grid australia
BACKBONE OF THE NEM

3 June 2008

Mr Ian Woodward
Chairman
The Reliability Panel
Australian Energy Market Commission
Level 5, 201 Elizabeth Street
Sydney NSW 2000

By email: submissions@aemc.gov.au

Dear Ian,

Transmission Reliability Standards – Draft Report

Grid Australia welcomes the opportunity to comment on the Reliability Panel's Draft Report "Towards a Nationally Consistent Framework for Transmission Reliability Standards", dated 24 April 2008. The attached submission:

- discusses Grid Australia's response to the criteria proposed by the Panel to assess proposals for a nationally consistent framework for reliability standards;
- assesses the options presented in the Draft Report against the criteria proposed by the Panel and two additional criteria proposed by Grid Australia;
- considers implementation issues associated with the options, given the Reliability Panel's strong preference for solutions that are 'practical and implementable'; and
- provides responses to the specific questions raised in the Draft Report.

Grid Australia's considers that a deterministic form of reliability standards based on economic considerations best meets the review objectives and assessment criteria.

Grid Australia would welcome the opportunity to discuss any aspect of the attached submission with the Panel or staff.

Yours sincerely,

Rainer Korte

Rainer Korte
Chairman
Regulatory Managers Group

grid australia
BACKBONE OF THE NEM

A Nationally Consistent Framework for Transmission Reliability Standards

Response to Reliability Panel Draft Report

3 June 2008

Powerlink Queensland
TransGrid
ElectraNet electricity transmission
TRANSEND
SP AusNet A member of Singapore Power Group

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1. Introduction

This submission is made by Grid Australia (formally the Electricity Transmission Network Owners Forum), which comprises ElectraNet Pty Limited, Powerlink Queensland, SP AusNet, Transend Networks Pty Ltd and TransGrid. Collectively, this group owns and operates over 40,000 km of high voltage transmission lines and have assets in service with a current regulatory value in excess of $10 billion.

Grid Australia welcomes the opportunity to respond to the Australian Energy Market Commission (AEMC) Reliability Panel's Transmission Reliability Standards Review Draft Report (Draft Report).[1] The remainder of this submission is structured as follows:

- Section 2 discusses Grid Australia's response to the criteria proposed by the Reliability Panel to assess proposals for a nationally consistent framework for reliability standards;
- Section 3 assesses the options presented in the Draft Report against the criteria discussed in section 2;
- Section 4 focuses on the implementation issues associated with the options, given the Reliability Panel's strong preference for solutions that are 'practical and implementable'; and
- Section 5 provides responses to the specific questions raised in the Draft Report.

2. Principles for a National Framework

This section discusses the principles proposed by the Reliability Panel for assessing alternative options for a consistent national framework for reliability standards.

2.1 Reliability Panel Principles

The Reliability Panel proposed nine principles to assess alternative options for a nationally consistent framework for reliability standards. Six of these principles were consistent across submissions and three additional principles are proposed by the Panel. These nine principles are:

1. transparency;
2. governance;
3. economic efficiency;

[1] AEMC Reliability Panel (2008), "Towards a Nationally Consistent Framework for Transmission Reliability Standards, Review – Draft Report", 24 April, Sydney.

4. specificity of standards;

5. 'fit for purpose' standards;

6. accountability;

7. technological neutrality;

8. maintenance of at least existing levels of network performance; and

9. desirability for a consistent relationship between transmission and sub-transmission standards.

Grid Australia agrees with the principles put forward by the Panel and notes that many of these are consistent with Grid Australia's proposed principles. However, Grid Australia considers that some of these principles warrant wider interpretation than that indicated by the Panel.

Specifically, Grid Australia believes that in addition to transparency in the process used for setting standards, *transparency* also requires that the standards be clear and specific in how they are applied. Transparency is also relevant in ensuring that participants understand the standard. Grid Australia agrees with ESPIC's proposal to use consistent terminology that provides a set of reliability categories that are well defined (section 5.3.2 of the Panel's Draft Report).

