

20 February 2009

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Australian Energy Market Commission  
Level 5, 201 Elizabeth Street  
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Dear John,

### **Review of Energy Market Frameworks in Light of Climate Change Policies**

Grid Australia makes this submission in response to the AEMC's 1<sup>st</sup> Interim Report released on 23 December 2008 in relation to its Review of Energy Market Frameworks in light of Climate Change Policies.

Grid Australia considers that any modifications to frameworks relating to transmission need to be realistic in light of the investment climate shaped by the AER's final decision on WACC.

Grid Australia supports process changes that would improve the efficiency of the current arrangements for establishing new connections to the network. The following specific changes are recommended:

- progressing the Grid Australia proposal to modify clause 5.3.8 of the National Electricity Rules (NER)<sup>1</sup>;
- permitting TNSPs to adopt an 'open season' approach, to complement the existing bilateral negotiation framework; and
- implementing the Reliability Panels proposed 'top down' approach to establishing generator technical performance standards.

In addition to these changes Grid Australia supports the AEMC's Option 2 for ensuring that network extensions to remote renewable generators are of an optimal size. The AEMC will need to ensure that the rate of return on network investments made under Option 2 remains attractive relative to the actual cost of capital.

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<sup>1</sup> Grid Australia Rule Change Proposal: Confidentiality Provisions Clause 5.3.8, 20 February 2009.

Finally, in order to manage any additional congestion that may arise on the transmission network as a result of the expanded RET and the CPRS, Grid Australia makes the following recommendations:

- the investment environment must be conducive to stimulating any increased investment that is required, including not only adequate rates of return, but also amendments to the transmission revenue rules to include climate change policies in the assessment criteria in clauses 6A.6.6 and 6A.6.7 of the NER; and
- incentives to maximise available network capacity must only focus on aspects of operations that are under TNSPs control.

The attached submission expands on the above summary of Grid Australia's position in relation to the AEMC's 1<sup>st</sup> Interim Report.

Grid Australia would welcome the opportunity to discuss any aspect of this submission with the Commission or its staff.

Yours sincerely,



Rainer Korte  
**Chairman**  
**Regulatory Managers Group**

# Review of Energy Market Frameworks in Light of Climate Change Policies

Response to AEMC 1<sup>st</sup> Interim Report

20 February 2009

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## 1. Introduction

Grid Australia makes this submission in response to the AEMC's 1<sup>st</sup> Interim Report released on 23 December 2008 in relation to its Review of Energy Market Frameworks in light of Climate Change Policies.

Grid Australia comprises ElectraNet Pty Limited, Powerlink Queensland, SP AusNet, Transend Networks Pty Ltd and TransGrid. Collectively, this group owns and operates over 40,000 km of high voltage transmission lines and has assets in service with a current regulatory value in excess of \$10 billion.

In this submission, Grid Australia focuses on those issues identified by the AEMC in its Report that have direct relevance to the future planning and development of electricity transmission networks, specifically:

- Issue A5: connecting new generators to energy networks;
- Issue A6: Augmenting networks and managing congestion; and
- Issue A8: Financing new energy investment

The efficient development of the electricity transmission network is a key element in meeting the objectives of the Carbon Pollution Reduction Scheme (CPRS) and the 20 per cent Renewable Energy Target (expanded RET). The AEMC explicitly recognises the desirability of providing adequate incentives for transmission investment in its Report:

*The desired market outcome is for energy market frameworks to promote efficient use of and investment in the network through decentralised decision-making by individual market participants. [...] This requires [...] regulated networks to have the right incentives to operate and invest in networks over time.<sup>1</sup>*

In this context, Grid Australia notes that the regulatory WACC relative to the actual cost of capital for transmission businesses will be pivotal in determining whether the transmission investment that will be needed to meet climate change targets proceeds. The AER's December 2008 statement on WACC<sup>2</sup>, if left unchanged in its final statement, represents a material, adverse shift to a level of WACC that compares unfavourably with the actual costs of capital. The AEMC's own consultants have recognised this issue, and its importance in the context of the current review:

*[...] While not part of the scope of this report, the issue of a reducing regulatory WACC is material in the context of the other factors affecting the energy sector which all go to the risk and reward that can be achieved on an investment. [...] it is expected that the risk*

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<sup>1</sup> AEMC, 1<sup>st</sup> Interim Report, p. 42.

<sup>2</sup> AER, *Electricity transmission and distribution network service providers, Review of the weighted average cost of capital (WACC) parameters*, December 2008

*premium required on investments will increase, with those in the regulated energy sector being no exception.*

*As a result, where private capital that is invested in regulated networks is mobile the CPRS and the RET may be the last straw. It appears that if additional capital is required to be committed to augment the network to deal with changing demand profiles, the capital will not be applied without significant additional incentives to those that exist under the current proposed CPRS, RET and regulatory arrangements.*

*To the extent that private capital is not available Government will need to fill the gap, or the efficiency of energy markets will diminish.<sup>3</sup>*

## 2. Summary of Grid Australia Position

Grid Australia notes that it can be argued that because a framework for reviewing WACC already exists, the AEMC does not need to deal with this matter. However, there is little point in the AEMC modifying frameworks for transmission augmentations (e.g. Issue A5 – grid extensions) in a way which requires more regulated investment, if the investment settings (regulated WACC) are such as to render the framework changes ineffectual in practice.

Therefore, Grid Australia considers that any modifications to frameworks relating to transmission need to be realistic in light of the investment climate shaped by the AER's final decision on WACC.

With this in mind Grid Australia supports process changes that would improve the efficiency of the current arrangements for establishing new connections to the network. The following specific changes are recommended:

- progressing the Grid Australia proposal to modify clause 5.3.8 of the National Electricity Rules (NER)<sup>4</sup>;
- permitting TNSPs to adopt an 'open season' approach, to complement the existing bilateral negotiation framework; and
- implementing the Reliability Panels proposed 'top down' approach to establishing generator technical performance standards.

