

**EXPERT PANEL REVIEW OF REVENUE AND NETWORK
PRICING ACROSS THE ENERGY MARKET**

Submission by the Electricity Transmission Network Owners

December 2005

ElectraNet ♦ Powerlink ♦ SP AusNet ♦ Transend ♦ TransGrid

1. Introduction

This submission is made on behalf of the electricity transmission network owners ElectraNet Pty Limited, Powerlink Queensland, SP AusNet, Transend Networks Pty Ltd and TransGrid (the “TNOs”). Collectively, this group own and operate over 40,000km of high voltage transmission lines and have assets in service with a current regulatory value in excess of \$9.1 billion.

Reference is made to the recent submission by the TNOs to the Australian Energy Market Commission (“AEMC”) in response to the AEMC’s Issues Paper on the Rules for regulating electricity transmission revenues (copy attached). Some of the key points in that submission are repeated in this submission as appropriate.

The TNOs note that the period associated with this initial round of consultation on issues raised in the Terms of Reference and the matters listed in MCE Energy Market Reform Bulletin No. 56 is very short. These initial comments are therefore not a comprehensive response to the matters raised and the TNOs would welcome further consultation opportunities to provide input to the considerations by the Expert Panel both in person and through submissions on the draft report.

The structure of this submission responds to the specific points raised in the Ministerial Council on Energy (“MCE”) *Energy Market Reform Bulletin No.56*.

2. Expert Panel and AEMC Review Timeframes

The TNOs consider that the Expert Panel Review of Revenue and Network Pricing across the Energy Market should not impact on the completion of the current AEMC review of the rules for electricity transmission revenue and price setting. The AEMC review of the electricity transmission revenue and pricing rules was established by the new NEL and requires that new Rules be in place by 1 July 2006. The AEMC has indicated that it intends to meet this timetable in relation to revenue rules. The TNOs understand that the challenging timeframe established by the NEL was a deliberate choice by policy-makers to complete the separation of rule making and rule enforcement responsibilities, including by establishing an appropriate level of prescription in the Rules. In addition, the appointment of John Tamblyn (Chair of the AEMC) as an observer to the Panel should ensure that the AEMC is aware of the considerations of the Panel and vice versa. In this manner both processes can proceed in a timely manner.

The TNOs note that many of the matters raised as part of this process have already been the subject of consultation in relation to electricity transmission through the AEMC review. Therefore, it would be prudent for the Panel to have regard to submissions made in response to the AEMC’s consultation process.

3. Distinction and Commonality

Issue Raised

The extent to which technology, market circumstances or other differences between the electricity and gas sectors (and transmission and distribution within each sector) may best be reflected within a common regulatory framework and whether, and if so how, distinctions need to be reflected in separate provisions.

Response

The TNOs consider that there is scope for a degree of commonality between gas and electricity transmission regulation. At a high level, frameworks for both energy sectors should encourage long-term economic efficiency and provide greater regulatory certainty to ensure the appropriate level of investment in electricity and gas transmission assets.

The TNOs consider that electricity transmission is most appropriately dealt with through formal economic regulation; i.e. price monitoring or no regulation are not suitable alternatives for electricity transmission. The reasons for this are discussed in more detail in section 4 of this submission. The TNOs consider that there are areas of distinction and commonality, which should be taken into account in the Rules associated with economic regulation of electricity and gas transmission and distribution. These matters are discussed below.

Distinctions

The most significant distinction between the electricity and gas sectors is that electricity is an essential service whereby virtually all homes and businesses are connected directly or indirectly to the electricity grid. By contrast, natural gas is a fuel of choice that is mainly used for heating and cooking or as a feedstock for industry, such as electricity generation or mineral processing.

The TNOs believe that the specific nature of electricity transmission requires separate provisions in the National Electricity Rules (the “Rules”) covering the regulation of revenue for electricity transmission network owners. These provisions need to be relatively extensive in nature along the lines already specified in Schedule 1 of the National Electricity Law.

