

# ELECTRICITY TRANSMISSION NETWORK owners forum

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Dear Sir

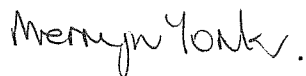
## THE TRANSMISSION RELIABILITY STANDARDS REVIEW – ISSUES PAPER

The Electricity Transmission Network Owners Forum (ETNOF) appreciates the opportunity to provide comment on the Reliability Panel's Transmission Reliability Standards Review – Issues Paper.

ETNOF's submission to the Issues Paper is attached.

If you have any questions or require clarification of any aspect in the submission please contact me on (07) 3860 2143.

Yours faithfully,



Merryn York  
**CONVENOR**  
**REGULATORY MANAGERS GROUP**

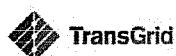
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**ELECTRICITY TRANSMISSION NETWORK** owners

# Transmission Reliability Standards Review

Response to AEMC Reliability Panel Issues Paper

8 February, 2008



# ELECTRICITY TRANSMISSION NETWORK owners

## Transmission Reliability Standards Review

### Response to Issues Paper

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#### Contents

<b>1.</b>	<b>Introduction .....</b>	<b>2</b>
<b>2.</b>	<b>A Consistent National Framework for Reliability Standards .....</b>	<b>3</b>
<b>3.</b>	<b>Key Matters Raised in the Issues Paper .....</b>	<b>4</b>
	3.1. Approaches to Developing a Consistent Framework .....	5
	3.2. What Does a Nationally Consistent Framework Mean? .....	7
	3.3. To What Degree should the Framework Include Specific Levels of Reliability? .....	11
	3.4. Who Should Define the Framework? .....	12
	3.5. Who would define the Standards within that Framework? .....	12
	3.6. Interaction between the Framework and Other Parts of the Regulatory Regime .....	13
	3.7. Steps Required to Implement the New Framework .....	13
<b>4.</b>	<b>Recommended Framework .....</b>	<b>14</b>
<b>5.</b>	<b>Interaction with the AEMC's National Transmission Planner Review .....</b>	<b>15</b>
	5.1. Option 1 is not consistent with a framework that involves a separate process to determine reliability standards .....	16
	5.2. Option 1 is not consistent with DNSPs' deterministic planning standards .....	16
<b>6.</b>	<b>Responses to Specific Questions .....</b>	<b>17</b>

### 1. Introduction

This submission is made by the Electricity Transmission Network Owners Forum (ETNOF), which comprises ElectraNet Pty Limited, Powerlink Queensland, SP AusNet, Transend Networks Pty Ltd and TransGrid. Collectively, this group own and operate over 40,000 km of high voltage transmission lines and have assets in service with a current regulatory value in excess of \$9.1 billion.

ETNOF welcomes the opportunity to respond to the Australian Energy Market Commission (AEMC) Reliability Panel's Transmission Reliability Standards Review Issues Paper (Issues Paper).<sup>1</sup>

ETNOF considers that a consistent, national framework for establishing transmission reliability planning standards has the potential to provide benefits in relation to enhancing the transparency and accountability around the setting and application of standards. In particular, ETNOF considers that:

- transmission reliability planning standards should be expressed in a consistent form across the National Electricity Market;
- the form of reliability standard should be *deterministic, derived from economic considerations* (the 'hybrid' approach);
- the level of reliability standard should be determined by individual jurisdictional governments, or a body appointed by the relevant jurisdictional government, separate from the transmission network service provider (TNSP); and
- the level of reliability standard should be periodically reviewed, prior to each TNSPs' revenue determination process.

The remainder of this submission is structured as follows:

- Section 2 highlights that the COAG directive requires the AEMC to develop a consistent national *framework* for reliability standards, and does not require the *level* of the standards themselves to be consistent across jurisdictions;
- Section 3 discusses ETNOF's response to the key matters raised in the Issues Paper, namely:
  - the approach that should be taken to developing a consistent framework;
  - the meaning of 'nationally consistent framework';
  - the framework should not include specific levels of reliability;
  - the interaction between the framework and other parts of the regulatory regime, particularly the regulatory review process for TNSPs; and
  - transitional issues for implementation.
- Section 4 presents ETNOF's proposed nationally consistent framework;
- Section 5 discusses the interaction between the framework for reliability standards and the AEMC's National Transmission Planner review, with a focus on the choice of Option 3 for the amalgamation of the current limbs of the Regulatory Test as being the only option (out of the two options being considered

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<sup>1</sup> AEMC Reliability Panel 2007, *Transmission Reliability Standards Review, Issues Paper*, December 2007, Sydney.

by the AEMC) consistent with a framework under which mandatory reliability standards are determined by the relevant jurisdictions; and

- Section 6 sets out ETNOF's responses to each of the specific questions contained in the Issues Paper.

Consistent with the Issues Paper, the focus of this submission is on the reliability standards adopted for planning purposes by TNSPs, rather than operational reliability standards. ETNOF considers that the focus of the Energy Reform Implementation Group's (ERIG) recommendations and the subsequent COAG directive to the AEMC is on the reliability standards associated with planning rather than with operational standards.

## 2. A Consistent National Framework for Reliability Standards

COAG has asked the MCE to task the Australian Energy Market Commission (AEMC) with reviewing transmission network reliability standards with a view to developing a consistent national *framework* for network security and reliability for MCE decision.<sup>2</sup>

ETNOF considers that the explicit reference in the COAG Communiqué to the development of a consistent national *framework* is a key directive that determines the scope for the Reliability Panel's ('the Panel') review. It requires that the recommendations of the review relate to the national framework to be adopted in determining reliability standards. This framework may be expected to include the form of the standards, the processes to be followed in setting them and the bodies responsible for determining those standards. However, the review should not be considering the actual *level* of reliability standards. That is, the Panel has not been asked by COAG to determine the *level* of reliability standards.

