

570 George Street
Sydney NSW 2000

Address all mail to
GPO Box 4009 Sydney
NSW 2001 Australia

Telephone (+61) 13 1525
Facsimile (02) 9269 2830



20 February 2009

Dr John Tamblyn
Chairman
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Via email: submissions@aemc.gov.au

Dear Dr Tamblyn

Submission on AEMC's First Interim Report for the Review of Energy Market Frameworks in Light of Climate Change Policies

EnergyAustralia welcomes the opportunity to respond to the AEMC's first interim report. The impact of climate change policies on the energy markets framework is a major issue for the energy industry for the foreseeable future and one that requires a comprehensive and detailed assessment. Our submission highlights key areas of concern for our business. We would be interested in meeting with your staff to provide further detail on the concerns raised in our submission and to clarify any issues we have raised.

Having reviewed the interim report, EnergyAustralia notes that most of the relevant issues have been identified. However, we are quite concerned that the AEMC has not considered the impacts on distribution businesses, but has focussed its report on the generation, transmission and retail sectors of the energy industry. The report appears to assume that climate change policies or the AEMC's response have little or no impact on the distribution sector. We consider that this is a major shortfall of the interim report and should be rectified by the Commission. Our attached table demonstrates how distribution networks are impacted by issues raised in the report.

EnergyAustralia would like to draw the Commission's attention to two major impacts of climate change policies on the regulatory frameworks for distribution businesses. We consider that these issues warrant further investigation and analysis of options for change to the energy market frameworks. These 'stress points' are:

- the impact of climate change policies on energy demand and hence on the distribution business' revenue; and
- the emergence of embedded generation in response to climate change policies and its impact on the distribution network in terms of safety and reliability.

Volume related risk to distribution revenue

The Interim Report notes the relative inflexibility of regulatory arrangements for retail pricing and notes that this issue requires further consideration in the context of CPRS. However, the report does not consider this issue in the context of the economic regulatory framework for distribution businesses. The regulatory framework that applies to NSW distribution businesses is also inflexible in that it does not cater well for the impacts of the introduction of CPRS during our next regulatory control period.

The introduction of CPRS is expected to affect energy consumption volumes. However, the timing and magnitude of this effect is uncertain. The uncertainty of future energy consumption volumes as a result of CPRS is a critical issue for NSW DNSPs because we are regulated by a weighted average price cap (WAPC) control mechanism for standard control services for the 2009-14 regulatory period. Under the WAPC, revenues are a function of energy volumes sold by the business and the price cap imposed over the period. The price cap that will apply to NSW DNSPs for the five years 2009-14 will be set with reference to a forecast of energy consumption set prior to the start of the period, and remains fixed for the period regardless of whether actual volumes vary from the forecast.

The revenue and pricing principles in the National Electricity Law provide that a regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs that an operator incurs in providing direct control network services. Our business is exposed to a risk of not being able to recover sufficient revenue to meet the efficient costs of operating the network if actual volumes fall below the forecast volumes as a result of government intervention through CPRS or RET ('volume risk'). The amount of uncertainty in the magnitude and timing of energy volume impacts means that the risk of variance from the forecast is high. Even with our best estimate of energy forecasts, there remains a considerable risk that prices may be set too low to allow us to recover revenue sufficient to meet the efficient costs of our services. The opposite is also true. If volumes are higher than forecast, prices may be set inappropriately high and result in customers paying more than they need to, to cover our efficient costs.

Under the current economic regulatory framework, there is no mechanism for NSW DNSPs to recover foregone revenue in a regulatory period if energy consumption is lower than forecast at the time of the determination. Specifically:

- a 'pass through' mechanism cannot be used to recover foregone revenue. Pass throughs are for increases or decreases in costs in the provision of standard control services for a defined event; and
- there are no provisions in the Transitional Rules to enable the AER to re-open a determination for a material reduction in revenues from lower than forecast energy volumes.

