Loy Yang Marketing Management Company Pty. Ltd.
AGL Hydro Partnership
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13 February 2008

The Reliability Panel
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Panel Members

AEMC Reliability Panel's Review of Transmission Reliability Standards

I refer to your call for comments and feedback on the Reliability Panel's Transmission Reliability Standards Review Issues Paper dated December 2007.

This is a joint submission made by a group of generators in the National Electricity Market. It includes Loy Yang Marketing Management Company Pty Ltd, AGL Hydro Partnership, International Power Australia, TRUenergy Pty Ltd, and Flinders Power (the Group). We have a combined generation capacity of 10,500 MW, which accounts for approximately 25% of all registered generation capacity serving the National Electricity Market.

We thank you for the opportunity at this stage in the review process to submit our views and concerns on the matters raised in the Issues Paper. At the same time, we have taken the opportunity to put forward our views about matters that are germane to the question of how transmission standards should be defined to fit within the overall regulatory framework governing the planning and operations of the monopoly transmission network service providers.

Both collectively and individually, we have a vital interest in not only this Review but also the AEMC's Review of the proposed new National Transmission Planner function. The outcome from these 2 reviews will play a major role in defining some of the key parameters that will govern the future planning and operation of the transmission grid in the NEM for the foreseeable future.

Given the clear linkages between the 2 reviews, this submission should be read in conjunction with the 2 submissions[1] to date to which we were parties for the AEMC's NTP Review. Many of the views and concerns expressed in those submissions are equally relevant to this Review.

1. General

The genesis of this Review emanates from one of the transmission-related recommendations of ERIG in its final report to COAG, in which, on the question of transmission reliability standards, it said:

> *"Chapter 3 of this report highlights the need for a consistent national approach to the national energy market. Where possible, the current plethora of different state government arrangements should be progressively examined and abolished in favour of consistent national measures.*
>
> *This is a particular issue in the efficient development of the national transmission network where different reliability standards exist in each state. The differences exist in terms of form, function and interpretation.*
>
> ***ERIG recommends that the Reliability Panel, which is formed under the AEMC, coordinate a national review to rewrite 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 review its requirements for individual connection points and publish them in that format."***

We agree that the Reliability Panel is clearly the most appropriate body within the NEM Governance arrangements to consider in detail and make recommendations on the level of any reliability standards that should be adopted for the NEM. We also agree that the Reliability Panel should consider and make recommendations on how the relevant reliability standards should be defined and applied throughout the NEM so that there is a reasonable degree of assurance that they will in fact be met.

At the same time however, we feel that in this particular case, the value of the Reliability Panel's Review would be considerably enhanced if the Panel had a much clearer picture of the proposed regulatory and institutional framework within which any revised network reliability standard is expected to apply.

Because of this, we have written to the AEMC advising them of our concerns in this respect and we have requested that they take the necessary steps to provide the Panel with revised Terms of Reference which better define both the scope of the Review and

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[1] The submission by essentially the same group of generators (The Group) in response to the AEMC's Scoping Paper; and the NGF submission in response to the AEMC's Issues Paper.

the applicable policy and other constraints that will impact on how any new national standard needs to be defined and implemented. A copy of our letter to the Chairman of the AEMC on this matter is shown in Attachment 1.

2. *Deterministic Versus Probabilistic Network Planning*

The appropriate form and substance of any required planning standard depends on the network planning methodology used. Currently, both deterministic and probabilistic planning techniques are employed by TNSPs in the NEM, and, not surprisingly, the current users of each approach do not want to change. This is a clear illustration of the extent of the non-specificity of Clause S5.1.2.1 of the Market Rules, wherein TNSPs have been able to comply with the Rules and yet apply substantially different network planning methodologies and investment criteria.

Proponents of the use of a deterministic planning standard in conjunction with a deterministic approach to network planning argue that it is easier to implement, more readily understood, and results in less contentious investment decisions than would otherwise be the case where probabilistic approaches are applied.

While not disputing the validity or otherwise of the reasons given by proponents of the deterministic approach, as major generation owners and operators in the NEM and potential future investors, we all strongly prefer NEM-wide application of a standardized probabilistic planning approach.

We believe there are a number of compelling arguments in favour of the probabilistic approach including the following:

- A probabilistic approach which incorporates an appropriate value of reliability to electricity users is the only way to ensure that competitive neutrality is preserved between the various competing forms of investment (generation in potentially different locations, network infrastructure, NLCAS and demand management measures). The probabilistic approach enables different forms of investment with potentially different reliability impacts to be assessed against one another and for the option providing the best overall value proposition for the market to be identified.
- The probabilistic approach ensures that each investment option is assessed and measured in a way that is totally compatible with the NEM Objective, i.e. each is assessed in terms of its relative economic efficiency from an overall market perspective.
- Deterministic approaches currently applied in the NEM still involve probabilistic type considerations in respect of some but not all of the key inputs to the planning evaluation. For example:
    - The forecast level of demand used in the planning studies may be a 0%, 10% or 50% POE (probability of being exceeded) demand projection;

- The generation loading pattern assumed in the studies is generally a "typical range" of the potential options taking into account the expected plant merit order and their expected availabilities; and
- Consideration of potential contingencies includes credible or higher probability contingency events but excludes so-called non-credible lower probability events.

