integrated into this environment, whereas it would be necessary to address the design in some detail in order to assess its merits through modelling.

A number of other points are also made in the attached submission.

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NEMMCO would be pleased if you could have these matters considered by the Panel in its deliberations. For further details, please to not hesitate to contact in the first instance Murray Chapman on 02 9239 9106.

Yours faithfully

Brian Spalding

Brian Spalding
Chief Operating Officer

Attachment.

NEMMCO

SUBMISSION ON COMPREHENSIVE RELIABILITY REVIEW – INTERIM REPORT

1. Market Simulation Modelling – Appendix 5

The report does not contain sufficient detail on the model inputs, assumptions and methodology used by CRA in Appendix 5. While all of these attributes of the modelling may be robust, unless they can be tested more publicly, there may be risks that some of the outcomes derive from undisclosed input assumptions.

Of particular note, some of the results are inconsistent with market simulation results NEMMCO has conducted for the 2006 Annual National Transmission Statement (ANTS) and 2006 Minimum Reserve Level (MRL) calculations. A specific example is that the relationship between installed capacity and unserved energy (USE) in the Panel's modelling appears to be at odds with NEMMCO's analysis. CRA has approximately 3000 MW more installed plant across the NEM in 2008/09 than was used in NEMMCO's ANTS modelling, but has yielded a much higher USE than NEMMCO.

Some mechanisms that appear to have been embodied in the modelling work may not reflect reality. An example of this is the apparent assumption that a change in VoLL can quickly or immediately change installed generating plant levels. This does not take account of the lead-time for new generation capacity.

A further consideration is the sourcing of generator forced outage rate (FOR) data. The modelling work in the report has apparently used FOR data sourced from ESAA, while an alternative source of FOR data published by NEMMCO may have yielded different outcomes. The data gathered by NEMMCO has been sourced from industry generators through a specific Forced Outage Data Working Group (FODWG) comprising NEMMCO and National Generator Forum representatives to oversee the collection and processing methodology to deliver the most accurate outcome for use in modelling of the type carried out by CRA. The FODWG has endorsed that the data gathered by NEMMCO would be used in the market simulations performed for the ANTS and to determine minimum reserve levels. It would be important for the Panel to verify that the most appropriate source of data has been used in the modelling, as it is a key input to any reliability analysis.

NEMMCO provided input to both CRA and the AEMC at the early stages of the Comprehensive Reliability Review modelling work, but the process did not include a stage for review or comment on the modelling approach decided upon by the Panel. NEMMCO would welcome opportunities to further discuss the potential issues raised above, with a view to ensuring the modelling work is robust.

2. Form and Scope of the Reliability Standard

NEMMCO has no concern with the general form of the Reliability Standard which is proposed to remain with the USE type. However, it is suggested that there may be merit in giving the following matters further consideration:

a) the Panel is seeking comment on whether the Reliability Standard should be applied on a jurisdictional basis or NEM wide. NEMMCO is of the view that it would be very difficult to apply the standard on a strictly jurisdictional basis, as any increase in reliability standard that is applied in one jurisdiction will inevitably result in a consequential increase in reliability for the neighbouring, and perhaps other jurisdictions. This is because the increased generation investment in one jurisdiction

will increase the probability that supply will be available to the neighbouring jurisdiction at the time it has a shortfall. Therefore, unless some reserve is quarantined on a regional basis, so that load can be shed even if reserve is available, a 'free rider' issue is likely to emerge.

The Reliability Panel's load shedding guidelines which aim to "share the pain" of supply shortfalls will also tend to share the benefits of higher generation investment in one jurisdiction with its neighbours. This is particularly the case if the investment is insufficient to force interconnectors to operate at their limit during periods of USE. The load shedding guidelines could be modified to address these issues, but would then become quite complicated to apply in practice, particularly if only portion of a jurisdiction is involved in a particular shortage.

b) the proposal in section 4.4.4 of the report, to have NEMMCO report on constraints in local distribution networks is problematic, because NEMMCO does not have any operational or planning role in respect of those networks, except in so far as they interact with the main transmission grid. It is suggested this recommendation should apply to NEMMCO only in respect of the main transmission grid. Unless it is intended to materially increase NEMMCO's operational scope to include distribution networks, the proposal to report on distribution constraints would appear to be best carried out by Distribution Network Service Providers.