This inflexibility in the current economic regulatory framework that applies to EnergyAustralia does not provide us with a reasonable opportunity to recover efficient costs in circumstances where energy volumes fall significantly due to external factors (such as CPRS). To minimise the impact of CPRS or RET on our ability to recover at least the efficient costs, EnergyAustralia has in its revised proposal for the 2009-14 regulatory control period proposed a minor adjustment in the form of a G factor to the WAPC formula. This proposed G factor would act to mitigate the risk that actual volumes may diverge widely from forecasts and thereby minimising the risk of actual revenue being insufficient to cover efficient costs. It should be noted that such a mechanism would act with a two year lag and therefore would not fully cater for the impact of volume risk. Further details of the operation of this proposed G

factor adjustment can be found in our revised regulatory proposal of 14 January 2009, available from the AER's website.¹

We consider that our proposal for a G factor adjustment to the WAPC formula is necessary within the current economic framework which does not adequately accommodate the uncertain impact of CPRS or RET. However, to fully address the impact of CPRS or RET on DNSPs' revenue we consider that the Transitional Rules which apply to the economic regulation of NSW DNSPs for the period 2009-2014 (set out in Appendix 1 to the National Electricity Rules) should be amended to specifically provide for NSW DNSPs to apply for the AER's distribution determination to be re-opened. The trigger for the re-opening should be a material change in energy forecasts, arising from the impact of the CPRS, compared to the forecasts relied upon to determine the NSW DNSPs' revenue requirements and price caps. This would ensure that the potential impact of the CPRS and the RET on energy volumes can be accommodated within the regulatory framework and thereby ensure that the National Electricity Objective and revenue and pricing principles are met.

EnergyAustralia considers that inflexibility in passing on pricing signals emanating from government decisions on CPRS and RET may give rise to behaviours that work against the policy objective of reducing carbon emissions. If distribution businesses are unable to pass on the true cost of standard control services due to price caps based on higher volume assumptions, customers will not receive a true cost reflective price. This contrasts with the intent of CPRS and RET because it removes appropriate pricing signals for customers in respect of the true cost of their energy consumption. It may also create perverse incentives and discourage distribution businesses from undertaking energy efficiency programs and/or encourage pricing strategies that do not reflect energy consumed.

EnergyAustralia notes that volume risk is not as critical an issue for other DNSPs in the NEM as under the Chapter 6 Rules; the rules allow more flexibility in the choice and application of a control mechanism at the beginning of a regulatory period. This flexibility was not available to NSW DNSPs under the Transitional Rules.

In any case, we see some benefit in allowing an off-ramp for significant and unforeseen volume changes where it impacts the opportunity to recover efficient costs. Allowing a reopening or similar adjustment mechanism in such instances would be symmetric and be similar to rule provisions already in place for pass through of unforeseen costs incurred during a period.

It is important that the AEMC consider the circumstances applying in NSW and amend the Rules (or at least existing transitional arrangements) to ensure DNSPs are not financially penalised or rewarded inappropriately as a result of new government policy.

Embedded generation and its impact on the network

Embedded generation is likely to have an increasingly important role in the response to the introduction of CPRS and expanded RET. We consider that Government policy aimed at encouraging renewable energy sources will result in more embedded generators connecting to the distribution network. As a consequence, the reliability and safety of distribution networks will be impacted by increasing amounts of embedded generation. While embedded generation may be considered in other policy reform frameworks, it must also be considered in the review of the impact of climate change policies on the energy market framework.

¹ Chapter 4-5 of Part II.

We refer the Commission to our recent submission to the Reliability Panel's draft review of technical standards in the National Electricity Rules (Rules), in which EnergyAustralia expressed concern with the Panel's recommendation that the Rules should not include technical requirements for non-registered generators (including embedded generators). We noted that:

- embedded generating units of less than 5MW in capacity can have a significant impact on network service providers' ability to meet network performance requirements specified in the Rules due to the relatively unpredictable nature of their operation; and
- small embedded generators can also adversely affect the stability of local areas of the power system, and could impact overall power system stability if technical requirements are not met.

We reiterate our view that the Rules should include provision enabling the DNSPs to impose technical requirements on non-registered generators (including embedded generators) to ensure that the DNSPs' performance obligations are met. Our submission to the Panel is included as attachment 2 to this submission.