What is deemed to be deterministic is in fact not deterministic at all. It would be better described as a deterministic standard being applied to what is in effect a quite limited set of probabilistic planning scenarios, where the deterministic standard needs to be satisfied in all cases.

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, and it is very unlikely that the true value implications of extreme events are taken into account in the investment decision-making process. Having said that however, we are confident that, in spite of their undue simplification, the current probabilistic approaches to network planning in the NEM would still deliver more rational, value-based investment decisions than the so called deterministic approach.

We believe there is probably considerable room for improvement in the probabilistic planning methodologies now in use in both Victoria and South Australia. There has been much research and development work done over the past 15 years to progressively improve the techniques used for large scale "planning under uncertainty", of which transmission network planning is an ideal example.

We would expect to see probabilistic planning techniques applied in the NEM which take on board these recent advances and enable a much broader-based probabilistic assessment of the value proposition represented by alternative investment options for any given planning need.

In our view, an appropriate network planning standard for use in conjunction with an enhanced probabilistic planning methodology would:

- Define the economic value for different consumer groups for different types of loss of service quality and/or reliability;
- Recognise and take account of the expected value at risk for non-credible but potentially very serious contingency events versus the cost of risk mitigation; and
- Address the "public benefit" of transmission reliability that would not normally be factored into a conventional assessment of the economic value of reliability (This could include for example system vulnerabilities to events of sabotage and how the impacts of such events could best be contained.)

It may be reasonable to apply an economically based deterministic standard in limited circumstances where it is considered a full probabilistic planning assessment is not warranted. In these cases, the deterministic standard would be used as a surrogate for the proper economic value based standard in a much more streamlined planning and investment evaluation methodology.

3. Power System Security & Reliability Management in the NEM

The focus of the MCE request to the AEMC which prompted this review is "transmission standards", however defined; but the MCE's broader objective, which reflects the broad intent of ERIG in its recommendations, is "developing a consistent national framework for network security and reliability".

"A consistent framework for network security and reliability" needs to consider all of the relevant network issues across all of the various timeframes – investment planning, detailed network design, operational planning, real time operations, management of system emergencies, and asset management strategies. Schedule 5.1 of the Market Rules covers some of these, while others are addressed in NEMMCO operating procedures, jurisdictional instruments or internal TNSP policies and procedures.

In our view, in order to develop "a consistent framework for network security and reliability", the Reliability Panel needs to consider all of these disparate arrangements, and whether or not they are mutually consistent and complementary, and defined in such a way that they align with the NEM Objective; i.e. deliver the optimal economically efficient outcome for the market.

In particular, network security and reliability, at least in the operational timeframes, is an integral part of overall power system security management, which is a core responsibility of NEMMCO.

The way in which NEMMCO manages its system security responsibilities can have quite profound impacts on the market overall as well as on each market participant, and, at times, the adverse financial impacts on individual participants have been disastrous. Although we have not undertaken any detailed analysis of system "events", anecdotally it would appear to us that it is generally network related incidents that give rise to security management decisions and consequential market impacts that are usually quite unexpected, sometimes quite contentious, and in hindsight, quite often appear to have been avoidable.

In our view, "a consistent national framework for network security and reliability" which takes into account the potential market impacts of system security management decisions and actions on the market should place a considerably increased emphasis on network related security issues and fully integrate these into the security management and market advisory procedures in the Market Rules.

Attachment 2 provides a brief discussion on the current definitions of system operating states in the Market Rules and what are perceived to be some of their shortcomings in this respect. However, this is only intended to be a primer to provoke more detailed consideration of the overall issue and further thought on what role if any there may be for network security and/or reliability standards applicable to operational timeframes as part of an enhanced system security management regime.

At this stage, we do not have any firm views on the matter and how the current system security management arrangements could be enhanced. However, we would expect an enhanced set of arrangements would:

- Involve less system operator discretion than currently appears to be necessary;
- Reduce the instances of undue levels of network constraints being applied as a system security measure;
- Communicate better to market participants and in a more timely fashion, the true nature of any raised system security risk, the potential actions that NEMMCO may take or have taken to manage it, and the market consequences of such actions. Where feasible this could even extend to advance notice of such potential effects via the pre-dispatch process; and
- Empower market participants to manage the potential market impacts of such events more effectively than has been the case to date.

