grid australia
BACKBONE OF THE NEM

20 April 2012

Mr Phillip Weickhardt
Presiding Commissioner
Electricity Network Inquiry
Productivity Commission
GPO Box 1428
Canberra City ACT 2601

Via email: electricity@pc.gov.au

Dear Phil

Productivity Commission Inquiry: Electricity Network Regulation

Grid Australia welcomes the opportunity to make a submission in response to the Productivity Commission Issues Paper on Electricity Network Regulation dated February 2012.

Grid Australia members are also members of the Energy Networks Association (ENA). The ENA has also provided a submission to the Commission in response to the Issues Paper. Grid Australia endorses the views in that submission. The purpose of this submission, therefore, is to focus on those questions that relate specifically to transmission networks, predominately the issues surrounding transmission interconnectors.

We trust that this submission will be useful to the Commission and look forward to further constructive engagement with the Commission and staff on these important matters for the electricity sector.

Yours sincerely

Rainer Korte
Chairman
Grid Australia Regulatory Managers Group

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BACKBONE OF THE NEM

Electricity Network Regulation

Response to the Productivity Commission Issues Paper

April 2012

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

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1. Introduction and summary

Grid Australia represents the owners of the main electricity transmission networks across southern and eastern Australia (the region covered by the National Electricity Market, or NEM) and Western Australia. Collectively, our members own and operate more than 47,000 km of transmission lines with a combined value of $12 billion, with a responsibility for funding and delivering an annual investment program of approximately $2.2 billion.

Grid Australia welcomes this opportunity to respond to the Productivity Commission (Commission) Issues Paper on Electricity Network Regulation ('Issues Paper') and also appreciates the opportunity to have met with Commissioners and staff in person.

Grid Australia members are also members of the Energy Networks Association (ENA). The ENA has also provided a submission to the Commission in response to the Issues Paper. Grid Australia endorses the views in that submission. The purpose of this submission, therefore, is to focus on those questions that relate specifically to transmission networks, predominately the issues surrounding the interconnection of networks.

1.1 Summary

Grid Australia considers that the current NEM governance framework is robust and reform to date has been well managed by the Australian Governments and the Australian Energy Market Commission (AEMC), focused upon the promotion of the National Electricity Objective.

The transmission sector is complex, including both the technical aspects of service provision and the market, regulatory and institutional framework within which these services are provided. An understanding of current frameworks and their history is crucial to a review of any specific element. Grid Australia is, therefore, keen to work closely and collaboratively with the Commission to ensure that it is well briefed on the framework for transmission investment and its interaction with other aspects of the electricity market. Equally, Grid Australia is keen to assist the Commission to understand where models or approaches that may have been applied in other countries may have lessons for Australia, as well as where those arrangements may reflect that other country's unique context.

In relation to interconnection planning and investment, the evidence suggests that current transmission planning and investment arrangements are delivering efficient outcomes. Put simply, where interconnection development is economically efficient it has, and is, occurring in a timely manner. An explanation of how this is achieved is set out below, and in more detail in Grid Australia's submission to Professor Garnaut's process in relation to carbon pricing (copy attached).

Significantly, the AEMC has not found it necessary to exercise its last resort planning power, which it is able to apply when it deems possible network projects have not been adequately investigated. The most recent assessment of planned transmission investment projects by the AEMC in relation to the exercise of its planning power was completed in November 2011.[1]

Regular analysis by Transmission Network Service Providers (TNSPs) and the Australian Energy Market Operator (AEMO) has shown that in most cases the benefits of building additional interconnection capacity would not outweigh the costs. Given an environment of concern about rising electricity prices, it is important that the framework ensures that interconnection investment is undertaken only in the circumstance where it provides a net benefit.

Grid Australia notes, however, that in the assessment of electricity transmission projects consideration of the accrued benefits of projects is limited to those persons who consume, produce or transport electricity. This is appropriate given that the costs of transmission projects fall upon the same group of participants. However, the narrow focus for the test implies that broader, economy-wide benefits are not captured in this assessment. A focus for the Commission in this review may, therefore, be how such benefits could be identified and what institutional and funding arrangements may be appropriate to capture these external benefits, without diluting the integrity and predictability of the current regulatory assessment framework.

While the current framework appears to be delivering, this should not imply that there is no scope for incremental improvements to be made. Indeed, Grid Australia supports the refinement of the transmission framework where it is clear changes promote the National Electricity Objective. In this respect, Grid Australia endorses the current assessment of the transmission framework being undertaken by the AEMC. Indeed, the findings of the Commission through this inquiry are likely to prove to be a useful further input into the AEMC's review and recommendations.

The possible exception to the success of the framework is the Victorian arrangements. This framework differs from that applying in the other NEM jurisdictions in that it relies upon a not-for-profit entity acting with a 'central planning' mandate. The evidence to date in this jurisdiction appears to be that the inability to properly apply commercial incentives, as well as the separation of roles and responsibilities, is compromising efficient outcomes.

With respect to benchmarking, Grid Australia supports the Commission's investigation of the robust use of benchmarking techniques as a tool to inform the setting of regulated prices. It is important for this investigation to take place within the context of

[1] A copy of the AEMC's most recent report on its last resort planning power can be found here: http://www.aemc.gov.au/Media/docs/Last%20Resort%20Planning%20Power%20Review%202011%20Decision%20Report-59ab74b7-5b5c-4db8-b2a0-0cb6eb92c6be-0.PDF

the fundamental features of the current regime, namely a focus upon using financial incentives to encourage efficient cost to be pursued and thereby revealed and, subject to the operation of these incentives, assurance to investors that capital costs incurred will be recoverable.

Grid Australia notes that there are inherent limitations to purely statistical benchmarking techniques at higher levels of data aggregation (resulting from data imperfections and the difficulties of making adjustments for the factors that cause efficient cost to vary across businesses), and that the challenges with using statistical benchmarking techniques are likely to be even more pronounced for the transmission sector.

Given this, benchmarking is often best applied as a checking device in the assessment of forecasts, rather than a replacement for forecasts developed by network businesses. This reflects, in particular, the principle embedded in the Revenue and Pricing Principles of the National Electricity Law that network businesses be provided with an opportunity to recover at least the efficient costs they incur.[2]

2. Context to this review

The Commission's inquiry on network regulation is being undertaken following a period of substantial reform to the transmission sector in the NEM. As acknowledged by the Commission, this process of review and reform is ongoing.

The reforms that have been undertaken to date have predominately stemmed from initiatives of the Standing Council on Energy and Resources (SCER)[3]. These initiatives included reviews such as the COAG Energy Market Review (Parer Review), the review by the Expert Panel on Energy Access Pricing, as well as a review by the Energy Reform Implementation Group (ERIG). The ERIG report, in particular, was relevant to the current inquiry of the PC as it focused on, among other things, measures to achieve a fully national electricity grid. In addition, the Australian Energy Market Commission (AEMC) undertook SCER-sponsored reviews of the Congestion Management Regime and Energy Market Frameworks in light of Climate Change Policies. Following this period of review, the following reforms have been implemented for the transmission framework:

- Enhanced incentives for transmission businesses to minimise expenditure and improve service performance

[2] Section 7A(2) of the National Electricity Law.

[3] Formerly the Ministerial Council on Energy (MCE).

- A nationally co-ordinated planning regime with the publication by the Australian Energy Market Operator (AEMO) of an annual National Transmission Network Development Plan (NTNDP) – a key focus of the Plan is on testing the need for further backbone transmission capacity across the NEM, including interconnectors

- Since August 2010, all major transmission investments have been required to pass the new Regulatory Investment Test for Transmission (RIT-T), a test that specifically requires the full range of market-wide economic benefits to be considered when testing the efficiency of any transmission project, and

- A last resort planning power (LRPP) conferred upon the AEMC empowering it to direct one or more Registered Participants to apply the RIT-T in relation to a potential transmission project it identifies.

Supporting these significant reforms a number of other initiatives that influence transmission investment decision making, are being implemented, including:

- A new framework for inter-regional transmission use of system charges

- The creation of a national framework for transmission reliability standards, and

- The introduction of consultation process for areas with multiple connecting generators to consider scale-efficient service solutions.

As the Commission is aware, the AEMC is currently in the process of a comprehensive review of transmission frameworks in the NEM. This review will consider matters relevant to the Commission's inquiry, including the framework for transmission planning and incentives for investment in efficient interconnection. Specific matters addressed in the AEMC's review include:

- Network Access – the AEMC has put forward five options for reform of the framework for network access. These options range from clarification of the status quo to fundamental reform in the form of a framework of national locational marginal pricing.

- Network planning and investment – the AEMC has proposed a number of enhancements to the framework for network planning as well as some options for more substantial reform. The enhancements go to matters of transparency and consistency while the substantial reform options relate to the roles and responsibilities for network planning.

- Connections framework – three options for the reform of the connections framework have been put forward. The three options represent a range of options from improving transparency for negotiation to direct price control of connection related services as part of the shared network.

In addition, as the Commission is aware, the AEMC is also reviewing a number of aspects of the price regulation framework for network businesses at the request of the AER. While this review has less importance for the issues related to interconnectors, the issues being considered by that review – namely the framework for assessing expenditure forecasts and the incentive regime for capital expenditure efficiency – are relevant to the consideration of benchmarking issues, which are touched upon in section 6 of this submission.

2.1 Reforms supported by new governance arrangements

Driving many of the reforms implemented in the NEM is a revised governance framework. In 2005, a new NEM market governance framework was created, which comprised a rule-making and market development role for the AEMC, the creation of the Australian Energy Regulator (AER) to progressively absorb the majority of the industry-specific economic regulation activities across the energy sector, and the creation of a new market and system operator, AEMO.

The current governance arrangements enable the framework to reform and evolve as the need arises while preserving a degree of regulatory stability essential in retaining the confidence of investors. For instance, any person is able to submit a Rule change to the AEMC where a problem is identified with the Rules, which the AEMC is then required to consider and is able to change the Rules where required without reference to Ministers or Parliament(s). In addition, the AEMC is able to undertake market development reviews initiated either by itself or at the request of the SCER. The AEMC's current TFR is a SCER sponsored review.

However, before a change can be made to the framework it is necessary to demonstrate that it would improve economic efficiency. More specifically, each new Rule or change to the Rules is required to promote the National Electricity Objective (NEO). This includes a requirement to consult widely providing stakeholders with a reasonable opportunity to contribute to deliberations. Given these requirements, market participants can be confident that reform to the framework will be undertaken on an objective basis following robust analysis and consultation.

3. Current transmission investment framework

A key aim of the reforms to the framework for transmission has been efficient national planning of transmission investment; in particular to better facilitate efficient interconnection development across the NEM. The framework for transmission investment that has been implemented represents a 'whole of grid' approach. Importantly, these arrangements ensure that transmission planning and investment is undertaken in the context of a strategic national approach, while ensuring that practical local knowledge (through regional TNSPs) is brought to bear in the actual detailed planning decisions.

It should be noted at the outset that the framework for transmission network investment, including for interconnectors, is focused upon efficient investment. That is to say that the objective should not be for interconnection at all costs. Instead, interconnectors should be built, or reinforced, if and only if there is a net benefit. The requirement for only efficient investment to proceed is particularly important in an environment of concern about rising electricity prices.

This section outlines the key aspects of the current framework that strive to ensure efficient transmission investment in the NEM, namely:

- Ex-ante assessment of expenditure requirements
- Incentives for efficient investment decision making
- Framework for national coordination of transmission investment
- Transparent economic assessment of investment decisions, and
- Framework for an efficient level of supply reliability.

3.1 Ex-ante assessment of expenditure requirements

A revenue cap for TNSPs is determined via a regulatory review process with the AER. The purpose of the regulatory process is to provide TNSPs with adequate revenue to finance the stock of past investments, as well as the new investments that are reasonably expected during a five year regulatory period.

Each TNSP is the first mover in the regulatory process, putting forward a regulatory proposal of its expenditure requirements for the duration of the regulatory period. This proposal is then assessed by the AER against objectives and criteria in the Rules. Where the AER is satisfied that the proposed amounts are consistent with the objectives and criteria of the Rules it is required to accept the proposal. Where it is not satisfied it is able to reject the proposal and substitute forecasts with its own.

It is important to note, however, that the AER is not a regulatory investment approval body. Its role does not extend generally to determining the actual investments that should be undertaken during a regulatory control period. Rather, these decisions are left to the TNSPs – who are the entities with the appropriate expertise – within a framework of financial incentives and administrative measures where those incentives are incomplete. This framework is discussed below.

It is noted for completeness, however, that the AER in practice can exercise greater control over whether investments referred to as ‘contingent projects’ proceed. A contingent project is one that is not funded through the general revenue cap, but rather (because of uncertainty about its scope or timing) is funded if and when it proceeds. A typical trigger for a contingent project is that a RIT-T assessment

demonstrates the project to have a net market benefit, which is what then provides the AER with a 'hook' to review the planning decision. This is relevant for interconnection projects because they are likely candidates for being contingent projects.

3.2 Incentives for efficient investment decision making

Grid Australia supports the view of the AEMC expressed in its Transmission Frameworks Review[4] that well designed incentive based arrangements will lead to better outcomes than would be achieved by direct regulatory intervention (whether by imposing an obligation or attempting to assess the efficiency of expenditures). This is because incentive arrangements provide TNSPs with the opportunity and incentive to find ways of meeting the desired objective through lower cost means, or to provide a superior outcome for the same cost, including by taking account of new information as it becomes available.

Incentives to minimise expenditure are provided through the application of the revenue cap. Under the revenue cap TNSPs are penalised for any additional dollar they spend. It follows, therefore, that TNSPs have an incentive to consider whether the relevant project is necessary at all or can be delivered at a lower cost. By incentivising TNSPs to look for ways to reduce the capital and operating expenditure required to deliver services to customers, a lower regulatory asset base (RAB) at the start of the next regulatory period results in lower prices for customers than would otherwise apply.