If you have any questions or would like to discuss any aspect of this submission in greater detail, please do not hesitate to contact Ms Catherine O'Neill on 9269 4171.

Yours sincerely



Trevor Armstrong
Executive General Manager (Acting)
System Planning and Regulation

Attachment 1 to EnergyAustralia's submission on the AEMC's 1 st Interim Report for the Review of Energy Market Frameworks in light of Climate Change Policies, December 2008	
Issue raised/comments by AEMC	EnergyAustralia's responses
General	
The AEMC stated "the arrangement governing how wholesale electricity and gas are traded appear capable, without fundamental change, of promoting efficient, reliable and secure energy supplies in the context of the CPRS" . In the following paragraph, the AEMC then stated that "As long as regulation does not stifle the ability of this process to work, e.g. by setting the maximum market price too low, then the frameworks appear robust" ¹	The conclusion in the first sentence quoted seems to be inconsistent with the conclusion in the second sentence that there is a tight generation capacity margin in some NEM regions, and the conclusion that the existing framework may need to be modified further to manage the possibility of a large reserve shortfall. Given the increased uncertainty arising from the impacts of CPRS, and the demonstrated issues with respect to capacity in the Southern states, there do not appear to be robust grounds for this conclusion.
Transmission investment for new connections ²	The discussion of network investment for new connection entirely ignores connection to distribution system. Given that most renewable generation is provided by small units, there is expected to be substantial connection of renewable generation to the distribution system. These connections to the distribution system often face the same connection issues as for transmission however they must be negotiated under a different framework.
Renewable Energy Target (RET)	EnergyAustralia understands that the 20% RET does not yet have legal status. The report appears to assume that the RET will be adopted in its current form.
A1: Convergence of gas and electricity markets	
(A1.1) Do you agree that the convergence of gas and electricity markets is not a significant issue in the eastern states and therefore should not be progressed further under this Review? If not what are your reasons for asking us to reconsider this position	Further consideration of convergence of markets is required. The AEMC has not considered the impact of convergence with respect to large quantities of embedded generation (EG), whose gas supplies are not coordinated by the AEMO. The AEMC has considered only registered generators and transmission systems. It is expected that substantial quantities of embedded gas fired generation will be connected into the distribution network. Champions of EG such as the Sydney City Council are proposing that substantial quantities (hundreds of MW) of gas fired generation should be installed in the Sydney CBD. The SCC's proposal is that this generation would comprise large numbers of small (and probably non-registered) generators, providing energy and generation capacity and removing or reducing the need for distribution network capacity. The curtailment of gas supplies to these generators under present arrangements would escape the notice of the AEMO but would have significant

¹ Page v of the Interim report under "Wholesale markets and investments".

² Page vi of the Interim report under "Resilience of existing frameworks to the expanded RET".

	implications for the distribution networks and the broader electricity market; particularly if scheduled gas fired plant were required to meet the demand shortfall resulting from the curtailment of EG.
A2: Generation capacity in the short-term	
(A2.2) Do you agree that the ability for NEMMCO to manage actual or anticipated transitory shortfall of capacity is a significant issue that should be progressed further under this Review?	Yes, this issue should be further progressed.
(A2.3) are there any additional mechanisms required to complement the RERT and NEMMCO's direction powers, and what characteristics should such mechanism have?	<p>Further investigations into alternative safety nets would be prudent.</p> <p>There are presently low reserve levels in some states. Whilst there is conjecture over the reasons for this situation no definite reason is offered in the report.</p> <p>There is still substantial uncertainty in the market with respect to the impacts of CPRS, particularly the risk of acute financial distress, especially given the present financial markets. There is also a credible risk of capacity withdrawal due to technical failures, which may increase due both to potential variations in output of base load units and the reluctance of high emission generators to refurbish plant.</p> <p>Given the limitation of the RERT mechanism in addressing frequent or large capacity shortfalls, there is a need to find further measures to provide a safety net.</p>
(A2.4) Do you have any views on the detailed design and implementation of additional mechanisms?	
A3: Investing to meet reliability standards with increased use of renewables	
A3.1: Do you agree that the existing framework based on an energy-only market design with supporting financial contracting is capable of delivering efficient and timely new investment, including fast response capacity to manage fluctuations in outputs resulting from larger volumes of intermittent wind generations? If not, what are your reasons for reconsidering this position	Further consideration is required of market mechanisms, given present shortfalls and the increasing uncertainty facing investors in gas fired plant.
A3.2: Do you agree that the process supporting the ongoing maintenance of this framework in respect of review and periodic amendment to the market settings, including the maximum market price, are robust? If not, what are your reasons for reconsidering this position?	<p>Periodic amendment to price is necessary.</p> <p>The present market mechanism has not prevented the present low reserve levels in some states. The issues discussed in the report do not provide a convincing case as to why such shortfalls should not continue into the future.</p> <p>Under the assumption that renewables will deliver energy, but not capacity there will be a need for substantial investment in both gas and gas fired infrastructure. Investment in such capacity will depend on both price and energy delivered by gas fired generation. Whilst pricing issues may be addressed by changing the market price</p>