Electricity transmission is characterised by large, non-discretionary investments to meet mandatory reliability obligations, and in many cases significant penalties will be invoked for failure to comply with these obligations. This is a key distinction between electricity and gas transmission. Electricity transmission is also characterised by strong interdependencies between decisions (operating, investment or demand decisions) made in one part of the network and the potential impact of these decisions on transfer capability or stability in others. These technical characteristics imply that the most efficient means of transmitting power is through a network that is planned and constructed to meet the combined demand of customers, including a prudent extent of pre-building for future demand. These interrelationships also make it difficult to define and assign rights to the capacity on the network, which, in turn makes it difficult to introduce market mechanisms for the development of new capacity. This is particularly so having regard to the NEM design. The TNOs note that the AEMC made a similar observation¹:

“Given these complex interactions, it is difficult to determine which party created costs or conferred net benefits on other network users. This feature makes it very difficult to introduce market mechanisms to provide incentives to develop and operate the transmission network. Markets only work effectively if producers can identify and charge the beneficiaries of their production activities.”

The efficient scale of capacity augmentations in electricity transmission networks tends to be large increments. As a result, augmentation expenditure to meet general demand growth tends to occur in large ‘lumps’ at irregular intervals and typically results in efficient pre-building of capacity. Gas transmission investment also tends to be lumpy, however a large proportion of the investment is typically associated with large foundation customer which is not subject to regulation. In contrast, distribution system augmentations tend to be smaller, leading to a more even pattern of capital expenditure and with capacity more closely following growth in demand.

Investments in electricity transmission assets are at risk of regulatory outcomes because they are sunk, and at risk for an extended period of time because the assets are long lived with long regulatory asset lives. As a result, regulated assets will go through numerous price reviews over their lives, possibly upward of eight reviews. The expected payoffs from new investments, and hence the capacity of the TNOs to continue to attract the required funds, will depend upon both the level of return offered in a given regulatory period, as well as expected returns in future

¹ AEMC, Review of the Electricity Transmission Revenue and Pricing Rules – Consultation Program – Revenue Requirements: Issues Paper, October 2005, pp 19-20.

regulatory periods. Certainty and stability in the regulation of electricity transmission is therefore particularly important.

Commonality

The TNOs do however recognise that a common regulatory framework for the electricity and gas sectors could be developed by adopting common principles in relation to the following matters.

- a) Common criteria for assessing whether an asset should be subject to economic regulation, price monitoring or face no economic regulation. The type (or degree) of regulation adopted should depend on the particular circumstances of the asset or network. The criteria for placing assets in a particular class could be the same across gas and electricity. Because of the unique features of electricity transmission discussed above, these assets would be nearly always be subject to formal economic regulation. Depending on the scope for, and impact on competition, gas and electricity distribution assets will often be in the first category and possibly the second category, with some gas transmission assets found in each of the three categories.
- b) Clear acknowledgement of the risks of under-investment (dynamic inefficiency) as compared to the costs of over-investment and inefficient production. The Productivity Commission (PC) in its Review of the Gas Access Regime (PC Review), recommended an approach that errs on the side of investors in the context of three interrelated factors: the informational uncertainties and imperfect tools that regulators have to deal with in regulatory decision-making, the importance to the community of ongoing investment in essential infrastructure and the asymmetric consequences of regulatory pricing errors on investment.
- c) Adoption of the ‘propose – respond’ model for the revenue setting process including clearly defined timeframes for delivery of regulatory decisions. This ensures that the party who has the most detailed knowledge about the network asset produces the regulatory proposal and the regulator is required to explain any reasons for moving away from this proposal. Some of the recommendations from the PC Review appropriately deal with this matter and may be applicable to electricity regulation.
- d) Consistency of process for establishing the WACC to encourage greater regulatory certainty. Again some of the recommendations from the PC Review appropriately deal with this issue and may be applicable to electricity regulation.
- e) Merits review arrangements to ensure greater scrutiny and accountability of regulatory decisions.