A similar incentive exists for projects which enter the revenue cap through the 'contingent project' regime. However, unlike for capital expenditure generally, the strength of the incentive to minimise expenditure on a contingent project remains constant for the construction and delivery period.

An incentive to reduce expenditure needs to be balanced with either a requirement or incentives (or both) to ensure that an efficient level of service is provided to customers. In addition to reliability obligations, discussed further below, a Service Target Performance Incentive Scheme (STIPIS) applies in transmission. The purpose of this scheme is to provide a financial reward for businesses to achieve a socially desirable standard of performance and financial penalties for under-performance. The existing service incentive scheme for the most part provides incentives with respect to the timing of maintenance and delivery of capital projects by penalising outages that occur at inopportune times. A market impact of transmission component (MITC) also applies. The MITC encourages measures to reduce outages that may have a material impact, or are likely to reduce the likelihood that a network outage will have a material impact on wholesale market outcomes.

[4] AEMC, *Transmission Frameworks Review*, First Interim Report, 17 November 2011, pp.18-21.

3.3 Framework for national coordination of transmission investment

National strategic planning across major flow paths, including for interconnectors, is undertaken via the National Transmission Network Development Plan (NTNDP); which AEMO is required to produce annually. The plan seeks to consider and assess the appropriate course for the efficient development of the national transmission grid over a planning horizon of at least 20 years. The plan is developed in close consultation with TNSPs and is subject to public consultation. It is relevant to note that in the latest NTNDP no interconnector augmentations were flagged for the short term but several have been identified as prospects in the medium term.

TNSPs then translate the strategic plan developed in the NTNDP into near term regional transmission development plans based on joint planning with distributors. Indeed, the Rules require that TNSP's Annual Planning Reports (APRs) have regard to the NTNDP. Undertaking regional planning in this way ensures that transmission planning takes account of the practical situation in the relevant area. This recognises that, by necessity, the strategic national plan developed by AEMO will be based upon high level assumptions about the costs of projects and other matters, like the potential for new generation entry.

Lastly, a further safety net exists to address situations where, in spite of the extensive consultation undertaken through the planning process, important strategic projects such as interconnectors are not progressed. The LRPP empowers the AEMC to direct one or more Registered Participants to apply the RIT-T in relation to a potential transmission project it identifies. The AEMC is required to report annually on whether the LRPP should be exercised or not.

3.4 Transparent economic assessment of investment decisions

TNSPs are required to apply the RIT-T to certain types of projects with a value above certain thresholds. The test requires TNSPs to publicly demonstrate that the relevant project is efficient (as defined by the test). The requirement to apply the test and demonstrate efficiency publicly creates moral suasion on TNSPs not to undertake inappropriate projects as well as to consider enhancements to reliability projects where efficient.

The RIT-T is predominately a consultative tool. It provides an opportunity for interested parties to bring forward more efficient alternatives to meet a need, and for AEMO (and other parties) to consider and comment upon the proposal in the context of AEMO's own assessments as set out in the NTNDP. Furthermore, the application of the RIT-T (as with other administrative requirements) is also subject to AER oversight to ensure that it is carried out in accordance with detailed requirements in the Rules and AER guidelines. These are legally enforceable requirements.

The most important change made to the economic assessment of investment decisions through the RIT-T was the requirement that market benefits be expressly considered in all projects. This reflected a concern that TNSPs may have been encouraged under the previous arrangements to focus more on projects to meet customer reliability (as the previous test provided a simpler route for justifying such projects) and could have missed out on possible enhancements that were justified in terms of the other market benefits they would create.

It is important to note that the application of the test is not constrained by regional boundaries. Instead, the RIT-T requires the net benefit of proposed projects to be determined without reference to regional boundaries. Indeed, the Rules require the test to specify the method or methods permitted for estimating market benefits that may occur outside the region in which the TNSP's network is located.

3.5 Framework for an efficient level of supply reliability

All TNSPs are required to plan their networks to meet mandated levels of resilience to outages or events as mandated by schedule 5.1A of the Rules. For most TNSPs, the requirements in the Rules are supplemented through jurisdictional requirements. The AEMC has proposed creating a national regime for reliability standards. This is supported by Grid Australia but as yet has not been implemented.

4. Operation of the framework to date

As has already been identified, much of the framework for transmission investment in the NEM is new. Therefore, there has not been sufficient experience available to fully assess the effectiveness of these reforms. The implication of this is that caution should be exercised in drawing firm conclusions as to whether or not the regime is failing or succeeding.

Despite a number of key features of this regime being relatively new, the evidence strongly suggests that the frameworks for transmission investment, as they operate in regions outside of Victoria, are generally robust and are delivering outcomes that are consistent with the NEO. More specifically, the evidence demonstrates that there has been significant investment in transmission when it is needed, high levels of reliability in the transmission network, minimal price separation between regions, and the cost of congestion appears to be very small. In high growth regions, such as Queensland, transmission infrastructure investment is dovetailing effectively with the needs of major new customers and generators.

It is particularly relevant to note that the AEMC has twice now found that there is no need for it to exercise its LRPP. Indeed, in its latest annual report, the AEMC stated:[5]

> *The Commission received advice from Intelligent Energy Systems (IES) which indicated that each JPB [Jurisdictional Planning Body] appears to be progressing projects which adequately address all the relevant inter-regional planning issues or opportunities identified by AEMO. Accordingly, the Commission has decided that there is no material reason for the exercise of the LRPP in 2011.*

This view from the AEMC reflects the considerable work that has been undertaken in recent years on the case for interconnector investments. Indeed, many of the NEM interconnectors have recently been re-visited by TNSPs in conjunction with AEMO in the context of its National Transmission Planner role. Below are two examples that demonstrate the level of recent effort which has been applied and illustrates the early signs of success of the current framework.

Heywood interconnector linking Victoria and South Australia

This 275 kV double circuit interconnector was established in 1990 to provide interchange of electricity between Victoria and South Australia. For many years the interconnector was predominantly used to provide cheaper coal fired power to South Australia. However, in recent years the interconnector has increasingly been used to export wind generated electricity to other parts of the NEM. The interconnector is now subject to more constraints in both directions as a result.

In 2010, ElectraNet and AEMO investigated and consulted on the feasibility of a project to augment interconnector capacity between South Australia and Victoria. The study suggested that some level of increase in capacity could be feasible by 2017-18. However, a subsequent detailed assessment of more incremental upgrades indicated possible efficiency benefits for these upgrades up to four year earlier. A RIT-T was initiated in mid-2011 and it is progressing. ElectraNet and AEMO are continuing to collaborate, ensuring a 'national' view and local knowledge combine to uncover the most efficient and practical solution. A number of stakeholder submissions appear to be supportive of the process so far.

QNI interconnector linking Queensland and New South Wales

The flows permissible over this interconnector have increased over time with experience and further testing; for example, the initial southern limit of about 300MW has been lifted over time to about 1000MW. However, the assets have not been augmented. The case for augmenting the interconnector was re-visited in 2011 by TransGrid and Powerlink, drawing upon the latest scenarios and economic projects

[5] Australian Energy Market Commission, *Last Resort Planning Power Review: 2011 Decision Report*, AEMC, 3 November 2011, p.ii.

from AEMOs NTNDP. This analysis confirmed previous findings – that an upgrade would potentially create a net benefit from around 2015/16[6].

Based on these examples and others like them, it is Grid Australia's strong view that the current framework is not an impediment to the proper assessment of interconnector upgrades.

4.1.1 Issues with a central planning model

Grid Australia notes that a number of commentators have recently put forward a case for a central not-for-profit 'planner' model which they argue will better promote interconnector investment than the current model. If a central planner approach facilitated through a body such as AEMO is considered further, it is important to understand the inherent problems of such a model. These problems are not mere speculation; they are the experience of Victoria, where AEMO is the network investment planning body, and could be expected to occur more widely if this model was applied nationally.

In the first instance, Grid Australia notes that a centralised process for investment decision making is inconsistent with regulatory policy developments that have occurred over the past decades. Policy developments and microeconomic reform has been focused on a shift away from centralised, not-for-profit, decision making to increased reliance on commercially incentivised business which respond to market signals. This policy shift reflected the inability of a centralised, economy-wide decision maker to respond quickly and appropriately to changes in market requirements, commercial drivers and technological change.

Grid Australia understands that the Victorian jurisdiction had privatisation in mind when it developed its approach to planning and investment. However, it is relevant to note that after assessing the experiences in Victoria, when privatisation was undertaken in South Australia a different approach for network planning and investment was chosen. Indeed, the AEMC is presently consulting on whether a form of the South Australian model should be implemented across all NEM jurisdictions as part of its Transmission Frameworks Review.

The problems with expanding the Victorian approach to planning and investment to the entire NEM include:

- The not-for-profit status of the investment decision maker precludes the use of financial incentives to encourage efficiency in capital expenditure decisions, and
- Responsibilities are split between different entities for:

[6] In this case, capacity would likely be increased by adding voltage compensation to the networks, not by adding more lines or larger conductors, for example. This creates other technical issues, which will need to be solved before an upgrade goes ahead.

- Augmentation decisions and replacement decisions
- Shared network and connection investment, and
- Augmentation investment and operation and maintenance decisions.

It is important to note that the AER no longer undertakes revenue determinations for augmentations in Victoria. This means that in this jurisdiction there is no independent assessment, or third party surveillance, that AEMO's expenditure proposals are efficient and prudent. In Grid Australia's view, this serves to reduce the transparency of the framework in Victoria and also means the AER is unable to assess augmentation expenditure alongside replacement expenditure and operating and maintenance expenditure.

These limitations substantially constrain the capacity for efficient trade-offs to be adopted when considering transmission investment decisions, including for interconnectors.

A further concern is that the Victorian style transmission arrangements are untested in their ability to deliver transmission investment in a timely fashion when required. A combination of low load growth and a substantially overbuilt transmission backbone network in Victoria has resulted in very low transmission investment requirements compared with other jurisdictions. Put simply, the Victorian arrangements have not yet demonstrated a capacity to deliver transmission investment in tandem with major new load and generation development. Considering all these factors, any case for extending Victorian planning arrangements to the national sphere appears misguided.

4.1.2 Comparisons with other jurisdictions

International comparisons put forward by the Commission in its Issues Paper can be informative. However, it is necessary that they be considered in their relevant context.

As noted in the Issues Paper the NEM is the most geographically dispersed electricity network in the world.[7] The Issues Paper contrasts this with the United Kingdom's system, which has much higher customer connection and load densities. Grid Australia supports this type of informed comparison. Appreciating differences is important when considering the success or otherwise of the framework for transmission investment relative to other jurisdictions.

For example, it is not inconceivable that an interconnector investment in a denser system with shorter physical distances could have potentially created more market benefit (as there are more consumers) and lower costs (as transmission distances could be shorter). While this is purely theoretical, it is indicative that care needs to be

[7] PC Issues Paper, p. 8.

taken when considering interconnector investment regimes and experiences from other markets.

Another factor to consider is market design – the NEM's design could be considered appropriate to the geography and load dispersion and, again, interconnector investment regimes elsewhere will be designed in light of local market frameworks.

5. Response to PC questions and conclusions

The purpose of this section is to respond to the questions raised in the Commission's Issues Paper in relation to efficient interconnection of transmission networks. The key question raised in the Issues Paper is whether the current framework would ensure that an interconnector would be built if it were efficient to do so.

In summary, it is Grid Australia's view that the current arrangements do facilitate the identification and development of interconnector capacity if *it is found to be efficient*. In the context of the RIT-T, this means that an investment needs to create a net market benefit. Since the creation of the NEM, there have only been a small number of cases where substantial additions to interconnector capacity have been justified. This outcome should be considered as a success – there have been many more appraisals of possible projects, the fact that few have been undertaken means that investments that do not deliver net market benefits to customers have not proceeded.

5.1 Response to detailed questions

The remainder of this section seeks to address the PC's questions with reference to the material provided above.

To what degree are interconnectors important to greater competition and greater efficiency in the NEM (once account is taken of the costs of construction and any collateral investment required)?

Interconnectors have an important role to play in improving the efficiency of the NEM. Some of the benefits that interconnectors provide include:

- Allowing a sharing of reserve generation capacity across jurisdictions, thereby reducing the infrastructure required to provide a secure and reliable electricity system
- Permitting new generation to be installed in neighbouring jurisdictions where the costs of generation are lower
- Permitting lower cost generation to be employed where the operating cost of generation in neighbouring jurisdictions is lower

- Enabling a more efficient and equitable rationing of electricity across the market where there is a shortfall in generation capacity, and

- Providing greater options to restore the electricity network after major outages, and thereby reduce the potential cost of such events.

Importantly, all of these benefits are 'counted' when the RIT-T is undertaken as described earlier in this submission.

Many of the benefits of additional interconnection capacity rise over time as demand rises. The benefits are also sensitive to supply-side trends, for example, the impact of the carbon price and renewable energy target on the location of generation capacity. While there are no additional interconnectors that are currently justified (excluding possible augmentations of the Heywood Interconnector and QNI) and subject to the caveat below about external benefits), it is inevitable that additional interconnector investment will be justifiable in terms of the benefits described above at some time in the future. As discussed earlier, the current framework ensures that the analysis is undertaken and repeated so that investment will occur when it is justified.

Two specific comments are appropriate about the benefits created by interconnectors.

First, as discussed earlier in this submission and expanded on in the Grid Australia submission to the Garnaut process, the assessment of benefits under the RIT-T is limited to the benefits that accrue to those persons who produce, consume and transport electricity. This is appropriate because it is the same parties who bear the costs of transmission upgrades.