That the focus of the Panel's review is to be on a consistent national *framework* for reliability standards and not the level of the standards themselves is also clear from both ERIG's initial recommendation for a review to be undertaken and the COAG response to that recommendation.

In relation to the review of reliability standards ERIG recommended that:

"The Reliability Panel would be an appropriate body to undertake the necessary review and devise such a framework *before the actual standards applying to individual connection points are specified by jurisdictions.*"<sup>3</sup> (emphasis added)

In supporting ERIG's recommendation for a review of standards, COAG notes that there should be appropriate caution. Specifically, COAG refers to differences in the physical characteristics of the network between jurisdictions and differences in the existing regulatory treatments in balancing reliability and costs to consumers. COAG also notes that reliability standards underpin security of supply. The Panel has noted COAG's reference to these areas of caution in its Issues Paper.<sup>4</sup>

All of the factors noted by COAG imply that different reliability standards are appropriate in different jurisdictions and for different areas within a jurisdiction.

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<sup>2</sup> Council of Australian Governments' response to the Final Report of the Energy Reform Implementation Group, p.4.

<sup>3</sup> ERIG, Energy Reform: The Way Forward for Australia, January 2007, p.182

<sup>4</sup> Issues Paper, p. 4.

In relation to the first point referenced by COAG, differences in the physical characteristics of the network both between and within jurisdictions mean that different reliability standards are appropriate for different jurisdictions and for different areas within a jurisdiction. Added to this, the prevalence of joint planning between TNSPs and distribution network service providers (DNSPs) (as required by the National Electricity Rules (NER)) and the criticality of the reliability of the transmission system in affecting the reliability of the distribution system, means that the appropriate reliability standards for TNSPs must take into account the reliability standards applying to DNSPs within the same jurisdiction. The Issues Paper notes that consistency between TNSP and DNSP standards facilitates least cost network development.<sup>5</sup> ETNOF notes that the reliability standards applying to DNSPs differ between jurisdictions and that these standards are outside the scope of the Panel's current review. For those parts of the transmission network where there is extensive interaction with the distribution network, this implies that different reliability standards for transmission will be appropriate for different jurisdictions in order to facilitate effective coordination between transmission and distribution planning.

The second point noted by COAG is that different jurisdictions have adopted different decisions in relation to balancing the level of reliability and the consequent costs to consumers. For some jurisdictions, higher levels of reliability for all or part of the transmission network (with the resulting higher level of costs in delivering that reliability) have been deemed appropriate by the jurisdiction.

In relation to the final point of caution noted by COAG, the Panel recognises in the Issues Paper that it is jurisdictions that 'feel the heat' if there is an interruption to electricity supply, with the government of the jurisdiction facing the resulting political, economic and public safety issues.<sup>6</sup> As a result, responsibility and accountability for determining appropriate reliability standards, having regard to relevant risk factors, is appropriately the responsibility of individual jurisdictions.

Given the clear directive from COAG in relation to a review of the framework for setting standards (rather than the determination of a single set of national standards themselves), ETNOF considers that some of the issues raised by the Panel in the Issues Paper are inconsistent with this directive. In particular, the Issues Paper flags a potential model under which a single national set of standards are adopted.<sup>7</sup> ETNOF strongly believes that such a model is *inconsistent* with the COAG directive.

It is important to recognise that a national framework for reliability standards that sets out the *form* of the standard and the *process* by which it is derived (and by whom) but does not go as far as specifying the *level* of standard is capable of addressing the key shortcomings that have been identified by ERIG and others in relation to the current arrangements. In particular, a consistent national framework for reliability standards can improve both the transparency of, and accountability for, those standards, and can avoid the perception of conflicts of interest for the TNSPs in planning their systems to meet those standards. These issues are discussed further in the following section of this submission. ETNOF's recommendation for the nationally consistent framework for reliability standards is presented in section 4.

### 3. Key Matters Raised in the Issues Paper

The Issues Paper identifies the following seven broad questions in relation to determining a consistent national framework for reliability standards:<sup>8</sup>

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<sup>5</sup> Issues Paper, p.38.

<sup>6</sup> Issues Paper, p.38.

<sup>7</sup> Issues Paper, p. 43 'Uniform standards, universally applied.'

<sup>8</sup> Issues Paper, Foreword, p. iii.

1. What approaches can be taken towards developing a consistent framework of transmission standards across the NEM?
2. What does a 'nationally consistent' framework mean?
3. To what degree should the framework include specific levels of reliability?
4. Who will define the framework?
5. Who would define any standards within that framework?
6. What are the interactions between the framework standards and other parts of the regulatory regime?
7. What steps are required to implement the new framework?

Each of these issues is addressed in detail below.

ETNOF's response to the specific questions raised in the Issues Paper is set out in Section 5 of this submission.

### **3.1. Approaches to Developing a Consistent Framework**

ETNOF considers it important to clearly articulate the key criteria adopted in assessing alternative frameworks for developing reliability standards, and selecting a preferred framework. The following criteria are suggested as being reasonable for this assessment:

- Economic efficiency;
- Transparency;
- Accountability;
- Effectiveness; and
- Robustness.

The rationale for adoption of each of these criteria is discussed in turn below.

#### **3.1.1. Economic efficiency**

The framework should result in reliability standards being derived from economic considerations. In particular the framework should provide for an assessment of the benefits of additional reliability compared with the costs of providing it.