As well as ensuring that TNSPs are accountable to the appropriate authority for meeting transmission standards, *accountability* requires that outcomes can be readily measured and compared with clear and specific planning standards.

Consistency between transmission and sub-transmission standards is an issue of key importance. The Reliability Panel noted in both the Issues Paper and the Draft Report that consistency between transmission and distribution network service providers' (TNSP and DNSP) standards facilitates least cost network development.[2] In response to the Issues Paper, Grid Australia noted that reliability standards applying to DNSPs differ between jurisdictions and that these standards are outside the scope of the AEMC's current review. Thus, for those parts of the transmission network where there is extensive interaction with the distribution network, this implies that different reliability standards for transmission may be appropriate for different jurisdictions, in order to facilitate effective coordination between transmission and distribution planning.[3]

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[2] AEMC Reliability Panel (2007), *Transmission Reliability Standards Review - Issues Paper*, December, Sydney, p.38; Draft Report, p56

[3] ETNOF submission to the Issues Paper, p3

2.2 Grid Australia's Additional Proposed Principles

Grid Australia recommends that two additional principles be adopted by the Reliability Panel in developing a framework for nationally consistent transmission reliability standards as follows:

10. robustness: which requires the framework to be able to withstand external scrutiny; and

11. effectiveness: which requires standards to facilitate timely delivery of investment to meet customer expectations of reliability and minimise disputes (as required by COAG).

These principles were proposed in Grid Australia's response to the Issues Paper.

The Southern Group of Generators (the Group) criticised these additional principles at the Public Forum held by the Reliability Panel. With regard to *robustness,* the Group stated that other jurisdictions' utilisation of an incorrect methodology should not justify its continued use. In relation to *effectiveness* the Group did not agree that utilising probabilistic standards would delay decisions to improve reliability and stated that deterministic standards are more open to dispute because the assumptions are 'hidden'.

Grid Australia's view is that, in practice, a framework which is similar to that used in other developed countries comparable to Australia is likely to represent a more *robust* option than an alternative that is not widely used. International experience should not be overlooked in developing a robust framework. The fact that there are sophisticated, integrated and developed markets throughout the world that all use a particular method is a relevant consideration in deciding robust options to apply on a national basis in Australia. Grid Australia considers that international experience can be used as a guide to evaluate what is best for Australia. Further, if there were to be a major disruption to power system reliability, with consequential widespread economic impacts, then the transmission planning standards adopted in Australia would come under immense scrutiny and comparison.

Grid Australia also considers that an assessment of whether or not the framework is likely to lead to delays in investment (i.e. its *effectiveness*) is clearly a relevant consideration. This criterion is directly linked to COAG's directive that the new regime must at a minimum be no slower than the present time taken to gain regulatory approval for transmission investment.

The Group's concern raised with regard to the effectiveness principle does not seem to be aimed at the proposed principle itself but rather the process for assessing investment options against the reliability standard. The issue of the relative transparency between deterministic and probabilistic standards is addressed in the following section.

3. Assessment of Alternative Options

Table 3.1 presents Grid Australia's assessment of the options set out in the Reliability Panel's Draft Report against the Panel's and Grid Australia's proposed criteria.

Table 3.1: Summary of Assessment of Options

Principle	Option A	B	C	D	E
Transparency	✓	×	×	×	✓
Governance	✓	×	×	×	✓
Economic efficiency	✓	×	×	×	?
Specificity	✓	×	×	×	✓
Fit for purpose	✓	✓	✓	✓	✓
Accountability	✓	×	×	×	✓
Maintenance of existing level of standards	✓	✓	?	?	✓
Technologically neutral	✓	✓	✓	✓	✓
Consistency between transmission and sub-transmission	✓	×	×	×	✓
Robustness	✓	×	×	×	✓
Effectiveness	✓	×	×	×	✓

The following section discusses Grid Australia's preferred option (Option A) and the option put forward by the Panel (Option E). Options A and E are then contrasted with the Group's preferred option (Option D) which represents the opposite end of the spectrum in terms of proposing both an alternative *form* of standard (i.e. probabilistic) and the application of a single national *level* of standard. Options B and C both lie between these extremes. In each case the options are assessed against each of the principles described in section 2.