However, the possibility exists that major transmission upgrades may bestow wider economic benefits (that is, bestow benefits beyond those who are directly concerned), which would not be 'counted' in a RIT-T assessment. As noted earlier, if the Commission considers this issue to be material, it could make an important contribution by considering the institutional and funding framework that may enable projects to reap these wider benefits. However, any mechanism for capturing wider benefits should not unduly complicate what is a relatively complex (but feasible) assessment process.

Secondly, one of the concerns that has often been raised in the debate about interconnector investment is that the assessments of these projects do not give proper regard to the benefits flowing from additional competition.

There have been a number of studies in which TNSPs have sought to include an estimate of competition benefits in the total benefits that arise from a transmission augmentation. One example of this is the recent joint study into increased interconnection capacity between New South Wales and Queensland that has been

investigated by TransGrid and Powerlink. The reality is, however, that the resulting economic benefit can most often be expected to be small.

The most pronounced effect of additional competition in generation is that generation prices will fall (at least if prices were previous set above cost). However, much of this is a wealth transfer from generators to end users (with some possibly captured by retailers) rather than a true efficiency gain. A true efficiency gain would arise if the additional competition lowers the cost of generation and/or where the reduction in prices indices drives additional usage – both of these are more difficult to estimate and likely to be of less value than those transfers referred to above.

What is the magnitude of the impacts on prices, generator capacity and the use of renewable power arising from any deficiencies in interconnector investment? In effect, do any flaws matter?

In considering this question it is relevant to note that higher or lower prices, or more or less generation investment (or interconnection investment for that matter), is not necessarily good or bad. What is of most importance is that the price for producing and transporting electricity reflects the efficient costs of production. Given generation and transmission are complements as well as substitutes, there will not always be a clear answer as to which solution is preferred in order to deliver efficient outcomes.

It is Grid Australia's view that the current RIT-T, and associated consultation processes, allow for a consideration of the trade-offs between more or less generation capacity, including renewable power, and transmission investment. In this way, the RIT-T works as a planning and consultation tool with the commercial preferences of the TNSP put to one side. It seeks to identify what is the best mix of either generation or transmission, given a specific need, from the perspective of society.

This is not to say, however, that outcomes will always turn out perfectly or as specified in the application of the RIT-T. The application of the RIT-T is ultimately a prediction of future outcomes and generation investment and customer consumption can turn out differently to forecast. Therefore, in hindsight, different transmission investments would have often been preferred. However, this is not a problem that is unique to the regulated network sector nor is it a failing of the framework. This is simply a reality of all markets and to seek to eliminate this risk of error entirely would be to strive for a level of perfection that is not possible.

What empirical methods could be used to indicate the scope for further interconnectors?

Grid Australia considers that the existing framework already allows for an appropriate assessment of benefits and costs and, therefore, results in outcomes that are consistent with the NEO. It is also important to note that the RIT-T will as a matter of course incorporate benefits associated with a carbon price and the costs of meeting a

renewable energy target. This is made clear in the AER's guideline on how to apply the RIT-T, which discusses factoring consideration of carbon pricing into operating costs.

The consultation processes associated with the application of the RIT-T also allow assumptions and empirical methods to be assessed and, if necessary, disputed by interested parties. This provides a valuable 'check' on the assumptions and methods adopted. As noted above, there is an explicit role for AEMO in this checking process enabling its own perspective and capabilities to be brought into each interconnector investment decision. An interconnection proposal has not been formally disputed for over a decade.

While the RIT-T and associated consultation processes are robust in the context of the NEO, as discussed above, the assessment is nevertheless limited to the consideration of benefits to those persons who consume, produce or transport electricity. As a consequence, broader benefits, and costs, that may be two or three times removed from those within the market are not captured. As noted above, this may be a particular matter where, if the Commission identified the issues as being material, that an important contribution may be made from this inquiry.

What are the obstacles to efficient interconnector investment and how could these be overcome?

As articulated above, aside from the consideration of broader, economy-wide, benefits, the framework for assessing interconnector investment is robust. Despite the framework being robust, obstacles may still remain that work to prevent efficient interconnector investment being undertaken. The most prominent of these potential obstacles are the practical realities of undertaking network investment. These are, the planning approvals, environmental approvals, and land access approvals required before a project can commence. While a project may stack up after a cost and benefits assessment, if planning approval, or land access, cannot be obtained, the project cannot progress.

Planning approval processes vary from one jurisdiction to another. For this reason the regionally based TNSPs are best placed to undertake the delivery of transmission investments in the relevant jurisdiction. This includes the relevant portion of any new interconnection development.

In addition, to the extent there are any remaining concerns about the incentives for TNSPs to undertake interconnector investments, the inclusion of administrative arrangements, such as the NTNDP and the LRPP, work to ensure that there is transparency regarding whether TNSPs are appropriately planning considering interconnector investments. These public processes will assist TNSPs to obtain impetus for projects that deliver a net benefit to proceed.

It should be noted that the threshold for application of a full RIT-T assessment process is relatively low. Projects involving transmission investment options as low as $5 million in total cost require the application of the full process which involves consultation over 12 months or more. This may be limiting the timely delivery of modest upgrades in capacity.

Are current coordination and planning arrangements efficient?

As noted in section 3 of this submission, the revised arrangements for transmission planning deliver a 'whole of grid' approach to network planning. This approach captures the strategic national perspective of AEMO with the detailed on-the-ground knowledge of the regional TNSPs. While there is some scope for incremental improvements, such as the provision of independent demand forecasting and improved consistency across TNSP's annual planning reports, these matters are being addressed in the AEMC's TFR.

If more interconnection is efficient, how much and where would the additional capacity be built?

The efficient response to an identified need requires an assessment of the costs and benefits of alternative options, including network solutions, generation solutions, and demand-side response. As a consequence, it is not possible to identify how much interconnection, if any, should be built, or where it should be built, without undertaking this economic assessment. However, it is Grid Australia's view that the current framework provides an appropriate framework such that interconnection will be identified and built where it advances the NEO.

Importantly, there is no evidence that any interconnection upgrade that is, prima facie, efficient to undertake is not being progressed in a timely fashion.

Why should regulations for transmission and distribution be different?

There are a number of important differences between transmission and distribution that mean the regulations that apply to each should also be different. These differences include the lumpiness of typical transmission investment projects, different coverage of the service obligations and the corresponding service incentive schemes, the more significant role of national planning in transmission, the greater scope for market benefits projects, including through interconnection, and the greater interaction with generators and wholesale market outcomes.

The economic consequences of transmission service failures can be catastrophic compared with failures in distribution services. Transmission service failures can, and do, result in the interruption of electricity supply to large geographical areas which can take days to fully restore. For this reason there is a need to ensure that reliability and power system security considerations are properly addressed in any planning and investment framework. Furthermore, the costs of the integration of more cautiously

crafted planning standards are not as significant in relation to the final electricity price as in the case of electricity distribution.

In summary, the cost benefit trade off in transmission planning and investment arrangements associated with reliability of service has important differences from electricity distribution.

What are the advantages and disadvantages associated with various options to improve interconnector efficiency, taking into account that some potential solutions (such as public contest methods) may have far-reaching impacts on other parts of the market?

What changes in distribution and transmission regulation would be required to permit more market-based interconnector arrangements?

What are the lessons from other countries' approaches to interconnector investment, including the Argentinean approaches and the new cost allocation principles of the United States Federal Energy Regulation Commission (Order 1000) released in July 2011?

As has been demonstrated throughout this submission, the framework for transmission planning has undergone considerable review and reform over recent years. This period of review and reform has allowed a wide variety of potential solutions to be debated and analysed. It is Grid Australia's view that the current framework is appropriate and the reform proportional to the issue of interconnector investment. In addition, to re-iterate, an absence of interconnector investment can be an indicator of the success of the framework to properly consider the economic costs and benefits of projects rather than a failing. This view is supported by the AEMC not needing to call upon its LRPP and the recent assessments of interconnector projects undertaken by TNSPs in conjunction with AEMO.

As noted throughout this submission, Grid Australia considers that the current arrangements, with the possible exception of the Victorian arrangements, are delivering commercially driven transmission solutions. Commercial incentives are provided for efficient expenditure and service delivery. Nevertheless, Grid Australia supports enhanced incentives where these are demonstrated to deliver improved outcomes without unduly increasing the cost and risk for TNSPs. Given the matters that are presently being considered by the AEMC as part of its Transmission Framework Review, its process is likely to be the best to ensure a comprehensive assessment of the question.

As part of the Transmission Framework Review, the AEMC has undertaken a review of different models for transmission development, one of which was the use of market processes to generate transmission investment (Option 5 in the models for transmission access). The Commission's discussion of this option presents a good assessment of the complexities (and shortcomings) of putting in place market driven

processes for transmission investment generally, including the implementation costs that are likely to arise. While neither the AEMC nor Grid Australia has looked in detail at how market processes may be created just for interconnector capability, it is noted that as the capacity of an interconnector is a function of both the capacity of the interconnector assets themselves as well as the capacity of the intrastate networks, separating off interconnectors is unlikely to be feasible.

It is noted that a form of market based interconnector is already permitted in the NEM, which are referred to as market network service providers (MNSP). A number of market based interconnectors have been built in the past, although all but one of these has converted to regulated status. However, that model for market-driven investment relied upon the asset in question being physically controllable, rather than being operated as open access infrastructure with capacity rights. The consequence of requiring the assets to be controllable was that less efficient technologies were required, as reflected in the fact that the regulatory asset bases for the now-regulated MNSPs (which were set at the cost of the equivalent conventional technology) were well below the actual construction costs for the MNSPs.

Turning to the overseas models, Grid Australia is aware of important issues affecting the delivery of efficient transmission investment in both Argentina and the US. For example, in the US concerns about underinvestment have persisted for many years while there have been ongoing concerns in Argentina about the failure of its regime to deliver efficient outcomes. However, in relation to many of the specific details, these are still being compiled and will be the subject of supplementary information to be provided to the Productivity Commission in the near future.

In addition, as noted previously in this submission, it is important when making comparisons with other jurisdictions that the differences in their power systems, as well as their legal and regulatory frameworks, are taken into consideration. In addition, evidence suggests that the Australian regime is delivering better outcomes compared to most of the alternative regimes.

To what extent is it likely that prospective updates in interconnection capacity will resolve the currently perceived problems without a need for policy changes? Are longer-term policy changes required to ensure longer-term upgrades?

As identified in this submission, a number of interconnection projects are either currently, or have recently been, under review. In addition, all major flow paths are considered annually by AEMO as part of the NTNDP. This planning activity demonstrates that TNSPs, in combination with AEMO, will work to identify appropriate interconnection projects. In addition, where these studies find that there would be a net benefit from investment in interconnector capacity, these projects would proceed.

Again, it is incorrect to presume that any and all interconnection investment is a good thing. These are considerably large projects and their cost will ultimately be funded by

customers through transmission charges. Therefore, it is appropriate that robust planning and economic assessment is undertaken before they proceed.

Will the value of greater interconnector capacity rise as carbon pricing creates larger cost margins between competing generators located in different states? If so, to what extent?

As indicated previously, the RIT-T framework already allows for the appropriate inclusion of the benefits and costs from the carbon price as well as any impacts from the renewable energy target. Therefore, to the extent these policies improve or reduce the case for a particular interconnection project this will be properly reflected in the application of the test.

Taking account of the costs of interconnectors and their transmission losses, to what extent could congestion and price separation events be better addressed by alternatives, such as more investment in transporting gas to gas-fired generators, or by using distributed generation? Are there barriers to such alternatives?

The generation market is driven by competitive market forces. This is underpinned by regional wholesale electricity prices and other locational signals for investments. Given the market drivers for generation investment (as well as price signals for electricity consumption), one of the key roles of the RIT-T is to stop inefficient transmission investment, including for interconnection, from crowding out alternative competitive solutions. Indeed, a lack of new interconnection may simply be the result of other more efficient non-network solutions meeting the needs of the market.

Grid Australia notes that AEMO has proposed that it be provided with the capacity to co-ordinate gas and electricity planning. To the extent that this implies that AEMO has a planning role beyond information provision, then such an expanded role would be inappropriate. There are a large number of factors that make it improbable that AEMO could assume investment decision making for gas networks. Without this ability, central control of investment in electricity and gas networks cannot take place.

In particular, new generation development and the development of the supporting gas infrastructure is competitive (indeed, much of the gas transmission infrastructure in NEM regions is competitive) and the market can be relied upon to provide the most efficient option. The appropriate focus for policy makers should be to ensure that the NEM provides appropriate signals for the competitive sectors and that regulated infrastructure does not crowd out more efficient options.

6. Benchmarking

As noted earlier, Grid Australia supports the ENA submission on the issues related to benchmarking that the Commission is investigating. The purpose of this section is to highlight some of the key themes from the ENA submission, in particular those issues that are particularly important for transmission.

Grid Australia welcomes the Commission's investigation of the appropriateness of robust use of benchmarking techniques in network regulation. In doing so, however, Grid Australia considers that the Commission's contribution would be greatest by focussing on the how benchmarking techniques may make a contribution within the context of the fundamental features of the current regulatory regime, which are as follows:

- First, the regime provides financial rewards for efficiency improvements and financial penalties for declines in efficiency. The purpose of providing incentives is to encourage firms to strive to be efficient, including to undertake the internal reform, innovation or experimentation that may be necessary to improve efficiency. In addition, the act of providing such incentives and firms responding is that 'information' is then generated for the regulatory process – namely an efficient stock of invested capital and a starting point for the forecast of efficient operating expenditure for the next regulatory period.