The Panel recognises the importance of this criterion in its Issues Paper:

"A key factor in efficiently designing and operating transmission networks is that the level of reliability accords with the economic and/or social value placed on reliability."<sup>9</sup>

The Issues Paper notes that higher standards of reliability require "substantial capital expenditure" and that this may be appropriate in some areas, such as central business districts where there are a large concentration of customers with critical loads.<sup>10</sup> The overall framework needs to facilitate consideration of these costs and

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<sup>9</sup> Issues Paper, p.41.

<sup>10</sup> Issues Paper, p.14.

the associated benefits when developing standards. It should also facilitate adaptation of the standards to reflect changes in costs and benefits over time.

### 3.1.2. Transparency

Transparency of the standards resulting from the framework, the process by which those standards have been derived and the application of those standards is a further key criterion.

ERIG recommended in its review that “reliability standards should at least be clear and specific as to how they are applied, be set by a body independent of the entity responsible for meeting these obligations and be cast in a technology neutral manner”.<sup>11</sup>

The framework will need to be consistently applied across all jurisdictions. As interpretation and application will need to be executed similarly across jurisdictions it is important that the framework be easily understood by those that need to interpret the outcomes.

Furthermore, both the process and the standards themselves should be sufficiently clear to be understood by market participants that are not necessarily from a transmission planning background. Generation and other non-network investors need to be able to easily understand the level of reliability that the transmission network is required to meet.

The Issues Paper comments that where the TNSP is responsible for setting specific standards or interpreting broad conditions for reliability, a conflict of interest may arise.<sup>12</sup> ERIG commented that “[t]his conflict is exacerbated where the TNSP’s revenue and profitability is also driven by constructing assets to meet their own reliability requirements.”<sup>13</sup>

ETNOF notes that currently TNSPs are not responsible for setting reliability standards in any jurisdiction.<sup>14</sup> Notwithstanding this point, ETNOF agrees that transparent standards for reliability, which are determined by the jurisdictions and do not require interpretation, would address any perceived conflict of interest where the current standards are seen by others to leave room for interpretation.

### 3.1.3. Accountability

Accountability is intrinsically linked to transparency.

A framework that is easily understood makes it possible both to pinpoint the party that is responsible for setting the standard for the service level to electricity consumers and also makes clear the exact standard that the TNSP is required to meet. Accountability requires that outcomes can be readily measured and compared with the specified planning standard.

This criterion is consistent with COAG’s directive that TNSPs remain accountable for transmission investments and, applied to the framework for determining reliability standards, further enhances that accountability.

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<sup>11</sup> ERIG 2007, p.182.

<sup>12</sup> Issues Paper, p. 2.

<sup>13</sup> ERIG 2007, p.181.

<sup>14</sup> In NSW, TransGrid is required to set out the reliability standard as part of its Network Management Plan. However the NSW Department of Water and Energy is the body with ultimate responsibility for determining reliability standards in NSW, as they approve the Network Management Plan.



### 3.1.4. Effectiveness

A framework that is effective will enable investment to proceed in a timely manner and will meet customers' expectations for reliability.

COAG has required that the new National Transmission Planner regime does not extend the time taken to gain regulatory approval for transmission investment. Similarly, the framework for reliability standards must be capable of delivering standards that enable investment to proceed in a timely manner and at an appropriate scale. The framework should minimise the scope for disputes, which may delay required investment.

This criterion is also linked to transparency, as it ensures transparency of both the standard to be adopted and the application of that standard.

The framework must also allow the reliability standards that are developed, and the resulting levels of reliability that are delivered, to be consistent with the levels of reliability that consumers and businesses anticipate. Expectations of reliability are high and thus it is important to ensure that the framework is capable of balancing an effective outcome that meets consumers' requirements with the economic costs of doing so.

### 3.1.5. Robustness

A robust framework is one that can withstand external scrutiny and criticism. The robustness of the framework can be measured by reviewing those used in comparable developed countries. A framework that is consistent with other international regions is likely to better withstand scrutiny in the event of an investigation following a major reliability failure.

The Panel notes in its Issues Paper that all the international markets examined in a report prepared for the AEMC on international transmission planning arrangements (the Brattle Report) apply deterministic transmission standards. Specifically the Issues Paper states:

"In all of these markets [Ontario, Pennsylvania-Jersey-Maryland (PJM), Great Britain, New Zealand and Nordpool], a deterministic standard is used. All networks are planned to an N-x secure standard, with two (Ontario and PJM) also utilising probabilistic criteria relating to loss of load".<sup>15</sup>

In addition it is important that the reliability standard adopted for transmission in a jurisdiction is compatible with applicable mandated reliability standards faced by distributors, given the criticality of the transmission system in affecting the reliability of the distribution system.

## 3.2. What Does a Nationally Consistent Framework Mean?

ETNOF believes that a nationally consistent framework for reliability standards could be represented by a consistent set of provisions, set out either in the National Electricity Law (NEL) or the NER that determines:

- the *form* of the reliability standard, which should be consistent across jurisdictions;
- the process by which that standard is set and reviewed; and

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<sup>15</sup> Issues Paper, p.34.

- the body responsible for determining the standard.

Importantly, a nationally consistent framework does not necessarily mean that there is also a consistent *level* of reliability standard between jurisdictions.

In the remainder of this section we discuss the first two of these three elements, ie, the form of the reliability standard and the process by which it is determined. We present four alternatives, drawing on the approaches presented in the Issues Paper and those discussed by ERIG. We then assess these alternatives against the criteria set out in the previous section. The question of who should be the body responsible for the standard is discussed in section 3.5.

ETNOF's proposed model for the overall framework is presented in section 4.

### 3.2.1. Alternative Forms for Expressing Reliability Standards

The Issues Paper outlines three broad alternative forms for expressing reliability standards for planning purposes. ERIG identified an additional form which is not explicitly discussed in the Issues Paper.