4. Assessment of Options against Stated Principles

4.1 Transparency

Both options A and E meet this criterion as the standards would be set by an independent body following a transparent, consultative process which will be set out in the National Electricity Law (NEL) and Rules (NER). In addition, having standards expressed in a deterministic form promotes transparency in the *application* of standards, as it enables more people to understand how the standard is derived and applied across the market. Accountability is also improved, since outcomes can be readily and openly measured and compared with the standard.

Standards expressed in a deterministic form (i.e. options A and E) also promote transparency in setting efficient ex-ante capital expenditure allowances by the AER as part of its revenue determinations for TNSPs. This is because the investment

proposals put forward by the TNSPs can be directly assessed against the deterministic standard. In contrast, the assessment of investment proposals against a probabilistic standard (as in Options B, C and D) requires analysis of the amount of unserved energy resulting from the investments, the value of that energy for the load area in question, and the quantification of the probability of various system contingencies occurring.

At the Public Forum the Group expressed concern regarding the 'hidden' assumptions it considers are made in applying deterministic planning standards. Grid Australia acknowledges that some assumptions need to be made in applying deterministic standards. These assumptions relate to factors such as demand forecasts, which generators are assumed to be out of service and so on. The issue, however, is the transparency of these assumptions.

Grid Australia notes that there is usually an even wider range of 'hidden' assumptions made in applying probabilistic planning standards. When implementing probabilistic approaches some single values are used where distributed parameters exist, which gives the impression of precision when large variations occur in these distributions. In addition, these distributed parameters are assumed to be independent which is not always true; sometimes they can be interdependent on other events occurring, which compounds the lack of clarity of probabilistic planning.

The Group's concern in relation to the lack of transparency in the application of deterministic standards appears to be related to assumptions made when the Regulatory Investment Test (RIT) is applied, rather than more generally. Grid Australia interprets the Group's concern in relation to 'competitive neutrality' to be at least partly related to consideration of non-network augmentation under the RIT. Grid Australia considers that these concerns will be addressed as part of the new RIT process proposed by the AEMC that more explicitly defines the level of consultation on non-network options.

Probabilistic standards require complex modelling and the expression of the standards makes them more difficult for stakeholders to understand, to measure and to interpret outcomes in comparison to the standard. A probabilistic approach thus lacks transparency and, as a result, accountability. Therefore, Grid Australia considers that Options B, C and D fail to meet this criterion.

4.2 Governance

Under Options A, B and E a body independent from the TNSP makes the decisions regarding the level of the standard. This body may be the jurisdictional government itself or a body nominated by the jurisdictional government. Under Options C and D the assessment is effectively carried out by the TNSP with scope to obfuscate the basis of the effective standard because of the inherent complexity of probabilistic assessments. That is, separation of the setting of the implied standard from the body making the investment is incomplete for Options C and D.

Under Options A and E the level of standard is tailored to each jurisdiction, whereas Option B proposes a common standard across all jurisdictions.

The Group expressed concern at the Public Forum that having jurisdictionally based reliability standards creates 'needless complexity.' In relation to 'competitive

neutrality' between states, the Group's concern appears to relate (at least partially) to these differing levels of standards between jurisdictions.

In its Draft Report, the Panel states that one advantage of jurisdictionally set standards is that it accords the region with a degree of flexibility as "standards can be tailored to local conditions in each jurisdiction, taking into account [a number of factors]."[4] Option B, removes the positive aspects of a decentralised governance arrangement by not allowing reliability standards to meet the specific needs of each state, including differences based on the operating environment of each TNSP, government initiatives/ imperatives and customer characteristics and expectations. Under this option the level of standards would be common across all jurisdictions.