	<p>this will not address the uncertainties with respect to the operating regime of gas fired plant which will be impacted by:</p> <ul style="list-style-type: none"> • The extent of and demand contribution of renewables. • Retirement of coal fired generators. • The extent of capacity provided by non-renewable non-registered EG. • Changes in energy consumption and demand resulting from price impacts³. <p>The uncertainties over expected volumes of sales may potentially result in the deferral of investment decisions. This will be further influenced by the present economic circumstances, where access to capital is constrained, reducing the ability of proponents to finance projects, even when risks are low.</p> <p>Given the lead times associated with major generation projects deferral of investments for any reasons may result in generation capacity issues in the short-medium term.</p> <p>The report states that the modelling highlighted a risk of the reliability standard being breached in South Australia. This risk requires increased interconnector capacity. The report provides no indication of whether such capacity has been proposed and whether the lead times associated with approval, funding and construction can mitigate the identified risk.</p>
A4: System operation and intermittent generation	
A4.1 Do you agree that the operation of the power system with increased intermittent generation is not a significant issue and therefore should not be progressed further under this Review? If not, what are your reasons for reconsidering this position	<p>No, issues of intermittent operation require further review.</p> <p>The report quotes forecasts of 6000MW of wind powered generation by 2020, with much capacity being constructed in remote areas with expectations that much of this generation will have rapidly changing outputs. The report proposes that management of this intermittent generation will not be an issue because of steps that NEMMCO has taken to manage intermittent despatch.</p> <p>The discussion within this section is restricted to the impact of the intermittent generation on the transmission system. The discussion completely ignores the impact of such intermittent generation on the distribution system, which supplies the majority of customers who expect power quality and reliability to be maintained despite the presence of intermittent generation.</p> <p>In many cases wind farms will be located in remote areas, and as the quantity of wind generation increases, plants will move to areas which are increasingly remote from transmission lines. In many cases applications for connection, will be made not to the transmission system but to the distribution system, which will be required to operate power systems within secure voltage limits and maintain power quality, despite the presence of intermittent generators whose outputs may well be several times the amount of load supplied from the connecting feeder.</p> <p>Whilst this report expresses concern over voltage stability control issues, and notes that the reliability panel is</p>

³ It should be noted that high prices are expected to have a significant impact on energy consumption, but will only marginally impact on demand.