In addition to these changes Grid Australia supports the AEMC's Option 2 for ensuring that network extensions to remote renewable generators are of an optimal size. The AEMC will need to ensure that the rate of return on network investments made under Option 2 remains attractive relative to the actual cost of capital.

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<sup>3</sup> S3 Advisory, *Financing the future energy sector investments in Australia: The potential effects of the Carbon Pollution Reduction Scheme and Renewable Energy Target*, (S3 Financing Paper), December 2008, p. 50.

<sup>4</sup> Grid Australia Rule Change Proposal: Confidentiality Provisions Clause 5.3.8, 20 February 2009.

In order to manage any additional congestion that may arise on the transmission network as a result of the expanded RET and the CPRS, Grid Australia makes the following recommendations:

- the investment environment must be conducive to stimulating any increased investment that is required, including not only adequate rates of return, but also amendments to the transmission revenue rules to include climate change policies in the assessment criteria in clauses 6A.6.6 and 6A.6.7 of the NER; and
- incentives to maximise available network capacity must only focus on aspects of operations that are under TNSPs control.

### **3. Issue A8: Financing new energy investment**

A critical issue identified by the AEMC in its 1<sup>st</sup> Interim Report is that of the adequacy of the financing arrangements for new energy investment, including new transmission investment.

The AEMC considers that the desired market outcome is for the required level and form of new investment to be financially viable at a reasonable cost, and that energy market frameworks do not increase unnecessarily the risks and costs of investments. Grid Australia concurs with this assessment.

Grid Australia notes that this issue cuts across the issues relating to connecting new generators and augmenting the network discussed in the following sections, given that the rate of return allowed on regulated investments is a key driver for regulated network investment and also influences the outcomes reached for negotiated and non-regulated investments.

The AEMC concludes in its 1<sup>st</sup> Interim Report that existing frameworks support the additional financing of the large step increase in investment in the energy sector that will be required as a result of the CPRS and the expanded RET.

While there is a framework for periodically reviewing regulatory WACC, it is the outcome of those reviews – and not the existence of such a framework – which are significant in the context of the willingness of investors to invest in transmission infrastructure. It would be prudent for the AEMC to consider its proposed changes to the frameworks for transmission development in the light of the AER's final decision on WACC.

### **4. Issue A5: Connecting new generators to energy networks**

The AEMC has characterised the desired market outcome as being one that ensures that the connection of new generation to the energy networks is efficient and timely. To achieve this, the AEMC considers that the connection process needs to promote:

- the timely consideration of connection applications by TNSPs (both larger volumes of applications and multiple connections in the same area);
- efficient cost-reflective pricing for new connections, to provide an efficient location signal to new connecting parties; and

- an efficient level of investment in connection assets and network infrastructure, including connecting multiple parties in the same location at the same time ('clustering') and allowing potential for future connecting parties.

Grid Australia agrees with the AEMC's characterisation of the objectives for connecting new generators, and with its assessment that the current frameworks provide efficient location signals.

However, Grid Australia considers that it is important to recognise that there are two distinct issues in relation to connecting new generation, which are likely to require two distinct solutions:

1. The ability to process connection applications in clusters and to deal with an increase in the number of connections as a result of the expanded RET and CPRS; and
2. The arrangements to ensure that extensions to the existing network to connect remote renewable generation are sized appropriately, and that the risks that future generation does not materialise are borne appropriately.

The AEMC distinguishes these issues in its discussion in the 1<sup>st</sup> Interim Report, but has not distinguished them in the options it has put forward to address the perceived shortcomings of the current regime. The remainder of this section considers each of these issues in turn.

#### **4.1 Ability to process a large number of connection applications**

The AEMC comments in its Report that TNSPs typically receive around 3 connection applications a year, and that this may increase to 10 as a result of the expanded RET.<sup>5</sup> Grid Australia considers that, based on experience to date, this level of increase is feasible and, in at least some regions is already occurring. However, the exact numbers are uncertain and they are expected to vary from region to region.

The ability to process a large number of connection applications is largely a procedural issue. Grid Australia considers that, based on experience to date, the current bilateral negotiation process for connections is unlikely to require substantial modification to address an increase in the volume of connection applications. However, the complexity of processing a large number of connection applications in a timely fashion has been an issue in a number of overseas jurisdictions, following the introduction of renewable energy targets.

It also appears likely that, going forward, the size of generators seeking connection may fall, as wind-generators tend to be of a smaller scale than traditional thermal generators. Therefore, it would be prudent for the AEMC to consider whether process changes would improve the efficiency of the current arrangements, given the potential for an increased number of smaller sized connection facilities. However, any changes should complement, rather than replace or complicate, the existing arrangements.

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<sup>5</sup> AEMC, 1<sup>st</sup> Interim Report, p. 39.

#### 4.1.1 Group processing approach to connection applications

The AEMC identifies the confidentiality provisions in NER 5.3.8 as a barrier in relation to processing connection applications in clusters.<sup>6</sup> Grid Australia considers that an appropriate solution is to amend this provision. Grid Australia has recently submitted a Rule Change Proposal in this regard.<sup>7</sup>

In addition, the AEMC's Option 1 (an 'open season') is one way of addressing the practical issue of dealing with a large number of connection applications in the same area. Such an approach streamlines the process for applications, by providing a periodic time window within which applications are received. It also improves the efficiency of the network planning process, as it allows for a 'group study' approach for applications that are in a similar area.

