



18 December 2015

Reliability Panel
PO Box A2449
Sydney South NSW 1235

Response to Issues Paper on Review of the System Restart Standard

Grid Australia and the Energy Networks Association (ENA) welcome this opportunity to respond to the Reliability Panel's Issues Paper on Review of the System Restart Standard ('Issues Paper') dated 19 November, 2015.

Grid Australia represents the owners of the main electricity transmission networks across southern and eastern Australia (the region covered by the National Electricity Market, or NEM) and Western Australia.

The Energy Networks Association (ENA) is the national industry association representing the businesses operating Australia's electricity transmission and distribution (including sub-transmission networks owned by distribution network service providers) and gas distribution networks. Member businesses provide energy to virtually every household and business in Australia. ENA members own and operate energy network infrastructure assets valued at over \$100 billion.

This submission consists of responses to each of the questions raised in the Issues Paper in turn. These responses are detailed as an attachment to this letter.

Grid Australia noticed that the terms "sub-network" and "sub-region" appear to have been used interchangeably in the Issues Paper. It has been assumed these terms have the same meaning. Grid Australia will use the defined term "sub-network" in this response when addressing questions referring to either term.

As pointed out in the Issues Paper, there are significant interdependencies between specific elements of the Standard. Therefore, similar issues are touched on in many of the responses to the questions raised. Grid Australia found two recurring themes across its responses, viz.

- When reviewing the Standard, consideration will need to be given to ensuring supply to sensitive loads (smelters) and other critical loads (city precincts, LNG processing plant etc.) is restored expeditiously within each sub-network, taking account of network and generation constraints within that sub-network; and
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- When setting targets for the Standard, modelling of total system performance will need to be undertaken including flows from adjacent sub-network (notwithstanding the requirement that services will need to be sourced within each sub-region).

Please do not hesitate to contact either Michael Dobbin on (08) 8404 7966 or via e-mail at Michael.Dobbin@electranet.com.au (GA) or Dr Stuart Johnston (ENA) on (02) 6272 1513 or via email at sjohnston@ena.asn.au if you wish to discuss any matter raised in this submission.

Yours sincerely

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Response to Issues Paper Questions

Issues Paper Question 1.1 Time and level of restoration

Are the existing timeframes for restoration appropriate (i.e. 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?

Grid Australia Response to Question 1.1:

Grid Australia (GA) and the Energy Networks Association (ENA) consider that the existing timeframes are appropriate. However we caution that, due to the “coarseness” of design of some of the sub-networks, these timeframes may not translate to restoration of supply to sensitive and other critical loads in appropriate timeframes.

For example there are significant locational variations in relation to restart generation, sensitive loads (smelters.) and other critical loads (city precincts, LNG processing plant etc.) within some sub-networks. This geographic dispersion could result in some but not all of these loads being ready for resupply in the specified timeframes due to network constraints. In the absence of specific timeframes for resupply to sensitive and other critical loads, it must be assumed that restart services will be procured so that the sensitive and critical loads can be serviced within the specified 4 hour target. Alternatively, sub-networks could be defined with greater granularity. This is discussed further under Question 4.

Issues Paper Question 1.2 Time and level of restoration

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 (e.g. a different percentage rate, or average demand instead of peak demand)?

Grid Australia Response to Question 1.2:

It is GA's and ENA's view that widespread power system loss conditions are most likely to occur at times of greatest system stress, i.e. at peak load conditions.

Given that sensitive and critical loads are likely to be significantly less than the total load (particularly taking account the level of essential demand these sensitive loads require for make safe arrangements), and given that a significant level of general demand will be “shaken off” or voluntarily curtailed during widespread power system loss events, both GA and ENA consider that a level such as 40% of peak load is considered appropriate.

Both organisations would however support the Reliability Panel giving consideration to a level lower than 40% of peak load, providing its analysis demonstrates that:

- Restoration of supply to sensitive and other critical loads is not jeopardised;
- It is co-ordinated with the distribution of the restart services within the sub-network; and
- The change is found to be economic in line with the Reliability Panel's own assessment criteria.

Issues Paper Question 1.3 Time and level of restoration

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 (e.g. restore 40 per cent of peak demand within 4 hours)?

Response to Question 1.3:

Both GA and ENA consider that the Reliability Panel ought to specify a single timeframe (e.g. restore 40% of peak demand within 4 hours).

While restoration of power station auxiliaries is a critical first step to system restart, we believe that AEMO as procurer of services will need to assess each provider individually in relation to meeting the single timeframe set under the Standard.

Issues Paper Question 2.1 Aggregate reliability

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

Response to Question 2.1:

Neither GA or ENA have a view as to the quantum of the appropriate level of aggregate reliability.

Our view is that the Reliability Panel will need to set this parameter by way of an assessment, taking account to cost of the SRAS service as well as likelihood and economic impacts of widespread power system loss.

Issues Paper Question 2.2 Aggregate reliability

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?

Response to Question 2.2:

Both GA and ENA consider that setting a deterministic standard such as the number of SRAS services required within each sub-network should rely on outcomes derived from a probabilistic based assessment. For instance evaluating the economic benefit of SRAS service provisions through Stochastic analysis.

Issues Paper Question 3.1 Regional variation - technical matters

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

Response to Question 3.1:

Subject to the Standard being set based on reliability modelling as outlined in our response to Question 2.2 above, it is expected that technical limitations, some of which will be sub-network based, will be taken into account. Such analyses will take account of network constraints as well as generation plant technical limitations.

It is assumed that at the time of procurement of services, AEMO will undertake reliability modelling to satisfy itself that the Standard will be likely to be met operationally, if called upon.

Issues Paper Question 3.2 Regional variation – sub-network specific limitations

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?

Response to Question 3.2:

This matter has been addressed in the response to Question 3.1.

Issues Paper Question 3.3 Regional variation – economic circumstances

What types of economic circumstances or considerations should the Panel be mindful of when determining the Standard? How do they relate to the Standard?

Response to Question 3.3:

In setting the Standard, both GA and ENA recommend that detailed system and economic modelling be undertaken to ensure sensitive loads (smelters) and other critical loads (city precincts, LNG processing plant etc.) are able to be resupplied early in the restart process, i.e. having generation available to meet 40% of the peak load within 4 hours but not being able to channel it to the higher priority loads initially is considered sub-economic.

Issues Paper Question 3.4 Regional variation - sub-network specific circumstances

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?

Response to Question 3.4:

This matter has been addressed in the response to Question 3.3.

Issues Paper Question 4.1 Sub-network guidelines

What factors should the Standard require AEMO to take into account when setting sub-network boundaries? How are they relevant?

Response to Question 4.1:

This issue has been addressed in our responses to other questions.

In summary, the Reliability Panel should, when setting sub-network boundaries have confidence through system and economic modelling that high value sensitive and critical loads can be resupplied within the specified timeframes. This modelling will need to consider network limitations within the sub-network.

Issues Paper Questions 5.1 and 5.2 Diversity Requirements

Do stakeholders consider the existing diversity requirements in the Standard for the procurement of SRAS by AEMO to be appropriate?

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?

Response to Questions 5.1 and 5.2:

GA and the ENA have addressed this issue in our response to other questions.