4. The Panel's Questions for Consultation

Attachment 3 contains a full list of the Reliability Panel's questions listed throughout the Issues Paper and the Group's brief response to each. As a general comment, we believe the Issues Paper takes an unduly narrow approach to the task it has been asked to perform by the AEMC. The Issues Paper suggests the Reliability Panel is treating the issue as essentially one of considering the pros and cons of harmonization of the existing jurisdictional standards. On the other hand, we believe the question of whether or not the NEM should move to a single national standard has already been decided.

In its recommendation regarding this issue, ERIG made it quite clear that *"different state government arrangements should be progressively examined and abolished in favour of consistent national measures"*. We therefore contend that the ERIG findings and recommendations on this issue, which we believe have been accepted by COAG, are unambiguous; they call for a single national standard to replace the current, disparate jurisdictionally based standards. Also, in other parts of its report, ERIG suggested it would expect the single national standard to be a standard that is economically based, technology neutral, clear and specific and not open to different interpretations, and set by a body that is completely independent of the TNSPs.

Therefore, in our view, much of the Issues Paper is misdirected. Rather than focusing on whether or not to have a single national standard in the NEM, it should instead have addressed some of the key questions that we have raised in this submission, namely:

1. What pre-work is needed to enable the form and substance of the proposed national transmission standard to be defined?
2. What should be the scope of a national transmission standard such that, if complied with, it will deliver an economically efficient level of network security and reliability across the NEM?

3. What are the trade-offs between probabilistic and deterministic standards and how can the perceived short-comings of each be addressed pragmatically without unduly compromising the dual aims of predictability and economic efficiency?

From our perspective, the shortcomings associated with a deterministic standard are so severe that the measures that would be needed to overcome them would result in a deterministic standard that is in fact highly fragmented and more complex and more open to interpretation than a well-crafted probabilistic standard.

Also, in our view, to avoid undue discretion in the hands of TNSPs in their application of any form of standard relating to planning and investment timeframes, the network planning methodology itself needs to well-defined and the TNSPs held accountable for the way in which they apply it. The planning standard therefore needs to be defined in a way that is entirely compatible with the detailed planning methodology, presumably, to be developed by the NTP, and the new RIT being developed by the AEMC.

5. The Way Forward

In our view, for the reasons explained throughout this submission, the Reliability Panel's task in this Review would be made considerably easier if it were to receive further instructions and guidance from the AEMC. Therefore, we propose that the Reliability Panel liaise with the AEMC with the aim of achieving a much clearer definition of its task and gaining a much clearer insight into the AEMC's expectations about the scope and form of an appropriate set of transmission standards for the NEM "within a consistent national framework for network security and reliability".

In the meantime, within the limitations of its current Terms of Reference for this Review, we would suggest that the Reliability Panel refocus its attention on what needs to be done to give effect to ERIG's underlying intent for this Review; i.e. abolishment of State Government arrangements in favour of consistent national measures.

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We would be pleased to discuss any of the matters raised in this submission with Panel Members or your support staff in more detail at your convenience if you wish, and if you have any questions regarding this submission, please contact Con Noutso on (03) 8628 1240.

Yours faithfully,

Ben Skinner
Regulatory Manager, Wholesale Markets
TRUenergy Pty Ltd
(on behalf of the participants listed)

..... **Ken Thompson** General Manager Loy Yang Marketing Management Company Pty Ltd	..... **Alex Cruickshank** Manager NEM Development AGL Hydro Partnership
..... **Ben Skinner** Regulatory Manager, Wholesale Markets TRUenergy Pty Ltd	..... **David Hoch** Regulatory Policy Manger International Power
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Attachment 1

Loy Yang Marketing Management Company Pty. Ltd.
AGL Hydro Partnership
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13 February 2008

Dr John Tamblyn
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear John

AEMC Reliability Panel's Review of Transmission Reliability Standards

I refer to the AEMC Reliability Panel's Review of Transmission Reliability Standards and, in particular, to the Terms of Reference established by the Commission for the Review.

I am writing this letter to you on behalf of a group of generators in the National Electricity Market. The group includes Loy Yang Marketing Management Company Pty Ltd, AGL Hydro Partnership, International Power Australia, TRUenergy Pty Ltd, and Flinders Power (the Group). We have a combined generation capacity of 10,500 MW, which accounts for approximately 25% of all registered generation capacity serving the National Electricity Market.

Both collectively and individually, we have a vital interest in not only this Review but also your Commission's Review of the proposed new National Transmission Planner function. The outcomes from these 2 reviews will play a major role in defining some of the key parameters that will govern the future planning and operation of the transmission grid in the NEM for the foreseeable future.

1. Need for a broader-based review

Firstly, on behalf of the Group, I would like to stress our strong support for the 2 reviews currently under way. Within the transmission-related policy constraints set by COAG

and the MCE, establishing a strong national transmission planner function together with a nationally consistent set of transmission standards has the potential to deliver substantial benefits for market participants, electricity consumers and the domestic economy as a whole.

