



5 July 2006

Mr Ian C Woodward
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Australian Energy Market Commission
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Dear Mr Woodward

RE: COMPREHENSIVE RELIABILITY REVIEW – ISSUES PAPER

Thank you for the opportunity to comment on the Reliability Panel's Issues Paper in relation to the Comprehensive Reliability Review.

Over the last six months, the Electricity Supply Industry Planning Council (Planning Council) has been undertaking a project to examine the reliability settings in the market. The project arose out of a general uncertainty as to the ability of the existing market structures to deliver investment signals that are sufficient to encourage enough generation of the right type and delivered at the right time to avoid any supply risks. Specifically, we were trying to determine whether:

- the standard, and reserve margins set from the broad standard, are appropriate; and
- the price mechanisms in the market are adequate to deliver the ongoing new investment to meet those standards.

The work of the Planning Council in this regard is currently incomplete, but we are pleased to put forward the results available to date. While the Planning Council is an independent body and has no vested interest in the outcomes of this analysis, one of its key areas of concern is in ensuring that the market mechanisms are consistent with the reliability standards and that the standards align with customer expectations. The market can not function efficiently, effectively and free of intervention if that consistency and alignment is not achieved.

Analysis Undertaken by the Planning Council

The Planning Council's analysis of the reliability settings has been based on:

- estimating the returns necessary to deliver generation investment of different types;
- examining the spot and financial market arrangements which might deliver the incentives for new investment;
- considering the relationships between the spot market and related contract markets to project the future prices of, and demand for, financial instruments to manage the inherent risks in the spot market;
- modelling the NEM spot market for the next ten years, seeking to forecast market prices in each region for the next ten years;
- predicting the quantity, type and general location of new generation investment that the current market settings might deliver by comparing the returns likely to be available from the market; and
- comparing the reliability levels that this generation would deliver with the current standards and reserve margins.

The Planning Council uses the PLEXOS market modelling package for the spot market modelling and this has been updated to reflect the best available information on the market and market constraints and benchmarked to confirm the validity of its outcomes. The work has had the benefit of additional input from consultants MMA (contract positions), ACIL and SKM (new entrants), Drayton Analytics (market modelling) and Finem Respice (investment drivers).

The Reliability Panel Questions

In the Issues Paper, the Reliability Panel seeks input from stakeholders on the following questions:

- Is there now, or is there likely to be in the future, a problem with supply reliability in the NEM?
- If yes, is there now, or is there likely to be in the future, a problem with the reliability settings?
- If yes, is it serious enough to cause material dislocation to suppliers and users in the future?
- If no, what improvements to the operation of the reliability settings should be made?
- Otherwise, what changes to the reliability settings should be contemplated that would be beneficial?

These questions closely parallel the issues under study by the Planning Council. The Planning Council's work to date supports the following observations.

Is there now, or is there likely to be in the future, a problem with supply reliability in the NEM?

While the actual outcomes to date have been good, the risks associated with low reserve plant margins in Victoria and South Australia has raised concerns with stakeholders over the last couple of years. This concern has led to market intervention in the form of NEMMCO's Reserve Trader function. This, and the accompanying public debate and media exposure, has not given a sense of confidence in the market and its ability to reliably meet customer growing demand.

The market is in need of significant ongoing investment in new generation and in the transmission network to continue to meet demand. The AEMC and AER have programs in place to refine the regulatory regime for transmission and support regulated network investment. The programs of all transmission network service providers provide for a substantive increase in network investment over historical levels. This review is the only one in progress which has the potential to affect generator investment and needs to be very cognizant of the situation in the NEM where a significant investment in generation is required across the market over the next five to ten years to sustain reasonable Reserve Margins.

Over the life of the National Electricity Market, reserve margins have trended down to the point where they are just meeting the current reliability standards. While most market observers would agree that initial reserve margins were too high and that this reduction was necessary, an open question remains as to whether the market structure will now act in a timely way to arrest the downward trend in reserve margins or whether reliability will be put at risk under existing market settings.

Is there now, or is there likely to be in the future, a problem with the reliability settings?

The Planning Council's analysis indicates that the current settings either do not, or at best may not, deliver the new investment in generation required to meet current reliability standards. On the basis of spot market outcomes alone, the case appears clear that market returns are insufficient to drive adequate new investment.