As already noted, Options C and D tend to add complexity and effectively leave setting of standards essentially to the TNSP for each project, depending on the TNSP's assessment of variables such as the probability of various relevant contingencies, the economic cost of an interruption to the load area in question, and the quantity of likely unserved energy. While the Group portrays its proposal as a consistent national standard, it appears to be precisely opposite in effect, as well as being contrary to the principle of separation of standard setting from the body undertaking the investment.

Furthermore, to support its proposal for uniform levels across jurisdictions, the Group points to recommendations made by the Energy Reform Implementation Group (ERIG). The Group quotes ERIG as stating that "different state government arrangements should be progressively examined and abolished in favour of consistent national *measures* ."[5](emphasis added) The Group sees this as ERIG calling for "a single national standard to replace the current, disparate jurisdictionally based standards."

Grid Australia notes that in its final report ERIG states that "the differences [in reliability standards] exist in terms of form, function and interpretation."[6] Furthermore, they recommend:

> "that the Reliability Panel, which is formed under the AEMC, coordinate a national review to require schedule 5.1 in the NER to provide a *consistent national framework* for Reliability Standards by end 2008. As part of this process, *each state* should revise its requirements for individual connection points and publish them in that *format* (emphasis added)."[7]

Thus, ERIG's recommendation is entirely consistent with a national framework with different standards applying, as appropriate, in each jurisdiction.

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4 Draft Report, p22.

5 Group Submission, p6

6 ERIG (2007), *Energy Reform: the way forward for Australia - A report to the Council of Australian Governments by the Energy Reform Implementation Group*, January, p28

7 ibid

4.3 Economic Efficiency

Options A and E both allow for reliability standards to be set and reviewed on the basis of an economic cost-benefit analysis.

A deterministic standard derived from economic considerations uses probabilistic assessments at the time the standard is set and explicitly considers the value of unserved energy. An important distinction between this approach and the probabilistic approach is that the economic assessment is only conducted periodically at the time that the reliability standard is set and subsequently reviewed, rather than in relation to each augmentation. A deterministic reliability standard is also set by considering the supply system subject to a variety of power system contingencies. For planning assessments these involve outages of critical elements of the network (e.g. a major transmission line). This simplifies both the public consultation phase in setting the standards and the planning process carried out by the TNSPs. It is therefore more cost effective.

In relation to the public consultation phase it is envisaged that, under Options A and E that this would occur every five years in advance of preparing the relevant transmission revenue cap application. Stakeholders would only need to engage in the process once every five years. However, under Option D each project assessment would effectively involve a fresh consultation on the reliability targets being considered for planning purposes. This amounts to multiple consultations which create barriers to cost effective stakeholder participation.

Furthermore, it was noted at the Public Forum that if both probabilistic and deterministic planning are carried out correctly they would likely result in the same outcome.[8] As such, the costs are much higher for both stakeholders and TNSPs in implementing Option D, but there is no material benefit from moving to a probabilistic standard as proposed under this option.

There is also no inherent network development efficiency benefit in applying a probabilistic approach. Rather, there are a number of reasons why the approach could lead to less efficient outcomes, as discussed throughout this submission. These include an unclear delineation between the setting of standards and the application of standards, leading to reduced and unclear accountability.

Grid Australia considers that the national reference standard proposed by the Reliability Panel as part of Option E has some merit, but needs to be considered in more detail. From the Draft Report it is unclear how the reference standard will work in practice and precisely what purpose it would serve. Grid Australia is concerned that such a standard may represent an unnecessary expense, raising questions as to the economic efficiency of this aspect of the option.

