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The Reliability Panel
Australian Energy Market Commission
PO Box H166
Australia Square
Sydney NSW 1215

Dear Sirs

AEMC Reliability Panel Comprehensive Reliability Review Issues Paper - May 2006

Thank you for the opportunity to comment on this important matter. TransGrid found the overall Issues Paper well structured and of high quality.

In responding, TransGrid has focussed on those questions that relate to bulk transmission reliability and system security as these are the matters of most direct relevance to TransGrid's responsibilities. These responses are attached.

Should AEMC staff or Reliability Panel Members wish to discuss aspects of this submission, please do not hesitate to contact me via email at phil.gall@transgrid.com.au, or by phone on 02 9284 3434.

Yours sincerely

Philip Gall
Manager/Regulatory Affairs

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TransGrid

AEMC Reliability Panel Comprehensive Reliability Review Issues Paper – May 2006 TransGrid Responses to Specific Questions

17 Should the standard be defined more precisely, for instance, in terms of an average or a maximum over a period of time?

Greater precision is needed in the definition of the standard. Without this, the question of whether the standard should be an average or maximum over time appears to be premature.

The issues paper correctly identifies the need to clearly define the components of the standard. Unfortunately, the .002% standard is, at best, an aggregate, after the event, guide on reliability performance. While it may have some value in measuring the energy supply demand balance outcomes, it is unhelpful in measuring bulk transmission performance and system security performance. Accordingly, TransGrid would support the development of different, disaggregated, approaches to setting performance objectives and measuring outcomes for the bulk transmission system and system security performance. In addition, there is clearly scope for better leading indicators of changing energy supply balance outcomes.

18 Should the standard be reviewed regularly and, if so, how often? Alternatively, should there be specific triggers for initiating a review? If so, what should those triggers be, and why?

Priority should be given to establishing a more clearly defined and appropriate set of measures. These need to be expressed in terms that can be assessed at a policy level and linked back to market design considerations. The AEMC paper appears to make an effective case for this occurring as soon as possible.

19 Should there be greater clarity in terms of the definition of bulk transmission? If yes, how should it be defined?

The issues paper correctly identifies the need to clearly define the components of the standard. As previously stated the .002% standard is, at best, an aggregate, after the event guide on reliability performance. While it may have some value in measuring the energy supply demand balance outcomes, it is most unhelpful in measuring bulk transmission performance (and system security performance – see below). Accordingly, TransGrid would support the development of different, disaggregated, approaches to setting performance objectives and measuring outcomes for the bulk transmission system.

The problems with the standard in relation to bulk transmission reliability performance include:

1. The definition of 'bulk transmission' cannot, generally, be precise as this varies with circumstance. For example, the bulk transmission voltage in some regions may be dominated by voltages of 132kV because of modest transmission distances and maximum demand. In other regions, bulk transmission voltages of 330kV and 500kV may provide the majority of bulk transmission services.
2. Economic 'bulk transmission' system performance is characterised by rare, but significant, impacts on reliability outcomes. As such, the current aggregate measure of average outcomes over a defined period is of little statistical value.

3. Different performance outcomes for different service areas are economically justified. For example, the economic and social consequences of bulk transmission service failures vary significantly depending on the nature and level of economic activity in each load area. As such, a NEM wide aggregate performance measure is of little value.

Current arrangements for setting and monitoring 'bulk transmission' reliability performance reflect these realities. This can be seen by assessing the reliability measures currently used by the AER to provide service performance incentives for NEM TNSPs. Three basic measures are employed as follows:

1. An outcome based measure based on the number of system incidents above a certain threshold level of system minutes not supplied. In developing this measure the statistical issues mentioned in 2 above were expressly considered and have been largely overcome.
2. Forced outage rate measures for various categories of transmission plant.
3. Average outage duration measures for various categories of transmission plant.

These latter two measures have characteristics akin to 'leading' indicators and 'near miss' indicators, in that increases in forced outage rates and average outage duration suggest increasing risk of transmission interruption and tend to precede declines in overall transmission reliability.

All of these measures are established with regard to the relevant transmission service region. This is appropriate as it reflects the different aggregate transmission reliability needs, and associated economic impact, across the NEM.

However, care needs to be taken in setting and interpreting these measures. For example, in a period of major development of a transmission network, average outage duration measures can rise because of the need to take plant out of service, sometimes for extended periods of time, to connect and test new plant.