	<p>reviewing access standards, the reliability panel recommended that the National Electricity Rules should not prescribe standards for non-registered generators as the impacts will only <i>be localised</i>. Thus it appears that connections of multiple small generators to a distribution system will not be covered by technical standards within the Rules. This is not a satisfactory situation for the customers, whose interests the Rules are intended to protect.</p>
A5: Connecting new generators to energy networks	
General	<p>It appears that there is an overlap with the current MCE connection arrangement consultations. The MCE is establishing a National Framework for Electricity Distribution Networks and is considering connection arrangements and capital contributions policy as part of the framework. DNSPs will play an important role in connecting embedded generators to the network and part of the MCE policy objective is to simplify connection for embedded generators to distribution networks and to establish a nationally consistent approach to capital contributions. EnergyAustralia requests that the AEMC consider the scope of the work being undertaken as part of the creation of a National Framework for Electricity Distribution Networks.</p> <p>The connection of embedded generation is an important issue at a distribution level for technical reasons. The CPRS and RET may see an increase in the connection of micro, mini and medium embedded generators. This increase may impact on network system planning. The DNSPs need to assess connection applications to ensure that network reliability and security is not hindered. These issues need to be considered by the AEMC.</p>
A5.1: Do you agree that the connection of new generators to energy networks is a significant issue that should be further progressed under this Review? If not, what are your reasons for reconsidering this position?	<p>Yes, this is a significant issue for distribution business that should be further progressed. EnergyAustralia has serious concerns with the current approach to policy development for connections to distribution networks. Currently there is fragmented policy development covering 3-4 different workstreams across different policy making bodies and working parties. It is difficult to see any outcome under such a fragmented approach advancing the NEM objective. We request that the AEMC ensure that the issues identified as part of this review are considered and integrated into the policy development work being undertaken through the MCE SOC processes.</p> <p>Additionally, in considering system operation with increased intermittent generation, EnergyAustralia considers that power quality and fault levels are other important technical challenges that need to be addressed. Not every location of an urban network can cope with large amounts of embedded generation. Some locations have already reached the limit of tolerable fault level and cannot be easily, economically or practically augmented to cater for higher fault levels.</p> <p>Another issue is that the potential increases in embedded generation could impose strains on resources in assessing a high volume of applications. Each application needs to be individually assessed and assessed against and in conjunction with other applications that are in progress or anticipated.</p>
A5.2: Would any of the models identified in this chapter ensure the more efficient delivery of network connection services? In particular, with relation to	<p>We agree with the comment that existing models of bilateral negotiation for new connections increases significant risk of costs and delays. However we don't believe that any of the proposed models properly address the issue.</p>

<p>these models:</p> <ul style="list-style-type: none"> How should the risks of connection be most appropriately spread across new connection parties, network businesses and end use consumers? How do the connection charges change for connecting new generation plant and benefits may arise? 	<p>We would like to see a more co-ordinated approach to deal with connections related issues which would incorporate a broader consideration of issues that will ultimately improve outcomes for customers, generators, retailers and network providers. As a minimum, we would like to see a better delineation between load and generation connections so that connection arrangements can be specifically tailored depending on use. There may also be some benefit in delineating “deep” from “shallow” arrangements more clearly. Finally it may be beneficial to consider the impact of remote versus meshed connections – as what works for one type of connection may not work for the other.</p> <p>The AEMC has alluded to problems in applying the current bilateral negotiation approach in establishing connections for clusters of remote generators. That is, it may be difficult for TNSPs to develop a connection solution that would be efficient for multiple connecting parties in the same location. In the future, EnergyAustralia may face the likelihood of more embedded generators seeking to connect to its network within a close period of time. The same issues as set out by the AEMC for clustered remote generation would also apply to urban distribution networks. The AEMC needs to consider aspects of the form of economic regulation and funding arrangements applying to network connection and augmentations in light of a greater proliferation of embedded generators.</p>
<p>A5.3: Are there any other potential models that we should consider to address this issue?</p>	<p>This section considers connection issues to TNSP's but ignores the issues associated with connection to the distribution system.</p> <p>Whilst the paper indicates that much of the renewable plant will be built in small units, it completely fails to consider that connection may be to other than the transmission network. This is not realistic as many small plants, particularly in remote areas will connect to the distribution system</p> <p>The frameworks for connection vary between distribution and transmission. With the current connection frameworks for distribution being under review. Care must be taken to ensure that connection costs for transmission and distribution are not distorted in relative terms by the varying connection frameworks. Any differences in cost allocations between distribution and transmission regimes will tend to drive connection applications towards the least cost solution for the proponent rather than the most economically efficient. (eg if a proponent pays less for a distribution than a transmission connection, due to the different customer contribution frameworks, there will be a substantial incentive to apply for distribution connections).</p> <p>Given the different connection frameworks and the comparatively much greater impact of intermittent generation on distribution systems, the issues discussed in A5 require review from a distribution context. These issues also need to be considered in the present review of distribution connection arrangements.</p>
<p>A6: Augmenting networks and managing congestion</p>	
<p>A6.1: Do you agree that the issue of network congestion and related costs requires further examination in the Review to determine its</p>	<p>The more fundamental questions that need to be asked are:</p> <ul style="list-style-type: none"> Whether the incentives to invest in the shared network are adequate. This will involve considering whether the economic regulation and the network planning process under the Rules can adapt to the