The Panel clarified at the Public Forum that the proposed national reference standard would be set at a high level, rather than at a connection point level, to avoid costly

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8 *"… if you expressed the deterministic as a different standard for a whole different set of defined circumstances you probably end up with something more similar. It really depends on - the more you try and simplify the problem, the more approximate you make it and therefore the more variability you're going to get in outcomes."* Jim Gallagher for the Group at the AEMC Public Forum 30 April 2008 (refer page 25 of the AEMC's transcript)

duplication of jurisdictional standards. The Panel went on to say that its purpose is as a point of information, clarification and contrast.

Grid Australia notes that there are a number of potential alternatives to a national reference standard to suit these purposes. For example, the publication of each jurisdiction's reliability standards could provide the informational role, in the absence of a reference standard. Clarification of how the standard is applied could be facilitated by published examples. Finally, in relation to providing a 'point of contrast', it appears that a national reference standard may serve a limited purpose in practical terms, as no one would be able to state that being above or below that standard has any meaning, because the standard would not be representative of their particular situation.

4.4 Specificity

Options A and E meet this criterion as clear and specific connection point standards that are expressed in a deterministic form are more readily understandable by all participants. In effect, customers 'know what they are getting.' This is currently the case in South Australia.

Options C and D fail to meet this criterion as the lack of transparency in the probabilistic standard makes it difficult for customers to be confident that they are receiving a robust transmission service over time.

4.5 Fit for Purpose

All proposed options meet this criterion as the standards are set at the connection point level according to the size and criticality of the load.

Options A and E however provide another benefit under this criterion. That is, by having different levels of standards in different jurisdictions, and at different locations within a jurisdiction, it allows for those closest to the 'purpose' (i.e. the jurisdictional government or body appointed by the jurisdictional government) to make the decisions that 'fit'.

4.6 Accountability

Options A and E meet the accountability criterion as standards expressed in a deterministic form promote transparency in the application of those standards and facilitate measurement and comparison of outcomes with the standard. This is clear from the South Australian experience where ESCOSA has established a reporting regime which, among other things, requires ElectraNet to expressly identify where it is not meeting ESCOSA's standards and to provide action plans for meeting those standards.

Accountability is also promoted through having good governance arrangements based on an independent standard setting process.

Options B, C and D do not represent an accountability framework given their proposed use of probabilistic standards. As discussed in section 3.1.1, probabilistic standards are not transparent, and therefore lack accountability.

4.7 Maintenance of Existing Level of Standards

Both Options A and E meet this principle by allowing the level of standards to vary between jurisdictions. This will allow for existing, differing standards to be maintained in each state. This issue is significant to electricity consumers as it provides existing customers with an assurance that any movement to a consistent national framework will not have a detrimental impact upon their current levels of reliability. This would almost certainly not be the case for Options B, C and D, which would effectively require individual TNSPs to move away from historical standards on the basis of a new common national standard or their own probabilistic assessments. Furthermore, it would almost certainly result in a 'disconnect' between the reliability standards of the TNSP transmission network and the DNSP sub-transmission network within the same jurisdiction."[9]

This not only raises issues for consistency between transmission and sub-transmission but also for economic efficiency. It is reasonable to assume that end use customers have generally invested on the basis of historical standards in the various jurisdictions. A reduction in historical standards would almost certainly leave these customers exposed to additional costs or reduced transmission service compared with the circumstances at the time of their initial investment. For example, reduced transmission service standards for customers requiring high levels of reliability may require the customer to invest in standby generation.

4.8 Technologically Neutral

All options represent a technologically neutral framework.

4.9 Consistency Between Transmission and Sub-transmission

Standards derived from economic considerations, but expressed in a deterministic form, promote consistency with sub transmission standards and, thus, efficient joint planning and least cost joint development between TNSPs and DNSPs. A number of difficulties arise if there is not consistency between transmission and sub-transmission reliability standards, such as:

- lack of clarity for the TNSPs and DNSPs as to which standards are to apply in determining the need for a joint investment;
- difficulties for the AER in assessing ex-ante capex requirements during the five yearly revenue cap reviews where proposals from the NSPs involve joint investments;
- confusion during stakeholder consultation as to which standards are driving a particular investment need; and

[9] Draft Report, p31

- lack of clarity over the respective TNSP and DNSP accountabilities for any failure to meet planning standards.