To be viable, a potential new investment would need to earn adequate revenue to meet its costs and provide a competitive return on capital on the median expected demand after the investment is made and commissioned. The Planning Council analysis shows that expected future spot prices, with median demand forecasts and any reasonable level of new generation investment, were depressed. These prices and their profile over a year would not deliver a sufficient market premium to deliver adequate returns to justify investment and maintain reserve margins. The price suppression effect following the commissioning of the new entrant can be significant and many of the new investments made on the basis of the higher demand forecast used in the assessment of Reserve Margins then struggle to make adequate returns on median load forecasts.

However, the investment market does not operate on the spot market alone, but is also significantly influenced by financial markets, or contracts around the spot market prices. Since participation in these markets is driven by a need to manage risks, these can be argued to deliver returns to generating plant comparable to those delivered looking forward without investment rather than those delivered on the post construction spot price. It is even arguable that they may provide forecast returns which might be earned by new plant with a forecast demand above a median expectation. In that regard, the modelling of new entry based on forward pricing of the 10% probability of exceedance (PoE) demand would appear to be a reasonable proxy of that likely to be delivered by

the contract market and would rely upon financial markets reflecting that price even though spot markets would, on average, reflect something lower. That is, while the new entrant generators may not make adequate spot market returns to be considered financially viable in the median analysis it is expected that they could be earning sufficient returns from the risk management contracts equivalent to their operation under 10% PoE conditions.

On the basis of that logic, the Planning Council's modelling has concentrated on the following:

- the entry of new generators in each sub-region of the NEM is assumed to occur when the premium in future prices based on the 10% PoE demand forecast would provide adequate returns for them to be financially viable;
- the market model is then run with the supply side of the NEM including all current and committed generation and the forecast new entrants determined in step 1. The model is run for both the median and 10% PoE demand;
- Market prices, reserve plant margins and the approximate unserved energy is also produced for both cases and compared with current standards.

Even accounting for the risk premium associated with covering peak demands, the entry of new generators appears to be insufficient to maintain currently expected reserve plant margins. Even with new entry at a lower level, forecast prices are generally low, particularly on the median case, and generators would need to receive a substantial premium over spot market prices from their contracts to ensure their viability.

Predicting market outcomes into the future is always somewhat speculative. Investment parameters will change and the behaviours of market participants will reflect their individual growth strategies and appetite for risk. Our analysis leads to the conclusion, however, that we have low confidence that the current settings are sufficient to ensure that the current Reserve Margins can be maintained by market driven investment alone.

Are the potential problems serious enough to cause material dislocation to suppliers and users in the future?

The Planning Council analysis indicates a range of possible outcomes where the market appears to be destined to either "bounce along the bottom" or fall short of the reserve levels currently expected.

That our analysis can provide no confidence that the market's current reliability settings are sufficient to ensure Reserve Margins can be maintained by market driven investment is of real concern. A lack of confidence in the market's ability to deliver reliable power risks market distortions or non-market intervention, damaging the confidence of commercial market participants to invest and the delivery of efficient market outcomes. The Planning Council argues that the Reliability Panel should not ignore any mis-match between the Reliability Standard and the market mechanisms designed to deliver the investment to meet those standards.

The Planning Council would go further and argue that the overall mechanisms supporting investment, together with any safety net mechanism, ought to be sufficient to provide assurance that the Reliability Standard will be met so that confidence in the market is sustained. The mechanism will need to deal with an uncertain future where changes in the market's appetite for investment, the

cost of fuel, the capital cost of generation plant, and the environmental and planning constraints on new generating plant might change.

What changes to the reliability settings should be contemplated that would be beneficial?

A lack of confidence in the market can only lead to ongoing calls for intervention and for non-market investment. The Planning Council's analysis suggests that there is a significant risk that the current market settings may not deliver the Reliability Standards sought. This then leaves two paths of possible action:

- change the Reliability Standard; or
- change the market mechanisms.

The Reliability Standard

The reliability standard was set at 0.002 per cent unserved energy (USE) by the Panel at market start in 1998 and has remained unchanged since that time. The Panel acknowledge that "a number of aspects in the way that the standard should be interpreted remain undefined". Whilst many international power systems set output oriented standards, such a standard cannot be simply applied in practice nor can a systems performance be measured against such a standard. These standards are applied as a long term statistical expectation against which decisions are made or operational standards are set. Any realistic standard is going to mean that a supply shortfall event is very rare and one or two occurrences could not be interpreted with any degree of statistical confidence as to whether the standard is or is not being breached. Trying to measure 0.002% involves trying to measure statistically remote possibilities and converting this measure to a practical Reserve Margin is historically difficult. The USE based standards can be argued to be only one dimension to measuring the risks of outages to customers and the wider economy. The USE standard sets the expected long term average quantity of energy not served but provides no measure of the frequency of interruptions or how widespread they are (ie. a large number of small interruptions vs a single large, widespread interruption). This issue was identified as a significant issue to consumers in the VENCORP Value of Customer Reliability study.