The 'open season' approach for connection applications has been adopted in a number of overseas jurisdictions. Grid Australia highlighted in its earlier response to the AEMC's Scoping Paper the reforms that have recently been approved by the Federal Energy Regulatory Commission (FERC) in the US for connection requests for generators in California above 20MW.<sup>8</sup> Under these reforms, 'cluster windows' of a period not exceeding 180 days are opened, during which time connection requests are accepted. The Initial Queue Cluster Window was opened from 11 August 2008 to at least 7 February 2009. Within 60 days of the close of each queue cluster window, a scoping meeting will be held to discuss reasonable commercial operation dates and alternative connection options with each connection customer. Following the scoping meetings base cases will be developed for study.

A similar group processing approach has been adopted in Ireland, for renewable generation. The group processing approach was introduced by the regulator and the system operators in December 2004 as a practical way of processing the large number of renewable connection applications, typically from wind farm developers.<sup>9</sup> The approach adopted essentially involves connection applications from renewable generators being processed under defined criteria simultaneously in batches (known as 'Gates'), with the eligible applications broken into geographic groups depending on their level of interaction.<sup>10</sup>

*The philosophy of the Group Processing Approach is the most workable solution put to the Commission. At a time of unprecedented connection applications, the group approach has many advantages over the conventional individual processing approach which has all the pitfalls, uncertainties and potential administrative uncertainty associated with 'interacting offers'. This has been widely accepted. The Commission accepts that there*

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<sup>6</sup> AEMC, 1<sup>st</sup> Interim Report, p. 38.

<sup>7</sup> Grid Australia Rule Change Proposal: Confidentiality Provisions Clause 5.3.8, 20 February 2009.

<sup>8</sup> FERC, Generator Interconnection Process Reform (GIPR), September 26, 2008.

<sup>9</sup> The approach adopted in Ireland covers a time window for applications and the group processing of applications. It also covers a process for selecting specific quantities of wind generation.

<sup>10</sup> The details of the initial regime are set out in the Commission for Energy Regulation's direction of April 2005 (CER/05/049).

*are inherent complexities involved, both with the philosophy itself and with adopting the rules to accompany it, but it is the most practical and efficient way of dealing with the huge demand for network capacity from renewable generators.<sup>11</sup>*

There have been three Gates for connection applications, since the adoption of the approach. The exact arrangements that have applied under each of the Gates has varied, based on the experience of the previous Gates. The most recent Gate Criteria were issued in December 2008<sup>12</sup>, catering for an additional 3,900 MW of wind power connections which are required to meet the Government's 40% renewable penetration target.

In order to implement this approach in the NEM, the Rules would need to provide for an appropriate length of the open season 'window' (eg, 3 months) and the frequency with which the process could be repeated (eg, annually). Following the closure of each application window, the TNSP would then complete the connection application process for all applicants in accordance with the existing process set out in Chapter 5.3 of the NER. Grid Australia notes that it may be appropriate to amend some of the existing timeframes in Chapter 5.3.

Finally, Grid Australia stresses that the adoption of a clustering or open season process would need to be supported by amendments to NER clause 5.3.8 (in order to facilitate consideration of applications in clusters) and could be adopted alongside other measures to address the separate issue of the 'right sizing' of grid extensions (discussed in the following section). It should also not replace the existing framework of bilateral negotiation of connection arrangements, but be an available, complementary measure.

#### **4.1.2 Access standards for connection**

Grid Australia notes that a further aspect of the connection process that has the potential to delay connection applications is the negotiation of appropriate access standards. In contrast, in other jurisdictions (for example the United Kingdom and Ireland) deviations from the base standards are only permitted in exceptional circumstances. In the case of Ireland, Grid Australia understands that this approach has been of assistance in processing the very large number of wind generator connections occurring in that jurisdiction.

Negotiation of access standards for new generator connections can become a complex and time consuming element in the overall process of establishing a new connection. Grid Australia notes that the Reliability Panel ('the Panel') is currently considering this issue as part of its Technical Standards Review. Grid Australia considers there is the opportunity for the Panel's review to contribute to further streamlining of the connection process.

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<sup>11</sup> Commission for Energy Regulation, *Group Processing Approach for Renewable Generator Connection Applications, Connection and Pricing Rules*, 6 April 2005, CER/05/049, p. 5.

<sup>12</sup> Commission for Energy Regulation, *Criteria for Gate 3 Renewable Generator Offers & Related Matters, Direction to the System Operators*, 16 December 2008, CER/08/260

In this regard, Grid Australia strongly supports the “top down” approach proposed by the Panel, to replace the existing “bottom up” approach. The proposed principle that requires connection applicants to prove why their plant cannot meet an automatic access standard is an essential element of the “top down” approach. This change would move the default starting point for negotiations away from the minimum access standards and toward the automatic access standards. This in turn will reduce the complexity of analysis and negotiation to establish new connections and result in a further streamlining of the connection process, helping to address concerns expressed by the AEMC in its 1<sup>st</sup> Interim Report.

#### 4.2 Ensuring that network extension to remote renewable generation is of an optimal size

The second issue raised in the AEMC’s 1st Interim Report is that of ensuring that network extensions to connect remote renewable generation are of an optimal size and that first mover disadvantages do not represent an insurmountable hurdle to the development of such extensions.<sup>13</sup>

The AEMC has set out four options for addressing this issue in its report:

**Option 1:** Maintain the current bilateral negotiation regime, but permit each TNSP to declare an ‘open season’ for new connection applications in specified geographical areas.

**Option 2:** Introduce a new regime for extensions to the network to form new ‘hubs’ for remote renewable generation (i.e. Network Extensions for Remote Generation or NERGs). Bilateral arrangements for connection at the hub would remain as currently.