The Panel notes in its Draft Report that allowing jurisdictions to set the standards (as proposed in Options A and E) facilitates least cost development of the network. Furthermore, it notes that these benefits are "material in those jurisdictions where the NSP sub-transmission networks interact with the transmission networks to deliver the overall capability."[10]

Grid Australia notes that the issue of 'consistency' relates to the *form* of standard between transmission and sub-transmission which is different from consistency on the *process* for assessing investments (i.e. the RIT-T or the Regulatory Test). By allowing jurisdictions to set the standards, jurisdictions are best placed to ensure that levels are consistent between the two.

As Options B, C and D do not maintain consistency between transmission and sub-transmission standards, they do not facilitate efficient joint planning and least cost joint development.

4.10 Robustness

Grid Australia notes that standards expressed in a deterministic form are consistent with those used in most jurisdictions worldwide. Given that these standards have been the subject of scrutiny after each major service failure, and that this form of standard not only persists but has been strengthened in a number of countries following major power system events, this affords deterministic standards legitimacy from a public policy perspective. As such, adoption of this form of standard should be better able to withstand public scrutiny. Options A and E therefore meet the criterion of robustness.

Referring to probabilistic standards, the Panel stated that "few power systems in advanced economies are developed in this way."[11] Options B, C and D fail the robustness test because it would establish a framework that is inconsistent with the form of standards adopted in most jurisdictions. Indeed, the Panel acknowledged this by stating that the "jurisdiction of Victoria is an international pioneer in this regard."[12]

Grid Australia is not aware of any reasonably comparable international market which does not use deterministic standards for both transmission and sub-transmission.

Furthermore KEMA has prepared a summary report for the Panel on reliability standards in overseas developed economies where there is a wholesale market and

[10] Draft Report, p22.

[11] Draft Report, p56.

[12] Draft Report, p56.

multiple transmission network owners. The report finds that all six markets surveyed use deterministic standards[13].

Finally the Group is advocating an approach that it acknowledges still requires development for its use in Australia:

> *"Arguably, even the probabilistic planning approaches currently in use in the NEM are unduly simplified. Only a very limited number of probabilistic planning scenarios are used in these cases as well as, and it is very unlikely that the true value implications of extreme events are taken into account in the investment decision-making process…We believe there is probably considerable room for improvement in the probabilistic planning methodologies now in use in both Victoria and South Australia."*[14]

> *"VENCorp has demonstrated that it's doable, but we acknowledge their approach falls well short of an ideal probabilistic planning methodology."*[15]

The fact that the advocate of a probabilistic form of standard acknowledges that such standards still require development means that there are likely to be higher costs in implementing a reliability framework based on such standards and increases the likelihood of unfavourable external scrutiny in the event of a major power system event.

4.11 Effectiveness in Ensuring Investment is Not Delayed

Standards derived from economic considerations that are expressed in a deterministic form will facilitate timely delivery of investment to meet customer expectations of reliability and minimise disputes. Timely delivery of necessary electricity transmission investment is a key COAG directive. This form of standard also minimises disputes because it is more transparent and requires less complex modelling.

As noted above the application of a probabilistic assessment by TNSPs for each project significantly complicates the stakeholder consultation process. For example:

- The reliability standard applicable to each project is effectively applied for each project rather than once every five years;
- Probabilistic assessments are inherently complex involving quantification of the economic impact of service failure and the probability of various network contingencies on a project by project basis; and

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13 KEMA, "International Review of Transmission Reliability Standards", Summary Report prepared for the AEMC Reliability Panel, 27 May 2008.