- Secondly, after initially exposing NSPs to an incentive with respect to capital expenditure, the regime provides NSPs with substantial assurance that actual capital costs incurred will be recoverable in the future (albeit earning a regulator-determined rate of return). This long-term certainty of capital cost recovery, which is reflected as a principle in the Revenue and Pricing Principles of the National Electricity Law,[8] is a necessary prerequisite for NSPs to attract the funds required to meet their substantial investment in assets with lives extending over many regulatory periods.

Grid Australia's members (like many firms) use benchmarking techniques internally to assist them to respond to the incentives the regime creates for efficiency gains. However, importantly, where benchmarking is undertaken for internal purposes it is used as a guide to identify areas of the business where improvements may be possible. Accurate predictions of the gains are less important, and even so predictions from benchmarking techniques are carefully reviewed by management in light of the real-world conditions of the business.

This focus on creating incentives for efficiency, and then using actual (revealed efficient) cost when setting regulated prices, is a widely used technique internationally for setting regulated prices for regulated energy networks.

[8] Section 7A(2) of the National Electricity Law.

Part of the reason that the 'revealed efficient cost' approach to regulation persists world-wide is the fact that purely statistical benchmarking techniques cannot provide a sufficiently robust prediction of the efficient total cost or price for network activities.

Accordingly, it is not a feasible alternative for regulatory purposes. This in turn reflects the fact that a myriad of factors will influence materially the efficient cost of network provision in a location. In practice these are too numerous to allow for the robust use of purely statistical techniques. While some of the factors that explain efficient cost will be observable (such as customer density), some would be very difficult to observe (such as the historical pattern of development and land use constraints, both of which may have had a material impact on technology choice).

In addition, the efficient capital cost incurred in any period – and hence the efficient price at that point in time – depends on the capital costs that have been recovered in the past and those that are expected to be recovered in the future, which again is difficult to control for in any statistical benchmarking method.

However, within the context of the revealed cost method, as ENA has identified, benchmarking techniques already play a role in setting the forecasts of the NSPs' expenditure requirements, both by the NSPs in explaining their forecasts and by the AER in its assessment role. Moreover, the potential exists for the role of statistical benchmarking techniques to be expanded.

Having said that, the ENA submission cautions that the difficulties of allowing (statistically) for all of the factors that may influence the efficient cost of providing network services in an area provides an inherent limitation to the use of purely statistical benchmarking techniques for regulatory purposes. Instead, the information from such techniques are one source of information (alongside expert engineering analysis and a 'bottom-up' assessment expenditure requirements) and is best applied to identify aspects of forecasts that require further more detailed analysis.

Grid Australia notes that the challenges in adjusting (statistically) for all of the factors that may influence the efficient cost of providing network services is arguably more difficult in the transmission sector, reflecting:

- the greater lumpiness of capital projects, which in turn increases the location specificity of expenditure requirements
- substantial differences in the characteristics of the transmission networks, reflecting differences in the location and density of populations, locations of 'fuel' (and hence generation location) and current and historical planning and land use requirements and topography, and
- the challenges in determining and measuring reliability outputs in transmission given that the service failure events of central concern are very rare and have difficult to measure, and widespread, economic impacts.

7. Other issues

Grid Australia members have had a number of productive consultations with Commissioners and their staff. These have been particularly useful in understanding the issues the Commissions is seeking to address as well as being able to inform the consideration of these issues. As the Commission is aware, a number of issues were raised during these consultations that were broader than the scope of work provided to the Commission or the issues identified in the Issues Paper, these include:

- The framework for assessing expenditure, including the application of an ex-post prudence test
- The procedural arrangements for connecting generators to the network
- The general approach to transmission planning in the NEM, including the broader application of a model based on the arrangements in South Australia
- The form of reliability standards
- Public versus private ownership of transmission networks, and
- The governance arrangements that exist in the NEM.

Each of these issues is important and relevant to a discussion on the efficiency of the framework for transmission regulation. Given their importance, Grid Australia notes that many of the matters are currently being considered in other processes, not least those of the AEMC. Accordingly, the Commission's stated intention of being informed by these reviews is supported.

In addition, Grid Australia intends providing further input, including formal submissions, on matters raised in discussions such as those set out above.

Grid Australia looks forward to further dialog with the Commission about the interactions between these additional issues and its current scope of work

grid australia
BACKBONE OF THE NEM

20 April 2011

Professor Ross Garnaut AO
c/- Garnaut Climate Change Review – Update 2011
GPO Box 854
Canberra ACT 2601

Via email: garnautreview@climatechange.gov.au

Dear Professor Garnaut,

Garnaut Climate Change Review – Update Paper 8 *Transforming the electricity sector*

Grid Australia welcomes the opportunity to respond to your Climate Change Review Update Paper 8 *Transforming the electricity sector*.

Grid Australia represents the owners of the main electricity transmission networks across southern and eastern Australia (which is the region covered by the National Electricity Market, or NEM) and Western Australia. Collectively, our members own and operate more than 47,000 km of transmission lines with a combined value of $12 billion, and with a responsibility for funding and delivering an annual investment program of approximately $2.2 billion.

Grid Australia understands the considerable challenges of finding mechanisms that can deliver meaningful carbon signals to businesses and households while ensuring that Australia's power industry remains both sustainable and efficient. Grid Australia supports this objective, but it is a complex problem that tempts easy solutions.

A clear target for the Electricity Update Paper is the current regulatory framework that applies to energy networks. It is asserted that the current arrangements encourage inefficient network investment and cause unnecessarily high electricity prices. However these assertions are not supported by an understanding of the robust economic regulatory framework that operates in the NEM and the principles behind it.

In this regard, it is worth noting that there are very significant differences between transmission networks and distribution networks in relation to their impacts on the NEM and in terms of contribution to the delivered price of electricity. Transmission networks, in addition to being pivotal to reliable supply, play a facilitative role in the NEM by enabling wholesale trading and facilitating the transition to a lower emission generation mix.

In terms of price impact, the transmission component represents less than 10% of the typical electricity bill (compared with about 40% for distribution). The import of these differences is that 'strangling' transmission investment will have a miniscule direct impact on the total electricity bill,

but would lead to increases in congestion. Presently, the costs of congestion remain a very small percentage of the value of wholesale energy traded in the NEM. However, the consequential increases in congestion from 'strangling' transmission investment will lead to higher wholesale energy prices, with an impact on electricity bills that would far outweigh the miniscule direct reductions in the transmission charges.

Grid Australia supports enhancements to the NEM that have been built upon COAG's more than decade long program of industry reform (with many elements focussed on the transmission sector), a program that has made the NEM one of the world's most efficient, competitive and reliable power systems.

Given the success of the framework to date, where the broader objectives of government cannot be met through prices or decisions that are efficient within the context of the electricity sector alone, Grid Australia also supports the introduction of measures that operate alongside the NEM framework.

What is essential is that such measures complement, but do not distort the framework, given that doing so would impair the market's ability to identify customers' needs and to attract the necessary investment. This is of particular importance given the need for Australia's electricity networks to be resilient, both to the direct impacts of climate change, and to the changing patterns of flows of electricity that may accompany carbon reduction policies.

It is noteworthy that the existing transmission frameworks (including recent reforms) are already facilitating demonstrable, and non-trivial, shifts in the generation mix (towards lower emissions).

The attached submission seeks to explain in some detail the careful process of refinement and improvement to the transmission regulatory framework that has occurred over a number of years sponsored by the Ministerial Council on Energy (MCE).

The submission also responds in specific detail to observations and findings in the Update Paper, and highlights the considerable reform effort that has recently been undertaken to strengthen the framework for national transmission planning and investment.

Specifically, the submission focuses upon:

- the arrangements that exist for coordinating transmission planning across the NEM and ensuring that there is sufficient and efficient inter-regional transmission investment;
- the economic test that is applied to assess the efficiency of transmission investments (the 'Regulatory Investment Test for Transmission', or RIT T);
- the incentives that apply to transmission network service providers with respect to investment;
- the return that investors in network assets require, given the risk borne in the 'new normal' post-GFC world ;
- the merits of a national system of transmission charging;

- the rationale for, and characteristics of, the current system whereby network investors are able to appeal the regulator's decision; and

- the appropriate specification of reliability standards for transmission networks .

I would appreciate the opportunity to meet with you and your review team as you work to prepare your final consolidated report to discuss the information provided in our submission, and to provide any further insights that may be helpful.

Please do not hesitate to contact my office on 07 3860 2607 if you would like to arrange a time to meet to discuss these matters, or if Grid Australia can be of further assistance.

Yours sincerely,

Gordon Jardine
Chairman
Grid Australia

grid australia
BACKBONE OF THE NEM

Garnaut Climate Change Review Update 2011

Response to Transforming the Electricity Sector (Update Paper 8)

April 2011

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

Table of Contents

1. Key messages

1.1 Who are we?

Grid Australia represents the owners of the main electricity transmission networks across southern and eastern Australia (which is the region covered by the National Electricity Market, or NEM) and Western Australia. Collectively, our members own and operate more than 47,000 km of transmission lines with a combined value of $12 billion, and with a responsibility for funding and delivering an annual investment program of approximately $2.2 billion.

The purpose of this submission is to respond to a number of the observations and findings in the Garnaut Climate Change Review Update 2011 paper: 'Transforming the Electricity Sector, Update Paper 8' (Electricity Update Paper) that relate to the performance of electricity networks and the frameworks under which they operate.

1.2 Challenges of climate change policy

Grid Australia understands the considerable challenges of finding mechanisms that can deliver meaningful carbon signals to businesses and households while ensuring that Australia's power industry remains both sustainable and efficient. Grid Australia supports this objective, but it is a complex problem that tempts easy solutions.

A clear target for the Electricity Update Paper is the current regulatory framework that applies to energy networks. It is asserted that the current arrangements encourage inefficient network investment and cause unnecessarily high electricity prices. However these assertions are not supported by an understanding of the robust economic regulatory framework that operates in the NEM and the principles behind it.

Grid Australia supports enhancements to the NEM that have been built upon COAG's more than decade long program of industry reform, a program that has made the NEM one of the world's most efficient, competitive and reliable power systems.

Given the success of the framework to date, where the broader objectives of government cannot be met through prices or decisions that are efficient within the context of the electricity sector alone, Grid Australia also supports the introduction of measures that operate alongside the NEM framework.

What is essential is that such measures complement but do not distort the framework, given that doing so would impair the market's ability to identify customers' needs and to attract the necessary investment. This is of particular importance given the need for Australia's electricity networks to be resilient, both to the direct impacts of climate change, and to the changing patterns of flows of electricity that may accompany carbon reduction policies.

1.3 The current framework is the product of recent, substantial reform

The Electricity Update Paper appears to demonstrate a lack of awareness of the careful process of refinement and improvement to the transmission regulatory framework that has occurred over a number of years.

Sponsored by the Ministerial Council on Energy (MCE), that process has included substantial reviews such as the COAG Energy Market Review (Parer Review), the review by the Expert Panel on Energy Access Pricing, as well as a review by the Energy Reform Implementation Group (ERIG), which reported on measures to achieve a fully national electricity grid[1]. The COAG reform process has considered the findings of each of these reviews in establishing its reform program which has included the following significant steps:

- the Australian Energy Market Commission (AEMC) was established in 2005 to ensure, amongst other things, that the National Electricity Rules (Rules) for planning and delivering transmission services were robust and based on a clear economic objective;
- at the same time, the Australian Energy Regulator (AER) was formed with the power to review the economic efficiency of the investment decisions made by the transmission businesses under those Rules — those reviews must be conducted according to well-established principles of competitive neutrality, favouring neither private nor government-owned transmission businesses;
- in 2008, a limited system of merits review came into operation to ensure that all stakeholders' interests were properly taken into account by the AER in reaching its decisions while minimising the delay and costs to interested parties;
- a nationally co-ordinated planning regime came to fruition in 2010 with the publication by the Australian Energy Market Operator (AEMO) of the first National Transmission Network Development Plan (NTNDP) — a key focus of the Plan is on testing the need for further backbone transmission capacity across the NEM (including interconnectors); and
- since August 2010, all major transmission investments have been required to pass the new Regulatory Investment Test for Transmission (RIT-T), a test that specifically requires the full range of market-wide economic benefits to be considered when testing the efficiency of a transmission project.

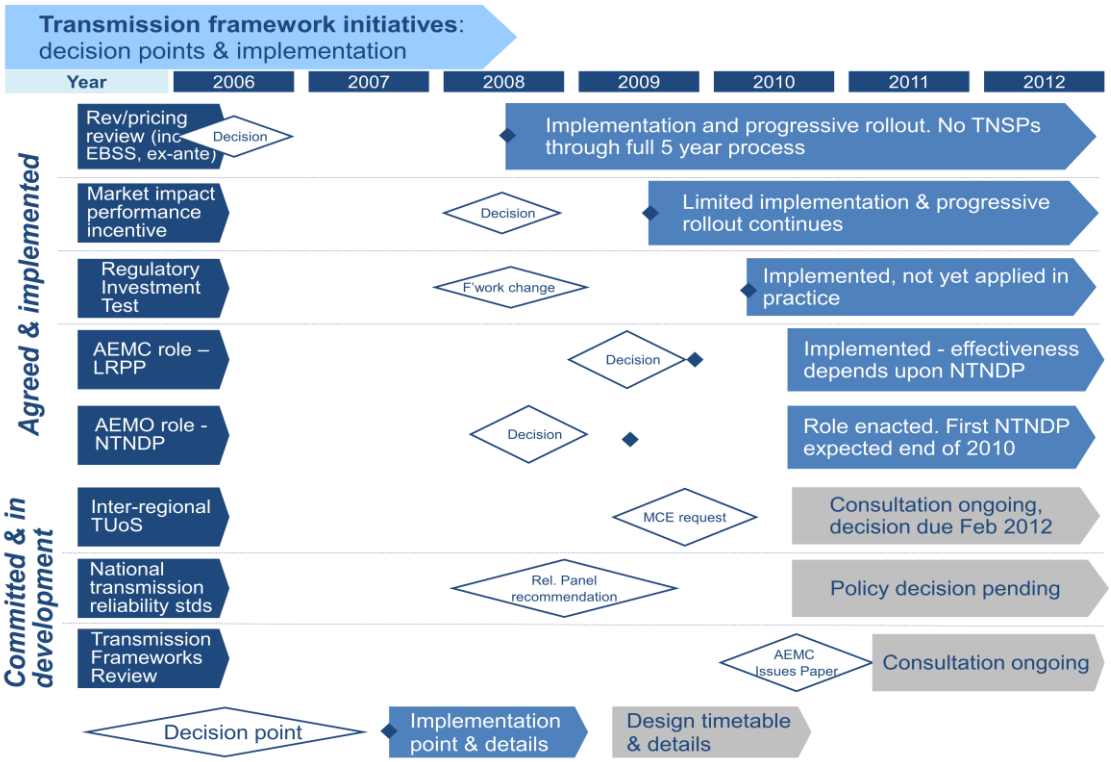
[1] The MCE also asked the ERIG to develop proposals for measures to address structural issues affecting ongoing efficiency and competitiveness and measures to ensure transparent and effective financial markets to support energy markets.