However, if the intent of these 2 reviews is to establish "a consistent national framework for network security and reliability" across the NEM, as agreed by the MCE, then, in our view, on their own, they do not address all of the current deficiencies in the NEM arrangements in this respect.

We believe there is a need for a more broadly based review of the overall regulatory framework and division of responsibilities in the NEM governing network security and reliability and its inter-relationship with power system security and reliability. In essence, we need to define what "a consistent national framework for network security and reliability" means and how it can and should be constructed so that there is a high level of assurance that it will deliver the intended outcomes, and that those outcomes are in complete alignment with the NEM Objective; i.e. optimal economic efficiency in the NEM.

2. *A consistent national framework for network security and reliability*

The recent ERIG Review[1] and the consequential policy decisions by COAG embodied in their response[2] to the ERIG recommendations represent a watershed in the ongoing development and evolution of the NEM. For the first time, there is now a clear policy commitment to a truly national approach to the planning and development of the transmission network on a nationally consistent basis.

At the same time, there is a clear commitment to creating a combination of market arrangements and regulatory oversight of the grid which aims to optimize the economic efficiency of the market. This not only applies to the operation of the market itself but also to the overall investment in electricity industry infrastructure and, in particular, for generation and transmission.

On the other hand, in our view, there would be significant benefits in deferring the Reliability Panel standards review. We believe it is essential to address the more fundamental question of what precisely is involved in developing "a consistent national framework for network security and reliability" (and what role transmission standards should play in its detailed design and implementation) before defining an appropriate set of national transmission standards.

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[1] "Energy Reform: The Way Forward for Australia" A report to the Council of Australian Governments by the Energy Reform Implementation Group, January 2007

[2] "COAG National Reform Agenda: Competition Reform April 2007", published by COAG on their website

While the Reliability Panel may have some views on this question there are more appropriate bodies qualified for developing a detailed answer. This is a matter that should be addressed by the AEMC in collaboration with the MCE and the AER.

The overall security and reliability of the network is governed by the performance of the TNSPs in all 5 key network related functions within their regulated network businesses; i.e.

(i) Network planning and investment decision making;

(ii) Detail design and construction of new network infrastructure;

(iii) Operational planning;

(iv) Real time network operations; and

(v) Asset management including plant maintenance.

The overall security and reliability of the network is also impacted by NEMMCO's system operations function and in particular by the way it meets its system security management responsibilities.

Within the current regulatory framework, various standards and/or expected levels of behaviour governing all of these activities are embodied in a number of legal and regulatory instruments at both the jurisdictional and national level. In our view, it would be a suboptimal to confine the standards review to only consider the issue of jurisdictional planning standards.

3. National Transmission Planning Framework

Looking now only at the narrower question of transmission planning standards, in our view, the Reliability Panel's review in this area would be more effective if it has a clear understanding of the proposed transmission planning framework for the future.

Currently, both network planning methodologies and network planning standards applied by TNSPs vary considerably from one jurisdiction to another. Whereas the TNSPs in some jurisdictions use deterministic standards in conjunction with relatively simple planning methodologies, others apply value optimization approaches in conjunction with more complex probabilistic planning techniques.

TNSPs remain divided on the preferred approach and all stakeholders would agree that either approach has its shortcomings. Again, the question of what constitutes a nationally consistent framework for transmission planning and investment decision-making in the NEM would be better addressed by an organization more qualified to answer this question. The Commission is qualified to do this and could address it within its NTP Review.

4. The Group's Preferred Position

As our views on each of these questions strongly influence our overall approach to the 2 reviews now under way, the following provides a brief summary of our position on the overall framework and some of the reasoning behind it.

4.1. Preferred regulatory framework

The national focus of the regulatory framework governing the transmission networks should be streamlined and made much more consistent across all jurisdictions in the NEM by:

- Replacing the state-based transmission / grid codes with a single national transmission / grid code developed by the AEMC as an adjunct to, and complementary with, the Market Rules;
- Transferring the technical aspects of network requirements and standards from the Market Rules to the new national transmission / grid code;
- Minimising as much as possible any residual jurisdictional variations from a uniform national approach to all matters covered by the new national grid code;
- Dispensing entirely with the role of Jurisdictional Planning Bodies under the Market Rules; and
- Establishing an independent National Transmission Planner that performs a broad range of network planning and operations coordination and oversight functions across the NEM.

In our view, this regulatory and institutional framework would best meet the needs of market participants and maximize the prospects for achievement of the NEM Objective within the current NEM policy constraints set by the MCE and COAG.

It would significantly enhance the transparency of TNSP activities and their accountability to network users, and it would materially improve the future investment climate for all new infrastructure in the main power system.

4.2. Preferred scope of transmission standards

Under the current transmission access regime in the NEM, the access rights of the individual network user in relation to the shared network are somewhat ill-defined and any access risk is essentially borne by the network user.