14 Group Submission, p4

15 Group Presentation, Reliability Panel Public Forum, 30 April 2008, Slide 17

- The reliability assessments are carried out by the investors themselves rather than by bodies acting on behalf of the community.

As a result Grid Australia does not agree with the Group's view that probabilistic standards are more transparent and therefore less open to dispute. Further reasons for this position are set out in section 3.1.1.

4.12 Summary

Option A meets all the stated criteria and represents the best option that meets the Panel's objectives stated at the public forum for an option which is workable, executable within a reasonable timeframe and constitutes a beneficial set of reforms overall for the NEM.

Grid Australia considers that the Group's concern with the 'hidden' assumptions associated with the application of a deterministic planning standard will be addressed as part of the new process proposed for the RIT, rather than requiring the implementation of a costly alternative form of reliability standard.

Option E represents a 'next best' solution and meets most of the stated criteria. Grid Australia considers that the national reference standard that has been proposed as part of this option has some merit, but needs to be considered in more detail.

Option D failed to meet most of the essential criteria. For this reason Grid Australia strongly opposes the implementation of this option. These reasons are that this option:

- fails to be economically efficient because it requires an immense investment in planning systems and personnel to change to a probabilistic standard;
- fails to be transparent as probabilistic standards are difficult to understand by participants;
- is less accountable because probabilistic standards are more difficult to measure performance against; and
- is more open to dispute and hence risks delaying required investment.

Options B and C, to the extent that they also encompass a probabilistic form of standard, suffer from many of the same shortcomings noted above in relation to Option D.

5. Implementation Issues

Grid Australia considers that given Options A and E raise fewer implementation issues than Options B, C and D, Options A and E represent more practical and workable options.

Particular implementation issues with regard to Options A, E and D are outlined below, in addition to issues common across all options.

5.1 Option A

Minimal changes are required under Option A to the regulatory and legal framework. Indeed, for all practical purposes Option A already operates in South Australia. However, extending this framework nationally would involve:

- amendments to the NER to cover the process for determining an appropriate standard;
- the appointment of bodies, where required, in the jurisdictions to carry out the reviews; and
- changes to jurisdictional codes, where relevant, to nominate the appropriate body.

As well, individual jurisdictions will need to arrange resources to conduct the reviews of the level of reliability standards and sufficient time will need to be provided to allow these resources to be organized.

The Panel stated that approaches that accord jurisdictions the right to set standards are "evolutionary, requiring few changes to existing networks, and to long term connection agreements. While significant changes to jurisdictional instruments and connection agreements will be required; these changes are likely to fewer [sic] than those necessary to implement other alternative options."[16]

5.2 Option E

In addition to those changes required under Option A, resources would be required to undertake a review for the level of 'reference standard.' This could be costly and the expected benefits need to be carefully scrutinised.

5.3 Option D

Significant resources would be required to implement a change in the form of the standard from deterministic to probabilistic. These resources would be required during a time that the industry is experiencing a shortage of skilled personnel. The Reliability Panel recognises that:[17]

- adoption of such an approach across the NEM would present many challenges;
- a very compelling case would have to be made to governments and regulators to switch to probabilistic standards and planning methods; and
- it would need more fundamental and wide-ranging changes to legislation, NER, planning systems and staff requirements.

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16 Draft Report, pp22-23

17 Draft Report, p37 and 56

Grid Australia agrees with this assessment and notes that implementation issues probably extend to:

- further development and debate on the details of the probabilistic framework (noting the comments of the Group on the inadequacies of VENCorp's current practices);
- development of guidelines to ensure consistent application of this framework by all TNSPs;
- managing the interaction of probabilistic arrangements for transmission with the deterministic framework currently applied by DNSPs to achieve effective and transparent joint planning;
- further development of the Regulatory Investment Test consultation framework to accommodate the particular requirements of probabilistic assessments;
- consideration of the interaction of this framework with revenue determination processes including, in particular, the processes for establishing the ex-ante capital expenditure forecasts within those decisions; and
- enhancements to the dispute resolution processes to ensure that stakeholder concerns with TNSP assessments can be addressed adequately while not unduly delaying required transmission investment.