3. Approval of Minimum Reserve Levels (MRL)

In section 7.2.2 of the report, the Panel indicates that it "considers that approval of the MRLs should remain with NEMMCO ...". NEMMCO has no concerns in principle with this proposal, but suggests that if the Panel maintains this position in the final report, there may be value in ensuring that NEMMCO's responsibilities under the Rules are clear in that regard.

4. Options for change to the Reliability mechanisms

There is insufficient detail in the report in respect of the various options for change, to allow detailed comment on their desirability or otherwise. However, it is important that any new mechanisms are practical from the perspective of implementation.

The Reserve Ancillary Service (RAS) option is worthy of particular mention in respect of implementation. At present the NEM spot market is based on a 5 minute stand-alone optimised dispatch and pricing process, with no inter-temporal optimisation taking place. The NEM design to date has operated on the basis that a well informed market optimises beyond the 5 minute timeframe, through decentralised decision making and bidding or rebidding as necessary. There is no detail in the report as to how a 30 minute reserve service would be integrated into that environment. A number of practical questions would need to be clarified before the proposal is clear enough to properly evaluate, such as:

- The forward period for which RAS would be scheduled – e.g. 30 minutes, or a number of hours – and how often the schedule will be reviewed or updated;
- if portion of a generator's capacity is scheduled to provide RAS, there would need to be clear rules as to whether the same capacity could be dispatched to provide energy in subsequent 5 minute intervals, and how this would be achieved in practice;
- Compliance and enforcement.

NEMMCO would be happy to assist the Panel in working through matters of practicality such as those noted above, as the Panel considers the options before it, but urges the Panel to ensure implementation issues are considered fully before any decision is made.

5. Short Term and Medium Term Capacity Reserves

The Panel, in section 7.2.4 of the Report, raises the question of whether short term capacity reserves should be treated separately and differently from medium term capacity reserves, instead of the current common approach. NEMMCO agrees that the quantum of reserve required in each reserve category should be determined, taking account of the expectation that uncertainties should be reduced as timeframes become shorter. However, NEMMCO wishes to stress that the methodologies used to determine those reserve levels need to be consistent with each other and compatible with delivery of the 0.002% USE reliability standard. Therefore, responsibilities for determination of these capacity reserve levels should be clearly allocated in the Rules as discussed in item 3 above for MRLs.

6. Demand Forecasting used for SOO and Reserve Trader

The Panel has recommended in section 7.3 of the report, that NEMMCO report to the Panel in August each year, on the accuracy of the most recent SOO demand forecasts, and on improvements that have been made to the forecasting process.

NEMMCO would be happy to report to the Panel in August each year as recommended. In relation to this matter however the following points should be understood:

a) The demand forecasts used for the SOO and as the basis for Medium Term PASA demand profiles are prepared by Jurisdictional Planning Bodies (JPBs) and not by NEMMCO. It is also these JPB forecasts that underpin Reserve Trader decisions made by NEMMCO in advance of summer periods. The Panel appears to assume that NEMMCO is the source of SOO demand forecasts, and it is important that their source be clearly understood to ensure any final recommendations are clear. It should also be noted that NEMMCO is working closely with JPBs to report on the accuracy of the JPB peak demand forecasts. The outcomes of that work will be reported by NEMMCO in its annual SOO publication processes.

b) In sections 7.2.2 and 7.3.1, the Panel raises concern that NEMMCO (through the Reserve Trader mechanism) has contracted for reserves in February 2005 and February 2006, and did not use those reserves on either occasion. Those sections of the report conclude that non use of the contracted reserves is an indicator of conservative demand forecasts. Those concerns appear to be based on a misunderstanding of the current Reserve Trader mechanism, which aims to schedule in advance the availability of sufficient additional capacity to deliver minimum reserve levels. The minimum reserve levels are defined relative to the forecast 10% probability of exceedence (POE) demand level. By design, this process will procure capacity to meet a low probability (10%) demand level and provide the required reserve margin above that demand level. The observations in the report relate to two particular years, where the actual demand did not reach the forecast low probability levels. Those observations do not appear to recognise that such outcomes can result from the design of the current Reserve Trader process regardless of whether demand forecasts are conservative.