In these circumstances, network users have an exposure to the risk of non-performance by TNSPs in all facets of their network service business. In order to be able to understand and manage that exposure, network users need a high degree of transparency governing TNSP activities as well as a very high standard of regulatory oversight and TNSP accountability within the regulatory framework.

Therefore, technical standards of one form or another should be applied in each of the 5 key facets of the network services business. This does not necessarily mean that all of these standards need to be defined by an independent body. Network designers for example, drawing on "industry best practice", have developed their own detailed network design principles and/or standards. Similarly, over time they have developed and refined their policies and practices governing each facet of the business. The overall security and reliability of the network and the economic efficiency of the network services delivered to network users is dependent upon each TNSP's performance across all key

facets of its network service business, and therefore, the policies and 'standards' that apply to each facet of the business need to be mutually consistent and completely complementary to one another.

This suggests that the scope of the required standards is considerably broader than merely a set of network planning standards. The precise scope of the standards required however needs to be developed as part of the detailed process of developing a national transmission / grid code. There are a number of ways in which those 'standards' may be developed:

- Adoption of technical standards developed and published by Standards Australia or equivalent international bodies;
- Standards developed and published by the AEMC on the advice of the Reliability Panel and others;
- Performance standards for various TNSP functions and procedures developed and published in the Market Rules or the proposed national transmission / grid code;
- Performance standards for various TNSP functions and procedures developed and published by the NTP; and/or
- Performance standards for various TNSP functions and procedures developed and published either individually or collectively by the TNSPs.

These standards should not be confused with the performance measures and threshold performance levels used by the AER as part of its incentive regulation.

4.3. Precise form and substance of the standards

At this stage, it maybe beneficial to defer the consideration of the precise form and substance of the full range of transmission standards that are required. The discussion above does, however, highlight some concerns about the current, overall approach to this issue in the NEM.

With so many different parties involved in setting the various standards, it is highly unlikely that they are indeed mutually consistent and complementary, and set at levels that optimise the overall value proposition of the level of network services provided for the market.

Secondly, value maximization of the network services provided to the market can require use of non-standard arrangements involving substitute services (e.g. use of more NLCAS in preference to building new lines) or non-standard operational arrangements. Standards need to be developed and applied in such a way that they in fact encourage rather than impede innovation by TNSPs wherever it makes economic sense to do so.

4.4. A Positive Approach to Regulatory Supervision and Compliance

Value maximization of network services requires the achievement of very high standards of network security and reliability while at the same time pushing the utilization of

network infrastructure to its absolute limits. It does not allow for any continuation of undue conservatism in the definition of network limits or network planning assumptions, the use of gold-plated network design parameters or merely an obligation of "reasonable endeavours" on TNSPs regarding their operations and maintenance policies and practices.

Rather it requires:

- The pursuit of very high standards of excellence in all activities impacting on network performance;
- High levels of transparency and accountability for each activity, and strong coordination and cooperation across institutional boundaries where this is required to maximize performance; and
- A highly positive culture of accepted responsibility and disclosure amongst industry personnel where their acts or omissions have led to a heightened security or reliability risk. This is an industry-wide issue and is not merely confined to the network businesses.

Historically, post mortem reviews of major power system failures around the world invariably find that there is usually no single factor that caused the failure; rather it is a combination of what appear in isolation to be relatively minor breaches of prevailing standards or protocols but which have combined together to cause a major catastrophic event. That is, the event could have been quite readily avoided by more diligent adherence to the standards and protocols already in place and by more open and cooperative communication across institutional boundaries.

We need to develop a positive culture in the industry that encourages and rewards such behaviour, particularly in relation to matters dealing with system security. In our opinion, the current regulatory regime and other governance arrangements for NEMMCO and the TNSPs need to improve in this respect.

5. *Summary*

Over the past few months during which we have considered a broad range of issues that are pertinent to the NTP and Transmission Standards Reviews. During that time, we have come to the realization that the development of "a consistent national framework for network security and reliability" involves more than merely establishing a new NTP function and revision of network planning standards.

Even though we believe that it would be feasible for the Commission to broaden its approach to the NTP Review within its existing Terms of Reference to deal with this issue, we would suggest that the Commission take this matter up with the SCO and the MCE with a view to gaining their endorsement for a more comprehensive review that can take a holistic view of how best to enhance the overall governance arrangements for network and power system security management in the NEM.

In the meantime, this review will benefit if the Commission provides clearer guidance to the Reliability Panel so that both the Panel and other interested stakeholders have a clearer picture of the expected scope of Network Standards Review and the assumptions the Panel should adopt about key policy or procedural limitations it should take into account regarding future application of any revised standards.

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We would be pleased to discuss any of the matters raised in this letter with you or your fellow commissioners or AEMC staff in more detail at your convenience. In the meantime, if you have any questions on this matter, please call Con Noutso on (03) 8628 1240.