The four alternative forms are as follows:

1. A *probabilistic form*,<sup>16</sup> in which reliability standards are derived on the basis of an assessment of the costs and benefits associated with different reliability outcomes, and the probability of those outcomes occurring;
2. A *deterministic form*, in which reliability standards are expressed on the basis of redundancy of network elements;
3. A *deterministic form derived from economic considerations* ('hybrid approach'<sup>17</sup>), in which the deterministic criteria are set (and reviewed) on the basis of the costs and benefits associated with different reliability outcomes; and
4. An *outcomes based* standard, which specifies the outcomes which must be delivered to customers.

In relation to alternatives 2 and 3, the difference relates to the process by which the standard is derived, rather than the form in which it is expressed (which is deterministic in both cases).

Each of these forms is described further below.

#### 3.2.1.1. Probabilistic form

A probabilistic form of reliability standard requires for each proposed augmentation an assessment of the costs of the augmentation compared to the benefits, where reductions in unserved energy are explicitly calculated as part of the benefit of the augmentation.

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<sup>16</sup> ETNOF notes that it has adopted the same terminology in relation to this form of expressing a reliability standard as used by the Panel in the Issues Paper, for consistency. It should be noted that 'probabilistic' in this context is distinct from the probabilistic assessment of future generation scenarios that TNSPs undertake as part of their system planning.

<sup>17</sup> The Issues Paper labeled this a 'hybrid' approach. ETNOF considers that a more specific description is preferable in order to enhance the clarity of discussion, and has consequently adopted the terminology given above.

Probabilistic planning involves quantification of:

- the probabilities of contingencies;
- the value of customer reliability; and
- the quantity of energy served that is at risk.

The first two variables involve measurement challenges and the value of customer reliability is not well understood. In practice, simplifying assumptions are required including averaging, treatment of interdependent variables as independent variables, and inherent statistical errors associated with quantifying low probability high consequence events. The potential inaccuracies are considerable and the basis for decision making unclear.

Victoria is the only jurisdiction in Australia that currently adopts a probabilistic form of reliability standard.

### 3.2.1.2. Deterministic form

A deterministic reliability standard is typically expressed in terms of an 'N-x' redundancy criterion, where 'x' can be any number but is generally between zero and two. The standard can be interpreted as a requirement for the system to perform safely with between zero and two outages.

A deterministic standard considers the supply system subject to a variety of contingencies. The contingency events for planning assessments involve outages of critical elements of the network (e.g. a major transmission line).

Nearly all jurisdictions in Australia currently express their reliability standards in deterministic form. The standards adopted are determined by the jurisdictions and reflect the standards adopted internationally.

### 3.2.1.3. Deterministic form derived from economic considerations ('hybrid')

This framework is described in the Issues Paper as a probabilistic standard expressed in an equivalent, but deterministic manner.<sup>18</sup> South Australia is given as an example of this approach.

ETNOF considers that this approach is better expressed as a deterministic standard, derived from economic considerations. Such economic considerations could include a probabilistic assessment that explicitly considers the value of unserved energy. However 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. Between reviews the standard is expressed in deterministic terms, and operates in the same way as any deterministic standard.

In South Australia, reliability standards are deterministic but derived from economic considerations, specifically by applying probabilistic methods in standard setting.

### 3.2.1.4. Outcomes based form

This form of reliability standard specifies the outcomes which must be delivered to customers. For example, it could be stated that energy be delivered all but X per

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<sup>18</sup> Issues Paper, p. 18.

cent of the time or that it is acceptable to have not more than X MWh of unsupplied energy annually.

### 3.2.2. Assessment

The following table presents an assessment of alternative forms of expressing reliability standards on the basis of the criteria set out in section 3.1.

**Table 3.1: ETNOF Assessment of Alternative Forms of Reliability Standard**

Form	Economic Efficiency	Transparency	Accountability	Effectiveness	Robustness
Probabilistic	✓✓✓	*	*	✓	*
Deterministic	✓	✓✓	✓✓	✓✓	✓✓
Deterministic derived from economic considerations ('hybrid')	✓✓	✓✓✓	✓✓	✓✓	✓✓
Outcomes-based	✓	✓✓	✓	✓	*

A probabilistic approach explicitly considers the costs and benefits of reliability outcomes in relation to each transmission augmentation. It is therefore considered to have strong economic foundations and is ranked the highest of all four alternatives in relation to economic efficiency. However probabilistic standards require complex modeling and the expression of the standards makes them more difficult for stakeholders to understand and to measure and interpret outcomes against the standard. A probabilistic approach thus lacks transparency and, as a result, accountability. In addition, a probabilistic approach is currently only adopted by one Australian jurisdiction (Victoria) and is not used in any of the international jurisdictions surveyed in the Issues Paper. As a result ETNOF does not consider it to represent a robust approach.

Outcomes based standards are more commonly applied to distribution systems where the volume of events is larger and the impact more localised. The small number of events in transmission makes this difficult to measure accurately over relatively short periods of time such as one year, so it is less applicable for choosing the form of reliability standard to apply to TNSPs. However, outcomes based standards can be applied *in addition* to either a deterministic or probabilistic form, either as a further way in which the standard is expressed or as part of a service performance incentive regime (such as that being developed by the AER).

Deterministic standards are relatively straightforward to understand for both planners and investors and outcomes can easily be assessed against the standard. In its submission to ERIG, the South Australian Essential Services Commission stated that “the definitive standards in the [Electricity Transmission Code] have proven to be transparent, easily understood by stakeholders, robust and relatively easy to implement and monitor”.<sup>19</sup> Deterministic standards therefore better meet the criteria of transparency and accountability. They are also more likely to be effective, given that distribution networks also face deterministic standards.

