

18/12/2015

Mr Neville Henderson
Chairman, Reliability Panel
Australian Energy Market Commission
PO Box A2449
Sydney NSW 1235

Lodged online via: www.aemc.gov.au

Dear Mr Henderson

Review of System Restart Standard – Issues Paper (Reference: REL0057)

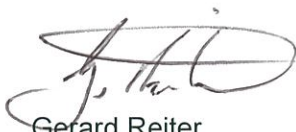
TransGrid welcomes the opportunity to respond to the Reliability Panel's Issues Paper on its Review of the System Restart Standard. TransGrid manages and operates the high voltage electricity transmission network connecting generators, distributors and major end users in New South Wales (NSW) and the Australian Capital Territory. TransGrid's network is also interconnected to Queensland and Victoria, providing an electricity system that makes interstate energy trading possible.

TransGrid considers that the Panel's Review of the System Restart Standard is an important task, which requires careful consideration of the Standard itself and the associated arrangements to meet the Standard's requirements.

TransGrid recognises the social and economic importance of having plans in place for restoration of supply as soon as possible, in the rare event of a widespread supply failure in NSW. While there has never been an event in the National Electricity Market that has required System Restart Ancillary Services, there have been several events internationally over the last 15 years that have required the restart of electricity systems. In this international context, it is widely recognised that the associated arrangements should be robust, flexible and able to be implemented in practice (including within the operational and technical capabilities of the transmission system).

TransGrid broadly supports the Grid Australia submission to this review. TransGrid also offers further comments (in Attachment A) which draw on experience to date and the characteristics of TransGrid's network. We would welcome the opportunity to meet with you and other Panel members at a time of your convenience to further discuss the issues raised in this submission. In the first instance, please contact Caroline Taylor on (02) 9284 3715.

Yours faithfully,



Gerard Reiter

Executive General Manager/ Asset Management

Attachment A – Responses to Consultation Questions and Further Comments

Question posed by the Reliability Panel	TransGrid's Response
<p>Question 1. Time and level of restoration</p> <p>1. Are the existing timeframes for restoration appropriate (ie, 1.5 hours for restoration of station auxiliaries of generating units that can supply 40 per cent of peak demand in the sub-network and 4 hours for generation capacity equivalent to 40 per cent of peak demand)? If the timeframes are not appropriate, how should they be amended?</p>	<p>1. TransGrid considers that the existing timeframes are appropriate. However, TransGrid has concerns with the ability of the existing System Restart Ancillary Services (SRAS) to restore generation/transmission capacity equivalent to 40 per cent of peak demand in the sub-network as these services may not be able to fully achieve the requirements of the Standard. At present, these arrangements do not consider restoration needs of sensitive loads (such as Tomago Aluminium in TransGrid's network, which is 3 hours) and beyond the existing timeframe for critical loads (such as Sydney CBD). Therefore these arrangements may not take into account the significant locational variations in relation to restart generation.</p> <p>Accordingly, the Panel should give consideration to whether the Standard should outline expectations for restoration of sensitive and critical loads within the appropriate timeframe. It is important for this to be considered during the procurement stage by the Australian Energy Market Operator (AEMO). As an input to this, TransGrid would also like to highlight that the minimum technically feasible restoration timeframe for the NSW system and the extent of the impact of a black system condition would depend on the following factors:</p> <ul style="list-style-type: none"> > the location of the procured restart sources and the operational limits and technical capability of the network, > the ability to restore supply to critical and sensitive loads within the critical time period, > critical incident readiness of the various responsible parties (Generators, AEMO, Transmission Network Service Providers [TNSPs], and Distribution Network Service Providers) in providing a coherent response to the restoration process, and > the availability of critical communications facilities between control centres of responsible parties for

the duration of the restoration process.

As part of this Review, it may also be prudent for the Panel to consider providing further guidance particularly around the expectations and responsibilities for critical incident readiness preparation and the availability of critical communications facilities.

2. Do stakeholders consider that the restoration level be maintained at 40 per cent of peak load? If not, what other restoration level should be considered, and why (eg, a different percentage rate, or average demand instead of peak demand)?

2. System black is most likely to occur during system peak load and low generation availability (as this is when the risk to system security is greatest), therefore using peak load as a reference restoration level is appropriate. In reviewing the Standard, the Panel should also consider the economic and social impact of sensitive and critical loads and whether the level of restoration should place higher priority on these loads than others. For NSW, the following sensitive and critical loads require special consideration:

- > Tomago Aluminium (940 MW),
- > Sydney CBD (2500 MW),
- > Canberra (400 MW), and
- > Newcastle (380 MW).

3. Is the powering of auxiliaries as an intermediate step a necessary part of the definition of the Standard? What are the costs and benefits of removing the intermediate step and moving to a single timeframe for power system restoration (eg, restore 40 per cent of peak demand within 4 hours)?