Yours faithfully,

Ben Skinner

Regulatory Manager, Wholesale Markets

TRUenergy Pty Ltd

(on behalf of the participants listed)

..... **Ken Thompson** General Manager Loy Yang Marketing Management Company Pty Ltd	..... **Alex Cruickshank** Manager NEM Development AGL Hydro Pty Ltd
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Definitions of System Operating States

In our view, there may be some merit in clarifying the use of the terms 'secure', 'satisfactory', and 'reliable' when used to define planning and operating standards and practices in the NEM.

Within the operational timeframes, the system could be deemed to be 'secure' when there are sufficient measures in place to protect plant and equipment in the system in the event of a credible or plausible but non-credible contingency event – the measures may include widespread blackouts and breakup of the system but not system black.

The system would then be deemed to be in a 'satisfactory' operating state when, as a result of a single credible contingency, it will not be necessary to have to involuntarily shed load to maintain the system in a 'secure' state, and it can be returned to a 'satisfactory' state within a defined short period.

On the other hand, the concept of 'reliability' should only apply to longer timeframes (i.e. beyond short-term operational timeframes) and only makes sense when considered in a probabilistic sense. As part of the considerations in deciding whether the power system is reliable, a TNSP's network could be deemed to be reliable if the TNSP:

- Complied with the new national reliability standard in their planning practices and investment program;
- Managed its assets and operated its network in accord with the national transmission code and associated transmission standards; and
- Complied with its contractually based service obligations in each of its connection agreements.

The overall main power system would be deemed to be 'reliable' for any given timeframe if each TNSP's network is expected to continue to be 'reliable' and the threshold probability for unserved energy for a plausible range of futures is expected to be satisfied over that timeframe.

Summary of System Operating States as defined in the Market Rules

Current Definition	Comment	Potential Enhancement
Satisfactory: Currently the system is operating within limits and protection systems can handle any (credible or non-credible) contingency	A definition of the state of the system at any instant in time with no caveats re load shedding. Transmission "standards"	Logically, there is an argument that suggests these 2 definitions should be reversed. "Secure" should define the minimum

Current Definition	Comment	Potential Enhancement
event	(of network performance capability) to apply when the system is in a satisfactory operating state are specified in Schedule 5.1 – however, they are more a statement of how network capability should be defined rather than definition of a performance standard	required state of the system, and "satisfactory" should be something more onerous. It seems incongruous that the system can be in a "satisfactory" operating state but at the same time it can also be "insecure". Also, an additional rider could be added such that the way of "handling" any plausible contingency event should preclude going to "system black".
Secure: Currently in a satisfactory operating state and can be returned to a satisfactory operating state within 30 minutes following a single credible contingency event (presumably this would not contemplate a second credible contingency event within the 30 minute period following the first credible contingency event)	Also a definition of the state of the system at any instant in time with no caveats re load shedding. No consideration of network issues.	
Reliable: - Confined to a consideration of operational reserve margin and the avoidance of load shedding by NEMMCO direction (but presumably not by automatic load shedding)	No consideration of network issues other than in the form of regionalization of required reserves	Consideration of required operational reserve margins by location across the grid should be a core issue in determining whether or not the system is in a secure and/or satisfactory operating state. The concept of a "reliable system" should not be used to describe a short term operating state but be

Current Definition	Comment	Potential Enhancement
		reserved for defining the expected performance of the system over longer timeframes, and any definition of system reliability should encompass consideration of both supply/demand issues and expected network performance.

It could be argued that the above do not adequately define all of the various operating states of the system. For example, we have the various LOR conditions to deal with reserves, we have operating conditions where one or more market participants are operating under directions, we can have operating conditions where NEMMCO opts to vary what it considers to be the usual range of credible contingencies, we can have over-constrained dispatch, we can have dispatch modifications by NEMMCO to deal with negative residues etc. In the interests of ensuring that the market is fully informed at all times, it may be preferable for all of these operating states to be properly defined and onerous obligations imposed on NEMMCO to keep participants fully informed on a timely basis re the state of the system at all times.

The Group Response to the Specific Questions Raised in the Reliability Panel's Issues Paper