The full benefit of these reforms will necessarily take time to mature and flow through to the broader economy.

Grid Australia also notes that the interaction of climate change policies with energy markets has recently undergone a comprehensive review by the AEMC[2]. Following this review the MCE directed the AEMC to undertake a review of the transmission framework. Grid Australia considers that the AEMC review is the appropriate forum to address transmission framework issues, and reiterates the need for any proposed changes to the existing transmission framework to be supported by a clear and well evidenced rationale.

The figure below sets out the timeline of recent and on-going reforms. It is notable that a number of important initiatives have either only recently been implemented or have not yet commenced.

Figure 1: Time Line for Transmission Framework Initiatives



1.4 Specific concerns with Electricity Update Paper's findings

Grid Australia is concerned that the Electricity Update Paper, in failing to understand the NEM transmission framework and conduct the required analysis, is recommending

[2] AEMC, *Review of Energy Market Frameworks in light of Climate Change Policies*, 30 September 2009.

changes that risk impeding the efficiency of price signals and investment, and the resilience of networks.

The following table reproduces the main findings and recommendations of the Electricity Update Paper and sets out a summary of Grid Australia's response which highlights significant issues with the proposed way forward.

In this regard, Grid Australia regrets that there was no formal consultation with electricity industry stakeholders, including transmission investors and operators, prior to publishing the Update Paper. Doing so may have avoided the factual errors and incomplete analysis identified below.

Table 1: Main Findings, Recommendations and Response

Electricity Update Paper Finding	Grid Australia Response
All transmission planning should be transferred to AEMO through its National Transmission Planner function so as to advance investment in interstate connections.	A national, 'whole of grid' approach already exists for network planning as a result of recent and comprehensive COAG driven reform. It appropriately balances the need for identification of strategic national projects with the practical realities of regional transmission investment and service delivery.
Transmission Network Service Providers (TNSPs) are not well equipped to undertake economic assessments for transmission investments, most importantly an assessment of competition benefits and real options value.	Competition benefits have been considered in TNSP planning decisions, and Grid Australia is working in cooperation with AEMO to develop approaches and ensure that these benefits are included in transmission assessments where appropriate. That said, valuing competition benefits and real options is complex (even for economists), and intuition would suggest that competition benefits are rarely material if only true economic benefits are considered in the assessment.
The regulatory regime provides an incentive for network businesses to gold-plate the network (and gold-plating has been observed).	The existing framework encourages efficient investment, and in fact penalises TNSPs for every additional dollar they spend. The current framework balances the risk between under investing and over investing in network infrastructure, and provides equal incentive for investment within and between regions. The increase in expenditure observed in recent years can be explained in part by the minerals-boom driven increase in materials prices, the effects of continued economic growth, and the age profile of Australia's network assets.
The return on capital does not reflect the risks and costs incurred by the network businesses.	The Law and Rules require the return to be commensurate with risk, and the methods employed are consistent with international practice. The current parameters and approaches reflect extensive and

Electricity Update Paper Finding	Grid Australia Response
Government owned businesses do not need to earn a commercial return.	numerous reviews extending over the past 15 years of market evolution. The most recent 5-yearly review was concluded by the AER in 2009. The proposition that government owned businesses should not earn a commercial return is inconsistent with the accepted view that the cost of capital for a project is unaffected by its ownership, and would otherwise imply a subsidy from tax payers. Policies in support of this competitive neutrality principle were established as an integral part of the Hilmer competition reforms in the early 1990s and endorsed by COAG. The basis for questioning this principle has not been clearly argued in the Electricity Update Paper nor tested through consultation.
The absence of a national system of transmission pricing is creating a barrier to interconnector investments.	There is no direct link between transmission pricing and the incentives for transmission investment. The structure of transmission prices does not have any effect on whether or not transmission projects proceed.[3] It affects neither the incentives of transmission investors nor the economic outcomes of the RIT-T. In any event, a Rule change before the AEMC provides a proportional response to addressing the efficiency concerns of charging customers for assets they use across regional boundaries.
The merits review process favours the businesses and should instead require the entire decision to be reviewed.	Merits review is a key component of a well-functioning regulatory regime and ensures accountability in regulatory decision-making. The merits review process limits the scope of appeals to material before the AER at the time of its decision, and is designed to prevent vexatious or non-material claims. The majority of appeals to date have found material errors in the original decision. A full rehearing of decisions would provide a disproportionate response given it would incur significant costs and time and would call into question the role of the regulator.

[3] As noted below, if inter-regional charging improves the efficiency of prices for final customers, then customers' locational decisions may be affected, which in turn would have an indirect effect on the need for new investment.

Electricity Update Paper Finding	Grid Australia Response
The reliability standards in most states are crude and lead to higher standards compared to an economic approach.	Grid Australia supports the single, national framework for determining reliability standards across the NEM proposed by the AEMC. This involves standards being determined economically and expressed deterministically. Standards should also be set independently from network businesses. Expressing the standards in a deterministic form supports transparency of service delivery and holds network businesses more accountable to customers.

A more detailed explanation of these matters follows in the remainder of this submission.

1.5 Submission outline

The remainder of this submission responds in specific detail to the observations and findings in the Update Paper, and further highlights the considerable reform effort that has recently been undertaken to strengthen the framework for national transmission planning and investment.

Specifically, the remainder of this submission focuses upon:

- the arrangements that exist for coordinating transmission planning across the NEM and ensuring that there is sufficient and efficient inter-regional transmission investment;
- the economic test that is applied to assess the efficiency of transmission investments (the 'Regulatory Investment Test for Transmission', or RIT T);
- the incentives that apply to network service providers with respect to transmission investment;
- the return that investors in network assets require, given the risk borne;
- the merits of a national system of transmission charging;
- the rationale for, and characteristics of, the current system whereby network investors are able to appeal the regulator's decision; and
- the appropriate specification of reliability standards for transmission networks.

These are addressed in turn.

2. Co-ordinated transmission planning and inter-regional transmission investment

- The existing framework applies a 'whole of grid' approach to transmission planning of major flow paths in the NEM
- It facilitates nationally coordinated planning for strategic flow paths but relies on regional planning and investment decisions so that the practical realities of investment and service delivery can be taken into consideration
- This existing framework was the result of relatively recent and deliberate policy decisions at the highest levels of government to address the very issues raised in the Electricity Update Paper, and resulted from extensive consultation with the industry and electricity users
- There is already evidence of the new framework working; however, given it is still relatively new it needs time to mature.
- There are a number problems associated with a not-for-profit central planner model that need consideration should this model be considered further – this includes the application of performance incentives and accountability for transmission service delivery

2.1 Electricity Update Paper Findings

The Electricity Update Paper makes a number of observations about the effectiveness of national planning in the NEM. The Paper argues that there is a failure of nationally co-ordinated planning that is leading to the suboptimal development of the national grid. The evidence, according the Electricity Update Paper, is the lack of long-distance inter-state links while expenditure on local transmission and distribution investments, justified by supplying the extreme peak with reserve capacity, continues.

The Electricity Update Paper suggests that it is highly unlikely that a seamless national network can be built by five state-based transmission planners with regional focuses. It is argued that part of the problem is that the entity with the national transmission planning responsibility (AEMO) has no power to actually develop projects; rather its plan is presented purely as a guide to state based planners who are free to ignore it[4]. The solution that is advocated is for AEMO to assume all transmission planning responsibility and for each state to separate its transmission ownership from its transmission planning.

Grid Australia notes that a framework for national transmission planning has only recently been implemented and that this framework was the outcome of a substantial review of the

[4] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, p. 34.

electricity market that was undertaken for all Australian Governments[5]. This included extensive consultation with all parts of the industry and customers, with the key elements of that regime endorsed by COAG. It is far too early to draw an inference that it has or will 'fail' and, given the careful and deliberate policy decisions that led to the current framework, inappropriate to recommend large scale changes based upon only a casual analysis.

In fact the new framework was developed to address the very issues the Electricity Update Paper has identified, and early indications should provide confidence that interconnector projects will be identified and developed in an efficient manner.

The key elements of the new framework are discussed below.

2.2 Framework for national coordination of transmission investment

Efficient national planning of transmission investment requires the strategic, national context for projects to be integrated effectively with practical, local knowledge. There has been a considerable amount of work undertaken in recent years aimed at improving the institutional arrangements and regulatory framework to ensure that this goal is met. As a consequence of recent reforms, there is now a new framework that incorporates an effective 'whole of grid' approach to network planning.

Under the framework that is now in place, national strategic projects are identified through the NTNDP. The NTNDP is a planning coordination document that AEMO is required to prepare. The plan, to be published annually, seeks to consider and assess the appropriate course for the efficient development of the national transmission grid over a planning horizon of at least 20 years. It focuses on important strategic national flow paths across regional pricing boundaries. The plan is developed in close consultation with the TNSPs and is subject to public consultation. AEMO published the first NTNDP in December 2010.

TNSPs' Annual Planning Reports (APR) then translate the strategic national plan into near term regional transmission development plans based on joint planning with distributors. Indeed, it is a requirement of the Rules for APRs to have regard to the NTNDP.

The regional planning process conducted through the APRs is an important step to ensuring that transmission planning takes account of the practical situation in the relevant area. By necessity, the strategic national plan that AEMO develops will be based upon high level assumptions about the cost of projects and other matters, like the potential for new generation entry. This plan will also identify projects some time prior to the projects becoming efficient. The APRs take this analysis to the next level of detail and factor in

[5] Energy Reform Implementation Group, 2007, *Energy Reform: the Way Forward, Report to the Council of Australian Governments*, January.

such matters as the availability of easements, and the impact that local environmental and land use requirements will have on future generation and transmission investments.

Regional Planning will also factor in the potential for efficiency gains to be made through coordinating asset replacement and refurbishment expenditure with augmentations, as well as updated estimates of the cost of projects based upon more recent experience. This more detailed analysis requires 'on the ground' knowledge of conditions for transmission and generation investment. It also requires the ability to integrate with other transmission projects as well as joint planning with distributors for meeting distribution network needs in the area. This model also ensures that network investment decisions are made by the business accountable for service delivery to customers.

In addition, the newly enhanced RIT-T, which is discussed further in the following section, contributes to the delivery of transmission investment that is efficient from the perspective of the NEM as a whole. The test requires the net benefit of proposed investments to be determined without reference to regional boundaries. Indeed the Rules require the test to specify the method or methods permitted for estimating market benefits that may occur outside the region in which the TNSP's network is located.[6] In addition, the RIT T requires extensive consultation, including with AEMO, which provides the opportunity for any national, strategic issues to be raised and taken into account.[7]

Further, when the AER sets the revenue requirements for TNSPs, it is specifically required to have regard to the most recent NTNDP and any submissions made by AEMO. As a matter of practical reality, the AER is likely to place particular weight on the views of AEMO about the appropriateness of the projects that a TNSP has proposed. This, therefore, provides a further check on TNSPs investment decisions.

Lastly, a further safety net exists to address situations where, in spite of the extensive consultation undertaken through the planning process, important strategic projects are not progressed. This is the Last Resort Planning Power (LRPP) that resides with the AEMC. The LRPP empowers the AEMC to direct one or more Registered Participants to apply the RIT-T in relation to a potential transmission project it identifies. The AEMC is required to report annually on whether or not the LRPP should be exercised. The AEMC has not

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6 Clause 5.6.5B(c)(10)(iii) of the National Electricity Rules. The RIT T comprises a number of levels. The Rules require the AER to set out the detail of the economic test and methodologies for assessing transmission projects, and also sets out the consultation obligations and dispute resolution processes. This consultation and dispute resolution process is aimed at both ensuring that the test is applied correctly to network investments, as well as to ensure that non network options (such as demand side response or embedded generation) are considered on an equal basis. The AER has determined the economic test for transmission investments as required, and has also issued a guideline that provides further guidance as to how that test should be applied.

7 It is also worth noting that Registered Participants, the AEMC, Connection Applicants, Intending Participants, AEMO and interested parties may dispute the conclusions made by a TNSP in its project assessment to the AER should they consider the test has not been applied appropriately. As a matter of practical reality, the AER is likely to place particular weight on the views of AEMO should such a dispute arise.

yet seen a need to exercise this power. Indeed, in its latest annual report, the AEMC concluded that while there are some constraints that may increase in terms of the extent to which they bind inter-regional power flows, the TNSPs and AEMO are both already developing measures to address these constraints.[8]

Accordingly, it is incorrect to assume that TNSPs are free to ignore the contents of the NTNDP or the views of AEMO when deriving their own plans and making decisions to invest. Rather, a series of checks and balances exist over the decision making of TNSPs, with the NTNDP, and AEMO more generally, having central roles to play.