ETNOF notes that following the blackout that occurred in the North East and Mid West of the United States and Ontario, Canada, the deterministic standards applying in those jurisdictions were amended from a voluntary measure to a mandatory,

<sup>19</sup> ESCOSA, as quoted in ERIG, p.182.

enforceable standard, thereby increasing the accountability and transparency of the standards. This change was the result of recommendations of the task force and was described as “the single most important recommendation for preventing future blackouts, and reducing the scope of those that occur”.<sup>20</sup>

Deterministic standards are used in all jurisdictions in Australia (except Victoria) and also internationally (as discussed in section 3.5.1) making them rank above the alternatives in terms of being robust. In Queensland, the 2004 Electricity Distribution and Service Delivery Review (EDSD Review) was asked to evaluate network reliability and report on the standard of the system using benchmarking against appropriate comparisons.<sup>21</sup> The resulting recommendations and the subsequent implementation of these by the Queensland government confirmed the appropriateness of deterministic standards.

Deterministic standards that are derived from economic considerations (the ‘hybrid’ model set out by the Panel) rank above deterministic standards *per se*, as they reflect an explicit consideration of costs and benefits, resulting in greater economic efficiency. The explicit linkage of standards to economic costs and benefits also provides greater transparency around how the standards are determined.

Given the relative rankings of the options, ETNOF considers that a deterministic form of reliability standard, derived from economic considerations, best meets the assessment criteria and should be adopted as the nationally consistent form of reliability standards.

### **3.3. To What Degree should the Framework Include Specific Levels of Reliability?**

As discussed in section 2 of this submission, the Panel has been asked by COAG to develop a consistent national *framework* for reliability standards. The review does not encompass determining specific levels of reliability.

As a result, the framework that arises out of this review should not include specific levels of reliability.

ETNOF notes that this is consistent with both the COAG directive, (and the cautions contained therein) and also the original ERIG recommendation.

A national framework for reliability standards that sets out the *form* of the standard and the *process* by which it is derived (and by whom) but does not go as far as specifying the *level* of standard is capable of addressing the key shortcomings that have been identified by ERIG and others in relation to the current arrangements. Whilst the standards themselves are important, the process for deriving the standards and the form in which the standards are expressed are crucial.

A clear and consistent national framework will be capable of addressing perceptions that TNSPs have a conflict of interest in applying reliability standards by ensuring that there is a clear and unambiguous standard determined by each jurisdiction. Transparency in relation to the applicable reliability standard will also improve investor certainty regarding the level of reliability they can expect from the transmission system and the understanding of reliability standards by generation and

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<sup>20</sup> North American Reliability Corporation, *Milestones: NERC Reliability Standards*, p.3.

<sup>21</sup> *Electricity Distribution and Service Delivery for the 21<sup>st</sup> Century, Detailed Report of the Independent Panel*, July 2004, Chaired by Darryl Somerville. The Panel recommended that distributors be required to meet N-1 reliability standards for bulk and major zone sub-stations and their sub-transmission system, as well as critical high voltage feeders unless satisfactory evidence could be provided to show that significant customers would not be put at risk otherwise.

other non-network investors. In addition, transparency of the level of reliability the network should be planned to meet and the application of that standard focuses accountability on the TNSPs in meeting that standard.

### 3.4. Who Should Define the Framework?

ETNOF considers that the national framework should be defined as an outcome of the process following the Panel's current review. This is consistent with the COAG directive that requires the AEMC to review transmission network reliability standards 'with a view to developing a consistent national framework for network security and reliability, for MCE decision.'<sup>22</sup>

ETNOF understands that in undertaking this review, the Panel will be recommending a framework to the AEMC that will then be submitted to the Ministerial Council on Energy (MCE). If accepted, the framework would then be entrenched in the NEL and the NER.

### 3.5. Who would define the Standards within that Framework?

ETNOF recommends that either the jurisdictional government, or a body appointed by the jurisdictional government, define the standards within the national framework. These standards should be periodically reviewed by the same body.

ETNOF considers that a body appointed by the jurisdictional government, or the jurisdictional government itself, is in the best position to address the specific requirements of a given jurisdiction given its understanding of specific jurisdictional circumstances. It is also appropriate for the responsibility for determining reliability standards to be jurisdictionally based, given that it is the jurisdictional government that faces the political, social and public safety consequences of any failure in reliability in that jurisdiction. For that reason ETNOF does not support the role of determining the *level* of reliability standards to be conducted by a national body, including the National Transmission Planner, the AEMC, the Reliability Panel or the MCE.

ETNOF notes that the reliability standards applying to distribution networks are also currently determined at a jurisdictional level and there are currently no plans to change these arrangements. The importance of consistency between TNSP and DNSP standards is a further factor supporting the determination of the level of reliability standards for transmission also at a jurisdictional level.

ETNOF notes that currently in South Australia ESCOSA is the body appointed by the jurisdiction to determine reliability standards. In Tasmania the Reliability and Network Planning Panel annually reviews security and reliability standards.

ETNOF does not consider that the TNSP should have any responsibility for determining the reliability planning standard. A framework under which the standards are determined by a body separate to the TNSP is consistent with the current governance arrangements in each jurisdiction and complements the current regulatory framework, which is based on a commercially motivated transmission service provider operating under regulatory incentives.

In this regard, ETNOF notes that having a body which sets transparent and unambiguous reliability standards that the TNSPs are then required to meet can greatly assist the AER in its review of TNSPs' capital forecasts, as it makes clear the

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<sup>22</sup> COAG Communiqué, p. 4.

external obligations on the TNSP in relation to reliability. This is discussed further in the following section.