Topic	Issue	Response
Jurisdictional standards	Q. What are the potential issues arising from divergent transmission standards across NEM jurisdictions?	*Lack of competitive neutrality between generation and transmission*: - To achieve competitive neutrality for alternative investments in the NEM, the market and regulatory settings impacting on all forms of investment need to be mutually consistent. Different transmission standards operating across each jurisdiction is incompatible with the objective of competitive neutrality. *Needless complexity:* - Different standards across each jurisdiction add needless complexity in administering the regulatory framework for transmission as well as for participant scrutiny of TNSP behaviour and performance; i.e. it reduces the level of transparency of TNSP planning and decision-making. *Needless retention of jurisdictional discretion*: - Allowing jurisdictions to continue to set their own jurisdictionally based standards gives them an avenue for continued interference in the detailed operational framework for the NEM, when their role should be confined to that of the high level policy maker only. There is also the risk that jurisdictions can manipulate the standards to serve the interests of their Government-owned network business and put their interests ahead of those of the network users. *Potential for undue influence and discretion for TNSPs*: - Retention of jurisdictionally based standards is likely to result in a continuation of an undue amount of discretion for the TNSPs in the interpretation and application of jurisdictional standards that in large part have been framed by the TNSPs themselves. *Likely retention of simplistic deterministic standards:* - Given the current preferences of the Government-owned TNSPs throughout the NEM, a decision to retain jurisdictionally based standards will inevitably mean a retention of simplistic deterministic standards that have imputed values of reliability that are both highly variable and economically unsound.
	Q. What are the size and scope of the policy and commercial issues arising from divergent transmission standards across	*Policy Issues* *Jurisdictional discretion*: - As a general rule, jurisdictional discretion in the NEM should be reduced to an absolute minimum, and only apply where there are compelling political or social policy issues that warrant it. There is no such argument in relation to transmission matters other than possibly local environmental and

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	NEM jurisdictions? Which are the most significant? How significant are they?	planning requirements at the project level which will continue to be covered by more general State-based environmental and planning legislation. *National transmission planning approach*: - Is it reasonable to expect the NTP to develop a national transmission plan for the total NEM territory when faced with a multitude of jurisdictionally based standards. *TNSP transparency and accountability*: - The way in which standards are defined and applied can impact on TNSP transparency and accountability from a participant's perspective. Given the type of access regime in the NEM, participants are heavily reliant of the application of network standards that are comprehensive, enforceable and enforced. *Commercial Issues* *Participant enterprise value impacts*: - TNSP implementation of different jurisdictional standards can have value impacts for participants that are both uneven across all participants and which may be quite unpredictable at the time when participant investment decisions are being made. Even though there would still be participant risk in this respect with a single national set of transmission standards, the risks are likely to be less, and participants will generally have more confidence in the future administration of a single national set of transmission standards going forward. *Participant costs*: - Costs incurred by 'national' participants in monitoring TNSP behaviour and taking action as required to protect their own commercial interests. *Significance* This is impossible to predict because it depends on the extent of the variability in jurisdictional standards into the future; however, if they're very similar, then why persist with different standards – adds costs to the market but with no discernible benefit.
	Q. What motivations, if any, are there for greater national consistency of transmission standards across the NEM?	Standardisation of the transmission framework will lead to increased transparency and accountability of TNSP behaviour and performance, reduce market complexity and participant market monitoring costs, and enhance participant's ability to participate as an affected stakeholder in the network planning process across the NEM.

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Frameworks for nationally consistent standards	Q. 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?	Already addressed. In our view, it is incumbent on those who wish to retain jurisdictionally based standards to demonstrate why the benefits would outweigh the added costs and economic inefficiencies of such a system. This question should be expanded to consider why, since economic regulation of the TNSPs has been the responsibility of national regulators since the inception of the NEM, we should still persist with State-based transmission codes which usually address quite a number of other issues in addition to transmission planning standards.
	Q. What does "nationally consistent" framework mean, and what does it not mean?	In our view, it means a standardized national approach for development, implementation, application and enforcement of policies, procedures and practices in the NEM, particularly where this will enhance the achievement of the NEM objective of optimal economic efficiency in the market. In our view, it does not mean agreement to the adoption of a broad set of principles at the national level which still allow a wide range of discretion in their interpretation and application at either a jurisdictional or individual NSP level, which aptly describes the current situation in regard to TNSP planning and investment decision-making. Equally, it does not mean the automatic adoption of the most stringent jurisdictional standard across the NEM, but a true harmonization around an economically efficient level of network service provision.
	Q. How is the notion of a "nationally consistent" framework best expressed?	See above
	Q. What are the pros and cons of having jurisdictional transmission standards aligned through: • Making the operational standards in the Rules more specific, thereby limiting the	We would prefer "national consistency" by replacing the existing separate specific jurisdictional instruments with a single national 'Transmission Code' developed by the AEMC as an adjunct to the Market Rules and administered by the AER as an integral part of the TNSP economic regulation process. To the extent that there needs to be specific standards or values of reliability for TNSP planning and operational purposes set out in the new national instrument, it would be appropriate for this to be set by the