For the extension, the following process would be followed:

- potential candidate extensions would be identified, but only proceeded with if an economic test is met;
- once financially backed commitments by new generators to pay for a pre-specified proportion of the extension are received, then the economic test would be met;
- generators would pay a proportion of the cost of the extension, based on the capacity they use;
- the remaining costs would be recovered via regulated transmission charges under the contingent project mechanism.

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<sup>13</sup> The AEMC states in its report that both the connection service and the extension line from the generator to the connection point are defined as negotiated transmission services in the NER, and fall under the negotiate/arbitrate model (AEMC 1<sup>st</sup> Interim Report, p.37). This is in fact incorrect. Only connection services fall within the definition of negotiated transmission services, whilst the extension of the network is an unregulated service. Allowing such extensions to be unregulated means that there is scope for bilateral negotiations to agree terms suiting commercial need, such as committing the TNSP to deliver a project by an agreed date or be subject to liquidated damages. Such outcomes are highlighted by the AEMC (1<sup>st</sup> Interim Report, p. 39) as being desirable features of any regime for connections.

**Option 3:** Same as option 2, but the NTP would determine whether the economic test was met (rather than the TNSPs)

**Option 4:** Same as option 2, but all of the costs of the extension would be recovered from (i) customers via regulated TUOS charges; or (ii) an external source (e.g. Infrastructure Australia Fund). None of the costs would be recovered from the remote generators.

Grid Australia supports market-led development of extensions (as is currently the case), where possible, and considers that such arrangements can sit alongside other mechanisms for underwriting the cost of additional capacity, where market-led development is not possible (i.e. Option 1 can coexist with any of Options 2, 3 or 4). Market-led development of extensions is most feasible when it involves a relatively small coalition of generators (existing and future) adjacent to the ‘hub’ in question. This approach proves more challenging when the number of prospective generators increases and the generation in the area concerned evolves over time.

Of Options 2, 3 and 4, Grid Australia supports a variant of Option 2, under which an addition to the WACC is allowed for that proportion of any NERG that is funded by TUOS charges. This approach has precedents internationally, and is discussed further in section 4.2.3.

In the event that additional incentives are not provided under Option 2, then Grid Australia considers that the AEMC’s proposed variant of Option 4 would need to be considered, under which the cost of the extension would be funded from the Infrastructure Australia Fund (either in full, or the cost of the excess capacity over and above existing generator commitments).

The remainder of this section discusses each of the above options.

#### **4.2.1 Market-led development (Option 1)**

Grid Australia supports market-led development of extensions where these can be achieved, and believes that the development of arrangements which involve varying degrees of socialisation of the costs (e.g. Options 2, 3 and 4) should not preclude developments which can proceed without such socialisation.

Option 1 as set out by the AEMC represents a form of market-led approach, under which the market would determine the appropriate size of the network extension. Under this approach, a coalition of willing partners (e.g. generators, retailers, TNSP) could agree to finance the extension of the network. Alternatively, a single party (e.g. a generator) may proceed with the extension, and decide to take on the risk that others will later utilise the link.

The market-led approach could potentially be facilitated by TNSPs conducting an ‘open season’ for new network extensions, as proposed by the AEMC under Option 1. Under this approach, the TNSP may elect to provide the opportunity for other generators to also submit an application in areas where an expansion application has been received and there appears to be potential for additional future generation. As noted above (section 4.1.1), the adoption of an open season-type approach could also address the separate issue of improved processing of an increased number of connection applications.

Grid Australia notes that the AEMC's proposed Option 1 permits the TNSPs to conduct an open season, but does not prescribe this approach.<sup>14</sup> Grid Australia considers that this flexibility to allow for different means of facilitating market-led development is necessary.

Grid Australia noted in its earlier response that there may be some practical challenges with a market-led approach. Generators may be at different stages of their project development. Consequently, getting a financial commitment from all potentially interested parties at the same time may prove difficult. Thus, while it is not prudent for the AEMC to rely solely on market-led approaches, it is also important that the opportunity for market-led development of extensions is preserved, and these should not be inadvertently crowded out by the design of the other frameworks.

Specifically, market-led development of extensions is most feasible when they involve a relatively small coalition of generators (existing and future) adjacent to the hub in question. However issues may arise as the number of prospective generators increase and where separate generators establish over extended time frames.

In short, the AEMC should work on the basis of Option 1 **plus** a complementary implementation of Option 2 (with an addition to the WACC) or, in the event that this is unacceptable to the AEMC, Option 4. Option 3 should not be adopted..

#### 4.2.2 Importance of the regulatory WACC in determining incentives under Option 2

Option 2 is similar to that put forward by Grid Australia in response to the Scoping Paper. Under this approach, commercial negotiations are entered into between the TNSP and generators in relation to the provision of transmission capacity to NERGs. In the event that the optimal capacity of the extension has been identified by the NTP (through the NTDP process) to exceed the capacity that is covered by commercial negotiations, additional capacity to extend the network to remote areas to connect renewable generators is underwritten through regulated charges. The result is that generators pay for the amount of the extension that they use, and customers underwrite the risk that future generators do not locate in that area.

Option 2 builds on the current regulatory framework to provide a mechanism to address the issue of optimally sizing extensions to remote renewable generators and to share the risk associated with those developments. The proportion of the NERG funded by generators would be based on bilateral negotiations, with the remaining proportion subject to a regulatory process.

Option 2 expands the requirement for regulated investment and is, therefore, dependent upon the attractiveness to investors of the regulated WACC (relative to their actual cost of capital). In this context, the AER's December position statement on WACC is potentially problematic.

The framework modification being proposed by the AEMC will need to be realistic in light of the AER's Final decision on WACC, and it might be prudent for the AEMC to

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<sup>14</sup> AEMC, 1<sup>st</sup> Interim Report, p. 40.

develop an alternative approach which does not rely on the attractiveness or otherwise of the regulatory WACC.