<p>materiality? This includes considering whether the existing frameworks provide signals that are clear enough and strong enough in the new environment where congestion may be more material. If not, what are your reasons for reconsidering this position?.</p>	<p>changes in the demands on networks; and</p> <ul style="list-style-type: none"> • How should funding of any required augmentations in the shared network be apportioned between the embedded generators and network service providers . <p>This issue also needs to be reviewed to consider both transmission and distribution networks. EnergyAustralia notes that the AEMC has received a reference from the MCE with respect to the National Framework for Electricity Distribution Network Planning and Expansion. The MCE has requested the AEMC to report on that review by 30 September this year, the same date as the final report for this review is due. It is obviously critical that the issues raised in the context of this review of energy market frameworks in the light of climate change policies need to be considered in the context of the Commission's more general review of network planning and expansion.</p> <p>In addition to capacity issues (resulting in system constraints), distributors face other issues such as the impact of generators on fault levels and voltage. Connection costs presently vary between jurisdictions and whilst consideration is presently being given to revising connection requirements, there is a need to consider how 'deep" connection costs, such as those required to address fault duty issues should be addressed.</p>
<p>A7: Retailing</p>	
<p>A7.1 Do you agree that the current inflexibility in the retail price regulatory arrangements is a significant issue that should be progressed further under this review? If not, what are your reasons for this position?</p>	<p>EnergyAustralia supports the AEMC's investigation of retail regulatory frameworks and the flexibility afforded to retailers in the context of CPRS. However, as noted in our covering letter, the economic regulatory framework for distribution businesses, or at least the framework that applies to NSW businesses, also has a degree of inflexibility which is magnified with the introduction of CPRS during our next regulatory control period. This is also a significant issue that should be progressed further under this review.</p> <p>From a retail perspective, the CPRS and expanded RET will result in further uncertainty on top of the already complex process retailers face in managing their risks and costs. This will, inevitably, lead to increased costs. At a minimum, and in order to be able to better manage their risks and costs, it is important that retailers be able to pass through to end use customers, in full, carbon related costs imposed on them by the CPRS and RET. Without this, the true cost of the schemes will not be accurately reflected in the prices customers pay and the behavioural changes sought (which are key objectives of the schemes and add to emissions reductions targets) will not be realised.</p> <p>The importance of this was recognised by the MCE at its December 2008 meeting in its discussions relating to flexibility of price regulation within the jurisdictions. As such, it is important that the jurisdictions, in making any future pricing determinations, incorporate carbon costs into their methodologies so that full pass through of costs is achieved. To this end, and to provide greater certainty to retailers that this will be done, it will be necessary that all jurisdictions work off a single set of guiding principles with respect to pass through costs. There would be</p>