Topic	Issue	Response
	degree of discretion available to TNSPs in meeting the operational standards contained in the Rules; • Expanding the transmission standards in the Rules to cover the planning horizon, as well as the operational horizon; • Aligning *the form* of jurisdictional transmission standards across the NEM via coordinated changes to the jurisdiction specific instruments that specify the standards. • Aligning *both the form and the level* of jurisdictional transmission standards across the NEM via coordinated changes to the jurisdiction specific instruments that specify the standards.	AEMC on the advice of the Reliability Panel and the AER. These standards would be presumably subject to regular review (and potential revision) to take account of potential changes in the general community's needs and aspirations as well as the industry's capacity to supply differential standards of service to individual network users. Maximising the level of consistency via the above approach: • simplifies and reduces the costs of participant engagement of TNSPs and other parties on transmission related matters across the NEM • leads to increased transparency and accountability of the TNSPs to both the regulator and to interested stakeholders • protects stakeholders against undue TNSP influence in jurisdictional processes for setting standards and/or revising the jurisdictional transmission code Schedule 5.1 includes network operating standards that need to be read in conjunction with the definitions of the various operating states of the power system. It would be preferable that, for the operational timeframes, what constitutes a *secure operating state* and what constitutes a *satisfactory operating state* are appropriately defined in their entirety at a single point in the Market Rules. At the same time, the range of operating states needs to be expanded for completeness, and the state of the network should to be addressed in each case. This issue is discussed elsewhere in this submission.
	Q. What are the pros and cons of having a uniform transmission standard applied across the NEM?	Previously addressed.
	Q. What are the costs and benefits of moving to a common form and level of transmission	Current standards at a jurisdictional level probably err on the side of being too stringent and cause over-investment in the grid. Therefore, moving to a common standard is likely to lead to some reductions in

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	planning standard?	transmission investment. There will be costs for TNSPs and other stakeholders as they transition to the application of a single national transmission planning approach as we have advocated in our submissions to the AEMC's NTP Review. The benefits of a single national transmission planning approach together with a common form and level of transmission planning standard have previously been addressed.
	Q. What allowances would have to be made in moving to a uniform standard?	The standard would need to contemplate the full breadth of transmission planning issues that can arise across the NEM; however, as a general principle, there should be no specific jurisdictional provisions in the standard or derogations from the application of the standard. There may be transitional issues associated with the application of the new standard particularly where it may involve a material change from past practices. However, this is a detailed implementation issue that should not affect the setting of the new standard itself.
	Q. What are the costs and benefits of *not* moving to a common form and level of transmission planning standard?	Previously addressed.
	Q. 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?	The new national standard should apply to the "main transmission system" which includes elements of the sub-transmission network where they support the operation of the transmission network. As transmission connection arrangements are generally the subject of a contractually based agreement, the contract provisions should take precedent over the national standards The retention of jurisdictional network standards at the local distribution level, while potentially inefficient, has a limited impact on the operation of the wholesale NEM as the local network fulfills a different role to the main transmission system. A national standard for the major transmission and sub-transmission network should therefore not create any major inconsistencies.
Implementing	Q. Which body is best placed to	As discussed earlier, the AEMC should set the standards on the advice of both the Reliability Panel and the

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a nationally consistent transmission framework	set any nationally consistent transmission standard and why? To whom, and how, should this body be accountable?	AER. The AEMC would be accountable to the MCE for this activity in the same way as it is accountable for all of its other functions and responsibilities.
	Q. What interactions are there between jurisdictional transmission standards and other aspects of the regulatory regime?	See comment below.
	Q. What linkages are there between jurisdictional transmission standards and other reviews or Rule changes currently under consideration by the AEMC?	Clearly, the transmission standards need to be established in a form that is compatible with other aspects of the regulatory regime and, in particular, the new national approach to transmission planning now under consideration by the AEMC as part of the NTP Review. We suggest that detailed development of the standard should proceed only after the AEMC provides more guidance to the Reliability Panel concerning their proposed approach to national transmission planning and the appropriate form of the transmission standard that should apply in conjunction with that process.
	Q. How should these interactions be taken into consideration in developing a framework for nationally consistent transmission reliability standards?	See comment above.
	Q. The Panel invites views on the above mentioned questions and opinions on what other implementation issues it should consider in developing a	No comment.

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	nationally consistent transmission reliability framework.	
	Q. What are the process steps you think will be necessary to establish a transmission reliability framework for the NEM?	Transmission standards need to be developed in a form that is compatible with the transmission regulatory framework, the new "nationally consistent" approach to transmission planning which should emerge from the AEMC's NTP Review. In our view, the process steps required in chronological order include the following: (a) AEMC develop its proposed national planning approach in sufficient detail for stakeholder comment (b) AEMC finalise its approach in principle and seek MCE approval (c) Subject to receiving MCE policy approval, AEMC instruct the Reliability Panel of the form and substance of the transmission standard required to complement the new national planning approach and proposed RIT We would also propose that the AEMC liaise with the MCE about the merits of replacing the current multiplicity of jurisdictionally based transmission codes with a single national code that both complements the Market Rules and provides the appropriate regulatory framework for the application of suitable national transmission standards for network planning, design, operational planning, real time operations, and asset management. If this is accepted by the MCE, then the current NTP and Transmission Standards reviews would need to be supplemented with a broader work program aimed at developing a single national transmission code.
	Q. What difficulties do you see in implementing a nationally consistent transmission reliability framework and how could these best be managed or overcome?	No comment.