#### 4.2.3 Proposed variant to Option 2

Absent the concerns about the regulatory WACC, Option 2 provides an appropriate mechanism to address the issue of optimally sizing extensions to remote renewable generators that Grid Australia would support. This could be most useful in situations where there is a realistic prospect of multiple new generation developments at or near the remote end of an extension over time. As noted, Grid Australia believes it would be prudent for AEMC to have an alternative solution, in the event that the final regulatory WACC remains unattractive relative to the actual cost of capital.

##### Allowance for an increased rate of return

Grid Australia considers that such an alternative would involve a prescribed increased rate of return relative to the regulatory WACC.

This approach has precedents internationally. In particular, in the US the FERC has allowed 'adders' to the return on equity for transmission investments that reduce the cost of delivered power by reducing congestion, including grid extensions to connect renewable generation.<sup>15</sup> In December 2008 a 2.5% additional return on equity was allowed by FERC for transmission lines in Oklahoma and Kansas that will transmit wind power.<sup>16</sup>

In making its determination on appropriate incentives, FERC commented that:

*New transmission is needed to connect new generation sources and to reduce congestion. However, because there is a competitive market for new generation facilities, these new generation resources may be constructed anywhere in the region that is economic with respect to fuel sources or other siting considerations (eg, proximity to wind currents), not simply on a 'local' basis within each utility's service territory. To integrate this new generation into the regional power grid, new regional high voltage transmission facilities will often be necessary and, importantly, no single utility will be 'obligated' to build such facilities. [...] thus, for the Nation to be able to integrate the next generation of resources, we must encourage investors to take the risks associated with constructing large new transmission projects that can integrate new generation and otherwise reduce congestion and increase reliability.<sup>17</sup>*

In addition:

*Numerous Commentators express general support for the proposal to grant incentive-based [Returns on Equity] to encourage transmission investment stating that it is the*

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<sup>15</sup> These incentives are required as a result of section 219 to the Federal Power Act (amended in 2005), and are set out in FERC Order 679 *Promoting Transmission Investment through Pricing Reform*, Order No. 679-A, 72 Fed. Reg. 1152 (January 10, 2007).

<sup>16</sup> <http://www.wind-watch.org/news/2008/12/04/us-ferc-approves-incentives-for-transmission-lines/print/>

<sup>17</sup> FERC Order 679, para (25)

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*most direct and effective means of attracting needed capital to improve the nation's transmission infrastructure.*<sup>18</sup>

Grid Australia therefore proposes a variant of Option 2 that allows an enhanced rate of return on that proportion of any NERG that is funded through TUOS charges. This should not be regarded as a panacea for an inadequate regulatory WACC, but rather as a prudent alternative to enable the government's climate change policies to be advanced. Finally, Grid Australia notes that the recovery of the costs of the NERG extensions from customer charges would be intended to be an upfront arrangement which transitions to be fully funded by connecting parties. As more generators connect in the same area and enter into connection agreements with the relevant TNSP then the costs of the investment would be recovered directly from those generators, rather than from TUOS charges. To the extent that the NERG ended up being fully utilised then there would then be no charges levied on customers.

Grid Australia is also aware that some stakeholders believe that the portion of the transmission charges not borne by the new connecting generators should be borne by taxpayers rather than by electricity consumers. The references above to the residual charges being paid by electricity consumers simply reflects the existing framework for regulated transmission.

#### The details of Option 2 need to be more fully specified

Grid Australia also notes that the option proposed by the AEMC is currently set out at a relatively high level, and details would need to be more fully specified before this option could be adopted as a solution (in combination with an allowed increase in the rate of return as discussed above). In particular:

- The AEMC has not specified *who* would identify candidate extensions (NERGs).

Grid Australia's proposal is that:

- The NTP would identify prospective NERGs, as part of a process naturally coming out of the development of the NTNDP;
- The NTP would also propose optimal size ranges for the network extensions required to meet the long term future likely capacity of new generation in each NERG area. The NTP would carry out an initial (necessarily higher level) cost benefit analysis of the development of the extensions to the various NERGs in order to rank them in terms of net benefits,<sup>19</sup> and
- Where the prospective NERG met criteria set out in the NER (which may simply be that the prospective NERG has a positive net market benefit),

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<sup>18</sup> FERC Order 679, para (86)

<sup>19</sup> This analysis is distinct from the 'economic test' referred to in the AEMC's 1<sup>st</sup> Interim Report. See discussion under second bullet above.

then it would become an eligible NERG and would enter the contingent project list for the TNSP.

- The AEMC refers to an ‘economic test’ which would need to be satisfied before the extension could proceed and which would be defined in the NER.

Grid Australia sees a requirement for two tests:

- **An initial (necessarily higher level) cost benefit analysis** to determine the optimal size ranges of possible extensions to the NERG. This would be carried out by the NTP as set out above, and would take into account economies of scale with transmission assets and standard sizing. The criteria for candidate extensions to be considered potential NERGs would be related to the outcome of this test (e.g. the extension would need to have a positive net market benefit);
  - **A ‘trigger’ for the extension to proceed.** This trigger would be related to financial commitments by generators in relation to the NERG meeting a minimum required level (e.g. 50%).<sup>20</sup> This trigger could be set out in the NER (as suggested by the AEMC) or could be defined by the TNSP (subject to the approval of the AER), in line with the current process for contingent projects.<sup>21</sup> The TNSP would need to demonstrate to the AER when the trigger was activated, for its contingent project to proceed.
- Once the trigger for the contingent project was met, the TNSP would submit the total forecast capital expenditure associated with that portion of the NERG expenditure to be underwritten by regulated charges, as well as the required increment to its regulated revenue of each remaining year of the regulatory period.<sup>22</sup> The AER would assess whether the proposal reasonably reflects the expenditure criteria, in line with the provisions in the NER.<sup>23</sup>

#### 4.2.4 Option 3: Responsibilities for application of the Regulatory Investment Test

Grid Australia notes that the difference between the AEMC’s Option 2 and Option 3 is that under Option 3 it is the NTP that applies the ‘economic test’ to determine whether candidate NERGs should proceed. Grid Australia does not support Option 3, which would be inconsistent with the governance arrangements embodied in the Rule changes for the NTP (and inconsistent with the COAG decision) that accountability for jurisdictional transmission investment, operation and performance will remain with

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<sup>20</sup> This trigger appears to be what the AEMC refers to as an ‘economic test’ in its description of Option 2.