In summary, the aggregate reliability measure is not well suited to measuring 'bulk transmission' service however this is defined. Accordingly, TransGrid would recommend exclusion of bulk transmission from the data used in calculating this measure. Instead, bulk transmission performance measures should be provided on a more disaggregated basis along the lines already used in transmission service incentive schemes.

20 Are there additional considerations which should be included in the standard to reflect regional concerns, for example, stricter standards for high-load areas such as CBDs?

As noted above, current bulk transmission service performance measures are established by the AER on a regional basis. This is consistent with the varying economic needs across the NEM.

Similarly, transmission reliability planning standards also vary to reflect the varying economic and social impacts of service failures. These standards are currently established on a jurisdictional basis and are expressed in different terms in each jurisdiction. However, they have the same general effect of matching transmission needs to local economic and social conditions, and involve geographical variation within each jurisdiction. Other benefits of this approach include:

1. Alignment of local service outcomes with jurisdictional accountability for service failures.
2. Clarification of the more general transmission reliability obligations set out in Schedule 5.1 of the NEM Rules. It is worth noting that the NEM Rules currently expressly provide for this in the definition of a Reliability Augmentation as a:

   "*transmission network augmentation* that is necessitated solely by inability to meet the minimum *network* performance requirements set out in Schedule 5.1 or in relevant legislation, regulations or any statutory instrument of a *participating jurisdiction*."

It is also worth noting that the adoption of stricter planning standards for high load areas, such as CBDs, is consistent with established practice in other developed economies around the world.

In summary, TransGrid considers the adoption of varying transmission reliability standards for different by NEM jurisdictions load areas as appropriate because of the resulting economic, social, and political accountability benefits.

21 ***Should there be a role for the NEM reliability settings in compensating for potentially lower reliability outcomes further down the supply chain?***

Care needs to be taken in this regard as the lower reliability outcomes down the supply chain referred to here tend to be more localised and, when aggregated into single system measure, do not necessarily reflect the relative economic or social impacts of those outcomes. The economic and social impact of widespread shortages is arguably higher than the sum total impact of a large number of local and, sometimes, short duration outages.

22 ***Should the scope of the standard be extended to encompass matters currently treated as system security issues such as multiple contingency events? Should near misses be reported?***

As with bulk transmission reliability, system security performance is not measured effectively by an averaged "energy not supplied" measure over a period of time. Service failures related to inadequate system security tend to be rare, but substantial impact events. Accordingly, there is clearly a case for additional separate measures of system security performance. In this regard, near misses provide a useful pointer to possible deterioration in system security and increased risk of system security related service failure. Separate monitoring of multiple contingency events, and resulting impacts, is also useful, if only to facilitate improved definition of what should, or should not be, considered as a 'credible contingency'.

23 ***If yes, how should such matters be defined to ensure that supply adequacy is appropriately monitored in the context of power system security?***

A complete response to this question is quite challenging in the time available. However, as already stated, it would seem appropriate to begin by separating out the measurement of reliability outcomes resulting from inadequate generation (to meet demand) from bulk transmission, and system security related, reliability performance measurement.

32 ***Are there ways that NEMMCO could improve its forecasting accuracy that would enhance reliability outcomes?***

It is important to recognise that the NEMMCO forecasts tend to be at a highly aggregated level in geographical terms. This is appropriate in the context wholesale trading price discovery, generation supply adequacy to meet demand, and national transmission flow path assessments.

However, this aggregated level of forecasting is not so useful in the context of general bulk transmission performance and planning. As noted above, and as clearly recognised by the AEMC, bulk transmission reliability requirements tend to vary from one load area to another. Similarly, local rates of growth, and associated demand forecasts, also tend to vary geographically. In NSW, for example, the demand growth rate on the north coast is higher than the NSW average, while in the west of the State it is lower. For these reasons, the local longer term forecasts produced by distribution businesses are of more relevance to transmission planning and link sensibly with more local transmission planning responsibilities.

Comparison of aggregated local forecasts with NEMMCO's global forecasts can, and does, provide a useful cross check of both forecasts. The process for achieving this convergence is in the preparation of the Annual Planning Reports, prepared by each TNSPn and the NEMMCO Annual National Transmission Statement. TransGrid is not currently aware of shortcomings in this process.