Finally, ETNOF considers that in undertaking the periodic review of reliability, the framework should require the jurisdictional government (or the body appointed by the jurisdictional government) to have regard to the impact of any change in standards on the way in which customers operate their organisations and the basis on which they have invested.

### **3.6. Interaction between the Framework and Other Parts of the Regulatory Regime**

Externally imposed reliability obligations are a key driver of investment in transmission systems. As a result it is important to recognise the interactions between the process for setting and reviewing reliability standards and the AER's revenue determination process applying to TNSPs.

The framework proposed by ETNOF in section 4 allows for regular reviews of the reliability standards applying in each jurisdiction. These reviews are to ensure that the standards continue to adequately reflect the cost-benefit trade-off implied in any given level of reliability. The reviews of reliability standards should be conducted prior to the preparation and submission by each TNSP of their revenue proposal to the AER, so that the TNSP's planning can be adjusted accordingly. For practical purposes this would require the standards to have been reviewed and confirmed 24 months before the start of the next regulatory control period. This requirement should be reflected in the NER or NEL, as appropriate. In this regard ETNOF notes that the current arrangements in South Australia ensure that the five year review cycles for reliability standards are aligned with the preparation of ElectraNet's revenue proposal.

Having a separate body set a transparent reliability standard that the TNSPs are then required to meet will greatly assist the AER in its review of TNSPs' capital forecasts. The AER's recently released draft decision in relation to ElectraNet's regulatory review provides a pertinent example. ElectraNet has forecast significant increases in its capital expenditure programme during the next regulatory period, in part, as a result of an increase in some of the reliability standards it is required to meet. The transparency of the regime in South Australia has allowed the AER to independently verify the occurrence of a reliability standards review and the impact that this has for new investment.<sup>23</sup>

### **3.7. Steps Required to Implement the New Framework**

The Panel highlights a number of implementation issues in the Issues Paper.

ETNOF concurs with the Panel's view of the importance of ensuring that there is allowance within the regulatory framework for adjustments to the new standards. Any change in the levels of reliability standards applicable to any jurisdiction as a result of the move to a consistent national framework will have cost implications in terms of required network capital expenditure, compared with the levels that underpin the current regulatory determinations for each TNSP. It would therefore be appropriate either for any new levels of planning standard to apply from the start of the new regulatory period for each TNSP or, if they are introduced during a regulatory period, for there to be an explicit adjustment mechanism to allow for the change to be reflected in regulated revenues. ETNOF notes that the current NER

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<sup>23</sup> AER, Draft Decision, ElectraNet Transmission Determination 2008-09 – 2012-13, 9 November 2007, p.79.

make provision for a cost pass through mechanism, which covers 'service standard events' (amongst others).<sup>24</sup>

ETNOF also notes the interaction between the mandated level of reliability standard and the service performance incentive mechanism developed by the AER. Any change to the reliability standards imposed on TNSPs should be fully reflected in the calculation of the service performance incentive mechanism, so that the TNSPs do not face any financial penalty as a result.

The treatment of existing long-term connection agreements, which may contain references to specific reliability levels, will also be an important transition issue. ETNOF notes that the appropriate treatment of these agreements is likely to depend on particular circumstances, which will differ between jurisdiction and between TNSPs. ETNOF further notes that in reviewing the *level* of reliability (as distinct from the introduction of a consistent national *framework* for reliability), the consultation process conducted by ESCOSA in South Australia allows for issues in relation to particular connection agreements to be considered. This appears to be an effective means of ensuring that these issues are addressed.

Finally it is important to recognise that individual jurisdictions will need to arrange appropriate resources in order to conduct the reviews of the *level* of reliability standards that are proposed as part of ETNOF's recommended national framework. ETNOF has recommended that this review should result in a deterministic standard, derived from economic considerations. Transitional issues will arise in relation to timing and resources for the jurisdictions (or the body appointed by the jurisdiction) before they are in a position to conduct the first of these reviews.

#### 4. Recommended Framework

ETNOF considers that the following framework best meets the assessment criteria set out in section 3.1 and should be adopted as the consistent, national regime for transmission reliability planning standards:

- there should be a consistent *form* of reliability standard applied in all jurisdictions;
- the form of reliability standard should be *deterministic, derived from economic considerations* (the 'hybrid' approach);
- the level of reliability standard should be determined by each jurisdictional government, or a body appointed by the relevant jurisdictional government, separate from the TNSP; and
- the level of reliability standard should be periodically reviewed, prior to each TNSPs' revenue determination process.

The nationally consistent framework should be set out in the NEL and the NER, as appropriate. The entrenched framework would include the processes for setting the standards, the form of the standard and the bodies responsible for reviewing the standards in each jurisdiction.

A deterministic standard derived from economic considerations ranks the highest of the alternative forms of reliability standards in terms of providing transparency, enhancing accountability and being robust. It also ranks above deterministic standards *per se* through the explicit inclusion of a link to the underlying costs and

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<sup>24</sup> NER, Chapter 6A.7.3.



benefits of providing alternative levels of reliability at the time at which the standards are reviewed.

A requirement for periodic reviews ensures that the standard remains current and reflects any changes in the economic and social value of reliability. In reviewing the standard the relevant body should take into account the impact of changing standards on the decisions that network users have already made on the basis of existing standards. The NER should require that reviews must be conducted prior to revenue determination processes such that any revisions to standards can be incorporated into the TNSPs' planning processes.

ETNOF notes that the current arrangements in South Australia reflect the above model in that standards are set by the jurisdiction (or a body appointed by the jurisdiction), reviewed periodically prior to regulatory applications and have a deterministic form derived from economic considerations.