<sup>21</sup> NER 6A.8.1(4).

<sup>22</sup> This increment would include both the return on and of associated capital expenditure in the regulatory period and related operating expenditure.

<sup>23</sup> NER 6A.8.2.

transmission network service providers.<sup>24</sup> Grid Australia considers that, were this overall approach to be adopted, then:

- the initial (high level) cost benefit analysis of potential NERGs should be carried out by the NTP (as described above); and
- the assessment of whether the trigger for the NERG investment to proceed has been met (i.e. when it is backed by sufficient financial commitments) should be undertaken by the TNSP, in accordance with the current sound governance structure established by the AEMC's review of National Transmission Planning Arrangements.

#### 4.2.5 Option 4: Recovery of costs of extension via the Infrastructure Australia Fund

The AEMC describes its Option 4 as being the same as Option 3, except that the charges for using each NERG would be recovered from the generality of consumers in each TNSP's area rather than the remote generators in the area serviced by the NERG. The AEMC also suggests a variant of this model under which the charges would be funded by an external source; e.g. the Infrastructure Australia Fund.

The latter would give effect to a policy setting in which some or all of the charges are met by taxpayers rather than electricity consumers. Apart from giving effect to that policy setting, Option 4 would be sub-optimal compared with a combination of Options 1 and 2, and Grid Australia would encourage the AEMC to further develop those, including the enhancements referred to herein.

### 4.3 AEMC questions

*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?*

Grid Australia has highlighted in this response that there are two significant issues that should be further progressed under this Review:

- the arrangement for the processing of a larger number of clustered applications; and
- ensuring appropriate sizing of extensions to the network, and appropriate risk sharing.

These separate issues are likely to require two separate options in order to ensure that they are addressed.

*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 these models:*

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<sup>24</sup> Council of Australia Governments response to the final report of the Energy Reform Implementation Group, set out in COAG Communiqué 13 April 2007.

- How should the risks of connection be most appropriately spread across new connection parties, network businesses and end use customers?
- How do the connection charges change for connecting new generation plant and what benefits may arise?
- How do the costs for end use customers change and what benefits may arise?

Option 1 could facilitate the consideration of a number of ‘clustered’ applications, particularly if they were scheduled for development around the same time.

Option 2 represents a mechanism that builds on the existing regulatory frameworks, and ensures an appropriate sharing of risk between new generators and customers. Option 2 would have less impact on customer charges than Option 4 (where generators do not pay a portion of the charges). However, because it brings the need for additional regulated investment, it also brings into play the adequacy or otherwise of the regulated WACC, which presently constitutes a potential inhibitor to the necessary investment. Given that potential, Grid Australia believes that it would be prudent for the AEMC to also develop an alternative which incorporates a prescribed higher rate of return for that portion of a NERG that is funded through TUOS charges.

Grid Australia also supports market-led development of extensions, where these can be achieved.

*A5.3 Are there any other potential models that we should consider to address this issue?*

As flagged above, Grid Australia has proposed that it would be prudent for the AEMC to also advance a variant to Option 2 that allows for a prescribed higher rate of return for that portion of a NERG that is funded through TUOS charges. There are international precedents for this approach. This variant is set out in section 2.2.3 of this submission.

In order to facilitate the timely consideration of clustered connections the AEMC should consider amending the confidentiality provisions in NER 5.3.8 (see section 2.1). There is also potential to streamline the processing of connection applications by amending the scope for negotiating generator performance standards.

## **5. Issue A6: Augmenting networks and managing congestion**

Grid Australia notes that the AEMC intends to undertake further analysis to determine the likely materiality of the increase in network congestion between and within regions resulting from the expanded RET and the CPRS. Grid Australia notes that the AEMC has obtained some consulting reports on this matter.

Grid Australia considers that the issue of the appropriate framework for augmenting transmission networks is central to ensuring that the necessary transmission investment is delivered and that, in turn, climate change targets are met.

The AEMC has divided its discussion of this issue in the 1<sup>st</sup> Interim Report into three topics:

- Network planning arrangements and incentives for network investment;
- The possible introduction of an incentive scheme for network availability; and
- Reforms to the inter-regional charging arrangements.

The remainder of this section discusses each of these issues in turn.

## 5.1 Transmission planning arrangements

Grid Australia considers that there are two key issues for the AEMC's review in relation to transmission planning arrangements:

- the incentives for TNSPs to undertake efficient intra- and inter-regional augmentation; and
- the practical facilitation of this investment within the timeframes required by the climate change policies.

The second issue above has not been adequately recognised by the AEMC in the 1<sup>st</sup> Interim Report.