2.3 Operation of the framework to date

As already highlighted, the new framework and institutional arrangements described above have not yet had a chance to work fully. Therefore, caution should be exercised in drawing any inference as to whether or not the new regime is 'failing' or a success. However, the indications to date are that the reforms will be effective in delivering coordinated national planning.

In particular, there are currently a number of investigations into interconnector projects in progress. Specific examples of such investigations include the following:

- SA interconnector feasibility study – ElectraNet and AEMO worked together in an open and transparent manner to undertake a feasibility study to determine if a project to augment interconnector capacity between South Australia and Victoria or New South Wales could be feasible (a final report was published in February 2011). Further work is now underway to investigate in more detail the economic feasibility of particular options and whether a RIT-T should be undertaken on these options.

- Powerlink and TransGrid are currently undertaking a further round of upgrade studies on the Queensland New South Wales Interconnector (QNI), consistent with the market development scenarios and options reported in the 2010 NTNDP. This assessment will involve engagement with AEMO to ensure consistency with future NTNDP studies.

- AEMO and TransGrid have undertaken preparatory work and are intending to investigate the benefits of upgrading the Victoria to New South Wales interconnector.

In addition, while the NTNDP identified a number of projects that it considered to require early attention by planners, it also observed that planning had already commenced or was about to commence in relation to each of those projects.[9]

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8 AEMC, *Investigation into the Exercise of the Last Resort Planning Power: 2010*, 10 November 2010, p. i.

9 AEMO, *National Transmission Network Development Plan, Executive Briefing 2010*, pp.23-25.

2.4 Issues with a central planning model

If a central planner approach facilitated through AEMO is to be considered further, it is important to understand that a number of problems arise with this approach. The potential problems identified below are primarily based on the experiences in Victoria where AEMO is the network investment planning body.

Most importantly, a centralised process for investment decision making is incongruous with regulatory policy developments over the past decades, which reflect the inability of a centralised, economy wide decision maker to respond quickly and appropriately to changes in market requirements, commercial drivers and technological change.

Rather, the focus of regulatory policy development has been to encourage decentralised decision making and to design regulatory regimes so that decentralised decision makers are motivated to make decisions that promote the social good. These measures are referred to generally as incentive regulation, and some of the measures that apply to TNSPs and the overall philosophy is discussed further in Box 1.

Box 1: What is incentive regulation?

The term incentive regulation (or, alternatively, incentive compatible regulation) refers to measures included in the regulatory regime that are designed to align the commercial interests of regulated businesses with the social good (which is generally taken as advancing economic efficiency). In short, such measures enable businesses to earn additional profit in circumstances where efficiency is advanced. There are a number of aspects of the regulatory regime that provide TNSPs with financial incentives for advancing the social good, which include the following:

- *Application of a price control* – a revenue cap applies to TNSPs[10]; therefore, the allowed revenue that is determined for a TNSP in a price review is fixed and not reviewed for a defined period (typically five years, with the exception of defined events).[11] This means that the level of profit that TNSPs earn is tied to their actual expenditure, thus additional profit can be earned by controlling expenditure. Such actions benefit the TNSPs in the short term (by raising profit, all else constant) and customers in the medium term. The reward for controlling expenditure arises if operating and/or capital expenditure is reduced, and also results if one form of expenditure can be substituted for another and lower the overall cost, for example, though pursuing non-network solutions.

[10] Grid Australia notes that the same incentive properties for cost efficiency exist irrespective of whether a revenue cap or a price cap applies.

[11] For operating expenditure, a continuation of the efficiency benefit from one period to the next is allowed through a measure known as the efficiency benefit sharing scheme. This measure is designed to equalise the incentive to make operating expenditure improvements over the course of a regulatory period.

- *'Revealed' cost efficiencies passed through to customers* – the cost savings that a TNSP achieves through a regulatory control period are subsequently passed onto customers at the next periodic review of prices. This is because the 'revealed' efficient level of cost is factored into the new prices given the regulator will have regard to expenditure and efficiencies that occurred in the preceding period.
- *Service target performance incentive scheme* – when the revenue caps are determined, targets are set for different measures of service performance over the period between reviews. The revenue that TNSPs are allowed to earn in each year is adjusted to reflect the TNSP's actual performance compared to this target. An important role of this incentive scheme is to act as a counterweight to the incentive to reduce cost discussed above to discourage cost savings at the expense of service reductions. However, the scheme also encourages an increase in expenditure where this may generate a commensurately high benefit to customers, for example, by taking transmission assets out of service for maintenance or augmentation outside of system peak times, albeit at the expense of having to pay higher wages and contractor costs.

The underlying philosophy behind incentive regulation is that it encourages the entities that are in the best position to make operational and investment decisions (that is, the owners and operators of the assets) to make use of their full set of private information to make decisions that promote the social good, including to innovate where possible. This is likely to result in far superior outcomes compared to those decisions being made or dictated by a 'central planning' entity that would have neither the same level of motivation or information.

AEMO is a not-for-profit organisation. It follows that if AEMO were to become the entity that makes all transmission investment decisions, the capacity to use financial incentives to encourage innovation in transmission investment decisions would be lost (the use of financial incentives in this way – which is referred to as incentive regulation – only works where the entity has a commercial objective).

The consequence of not being able to apply incentive regulation to AEMO plays out in a number of ways. For example:

- There would be no scope for incentive regulation to encourage innovation about the optimal means of augmenting the network to meet a defined obligation.
- There would be no role for incentive regulation to encourage an optimal trade-off between network and non-network options for resolving a constraint. This is because there would no longer be an incentive to minimise costs, and hence, the substitution of non-network for network investment within required timeframes.
- There would be no role for incentive regulation to encourage the optimal trade-off between asset investment and maintenance. These roles would instead be split between a central planner and a network service provider. Indeed, the decision for efficient replacement or refurbishment of network assets may be crowded out by a less efficient augmentation decision by a central planner.

- There would be no commercial driver for investment to be responsive, timely and efficient and no checks and balances to guard against over-investment in network infrastructure.

The use of financial incentives to harness the private information of regulated businesses and motivate innovation and continuous improvement has been one of the major developments in economic regulation in recent decades, and removing it would be a major step backwards.

A central planner model would also result in a division of responsibility that unfairly places all of the financial risk with respect to service obligations and service incentive schemes with the TNSP, while the investment decision-making body bears none. Under the existing arrangements TNSPs bear the consequences of outages that impact on market performance. Removing one of their tools for managing this, i.e. the ability to plan new investments, potentially creates a financial risk for TNSPs that they are not able to effectively manage, as well as reducing the benefits to the market from the service incentive scheme.

3. Application of the Regulatory Investment Test for Transmission

- The RIT-T commenced in August 2010 and was the product of a major review for COAG,[12] followed by a more detailed review by the AEMC at the direction of the MCE.[13]
- It has been developed as a result of concerns that the full benefits of various network development options were not being addressed by the former regulatory test process. This includes consideration of benefits to the market including reduced transmission congestion and increased competition across the market
- The RIT-T has an important role to play in ensuring only efficient transmission investment occurs
- The new RIT-T contains important differences over the previous test, most notably, the requirement to consider market benefits for all prospective projects [14]
- There is value in ensuring competition benefits and options values are assessed appropriately, however, caution needs to be taken in managing expectations with respect to the influence these benefits will have on investment decisions
- To the extent the RIT-T does not capture some broader economic or social benefits, the framework should not preclude governments factoring these benefits into decisions to contribute to the costs of transmission assets

3.1 Electricity Update Paper Findings

The Electricity Update Paper makes a number of claims that relate to the assessment of potential investments through the RIT-T. Firstly, the paper claims that TNSPs have under-utilised the opportunities within the existing regulations to identify benefits. Secondly, the Electricity Update Paper suggests TNSPs do not have the economic skills to undertake a proper analysis of benefits.[15]

Again, Grid Australia considers that these comments reflect a misunderstanding of the nature of the RIT-T, how it is applied in practice and the practical issues associated with

[12] Energy Reform Implementation Group, 2007, *Energy Reform: the Way Forward, Report to the Council of Australian Governments*, January.

[13] AEMC, National Transmission Planning Arrangements, Final Report to MCE, 30 June 2008.

[14] We note that a preferred option may have negative net economic benefits where the identified need is for reliability corrective action.

[15] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper Eight: Transforming the electricity sector*, March 2011, p.33.

estimating (and the likely importance of) certain of the benefits that may be provided by transmission investments. Moreover, Grid Australia notes that the current RIT-T – as part of the wider planning and investment decision making arrangements discussed in the previous section – has been the subject of extensive, recent review and consultation with industry and customers, with the key principles endorsed at the highest level of government.

3.2 The new 'Regulatory Investment Test for Transmission'

At the outset, it needs to be understood that the purpose of the RIT-T is to identify the most efficient solution and optimal timing for meeting a defined need on the network. As such, it seeks to ensure that only efficient transmission investment is undertaken. This would include a situation where a transmission investment had the effect of 'crowding out' more efficient non-network solutions, like local generation or demand side response. Thus, the test has an important role as market participants – and, in most situations, final customers – would bear the net costs should inefficient transmission projects proceed.

Like many of the elements of the transmission planning framework, the RIT-T is also new (having commenced operation in August 2010) and was designed to address what were considered as shortcomings in the previous test. The most important change that was made was to require wider market benefits to be considered in all projects. This reflected a concern that TNSPs may have been encouraged under the previous test to focus more on projects to meet customer reliability (as the previous test provided a simpler route for justifying such projects) and could have missed out on possible enhancements that were justified in terms of the other market benefits they would create.

This change in the test was complemented by the new transmission planning arrangements discussed above, as the NTNDP would assist in identifying where an enhancement to a reliability augmentation would provide wider market benefits. As with the other elements of the new transmission planning framework, it is too early to draw an inference about the effectiveness of the new test.

Grid Australia notes, however, that the mere fact that most of the transmission projects assessed by TNSPs are motivated by reliability purposes is not in itself a reason for concern.

- First, the majority of efficient transmission investments will always be motivated by the need to maintain reliability of electricity supply to customers. As demand grows, new generation capacity is required, and network reliability projects are merely the additional transmission that is required to allow that additional generation capacity to reach the customer. In contrast, the other market benefits from transmission arise from such factors as the transmission investment allowing an existing lower cost generator to be operated more often and substitute for a higher cost generator, or from changing a generator's locational decision so that it to locates near a lower cost source of fuel. While this latter class of market benefits is real and valid, the benefits nevertheless should be expected to be much lower than reliability benefits and hence that the projects that could be justified on the basis of market benefits would be fewer in number.

- Secondly, TNSPs have undertaken numerous assessments of 'market benefits' projects over recent years. However, if the initial assessment suggested that the project would not pass an economic test, then further analysis would cease and the initial assessment would not generally be exposed publically for further scrutiny. To do so would have added an unnecessary administrative cost onto TNSPs as well as those who wish to review the proposal. In the future, however, all projects of national importance that may be feasible would be identified and reported in the NTNDP, so that stakeholders would be aware of when more detailed assessments of projects should be expected.

3.3 Application of the RIT-T: Competition Benefits and Real Options

One of the particular comments made in the Electricity Update Paper is that TNSPs have not availed themselves of the full options that are available to transmission planners under the RIT-T to justify transmission projects, most notably the capacity to value competition benefits and real options. Prior to discussing these in detail, Box 2 explains at a high level some of the economic benefits that may flow from a transmission project.

Box 2: Economic benefits from a transmission project

As the RIT-T is an economic test, it requires that only the increase in aggregated benefits across market participants be counted as a benefit when evaluating transmission projects.

When the transmission network is augmented between regions and this affects market prices, then substantial care is required to identify the true economic benefit. The most obvious effect from such an augmentation is that customers in the region where prices are lowered would be made better off. However, if prices drop in one region (the importing region) then prices are likely to rise in the adjoining region (the exporting region) and thus come at the expense of other customers. Moreover, generators are also affected, being worse off if located in the region where prices fall, but better off in the region where prices rise. It is clear that much of the benefit that accrues to individual market participants is cancelled out by adverse impacts borne by other participants. In economic terms, where benefits cancel out in aggregate they are transfers between parties and not true economic benefits and should therefore not be counted when evaluating the merits of a project.

In order to avoid inadvertently counting transfers, the RIT-T requires a focus directly and transparently on the different sources of economic benefit that may flow from a project. These benefits include the following:

- *Reliability* – which is an increase in the likelihood that power will be available to customers when sought (or, equivalently, a reduction in the likelihood that energy sought will not be able to be served).
- *Generation operating costs* – where the transmission project eliminates a constraint and so allows more use to be made of a generator with low operating costs in preference to one with high operating costs.

- *Generator capital costs* – where the transmission project allows for a better sharing of generation reserve capacity across the network, and so reduces the need for new generation capital investment, or the transmission project enables and encourages the new increments of generation investment to be lower cost plant. It is noted, however, that a trade-off occurs between the reliability benefits and generator capital costs given that a deferral of generation entry will also imply that less reserve capacity would exist at any point in time, and so the benefit is the net effect of these factors.
- *Losses* – new transmission projects can reduce aggregate network losses, which is a direct benefit.
- *Increased efficient electricity usage* – where customer prices were previously in excess of the social cost of production (i.e., inclusive of externalities) and a transmission project reduces prices to customers, then the additional demand would deliver customer benefit that exceeds the social cost of production, which is also an economic benefit.
- *Project flexibility* – in addition, different transmission projects will provide differing levels of capacity to adjust in response to new information in the future. For example, a transmission project that can be added in stages provides more scope to adjust to observed future rates of demand growth. Alternatively, by constructing a larger project than otherwise, would provide the flexibility to connect new generators in a region should connection be sought. The 'option' value of this flexibility can validly be counted when evaluating the merits of different projects.