3. The intermediate step is not a necessary part of the definition of the Standard. The requirement to supply auxiliaries in 90 minutes could cause unnecessary limitations and undesirable outcomes during the procurement stage resulting in the exclusion of effective SRAS from consideration.

Question 2. Aggregate reliability

1. What factors should the Panel consider in determining the level of aggregate reliability?

2. Would it be appropriate for the Standard to include a minimum number of SRAS services in each sub-region? What are the costs and benefits of doing so?

1. The Panel should consider whether the Standard should outline expectations for restoration of sensitive and critical loads within the appropriate timeframe. When determining the level of aggregate reliability, the Panel should consider the economic significance of (and expectations for restoration to) sensitive and critical loads within the appropriate timeframe. In setting this parameter, the Panel should base it on a robust assessment which takes into account the cost of the SRAS service, as well as the likelihood and economic impacts of widespread power system supply failure to ensure sufficient SRAS is available at all times. This assessment must also consider the implications of utilising a single SRAS source to restart more than one regional network as there may be occurrences when both regional networks are in a system black condition.
2. TransGrid considers that it would be appropriate to include a minimum number of services for each sub-region (or sub-network). One suggestion is that this could be one more SRAS than what is required to satisfy the SRS according to AEMO's assessment. This would result in availability of at least the number of SRAS required to satisfy the Standard at most times (in the case of one SRAS not being available due to forced or maintenance outages). Additionally, the cost and benefits should reflect the proximity of the SRAS to the major sensitive loads and power stations located near load centres and the impact of transmission limitations on the SRAS in the particular sub-region.

Question 3. Regional variation

1. What types of technical matters or limitations are likely to impact on achieving the Standard?

2. Are there any sub-networks in regions of the NEM where specific technical matters or limitations may be relevant to the Panel's determination of the Standard, including any potential variations to the Standard for any specific sub networks?

1. The Panel should give consideration to the technical limitations of the transmission system (including sub-networks where applicable) to which it applies. In doing so, it would be expected that the limitations around network constraints and generation plants would be taken into account.
2. Under the current Standard, AEMO only consider one sub-network for NSW. However, there are 2 natural sub-networks in NSW, characterised by slow restart sources in the North and fast restart sources in the South which are constrained by physical limitations of the network to the major load centre in the Sydney area and supply to sensitive loads.

In reviewing the Standard, the Panel should consider the specific characteristics, locations and concentrations of generations/loads and the transmission network connecting them for the sub-

<p>3. What types of economic circumstances or considerations should the Panel be mindful of when determining the Standard? How do they relate to the Standard?</p> <p>4. Are there any sub-networks with specific economic circumstances, such as the presence of sensitive loads, that the Panel should consider when determining the Standard, including any potential variations to the Standard for any specific sub-networks?</p>	<p>network. The Panel should also consider the specific needs of sensitive loads and other critical loads, whether these loads are able to be resupplied within a timely manner and the economic impact of a failure to restore supply within their required timeframes.</p> <p>3. Please refer to the response to Question 3.2 above.</p> <p>4. Please refer to the response to Question 3.2 above.</p>
<p>Question 4. Sub-network guidelines</p> <p>1. What factors should the Standard require AEMO to take into account when setting sub-network boundaries? How are they relevant?</p>	<p>The factors that AEMO should take into account when setting sub-network boundaries include the operational limitation considerations which have been outlined in the responses to the questions above. In addition, under the current arrangements AEMO considers the possible weak points in the network in determining the sub-network boundaries (under system normal network). TransGrid considers that AEMO should also consider:</p> <ul style="list-style-type: none"> > significantly weaker cut-sets during an outage of a single circuit in the cut set, and > the extent of restoration that is possible during a given time frame and restoration of supplies to critical and sensitive loads.

<p>Question 5. Diversity requirements</p> <ol style="list-style-type: none"> 1. Do stakeholders consider the existing diversity requirements in the Standard for the procurement of SRAS by AEMO to be appropriate? 2. Do the existing diversity requirements in the Standard for the procurement of SRAS by AEMO adequately create independence between different SRAS providers in the same sub-network? 	<p>The existing diversity requirements in the Standard are appropriate. The implementation of these diversity requirements should also be demonstrated during the procurement of SRAS.</p>
<p>Further comments – issues with the current procurement process</p>	<p>The procurement plans and arrangements to meet the Standard should be robust, flexible and able to be implemented in practice (including within the operational and technical capabilities of the transmission system).</p> <p>In undertaking this review, the Panel should also consider how to ensure that the Standard is clear in the way it is implemented, in particular on the following aspects:</p> <ul style="list-style-type: none"> > maintaining system security during restoration – including that the approach for ensuring system security during the restoration needs to be clear and explicit, > implementation of the regional network restoration plans – including the need for meaningful and timely consultation with the TNSPs to review and revise the regional network restoration plans, and > transition from one SRAS process to another – including that sufficient time is allowed for the revision of the plans, procedures and training of operating staff prior to any change of the SRAS providers.