### 5.1.1 Commercial incentives are crucial

The AEMC highlights in its list of 'desired outcomes' for the review that:

*There are a number of different facets to how we want energy markets to operate, which the frameworks should promote: [..]*

**Networks:** *to support the market by providing incentives that promote investments [...] to handle changing patterns of network use that are planned effectively and delivered at efficient cost.<sup>25</sup> [..]*

Further that:

*The desired market outcome is for energy market frameworks to promote efficient use of and investment in the network through decentralised decision-making by individual market participants. [...] This requires [...] regulated networks to have the right incentives to operate and invest in networks over time.<sup>26</sup>*

Grid Australia concurs with these views, and also with the AEMC's conclusion that any weakness in the incentives for efficient investment and location decisions could increase the materiality of network congestion arising from changes in the location of generators and patterns of flows as a result of the expanded RET and CPRS, with significant implications for total costs to consumers.<sup>27</sup>

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<sup>25</sup> AEMC, 1<sup>st</sup> Interim Report, p. iv.

<sup>26</sup> AEMC, 1<sup>st</sup> Interim Report, p. 42.

<sup>27</sup> AEMC, 1<sup>st</sup> Interim Report, p. 43.

The AEMC recognises that:

*The framework for assessing projects and the incentives on TNSPs will influence whether projects that deliver market benefits will be undertaken.<sup>28</sup>*

The AEMC spends a considerable amount of time in the Report discussing the current frameworks in relation to the National Transmission Planner (NTP), the Last Resort Planning Power (LRPP) and the regulatory test or RIT-T. However, the key determining factor in relation to incentives for regulated transmission investment is the regulatory WACC earned on such investment.

As discussed previously, the positions taken in the AER's current review of the WACC parameters, if maintained, would significantly change the attractiveness of investment in regulated energy infrastructure. This would *reduce* the incentives on TNSPs to undertake the investments that would deliver market benefits through reducing congestion. As a result, the outcome of the AER's WACC Review has the potential to create risks for the achievement of climate change targets.

Grid Australia notes that the NEM modelling undertaken by MMA for the Commonwealth Treasury makes the significant assumption that transmission upgrades (such as interconnectors) will occur as and when required.<sup>29</sup> Clearly if that investment doesn't occur (for example due to an unattractive rate of return), then modelled changes in generation mix are unlikely to occur, raising serious questions about whether the climate change targets (especially the expanded RET) can be met, and the impacts on wholesale pool prices and final retail electricity prices for consumers.

Inadequate incentives for investment (rate of return) are not a planning problem, and therefore will not be solved by the NTP. Nor are they a regulatory test problem, and therefore will not be solved by the RIT-T.

Earlier in this response Grid Australia raised the possibility of increasing incentives for network extensions to remote renewable generation via an addition to the allowed rate of return. Such a regime could possibly be extended to network augmentation in general, where the driver for the augmentation is a reduction in congestion that generates a net market benefit.

In this regard, Grid Australia notes that the 'adders' to the return on equity allowed by the US FERC relate to transmission investments that reduce the cost of delivered power by reducing congestion.

### 5.1.2 Mechanisms to address a potential large reserve shortfall

Grid Australia has previously noted Garnaut's view that there is a public benefit from increased interconnector capacity, as an insurance policy in the event that there is a supply-demand imbalance during the transition from a high emission to lower

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<sup>28</sup> AEMC, 1<sup>st</sup> Interim Report, p. 47.

<sup>29</sup> MMA, *Impact of the Carbon Pollution Reduction Scheme on Australia's Electricity Markets, Report to Federal Treasury*, 11 December 2008, p.61 and p. 63.

emission source of generation.<sup>30</sup> The AEMC has highlighted in its 1<sup>st</sup> Interim Report the ‘unlikely but credible contingency’ of an actual or anticipated large reserve shortfall in a region during the transition phase, with the conclusion that ‘It might be appropriate for additional mechanisms to be implemented, at least temporary [sic]’<sup>31</sup>

Grid Australia proposed such a mechanism in its earlier response to the AEMC’s Scoping Paper, ie, allowing an interconnector option to pass the regulatory test in the year in which it first has a net market benefit.

The AEMC has provided analysis in a supporting report by the Allen Consulting Group that sets out the rationale for requiring a project to only satisfy the regulatory test in the year in which it maximises the NPV of the market benefit.<sup>32</sup>

Grid Australia does not dispute this analysis. However, the point made in the earlier submission is that in order to ‘bring-forward’ investment in the interconnector and thereby obtain the benefit of additional security during the transition phase, the AEMC might consider a relaxation of this particular requirement. This could be a transitional arrangement to facilitate the move to a climate-constrained environment.

### 5.1.3 Regulatory issues

Finally, there are a number of more minor regulatory issues connected with network planning and network investment that the AEMC has raised in its 1<sup>st</sup> Interim Report.

Grid Australia notes that the AEMC has not addressed the issue of modifying the current regulatory arrangements in order to refer to climate change policies in the assessment criteria set out in clauses 6A6.6 and 6A6.7 of the NER, in relation to the AER’s assessment of TNSPs’ expenditure forecasts. Grid Australia continues to consider such amendment necessary.

Secondly, the AEMC appears to incorrectly characterise the current regulatory arrangements for contingent projects in its statement that:

*Whilst the contingent project framework removes the previous disincentive for TNSPs to undertake market benefits projects, it now leaves them financially neutral. This is because it only allows for cost recovery [(including a reasonable rate of return)].<sup>33</sup>*

Grid Australia notes that NER 6A.6.7 allows for a carryover of any efficiency gains made in relation to contingent project capex. The contingent project regime does therefore provide an incentive for out-performance and allows the TNSP to retain any efficiency gains made in delivering the project, compared to projected costs. As a result, Grid Australia considers that the contingent project regime is an appropriate

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<sup>30</sup> The Garnaut Climate Change Review, Final Report, p.447.

<sup>31</sup> AEMC, 1<sup>st</sup> Interim Report, p. 17.

<sup>32</sup> The Allen Consulting Group, *Climate change policies and the application of the Regulatory Investment Test for Transmission*, December 2008, Section 3.