5.4 All Options

As stated in Grid Australia's response to the Issues paper, it is important to ensure that allowance is made in the regulatory framework for adjustments to any new reliability standards imposed on TNSPs. Any changes in the level of standard can have key implications in relation to the amount of capital and operational expenditure required. Grid Australia therefore considers that reviews of the level of standards applying in a jurisdiction should occur at least 24 months prior to the start of the new regulatory period for the TNSP in that jurisdiction.

Treatment of existing long term connection agreements will also need to be considered as they may contain references to specific reliability levels.

6. Responses to Specific Questions

The following table sets out Grid Australia's responses to each of the specific questions set out in the Draft Report. References are given to the discussion in the main body of this submission, where relevant.

Draft Report Question	Section	Grid Australia Response
The Panel is seeking views on its suggested [assessment] criteria.	3.4	This is discussed in section 2.
What do you see as the pros and cons	5.5	This is discussed in section 3.1.

Draft Report Question	Section	Grid Australia Response
of your preferred option against the other options?		
How could the Panel's proposed option be enhanced?	5.5	The drawbacks in the Panel's proposed option are outlined in section 3.1. Grid Australia has reservations regarding the implementation of a national 'reference standard'. However, one enhancement would be to ensure that the reference standard is relatively high level, particularly initially.
Which of the options would be acceptable? That is, what could you live with, rather than what you would really like?	5.5	As discussed in section 3.1 Option A is preferred, but Option E also meets the majority of Grid Australia's assessment criteria. Options B, C and D would be unacceptable to Grid Australia.
If the level of standards is reviewed every five years, well ahead of the AER's regulatory determination for a TNSP, how much time should be allowed for the new level of standards to be transitioned into effect and the TNSP is held accountable to those standards?	5.5	Grid Australia considers that it would be appropriate for the review of the level of reliability standard to be completed at least 24 months prior to the start of each new regulatory period.
To what connection points should connection point standards apply?	5.6	All customer (as defined under the Rules) connection points noting that reliability standards do not apply to generators.
How could standards specified on a connection point basis (or an easily identified clustering of connection points, such as CBD, large metropolitan, rural, etc.) be used to specify the reliability standard applying to the shared network behind those transmission connection points?	5.6	The reliability standards are specific to customer connection points. The design of the shared network arises from the need to meet the connection point reliability standards.
To what extent are generator dispatch patterns provided for in determining the reliability at a particular connection point?	5.6	Range of plausible scenarios are developed taking account of generator availability, PASA measures and the Reliability Standard for Generation and Bulk Transmission.
If a probabilistic standard is to be employed, how can performance	5.6	Grid Australia has proposed the application of a deterministic standard

Draft Report Question	Section	Grid Australia Response
against the standard be measured and hence network service providers be held accountable?		derived from economic considerations. The accountability shortcomings of a probabilistic standard are discussed in section 3.1.6. Grid Australia considers that these difficulties cannot be easily overcome.
How should the costs and benefits for particular levels of reliability standard be measured? Where several approaches to measurement exist, what reasons are there for preferring one approach over others?	5.6	Consistent with Option A (and Option E) the decision on level should be made within the jurisdictions and on an economic basis including the impacts of varying from historical standards applying at a particular connection point.
The Panel invites comments on the specific implementation issues associated with each of the five options outlined in Chapter 5 and views on any other implementations issues.	6.3	Implementation issues are discussed in section 4. Grid Australia notes that in 2008 the Panel will carry out a separate review of the technical standards in the Rules that relate to power system security and network connections. The concept of extending schedules 5.1 and 5.1a to provide for customer connection point reliability standards is not supported. These schedules are specifically aimed at engineering issues rather than reliability issues other than S5.1.2.2 which could be deleted if a suitable set of replacement reliability standards is developed.