### 5. Interaction with the AEMC's National Transmission Planner Review

ETNOF notes that there is an important interaction between the Panel's Transmission Reliability Standards Review and the AEMC's review of national transmission planning arrangements (the NTP review).

Specifically, the choice of the framework for determining transmission reliability standards has implications for the options for the amalgamation of the current limbs of the regulatory test within the new regulatory investment test (RIT).

In its Issues Paper in relation to the NTP review, the AEMC focuses on two options for the new RIT:<sup>25</sup>

- **Option 1:** 'Full cost benefit approach', under which all planning and consultation would be on a full cost-benefit decision criterion, with network reliability benefits being explicitly valued in the analysis; and
- **Option 3:** 'Combined criteria approach', under which the existing least-cost approach to projects intended to meet mandatory network reliability standards would be maintained, but which would allow for the incorporation of additional benefits where an option was likely to provide them.

ETNOF notes that Option 1 is inconsistent with a framework under which mandatory reliability standards are determined by the jurisdictions. It is also inconsistent with the need for TNSPs to undertake joint planning with distributors who currently base their planning on deterministic reliability criteria. These reliability criteria are also set by the jurisdictions and are outside the scope of the Panel's current review.

In contrast Option 3 is compatible with both of these factors.

ETNOF therefore strongly supports the AEMC's Option 3 for the amalgamation of the current limbs of the regulatory test, as being compatible with its proposal for a nationally consistent framework for reliability standards.

The remainder of this section discusses this interaction in more detail. ETNOF also refers the Panel to ETNOF's earlier submission to the AEMC Issues Paper in relation

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<sup>25</sup> AEMC, *National Transmission Planning Arrangements: Issues Paper*, 9 November 2007, p. 38.

to the National Transmission Planning Arrangements, which also addresses this issue.<sup>26</sup>

### **5.1. Option 1 is not consistent with a framework that involves a separate process to determine reliability standards**

As outlined in the preceding sections of this submission, ETNOF supports a framework under which reliability standards are determined (and periodically reviewed) by each jurisdiction<sup>27</sup> on the basis of a deterministic standard derived from economic considerations.

Given this proposed approach to determining reliability standards in each jurisdiction, it would be wholly inappropriate to adopt Option 1 in amalgamating the limbs of the regulatory test. To do so would override the separate process for determining the appropriate reliability standard for each jurisdiction. Option 1 would require a TNSP at the time of each application of the RIT to assess the reliability that would result from a proposed augmentation and to, in effect, select a reliability standard in relation to each augmentation that the TNSP considers to be justified on the grounds of the cost benefit analysis. Option 1 therefore completely undermines transparency in relation to the reliability standard applying in a jurisdiction and would render the process currently being consulted on by the Panel completely redundant.

In contrast, Option 3 is wholly consistent with ETNOF's proposed national framework for determining reliability standards. Under Option 3, the TNSP would take the reliability standard as given and would undertake a cost benefit assessment of augmentations and non-network alternatives that ensures that the standard is met and market benefits are maximised. Such an approach is transparent and removes the scope for dispute of a RIT application on the grounds of the resulting level of reliability. As such it meets the COAG directive that the time taken for investment approvals be no longer than at present.

### **5.2. Option 1 is not consistent with DNSPs' deterministic planning standards**

Option 1 is also inconsistent with the need for TNSPs to undertake joint planning with distributors who base their planning on deterministic reliability criteria.

As discussed in section 2, the Panel's Issues Paper notes that consistency between DNSP and TNSP standards facilitate least cost development.

DNSPs are currently required to plan their networks to meet deterministic planning standards set exogenously by each jurisdiction. In undertaking joint planning DNSPs require certainty that the level of reliability delivered by the transmission network will be sufficient to enable the DNSPs to meet these mandated reliability standards.

Given this situation, it is clear that Option 1 *is not compatible* with delivering the certainty that DNSPs require regarding the level of reliability delivered by the transmission network. This is because under Option 1 the level of reliability is an uncertain endogenous outworking of the cost benefit analysis, rather than a firm, transparent exogenous standard to which the DNSPs can plan. In addition, the application of very different forms of standards by TNSPs and DNSPs can result in inefficient investment outcomes at the interface between the transmission and distribution networks.

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<sup>26</sup> ETNOF, *National Transmission Planning Arrangements – Response to AEMC Issues Paper*, 21 December 2007, Part B.

<sup>27</sup> Or a body appointed by the jurisdiction.

In contrast, Option 3 is compatible with the joint planning requirements because it does provide certainty as to the mandated level of reliability that will be delivered by the transmission network. Under Option 3 the reliability standard is taken as an exogenous input into the RIT analysis rather than being reduced to an outworking of that analysis.

## 6. Responses to Specific Questions

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

Issues Paper Question	Section	ETNOF Response
What are the potential issues arising from divergent transmission standards across NEM jurisdictions?	3.5	<p>The shortcomings with the current arrangements as noted by ERIG relate mainly to the lack of transparency, rather than to differences in the <i>level</i> of standards between jurisdictions.</p> <p>A lack of transparency may affect investor certainty as well as raising issues in relation to accountability (ie, as to what standards the TNSPs are required to meet and whether outcomes are consistent with those standards) and a perceived conflict of interest for TNSPs.</p> <p>These issues are discussed in section 3.3 of the submission.</p>
What are the size and scope of the policy and commercial issues arising from divergent transmission standards across NEM jurisdictions? Which are the most significant? How significant are they?	3.6	<p>Discussed in section 3.3.</p> <p>ETNOF believes that the issues arising in relation to a lack of transparency of both the standards setting process and the standards themselves (including the form in which they are expressed) are the most significant issues.</p> <p>Issues in relation to divergent <i>levels</i> of standards between jurisdictions are not significant and are out of scope for this review.</p>
What motivations, if any, are there for greater national consistency of transmission standards across the NEM?	3.7	<p>Greater national consistency of the <i>framework</i> for deriving transmission standards would complement the current regulatory framework, which is based on commercially motivated transmission service providers operating under regulatory incentives.</p> <p>The coverage of a national framework is discussed in greater detail in section 3.2 and section 4.</p>