<sup>33</sup> AEMC 1<sup>st</sup> Interim Report, p. 47.

mechanism to deal with the uncertainty in relation to transmission investments related to climate change policies, with the key proviso that the regulatory WACC earned on those investments needs to be at a level that provides sufficient incentives for the projects to proceed.

## 5.2 Introduction of incentive arrangements to maximise available network capacity

The AEMC raises in its Report the possibility of providing TNSPs with incentives to maximise line ratings or available network capacity, in order to improve the use of the existing network and delay the need for network augmentation.

As a general principle, Grid Australia supports moves to introduce incentives for the operation of transmission networks. However it is important that such incentives are focused on aspects of operations that are under the TNSPs' control.

Network capability is very closely related to power system stability. System stability, and hence transfer capability, depends on many factors outside the control of TNSPs, such as which generators are running, NEMMCO decisions etc. In many cases, these system stability factors will represent the limiting factor on network capability, rather than line ratings.

Grid Australia notes that the AER has now included in its Service Target Performance Incentive Scheme (STPIS) measures that provide incentives in relation to the market impact of transmission congestion (MITC).<sup>34</sup> In developing this scheme, the AER was mindful of the fact that many factors outside of the control of TNSPs also affect congestion levels.

*These include prevailing demand and supply conditions, generator failure, extreme weather conditions, network security standards and the management of security standards by NEMMCO. Part of the challenge is to provide incentives over the factors the TNSPs can control.*<sup>35</sup>

The AER also recognised that where the TNSPs are able to influence the capacity of the network and the level of transmission congestion through their operating practices, this may involve costs to the TNSPs without financial rewards.<sup>36</sup>

## 5.3 Inter-regional charging

The AEMC notes in the 1<sup>st</sup> Interim Report that it considers that there is a need to improve the existing inter-regional transmission pricing arrangements. The Report

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<sup>34</sup> AER, *Final decision, Service Target Performance Incentive Scheme (incorporating incentives based on the market impact of transmission congestion)*, March 2008.

<sup>35</sup> AER, *Service Target Performance Incentives Scheme, Developing incentives based on the Market Impact of Transmission Congestion, Issues Paper*, June 2007, p. 16.

<sup>36</sup> Op cit, p.15.

does not provide any further substantive discussion on this issue, or further develop any of the options for improvement previously set out by the AEMC.<sup>37</sup>

Grid Australia reaffirms that it considers the issue of inter-regional charging to be an important one for this review, and it looks forward to seeing further development of options for addressing this issue in the AEMC's 2<sup>nd</sup> Interim Report. Grid Australia previously indicated a leaning towards Option 3 out of those options earlier set out by the AEMC, as this appears relatively more straightforward to implement.

#### 5.4 AEMC questions

*A6.1 Do you agree that the issue of network congestion and related costs requires further examination in this Review to determine its 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?*

Grid Australia considers that the issue of network congestion and related costs does require further examination as part of this review. However, it concurs with the AEMC's assessment in the report that congestion costs going forward are likely to be material, in the absence of network augmentation to address changing patterns of generation flows.

The AER's final decision on regulatory WACC will be a pivotal determinant on future transmission investment, which could relieve network congestion.

#### 5.5 AEMC questions

*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?*

Most of the market modelling simply assumes that transmission investment will occur as and when needed. This may prove to be ill-founded. Whilst there is a framework for a periodical review of regulatory WACC, it will be the outcome of the AER's final decision on WACC, rather than the mere existence of a review framework, that will be pivotal.

The WACC review framework is incomplete, in that it does not contain a provision for access to merits review of the AER's decision. That shortcoming should be addressed.

### 6. Other Issues

The 1st Interim Report at Issue A4 considers in some detail the operation of the power system with increased intermittent generation, noting that changes in generation mix due to the new climate change policies may result in technical challenges. It would appear that based upon submissions from NEMMCO on the

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<sup>37</sup> AEMC, *National Transmission Planning Arrangements, Response to the AEMC Draft Report*, 30 May 2008.

AEMC's Scoping Paper that the AEMC has come to the conclusion at question A4.1 that operation of the power system with increased intermittent generation is not a significant issue and therefore should not be progressed further under this Review.

Grid Australia does not agree with this conclusion. In particular, it is not clear whether either NEMMCO or the Reliability Panel under their current reviews are giving consideration to particular issues of frequency control and fault levels.

NEMMCO at Recommendation 15 of its Network Support & Control Services draft determination report states:

“NEMMCO recommends no action on wind-related stability issues at this stage, but NEMMCO will keep a watching brief on outcomes from the AEMC - Review of Energy Market Frameworks in light of Climate Change Policies and will participate in that or related reviews, as required.”

Grid Australia considers that power system operational issues will become an issue, especially in the smaller regions of the NEM (Tasmania and South Australia). For example, the diminution of system inertia in Tasmania (as wind penetration increases) is going to result in the following emerging issues:

- A significant increase in the local Frequency Control Ancillary Service (FCAS) requirement;
- Increasing difficulty in reversing flows on Basslink;
- Flow constraints on Basslink;
- Restrictions on the connection of new low inertia generators due to a requirement to limit rates of change of frequency to  $\leq 3$  Hz per second;
- Potential restrictions on increasing Basslink import capability; and
- Increasing difficulty in achieving coordination between emergency control schemes (such as the Under Frequency Load Shedding Scheme and Over Frequency Generator Shedding Scheme) and other control schemes (e.g. Basslink FCSPS).

To avoid the potential for important power system security issues arising from the connection of increased intermittent generation to be missed, Grid Australia recommends that the AEMC give detailed consideration to power system operational issues as part of its review or ensure that these issues are being adequately addressed elsewhere, such as by NEMMCO.