The term 'competition benefits' refers to any of the benefits above that may be increased as a result of a transmission project enhancing the degree of competition between generators. The most likely benefit to be advanced is the 'increased efficient electricity usage' benefit.

Estimating these benefits requires a number of sophisticated modelling techniques. For example, evaluating reliability benefits requires a model of the individual and joint likelihoods that electricity plant (generation and network) will be out of service at any point in time, estimating the generation operating cost benefit requires a model of the future dispatch of generators and estimating the generation capital cost benefit requires a model of the future investment in generation over a reasonable timeframe.

Grid Australia notes that there have been a number of studies in which TNSPs have sought to include an estimate of competition benefits in the total benefits that arise from a transmission augmentation, such as the recent joint study into a new interconnector between New South Wales and Queensland that has been investigated by TransGrid and Powerlink.[16] The reality is, however, that estimating these benefits is complex – even for

[16] Powerlink and TransGrid (2008), Potential Upgrade of Queensland/New South Wales Interconnector (QNI) - Assessment of Optimal Timing and Net Market Benefits, Final Report, October. Note that the standard technique for estimating competition benefits delivers an estimate of the aggregate benefit *inclusive of the*

an economist – and the resulting economic benefit inevitably is likely to be relatively small.

- First, in order to quantify a competition benefit, an assumption is required about how a transmission link will change the intensity of competition amongst generators, and then how that will affect generator bidding behaviour.

- Secondly, the outcome of the change in bidding behaviour is a lower generation price and hence a lower cost to customers. However, much of this change, in the form of prices in the market, is a wealth transfer from generators to customers and is not properly counted as an economic benefit. Rather, an economic benefit arises to the extent that the price to final customers falls and this fall in price induces additional (efficient) consumption. Given the low observed price elasticity of demand for electricity, this benefit would be expected to be small. In addition, for a true efficiency gain to arise at all, the delivered price of electricity must previously have exceeded the social cost, so that additional consumption is efficient.

Turning to real options, many different types of real options may exist in relation to a given project. The Electricity Update Paper correctly points out that by overbuilding transmission capacity, the option would be created to connect new generation in the area at low cost and more quickly than otherwise, which may have a benefit. Equally, real options considerations may also justify spending on higher cost interim measures that allow a large augmentation to be deferred, or to opt for a modular augmentation that is expected to be higher cost, as each of these options provide the flexibility to wait for new information before committing to an irreversible investment.

However, while it is clear that assessing options value will require sophisticated modelling tools, Grid Australia is committed to ensuring that the relevant techniques are developed to be used in the appropriate cases.

3.4 Consideration of broader benefits

The Electricity Update Paper identifies a number of possible benefits from increased interconnection. These benefits include environmental benefits, such as less reliance on high emissions plant to support local demand peaks.[17]

At the outset, it is worth stating that the existing RIT-T is capable of incorporating benefits associating with a carbon price and the costs of meeting a renewable energy target. This is made clear in the AER's guideline on how to apply the RIT-T, which discusses the consideration of carbon pricing into operating costs. However as previously noted, and

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contribution of enhanced competition, and so a disaggregated estimate of the competition benefits alone may not be presented.

[17] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, p.32

consistent with the National Electricity Objective set out in legislation the test limits the consideration of benefits to those who consume, produce or transport electricity.

As a consequence, broader benefits, and costs, that may be two or three times removed from those within the market are not captured. Such benefits, which are generally considered as externalities, may include improved environmental outcomes (where the outcome is not properly 'priced') and flow on effects of the direct beneficiary to other firms or industries, such as increased exports, job creation and regional development. Unde the Rules both AEMO and TNSPs are bounded by the scope of the National Electricity Objective in applying the RIT-T.

Introducing broader economy-wide factors within the RIT-T is likely to introduce considerable uncertainty into transmission investment decision making. This is because of the additional assumptions that would be required, and the uncertainty associated with getting those assumptions right. Given this, externalities or other social objectives have to date been addressed outside of the NEM framework. The application of the renewable energy target, and carbon pricing, are examples of this.

While broader benefits may not be considered within the RIT-T, this does not mean that broader considerations cannot be applied to transmission investment. Indeed, a role for governments may be to financially contribute to transmission investment where broader benefits are likely to exist or where additional transmission investment assists in the achievement of social policy goals.

A model where governments make contributions to transmission investments outside the NEM framework allows Government to contribute to investments on the basis of broader objectives while ensuring electricity customers do not solely bear the burden of these decisions and the integrity of the NEM decision making framework is maintained.

Moreover, there is nothing in the existing framework that prevents this sort of policy response from happening today. Addressing social policy issues outside of the NEM framework also ensures that broader assessments can take into consideration particular priorities for the government of the day.

4. Incentive regulation and investment decision making

- In developing the current framework careful consideration was given to the balance between under investing and overinvesting in network infrastructure. We note that the Electricity Update Paper does not expressly consider the consequences of deliberately reducing reliability outcomes in electricity service delivery.
- The same incentives that apply to invest in regional transmission apply to investments in transmission interconnection
- The existing framework encourages efficient investment in transmission networks, it in fact penalises TNSPs for every additional dollar they spend
- While additional investment in networks has been undertaken in recent years, this investment has been warranted and necessary

4.1 Electricity Update Paper finding

The Electricity Update Paper expressed the view that network businesses have an incentive to over-invest in network assets,[18] which in turn is argued to have led to substantial gold plating of electricity networks (with the exception of interconnectors between regions, where the contrary concern was raised).

The Electricity Update Paper also states that the existing financial incentives for state owned network providers to over invest, coupled with the political cost of any failure, have the potential to overwhelm any countervailing incentives to minimise operational costs.[19] These failures that were considered to exist in the regime were considered to have contributed substantially to the recent electricity price rises and that strengthening and improving the regulatory rules may yield large benefits in lower rates of increase in electricity prices. On the basis of these claims, the Paper indicates that there is a need for an early and searching independent review of the framework.

Grid Australia considers that these findings reflect a material misunderstanding of the incentive properties of the regulatory regime for transmission, and also misstate the actual needs for network investment at the present time. Given the significant errors in the Electricity Update Paper, and the potential for those claims to create expectations that

[18] The Paper also asserted that network businesses have an incentive to overstate the size of their regulatory asset bases. In reality, the businesses have no discretion over the size of their regulatory asset bases. Rather, this is a product of an initial regulatory asset base that was determined and 'locked in' over a decade ago for most network businesses, plus actual capital expenditure since that time (according to the businesses' audited regulatory accounts), less depreciation calculated using a prescribed method and lives, adjusted for actual inflation. Indeed, under the Rules, the AER is required to produce a financial model that network businesses are required to apply when making this calculation.

[19] Ibid, p.43.

cannot be met, Grid Australia considers it is important to step through how the framework actually operates and the incentives contained within it.

4.2 Incentive properties of the regulatory regime

When setting the level of a revenue cap the Rules require that actual capital expenditure undertaken in the previous regulatory period is included in the starting Regulatory Asset Base (RAB), and the RAB is projected forward incorporating a forecast of capital expenditure for the next regulatory period.

A return on the RAB – including the forecast of capital expenditure – is included in the revenue cap. That cap is then set for the regulatory period.[20] The incentive features of this process can be considered as having long term and short term components:

- First, by setting the revenue cap such that a return is provided on actual (past) expenditure and a forecast of efficient future expenditure, TNSPs are provided with an expectation that they will earn an appropriate return on capital expenditure. This provides the incentive and capacity for TNSPs to continue to invest in the networks. It is worth highlighting that as part of a revenue reset process, the revenue allowance is subject to AER approval based on its ex-ante assessment of prudency. In making this assessment the AER has regard to its own consultant reports, the views of stakeholders (including AEMO), and TNSP planning and other governance processes.

- Secondly, as the revenue cap is fixed for the period between reviews, TNSPs have an incentive to spend less if it is efficient to do so (subject to meeting offsetting obligations or incentives, such as service incentives) as the same level of revenue is earned irrespective of whether the forecast expenditure occurs or not.

The application of a revenue cap means that TNSPs are in fact penalised for every additional dollar that they spend – it follows, therefore, that they have an incentive to consider whether the relevant project can be deferred or delivered at lower cost. Notwithstanding this, as expanded upon below, Grid Australia notes that the incentive regime aims to ensure that service obligations are met at lowest sustainable cost. By incentivising TNSPs to look for ways to reduce the capital (and operating) expenditure required to deliver services to customers, a lower RAB is the outcome at the start of the next regulatory period which results in a lower cost base for customers.

Clearly, the incentive for TNSPs to reduce their expenditure needs to be balanced with either a requirement or incentive to ensure that an efficient level of service is provided to customers. Indeed, the inclusion of service obligations or incentives is premised on the effectiveness of the economic incentives to encourage TNSPs to minimise costs and avoid inefficient investment. This is currently achieved under the transmission framework

[20] Note, however, that 'pass throughs', contingent projects, or a 'ship wreck' situation can affect the total level of the cap during a regulatory period.

through a combination of reliability obligations (as set out in Chapter 5 of the Rules and in jurisdictional instruments) and through the service target performance incentive scheme. The combination of the financial incentives on TNSPs to minimise cost with the measures to ensure appropriate service delivery imply that:

- TNSPs have an incentive to meet their service obligations at the lowest cost, which includes to:
  - take account of information and analysis reasonably expected to be considered at the time of making the investment, which may adjust the project scope or its timing as necessary (the latter of which includes investing in smaller projects or schemes that may enable a major investment to be deferred);
  - select the lowest efficient cost investment that meets the required timeframe for delivery, including to adopt new technology or techniques as they become available;
  - employ non network options over network options where commercial benefits arise from the incentive arrangements;
  - use innovative work practices, improve outage coordination, and optimise the capital and operating work program; and
- TNSPs have an incentive to spend efficiently (both operating and capital) and improve their service levels where this generates a reward under the service target performance incentive scheme that exceeds the cost of that initiative.

Given these arrangements it is clearly not the case that TNSPs are merely rewarded for delivering more transmission assets.

Notwithstanding the remarks above, Grid Australia acknowledges that the potential may exist to refine the current incentive arrangements and is open to any new practical means of enhancing the incentive properties of the current regime. As previously indicated, the AEMC is currently conducting a Transmission Frameworks Review, which is the appropriate forum to address this issue.

4.3 Drivers of new investment

Grid Australia also rejects the suggestion in the Update Paper that transmission businesses have been ‘gold plating’ their networks in recent years (with the exception of inter-regional investments, where the opposite concern has been expressed).

Contrary to the Electricity Update Paper’s suggestions, no evidence is presented that suggests the recent increase in the rate of investment is excessive. In contrast, the recent increase in investment (part of which merely reflects the substantial increase in materials costs as a result of the ‘minerals boom’) has been essential to ensure that the reliable and secure electricity supply that customers expect and is fundamental to the economy continues.

Indeed, the AER itself has recognised the need for increasing network investment in the future. In its 2010 State of the Energy Market Report, the AER identified the drivers for increases in forecast network investment, observing as follows:[21]

> *The key drivers for rising investment include:*
>
> - *More rigorous licensing conditions and other obligations for network security, safety and reliability*
> - *Load growth and rising peak demand*
> - *New connections*
> - *The need to replace aging assets, given much of the networks were developed between the 1950s and 1970s.*
>
> *Other drivers include changes to system operation due to climate change policies and the introduction of smart meters and grids*.

The AER also noted that each network has unique issues relating to its age and technology, its load characteristics, the costs of meeting demand for new connections, and its licensing, reliability and safety requirements.

[21] AER, *State of the Energy Market: 2010, December 2010*, pp.54-55.

5. Return commensurate with risk

- A commercial return for transmission businesses provides the incentive and capacity needed for future investment to be undertaken
- The current regulated rate of return parameters used reflect extensive and numerous reviews extending over the past 15 years of market evolution. The most recent 5-yearly review was concluded by the AER in 2009.
- The approach applied to estimate the cost of capital associated with electricity network businesses is highly consistent with conventional regulatory practice
- There is no justifiable reason for government owned network businesses to have a different cost of capital to privately owned businesses. Indeed, there are strong arguments to ensure they are consistent.

5.1 Electricity Update Paper findings

The Electricity Update Paper infers that a major cause of recent price increases is the rate of return earned by network businesses, which it asserts is excessive. It argues that there is little recognition that network investment is recouped with near certainty and is passed onto creditworthy retailers who recoup it from customers, and considers it illogical that:[22]

> *the discussion of returns proceeds as if this were a mixture of ordinary business equity and debt investment, earning normal commercial returns.*

It suggests that there is a need for the rules to relate the cost of equity and debt to the riskiness of the investments.[23]

The Electricity Update Paper further argues that where the business is government owned, the regulated rate of return exceeds the true underlying cost of finance to a greater extent than for a private owner, which it argues should be reflected in the rules.[24]

Grid Australia considers these observations to reflect a fundamental misunderstanding of the requirements of the regulatory regime, as well as being inconsistent with mainstream finance thought. The specific concerns are articulated in turn below.

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[22] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, p.41

[23] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, p.44

[24] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, p.42

5.2 Need for a commercial return

First and foremost, Grid Australia emphasises that providing a commercial return on transmission investment (commensurate with the risk involved) is essential for TNSPs to have the capacity to attract the investment funds required to continue to provide the reliable and secure service that customers demand.