	<p>no rational justification for any departure from these principles. The scope and detail of these principles would, from a timing perspective, be better dealt with in the Commission's 2nd Interim Report as clarity around the schemes continues to emerge. The establishment of a program of work to address this should be a priority of the MCE.</p> <p>Irrespective of whether prices remain regulated or, as in the case of Victoria, have regulation removed, it will be crucial that retailers be afforded the ability and flexibility to make timely and appropriate adjustments to the prices charged to end use customers where uncertainty delivers outcomes that diverge from what was anticipated. This would include instances of both under and over recovery. The mechanisms by which this would occur should also be included in the above program of work.</p>
<p>A7.2: Do you agree that the limitations with the current RoLR arrangements are a significant issue that should be progressed further under this Review? If not, what are your reasons for this position?</p>	<p>EnergyAustralia has been monitoring the developments undertaken by the MCE in relation to the development of a national framework for ROLR and has been pleased with the direction this has taken to date. With the anticipated policy paper due out in coming months, it is EnergyAustralia's preference to refrain from commenting specifically on this issue at present. It is envisaged that while by name CPRS and RET may not be specifically mentioned in the policy paper they will, in effect, be catered for in the general methodology relating to the cost risks faced by retailers in a ROLR event.</p>
<p>A7.3: Are there any additional options that could supplement the processes currently under investigation to address these issues?</p>	<p>No comment.</p>
A8: Financing new energy investment	
<p>A8.1: Do you agree that the current energy market frameworks do not impede the efficient financing of the significant increase in investment implied by CPRS and expanded national RET? If not, what are your reasons for this position?</p>	<p>No comment.</p>

570 George Street
Sydney NSW 2000

Address all mail to
GPO Box 4009 Sydney
NSW 2001 Australia

www.energy.com.au



13 February 2009

Mr Ian Woodward
Chairman
The Reliability Panel
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Email to: Panel@aemc.gov.au

Dear Mr Woodward

EnergyAustralia's submission on the Reliability Panel's draft report on technical standards

EnergyAustralia welcomes the opportunity to respond to the Reliability Panel's (Panel) draft review of technical standards in the National Electricity Rules (Rules). We consider the principles in the draft report will provide an effective framework for the AEMC to conduct its forthcoming review of the content of technical standards in the Rules. In particular, EnergyAustralia strongly supports the Panel's recommendations for clear and measurable technical standards in the Rules and transparent processes to ensure ongoing compliance with these standards.

EnergyAustralia is concerned with the Panel's recommendation that the Rules should not include technical requirements for non-registered generators (including embedded generators). In this submission, we note that non-registered generators impact on the performance and reliability of a distribution network and therefore on a DNSP's ability to comply with its network performance requirements under the Rules. To address this concern, the Rules should include high level principles that expressly permit a DNSP to impose technical standards on a non-registered generator to enable the DNSP to comply with its performance requirements.

In its draft report, the Panel examined an issue raised in Energex's submission concerning the technical standards that should apply to embedded generators. The Panel noted that embedded generating units over 30MW are required to register with NEMMCO and are therefore required to comply with the technical requirements in the Rules. It also observed that NEMMCO exempts generating units with capacity of less than 5MW, and sometimes between 5MW and 30MW, from registration.

After examining the issues raised by Energex, the Panel concluded that non-registered generators should not be required to comply with technical standards in the Rules. It noted at p 27:

"Generators exempt from registering would generally have minimal impact on the power system, and any impact would be largely local. It would be inefficient to require such generators to comply with standards developed to apply across

the NEM, when potentially less onerous and less complex standards could satisfy the requirements of the local network.”

We consider the Panel has not fully appreciated the significant local impacts that non-registered generating units have on the performance of a distribution network. Chapter 5 of the Rules is concerned with ensuring access to the national grid in a manner which does not interfere with the operation of and performance of the power system by NEMMCO and NSPs in accordance with Chapter 4. Chapters 4 and 5 impose specific obligations on NSPs to meet network performance requirements. It is EnergyAustralia’s experience that embedded generating units of less than 5MW in capacity can significantly impact on a DNSP’s ability to meet these requirements particularly those relating to voltage fluctuations and harmonic voltage. Consequently, we consider the Rules should be concerned with technical standards for non-registered generators to enable a DNSP to fulfil its requirements under the Rules.