In conclusion, the TNOs believe there is scope for some ‘practical’ convergence. However, regardless of where the recommendations head for other areas of the energy sector, electricity transmission services lend themselves predominantly to formal and firm specific economic regulation. This approach to electricity transmission fits into the overall framework contemplated by the Productivity Commission.

4. Possible Alternatives to Current Regulatory Methodologies

Issue Raised

The scope of regulation (i.e. services to be regulated, service definitions, reliability mechanisms etc);

Response

While the high level aims for regulation of the energy sector should result in consistency between the sectors there are differences in the manner in which the various energy sectors can

be regulated. The Productivity Commission identified three options for regulation – economic regulation, price monitoring and no regulation. Common criteria could be adopted for determining which option is applicable to the various energy sectors. There are various technical, commercial and historical matters, which should be considered in determining the appropriate form of regulation.

Electricity is an essential service as opposed to gas, which is a fuel of choice. Electricity transmission networks are highly meshed as opposed to gas transmission pipelines, which are typically point to point. The meshed nature of electricity transmission makes it difficult to define services because what happens in one part of the network affects the transfer capacity in another part, which is quite different to the point to point service definition possible in gas transmission. The services that the electricity transmission businesses provide will, for the most part, comprise the transportation of energy across a single, shared network. Therefore, with the exception of providing assets that are dedicated to a particular generator or customer, it is difficult to define and separate out a list of services that can or should be separated from the main revenue control and be subject to an alternative regulatory arrangement.

The type of regulation adopted should be appropriate for the service being provided; i.e. an essential monopoly service in a highly interdependent network requires structured economic regulation. The TNOs therefore consider that almost all electricity transmission services naturally fall into the area which is subject to economic regulation. While this may not necessarily be the case for other sectors, the same criteria could be used across all sectors.

For electricity transmission, reliability of supply to customers is the main driver for network investment and supporting operating costs. The MCE recognised the importance of a reliable electricity supply to large users of the transmission system, and more specifically the risks associated with under-investment²:

“It is primarily service providers and large users who will bear the economic cost of regulatory determinations that have the potential to lead to under-investment in energy infrastructure. Moreover, the total economic costs of under-investment in energy infrastructure are generally greater than those of over-investment.”

Currently defined reliability obligations are end user (i.e. electricity demand) orientated. The obligations therefore define the level of investment required to maintain reliability of supply to end users.

However, there are no mandated obligations related to network services provided to a generator or a Market Network Service Provider (“MNSP”). The level of such services is determined on the basis of net market benefits using the prescribed Regulatory Test. The Regulatory Test has to be applied by electricity transmission businesses in order to have augmentations to the grid included in the regulated asset base. The Regulatory Test, therefore, effectively governs the level of interconnection and constraints which will occur on electricity transmission networks.

Given the difficulties associated with deriving and applying a common scope of services across jurisdictions, the TNOs consider that an appropriate degree of transparency would be provided to stakeholders by requiring service providers to set out a detailed definition of the scope of services in their revenue cap proposals.

² Ministerial Council on Energy: Standing Committee of Officials, Review of Decision-Making in the Gas and Electricity Regulatory Frameworks – Discussion Paper, 10 October 2005, p34.

Issue Raised

The extent to which it is feasible, and appropriate to develop alternatives to the building blocks methodology (such as Total Factor Productivity analysis) and the circumstances in which they may be appropriate.