## National Framework for Reliability Standards - Response to Issues Paper

Issues Paper Question	Section	ETNOF Response
<p>Are there other advantages and disadvantages of having transmission standards that are divergent and are set on a jurisdiction specific basis? Do the advantages outweigh the disadvantages? Or vice versa?</p>	4.1	<p>The appropriate <i>level</i> of transmission planning standards depends on jurisdictional specific factors. Therefore the level of standards may continue to vary between (and within) jurisdictions.</p> <p>This is discussed in section 2.</p>
<p>What does “nationally consistent” framework mean, and what does it not mean?</p> <p>How is the notion of a “nationally consistent” framework best expressed?</p>	4.4	<p>Refer to section 3.2.</p> <p>Section 4 presents ETNOF’s recommended framework.</p>
<p>What are the pros and cons of having jurisdictional transmission standards aligned through:</p> <ul style="list-style-type: none"> <li>• Making the operation standards in the Rules more specific, thereby limiting the degree of discretion available to TNSPs in meeting the operation standards contained in the Rules;</li> <li>• Expanding the transmission standards in the Rules to cover the planning horizon, as well as the operation horizon;</li> <li>• Aligning <i>the form</i> of jurisdictional transmission standards across the NEM via coordinated changes to the jurisdiction specific instruments that specify the standards; and</li> <li>• Aligning both <i>the form and the level</i> of jurisdictional transmission standards across the NEM via coordinated changes to the jurisdiction specific instruments that specify the standards.</li> </ul>	4.5	<p>ETNOF considers that operational standards are currently adequately covered in the NER and that further specification of these standards in the NER is not required. Compliance with the operational standards in the NER is managed by NEMMCO in coordination with the TNSPs.</p> <p>ETNOF also notes that for effective operation of the network the reliability standards adopted for planning purposes cannot be set below the standards adopted for operational purposes.</p> <p>ETNOF believes that provisions in relation to the framework for determining transmission planning standards should be set out in the NEL or NER, as appropriate.</p> <p>There should be a consistent national <i>form</i> of reliability standards. Aligning the form of standard will increase transparency in the regime and participants’ understanding and confidence.</p> <p>The <i>level</i> of reliability standard should continue to be set on a jurisdictional basis. There are specific characteristics in each jurisdiction that may warrant divergent standards, as highlighted by COAG. It is also important that the levels of reliability for transmission are aligned with the jurisdictional requirements for distribution reliability.</p> <p>ETNOF’s rationale for the above views is set out in sections 2 and 3.3.</p>

## National Framework for Reliability Standards - Response to Issues Paper

Issues Paper Question	Section	ETNOF Response
<p>What are the pros and cons of having a uniform transmission standard applied across the NEM?</p>	4.6	<p>ETNOF does not support as an outcome of this review uniform <i>levels</i> of reliability standards being applied across the NEM, and considers that this would be inconsistent with the COAG directive.</p> <p>See discussion in Section 2 and section 3.3.</p>
<p>What are the costs and benefits of moving to a common form and level of transmission planning standard?</p> <p>What allowances would have to be made in moving to a uniform standard?</p> <p>What are the costs and benefits of not moving to a common form and level of transmission planning standard?</p> <p>What are the costs and issues if a common transmission standard leads to an inconsistency with the DNSP sub-transmission standard in the same jurisdiction?</p>	4.7	<p>See discussion in section 3.3.</p> <p>It is important that the levels of reliability for transmission are aligned with the jurisdictional requirements for distribution reliability.</p> <p>ETNOF notes that adoption of its proposed national framework for transmission reliability planning standards would not necessarily lead to the adoption of higher reliability standards and therefore higher costs.</p>
<p>Which body is best placed to set any nationally consistent transmission standard and why? To whom, and how, should this body be accountable?</p>	5.1.1	<p>ETNOF recommends that jurisdictional governments (or bodies appointed by and accountable to the jurisdictions) be responsible for setting transmission reliability standards. Refer to section 3.5 for a discussion of this issue.</p>
<p>What interactions are there between jurisdictional transmission standards and other aspects of the regulatory regime?</p> <p>What linkages are there between jurisdictional transmission standards and other reviews or Rule changes currently under consideration by the AEMC?</p> <p>How should these interactions be taken into consideration in developing a framework for nationally consistent transmission reliability standards?</p>	5.1.2	<p>Section 3.6 outlines the interactions between reliability standards and capital expenditure planning within the regulatory regime.</p> <p>The form of jurisdictional transmission standard has important implications for the model the AEMC is considering in aligning the two limbs of the regulatory test, as part of the National Transmission Planner review. In particular, Option 3 as set out in the AEMC Issues Paper on National Transmission Planning arrangements is consistent with adopting deterministic planning standards derived from economic considerations. Option 1 is <i>inconsistent</i> with the continued adoption of deterministic planning standards.</p>

## National Framework for Reliability Standards - Response to Issues Paper

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Issues Paper Question	Section	ETNOF Response
<p>The Panel invites views on the above mentioned questions and opinions on what other implementation issues it should consider in developing a nationally consistent transmission reliability framework.</p> <p>What are the process steps you think will be necessary to establish a transmission reliability framework for the NEM?</p> <p>What difficulties do you see in implementing a nationally consistent transmission reliability framework and how could these best be managed or overcome?</p>	5.1.4	Refer to section 3.7.