The Planning Council therefore sees value in considering a number of reliability measures:

The Loss of Load Probability (LOLP) and the Loss of Load Expectation (LOLE) measures have the weakness that they do not measure the extent of any outages that might occur or their potential costs. They can, however, be more easily understood and visualised by stakeholders than the USE standard and have the benefit of increasing in value as the margins become tighter thus providing a gradually increasing signal rather than the binary one provided by the USE standard.

The work by VENCORP on the Value of Customer Reliability and many similar studies demonstrate a wide range of values across the market. The standard ought to be set on the expectations or the majority of customers recognising that:

- there should be appropriate mechanisms for customers with a lower value of reliability to curtail their load at peak times; and
- customers with a higher value of reliability have the capacity to supplement their own power supplies to a level that, for them, is economic.

Setting the standard to most closely match the requirements of the majority of customers will minimise the transaction costs implicit in taking such action. Given that this involves a subjective decision, the Planning Council sees no reason why different levels might not be determined in each state provided the process is consistent, decisions are transparent and jurisdictions are accountable for the consequences.

Potential changes to the market mechanisms

While the Planning Council analysis indicates that there may be a shortfall in the new investment delivered by the current market settings, we do not suggest that fundamental change is required to overall market mechanisms, rather some enhancement of the mechanisms to provide clearer signals for new capacity could be considered.

The Planning Council has not completed work at this stage as to which mechanism might be most appropriate but considers that any change should seek to complement the current market design and should be flexible and responsive to industry development.

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.

Increased VoLL

An increase in VoLL is potentially a blunt instrument and it would be difficult to quantify what level of VoLL would deliver a given Reliability Standard with any degree of confidence. 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 although there are clear risks in leaving VoLL fixed forever despite ongoing changes in the industry to the cost of supply and the value of reliability.

Capacity Support Mechanisms

A co-optimised available capacity market of some form (similar to the 30 minute reserve market concept in the issues paper) is a potentially more flexible instrument to deliver any given Reliability Standard. The co-optimisation with the energy market provides an ability to hedge the costs and the provisions already applying to FCAS. This would allow regional requirements, pricing and cost recovery to be used to ensure adequate reserves are purchased and deliverable where they are

needed. A structure such as this would provide national new entrant policy consistency while allowing for variation between states in the Reliability Standard sought without the need to intervene in the market.

Standing Reserve Offer

The operation of the Reserve Trader in South Australia and Victoria in previous summers has shown that there are some interruptible loads available in the market. Arguably the Reserve Trader provisions could be enhanced from a last resort safety net to a permanent standing reserve capacity offer. The generating plant made available to the market as a result of projected commercial and spot market revenue could be supplemented by utilising the potential demand response (interruptible load) and/or the construction of off-market generating plant dedicated purely to satisfy the reserve margin. This additional capacity would be kept out of the market and only operated when needed to maintain reliability and when the market price was capped at VoLL. By varying the price and/or volume sought in each state or region, such a scheme could deliver a flexible and efficient method of ensuring adequate reserve levels are maintained.

It is evident that customers have a range of values they would place on supply. A mechanism such as a standing reserve offer would allow those who have a higher value to compensate others to curtail their load first while providing a clear and stable capacity signal. Such schemes operate routinely in some international markets.

Next Steps

The Planning Council considers that the comprehensive reliability review being undertaken by the Reliability Panel is an important step at this time in the development of the National Electricity Market. Over the next few years, new generation investment is necessary if current expectations for reliability, and particularly reserve plant margins, are to be met. The Planning Council has been addressing similar issues and wishes to make its analysis available to the Reliability Panel.

The Planning Council is completing and checking the results from its analysis and would be pleased to present this at the proposed public forum. The written report will be completed soon after the public forum and will be forwarded to the Reliability Panel. If the Reliability Panel has concerns with any of the modelling assumptions or would like to further understand the Planning Council analysis, we would be happy to consider performing additional simulations to address those concerns.

I would welcome the opportunity to discuss any of the matters raised above with you or your staff.

Yours sincerely

David Swift
CHIEF EXECUTIVE