Response

A number of factors distinguish the cost structure of electricity transmission from other utility infrastructure, and between the different Australian electricity transmission businesses. These unique features of individual transmission networks present challenges for the development of alternative forms of regulation for electricity transmission in Australia. As such it is not appropriate to move away from a 'building block' approach for electricity transmission to alternative approaches based on indices (such as Total Factor Productivity). Examples of the factors leading to unique cost structures in electricity transmission include:

- the efficient scale of capacity augmentations in electricity transmission networks tends to be large increments. As a result, augmentation expenditure to meet general demand growth tends to occur in large 'lumps' at irregular intervals and typically results in efficient pre-building of capacity;

- renewals expenditure for transmission networks is affected by the observed lumps in historical augmentation expenditure;

- the level of redundancy built into the network is necessarily higher in transmission than distribution. Therefore a much lower correlation exists between expenditures and service levels in the short term than in distribution and makes designing effective performance schemes for transmission more difficult;

- unit transmission costs will depend significantly on factors such as the distance (a key factor in transportation activities in Australia) and density of customers and generators, load factors, the voltage at which the network operates, network service standards and the natural environment in which the TNSP operates ; and

- a major driver for discretionary regulated investment is transfer capability for generators, which in turn is driven by the timing of investment decisions of generators. This investment also tends to occur in large lumps and at irregular intervals.

Further, an implicit assumption in using a 'total factor productivity' trend to set a price path is that unit costs are reasonably stable over time and that the past is a reasonable predictor of the future – neither of which is the case for electricity transmission. In addition, an implicit assumption behind the use of 'benchmarking' techniques to set or inform prices is that the group of entities that are benchmarked against each other either face identical conditions or that econometric techniques can be used to adjust for any differences. The differences that exist between the Australian transmission businesses are such that simple benchmarking across the TNOs will lead to flawed conclusions. Further, the magnitude of the differences combined with the small sample of Australian businesses, makes it highly questionable as to whether econometric techniques could provide any information that is sufficiently reliable for regulatory purposes.

Due to our unfamiliarity with the detailed regulatory arrangements applying to other types of energy infrastructure, the TNOs cannot comment on the appropriateness or otherwise of the building block approach to these businesses. However, the TNOs consider there to be strong grounds to continue to adopt the 'building block approach' for setting electricity transmission revenues. A distinguishing feature of the building block model is that revenues would reflect the costs incurred and forecast to be incurred by the particular regulated entity. This can be

contrasted with the alternative forms of regulation referred to in the question that rely upon industry-wide trends in expenditure to predict the future trend in efficient cost, i.e. the use of productivity indices, or the use of econometric methods to use industry-wide information to predict the efficient level of cost for a particular firm.

TNOs note that the AEMC³ also acknowledged the difficulties associated with applying alternative forms of regulation to industries where costs across firms are unique. In particular, that:

“the greater the diversity of demand and cost conditions of each firm within an industry, the more important will be firm-specific information in regulating revenues or prices”;

“for transmission businesses, an important factor in evaluating the scope for, say, productivity based forms of regulation is therefore the predictability and smoothness of capital expenditure needs, both across businesses and over time”; and

“a high degree of uniqueness in the cost structures or operating circumstances of individual firms will make it less likely that higher powered or light-handed forms of regulation will be able to improve the trade-off between rent and efficiency.”

In conclusion the TNOs are not familiar with arrangements which would be most suitable for other types of energy businesses but consider that a building blocks approach is essential for electricity transmission.

Issue Raised

Related to the above is the guidance appropriate on the form of control over prices, including the relative merits of capping prices versus capping revenue and the circumstances in which each is most appropriately applied.

Response

The TNOs consider that the hybrid form of price control set out in the AER’s *Statement of Regulatory Principles* is the most appropriate form of price control for electricity transmission. That is, a revenue cap that can be adjusted within-period to reflect predefined factors such as contingent projects, cost-drivers or pass-throughs which are outside the control of the regulated business. In addition, for regulatory certainty it is important to continue existing practice (for example, the AER’s *Statement of Regulatory Principles*), unless there is a very good reason to change.