In addition to significant local impacts, we note that small embedded generators can also adversely affect the overall power system. For example, many non-registered generating units in our network are technically ill-equipped to withstand voltage dips arising from faults on the transmission system and consequently disconnect from the distribution network when the fault occurs. While this type of problem may not impact power system stability in the short term when the total amount of embedded generation is small, an increase in the number of embedded generators¹ has potential to have more than localised impacts should common mode outages occur. We therefore consider it prudent to impose technical requirements on embedded generators to ensure that the equipment connected to the network does not adversely affect the power system in the medium to long term.²

The current Rules do not provide sufficient certainty with respect to the application of technical requirements on non-registered generators. Schedule 5.2 of the Rules³ can apply to non-registered generators which are connected or intended for use in a manner that the DNSP considers is likely to cause a ‘material degradation in the quality of supply to other network users.’⁴ . The Rules do not clarify the criteria for a ‘material degradation’, nor do they specify a process which clearly establishes whether Schedule 5.2 applies to a particular generator. It might be inferred that the DNSP would not allow connection in a manner which is likely to cause a material degradation in supply quality, but again there is no clear process for this and the compliance obligations upon the generator are uncertain. This uncertainty may result in protracted access negotiations and disputes between the DNSP and a connecting generator. Further, the Rules are unclear on whether a DNSP can impose technical standards on connecting parties if the DNSP considers that the connection may cause damage to its assets (without affecting power quality).

We submit that the Rules should include a clear provision to permit a DNSP to assess the likely impact of a generator connecting and impose technical requirements (including from Sch 5.2 where appropriate) on embedded generators which are necessary to enable the DNSP to comply with its Rules obligations with respect to quality, safety and reliability of the network. This assessment would take place as part of the connection process and where Sch 5.2 is applied it should be notified to NEMMCO

¹ The City of Sydney is for example proposing that 330MW of embedded generation should be installed in the CBD.

² This would also avoid having to impose technical standards on embedded generators on a retrospective basis if issues with power system security arise in the future.

³ Schedule 5.2 of the Rules sets out the technical standards that apply to registered generators.

⁴ Schedule 5.2.1 of the Rules states that: Schedule 5.2 does not apply to any generating system that is: (1) subject to exemption from registration under clause 2.2.; or (2) eligible for exemption under any of the guidelines issued under clause 2.2.1(c), and which is connected or intended for use in a manner the Network service Provider considers is unlikely to cause a material degradation in the quality of supply to other network users.

for compliance purposes. Compliance and enforcement of these matters should not be left to the NSP as part of the connection agreement. The Rules should also:

- permit a DNSP to obtain all necessary information and assurances relating to the impact of the embedded generator on the performance and reliability of the network; and
- ensure ongoing compliance by the non-registered generators with the technical standards in the connection agreement.

In addition to Rule requirements discussed above, EnergyAustralia considers it would be beneficial to develop nationally consistent technical standards for each generation class below 30MW. We note that Australian Standards currently apply to inverter connected units up to 10kVA for single phase and 30kVA for three phase units. Similarly, we consider that an industry code could set out uniform technical standards for other types of generation below 30MW. The industry code would need to be sufficiently flexible to allow DNSP's to take into account the particular circumstances of the network when imposing standards on connection applicants.⁵

We note that the Energy Networks Association (ENA) or StandardsAustralia would be an appropriate body to develop national technical standards for generators under 30MW. ENA recently released a policy framework discussion paper on embedded generation in November 2008, which discussed the issue of technical requirements for generators. We refer the Reliability Panel to the report and support the views of ENA that it may be beneficial to develop technical standards requirements for each generation class below 30MW.

In summary, we consider the Panel should re-consider its recommendation not to include Rules relating to technical standards for non-registered generators. Our view is that the Rules should include provisions that would enable DNSPs to impose technical requirements on non-registered generators if the connection has the potential to adversely impact a DNSP's ability to meet its obligations under the Rules. In addition to this, we consider that the Panel should recommend that ENA or StandardsAustralia develop a set of national technical standards for different types of generating units less than 30MW.

On a final matter we note that the Reliability Panel's review is being undertaken concurrently with the MCE's review into national distribution connection and planning arrangements. We consider there would be merit in policy makers adopting a consensus approach on the connection arrangements which should apply to embedded generators under the Rules.

Should you have any questions in relation to this submission please contact Ms Catherine O'Neill on (02) 9269 4171.

Yours sincerely



TREVOR ARMSTRONG
Executive General Manager (Acting)
System Planning & Regulation

⁵ We note that size, location, technology and timing are all factors that a DNSP needs to assess to establish whether an embedded generator will adversely impact on a DNSP's network performance requirements.