5.3 The requirements of the Law and Rules

In contrast to the assumption in the Electricity Update Paper, the regulatory regime does in fact require a return to be provided that is commensurate with the risk of the transmission investments. The National Electricity Law provides explicitly as follows:[25]

> *A price or charge for the provision of a direct control network service should allow for a return commensurate with the regulatory and commercial risks involved in providing the direct control network service to which that price or charge relates.*

In addition, the Rules provide that the rate of return should be determined as follows:[26]

> *The rate of return for a Transmission Network Service Provider for a regulatory control period is the cost of capital as measured by the return required by investors in a commercial enterprise with a similar nature and degree of non-diversifiable risk as that faced by the transmission business of the provider*

Moreover, when undertaking the five yearly review of the inputs or assumptions into the cost of capital, the AER is required to consider the following (amongst others):[27]

> *the need for the rate of return calculated for the purposes of paragraph (b) to be a forward looking rate of return that is commensurate with prevailing conditions in the market for funds and the risk involved in providing prescribed transmission services;*

Given these requirements, there is no basis for suggesting that the framework does other than to ensure that returns are provided that are commensurate with the risk involved. Indeed, when it last undertook its five yearly review of the parameters for the return on capital, the AER remarked as follows:[28]

> *Of particular relevance in relation to the rate of return, is that the [Weighted Average Cost of Capital] (WACC) be set at a level expected to be sufficient to*

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25 National Electricity Law, section 7(5).

26 National Electricity Law, Rule 6A.6.2B(b)

27 National Electricity Rules, Rule 6A.6.2(j)(1).

28 AER, *Final Decision, Electricity Transmission and the Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC), Parameters,* May 2009, p.12.

incentivise efficient investment in electricity network infrastructure, while not set too high so as to incentivise inefficient overinvestment in electricity network infrastructure. The AER considered that if it determined values and methods for individual WACC parameters that produce an overall regulatory rate of return that is expected to achieve this outcome, the AER will have exercised its power in a manner that will or is likely to contribute to the achievement of the NEO. In doing so, the AER also considered that, in respect of each parameter, it would have also had regard to the need to achieve an outcome which is consistent with the NEO.

In reviewing the individual WACC parameters, the AER had regard to a range of theoretical and empirical considerations and evidence, including that presented in submissions to the issues paper, and contained in expert reports commissioned by stakeholders and the AER. Having had regard to this range of considerations and evidence in reviewing the WACC parameters, the AER considered it has achieve the appropriate balance as discussed above.

5.4 Methods used to estimate the rate of return are conventional

The techniques that are applied to estimate a required rate of return for electricity networks reflect standard practice amongst finance practitioners and are also consistent with the practice of many regulators around the world. Indeed, it is also universal around the world for utility businesses to be considered as normal businesses that would be financed through a mixture of debt and equity, both of which demand a commercial return.

Grid Australia notes, however, that the discussion in the Electricity Update Paper appears to assume that there is no account taken of the relatively lower risk of regulated networks when estimating the cost of capital. This assumption is false. Under the Capital Asset Pricing Model – which is the technique that is used to estimate the cost of equity capital – the beta is the measure of the relative risk of an investment.

Currently the beta that the AER employs when stripped of the effects of financial leverage is 0.32, which compares to an average for the assets that are listed on the share market of approximately 0.70.[29] This means that electricity network assets are assumed to be less than half of the risk of the average business amongst those that are listed on the Australia Stock Exchange.

[29] The AER uses an equity beta of 0.80 for an assumed gearing level of 60 per cent debt to assets, which translates into an asset beta of 0.32 (0.8 x 40% equity). In contrast, the share market as a whole has an equity beta of 1, but an average level of gearing of approximately 30 per cent debt to assets, implying an asset beta of 0.70 (1.0x 30% equity)

5.5 Cost of capital for a government owned business

Grid Australia is surprised that the Electricity Update Paper claims that the costs of finance for government entities are lower than for privately owned entities.[30] This statement ignores the settled view in finance that the cost of capital is the same irrespective of whether an investment is undertaken by the private or public sector.

The Electricity Update Paper also appears to suggest that public sector projects are risk free because they can be financed through government borrowing at the risk free rate. However, this view ignores the fact that taxpayers would then bear a liability for providing a guarantee to the project, which is a real albeit unobserved cost of the project.

In addition, ensuring that prices for using networks reflect a commercial cost of capital where assets are government owned is also important for ensuring that the correct signals are provided for efficient decisions by generators and customers. In particular, artificially reducing the price of network services for state owned network businesses could cause customers or generators to alter their location decisions, even if to do so was inefficient from society's point of view.

Finally, policies in support of the principle of competitive neutrality were established as an integral part of the Hilmer competition reforms in the early 1990s and were subsequently endorsed by COAG. The Electricity Update Paper is at odds with the established principle of neutrality and a basis for reviewing this principle has not been clearly argued.

[30] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, p.42

6. National transmission charging

- National transmission charging would have no direct influence on transmission investment decisions – it is not a relevant factor in the RIT-T and does not affect the financial returns to TNSPs
- Nevertheless, it is important that customers pay an efficient price for the assets they use
- The Rule change before the AEMC for a load export charge is an appropriate and proportionate response to ensuring efficient price signalling occurs between regions

6.1 Electricity Updated Paper findings

The Electricity Update Paper states that the costs of all new interstate transmission should be recovered nationally. This statement was based on the belief that the absence of a national system of transmission pricing is creating a barrier to interconnector investment, and that all users of power in the regions covered by the NEM would receive benefits from access to a smoothly operating market, wherever they are located within the market.[31]

6.2 Merits of Inter-regional charging arrangements

It is important to note at the outset that inter-regional charging does not factor into the economic assessment of a proposed investment at the RIT-T stage and therefore does not influence the investment decision in that respect.

In addition, the structure of prices that a TNSP sets does not affect its payoff from an investment, and hence inter-regional charging would not affect a TNSP's commercial incentives with respect to interconnection assets. At best, inter-regional charging has a second order impact on transmission planning and investment by potentially improving the efficiency of price signals to customers, thereby disciplining demand to efficient levels. However, the resulting impact in this instance is just as likely to be a need for less investment rather than more.

The need for inter-regional transmission charging was identified in the AEMC's review of the impact of climate change policies on the NEM. Following on from that review the MCE submitted a Rule change to the AEMC to introduce inter-regional transmission charging through a load export charge. The load export charge would reflect the flow of electricity from one region to adjoining regions. The level of the charge would reflect the costs incurred in the use of the transmission network in the region to conduct electricity to an adjoining region, therefore, the charge should be calculated as if the relevant

[31] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, p.34.

interconnection with the adjoining region was a load on the boundary of the region. A load export charge is relatively low cost to implement, but facilitates customers that use network assets in an adjoining region to pay for them.

The proposed alternative of a national charging framework, on the other hand, would be particularly complex and costly to implement. Given a load export charge achieves the main aim of signalling the cost of network assets customers use in adjoining regions, it is not clear that the a national charging framework would achieve benefits in excess of the costs of implementing and applying such an approach.

7. Merits review

- Merits review is a key component of an independent and well-functioning regulatory regime
- It is particularly important for electricity transmission businesses given the long-lived nature of transmission assets and their dependence on regulatory outcomes for revenue
- A full merits review, as proposed in the Electricity Update Paper, would significantly increase the costs and time of undertaking a review without a commensurate benefit
- The appeal decisions to date highlight the importance of a cost effective merits review process being in place. The majority of decisions to date have found that, based on the material before the AER at the time of its original decision, the AER had erred to the material disadvantage of the appellant. Indeed, even the AER has conceded that errors have been made, in particular with respect to the value of some parameters for the cost of capital.
- The particular form of merits review now in operation was deliberately designed by the MCE to limit the scope of appeals to material before the AER at the time of the AER's decision. It is also designed to provide barriers to bringing forward non-material claims

7.1 Electricity Update Paper findings

The Electricity Update Paper questions whether the existing appeals process is too generous to the businesses. This question appears premised on the view that the appeal of a decision is free to the firm and without a realistic possibility of an adverse outcome.

Therefore, it is claimed that appeals automatically follow all regulatory determinations. The Paper claims that this burdens the regulator's decision making in favour of the businesses. In response the Electricity Update Paper suggests that any appeal should require a reopening of the whole of the determination so that the appellant would thereby accept the risk of an unfavourable outcome.[32]

7.2 The merits of merit review

While merits review has only been a component of the transmission framework for a relatively short amount of time, it is a key aspect of an independent and well-functioning regulatory regime. Merits review ensures that regulators are accountable for their decisions, thus providing pressure for balanced, consistent and correct decisions. This

[32] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, pp.42-43

view is supported by the Expert Panel on Energy Access Pricing which concluded that it is desirable to provide merits review of decisions of the AER in relation to price and revenue controls, observing as follows:[33]

> *The Panel notes that appropriate provision of merits review increases the confidence of all parties in a regulatory system, but that merits review processes that are not appropriately specified can lead to incentives to game the regulatory system and as a result delays and considerable cost.*

The Panel recommended a model for merit review that addressed its concerns about the potential for parties to withhold important information from the regulator, but make it available in an appeal (the 'game'), which is the model that was adopted in the National Electricity Law.

The consequences of poor regulatory decision making are high for transmission businesses. The long-lived nature of transmission assets, and the dependence on regulatory outcomes for revenue, mean that poor regulatory decisions will have an enduring impact on transmission investment and operation. Ultimately, poor regulatory decision making would be to the detriment of customers.

7.3 The merits of the current merits review model

The existing merit review provisions were designed carefully to provide for a low cost and expeditious process. It allows both the businesses and customers to appeal a decision. It can only be activated in situations where the appellant first demonstrates an error on the part of the AER, is limited to those matters where an error is demonstrated, is also limited to matters that are material issues, and can make use only of the information that was before the AER during the review.

In contrast, the model that has been proposed in the Electricity Update Paper would involve a full rehearing of every element of the decision. In practice this would mean that the review panel would be required to repeat the process undertaken by the AER and make the revenue determine again in its entirety. Such a process would significantly increase the costs and time taken to undertake a review. These costs would ultimately be borne by customers.

Grid Australia notes that the Standing Committee of Officials when considering options for review of regulatory decisions excluded the option of a full merits review from its analysis. The reason for this was the costs and time involved in undertaking a full review of regulatory decisions.

[33] Expert Panel on Energy Access Pricing, *Report to the Ministerial Council on Energy*, April 2006, p.92

7.4 Issues with merits review

Grid Australia is aware of a perception that many more appeals have been lodged in response to AER decisions than policy makers may have expected and that network businesses have been successful a greater proportion of the time than expected.

Any assessment of the workings of the current merits review model must include a balanced review of the matters that were taken to appeal and the decisions of the Australian Competition Tribunal.

Network businesses do not have an unencumbered right to require the Tribunal to rehear matters, but instead bear the onus of having to actively demonstrate an error on the part of the AER. In addition, of the matters where the businesses have been successful, a balanced review would show that the vast majority were matters where the error the AER made was obvious to any independent party, but at the same time material. Denying a low cost remedy in such cases has the potential to diminish materially the investment environment for regulated energy assets.

Lastly, one of the arguments in the Electricity Update Paper is that allowing only part of a determination to be reopened is somehow wrong and would leave the final determination unbalanced in some way. This would seem to reflect an implicit assumption that an error that is adverse to a network business would generally be offset by some other error that was favourable, but that the overall package is somehow reasonable.

This last belief reflects a misunderstanding of the process and decision that a regulator makes when determining prices. A regulator has no way of testing whether the overall package that is reflected in a determination is appropriate, and no such test is invited under the Law and Rules. Rather, a regulator makes a whole series of constituent decisions, with making correct constituent decisions being the only means of ensuring a correct overall result. Thus, to the extent that part of a determination involves an error, the only conclusion that can be drawn is that the overall determination is in error, and that the specific error identified should be remedied.

8. Economic basis for planning standards

- Consistent with the AEMC's recommendations, planning standards should be determined on an economic basis, but expressed deterministically
- Also consistent with the AEMC's recommendations, planning standards should be determined by a party that is independent of the TNSPs
- Expressing economic planning standards in a deterministic form ensures transparency of service performance by TNSPs and, thus, supports clear accountability for performance.

8.1 Electricity Update Paper findings

The Electricity Update Paper notes that the setting of standards and service requirements has not been subject to institutional or regulatory reform. It claims that rather than being based on a probabilistic cost-benefit approach to reliability, most States tend to use a relatively crude and deterministic approach to dictate reliability requirements. It claims that this leads to higher standards being imposed than would be the case under a probabilistic approach.[34]

8.2 Application of Planning Standards

The primary objective of planning standards is to ensure that customers are able to receive a reliable supply of electricity. The standards are typically set to ensure that peak demand can be met with an appropriate level of contingency should some credible event occur. Typically there is a high level of contingency applied for electricity network assets. This reflects the costs of service interruptions, noting that community and business have a very low tolerance of electricity network service failures.

Grid Australia supports planning standards that are determined on an economic basis. Doing so ensures that a trade-off can be made based on the significance or criticality of the load centre and the costs of providing reliable supply. However, Grid Australia considers that there are significant advantages in expressing these economic outcomes in a simple, deterministic form. This is because of the transparency that deterministic standards allow. This position is consistent with the findings of the Reliability Panel, which were accepted by the AEMC as part of the Transmission Reliability Standards Review. In that Review the AEMC found that it is appropriate for deterministic standards to apply when they are economically derived.[35]

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[34] Garnaut, R., *Garnaut Climate Change Review – Update 2011, Update Paper eight: Transforming the electricity sector*, March 2011, p.13.

[35] AEMC, *Transmission Reliability Standards Review, Final Report to MCE*, 30 September 2008, p.vi

In addition, Grid Australia supports the AEMC finding in its review that planning standards should be set by a jurisdictional authority that is separate from TNSPs. This ensures there is sufficient independence and transparency in the process.

The Electricity Update Paper appears to overlook the important fact that all of these elements are features of the current framework in South Australia, where the transmission network business is privately owned. This provides a working model which could be extended across the NEM under the AEMC's recommended framework.