As discussed earlier, an important feature of electricity transmission networks is the lumpy nature of investment, which can lead to large changes in expenditure from one year to the next as well as from one regulatory period to another. In addition, the higher level of redundancy required to be built into the network means that only a weak link may exist between the efficient cost of individual new investments and demand growth. This weak correlation between capital expenditure over time and load growth is one of the primary reasons why revenue caps are applied to electricity transmission networks and why price caps are considered more applicable to distribution businesses.

Under a price cap, volume risk is borne by the business, which does not occur under a revenue cap. In the event that there were a change from a revenue cap to a price cap, consideration would have to be given to substantial rebalancing of tariffs towards fixed charges and tariffs which reflect the fact that investment in electricity transmission networks is primarily driven by demand (MW) as opposed to energy (MWh). Further, it is noted that the ACCC and state

³ AEMC (2005), Review of the Electricity Transmission Revenue and Pricing Rules, Revenue Requirements Issues Paper, October, p30.

regulators assumed higher credit ratings for electricity TNSPs for the standard gearing assumption than for gas transmission or distribution businesses (A rather than BBB+) on account of the greater revenue certainty under a revenue cap. Consequently, a move to a price cap form of price control would necessitate an increase in the regulatory return and transmission charges ultimately paid for by electricity consumers.

A further issue that should be recognised is that the adoption of price caps often requires additional adjustment factors to accommodate and/or encourage the adoption of non-network options. TNOs understand that the Independent Pricing and Regulatory Tribunal in New South Wales introduced measures as part of the price cap arrangements applying to the electricity distribution businesses to encourage recourse to prospective network support providers and demand response management.

Issue Raised

Furthermore, an important matter for the Panel will be to identify the economic principles (for example the relative weights to be attributed to allocative, dynamic and productive efficiency; the trade off between risks and costs of regulatory failure versus the risks and costs of market failure) that should govern the consideration of these matters, and the implications to be drawn from those principles for the different sectors;

Response

Efficiency considerations are relevant in developing a common approach to transmission and distribution revenue and network pricing across both the gas and electricity sectors, and should be reflected in the overarching objective for both gas and electricity. In deciding on the relative weights to be attributed to allocative, dynamic and production efficiency in designing the common regulatory framework, consideration must be given to the costs and benefits for the sector and for the broader society. Due to the essential nature of energy infrastructure assets and the long timeframes before problems in infrastructure become evident, ensuring adequate and sustainable investment in such assets is a key priority. The economic principles which are adopted in developing a common regulatory framework across the energy sector should reflect this consideration and place emphasis on ensuring that long term efficiency is not undermined as a result of the pursuit of short term efficiency benefits to society.

Therefore, the TNOs agree with the theme of the Productivity Commission report on the gas access regime that the regulator should err on the side of infrastructure investment. In the report, the Productivity Commission acknowledges that regulators tend to err towards providing unreasonably low returns, and that this impacts upon future network investment decisions, especially those that have a considerable degree of discretion⁴.

“The Commission also considers that there is a potential for regulatory error under the regime due to the complex issues involved in determining a reference tariff, including the need to make a subjective judgment about the risk faced by a service provider. Where regulatory errors do occur under the regime, there is a possibility that they reduce expected returns for riskier projects below those necessary for efficient investment. For example, the expected rate of return allowed by regulators has been based on the precedents set for established, possibly lower risk, pipelines. In addition, recent appeal decisions suggest that regulators err towards imposing lower returns.”

The Productivity Commission report also quoted NECG⁵:

“There are strong economic reasons in many regulated industries to place particular emphasis on ensuring the incentives are maintained for efficient investment and for continued productivity increases. The dynamic and productive efficiency costs associated with distorted investment

⁴ Productivity Commission, Review of the Gas Access Regime (Report No.31), 10 August 2004, pXXXII.

⁵ Productivity Commission, Review of the Gas Access Regime (Report No.31), 10 August 2004, p104.

incentives and with slower growth in productivity are almost always likely to outweigh any allocative efficiency losses associated with above-cost pricing. (NECG 2001, p. 16)”

The TNOs agree with this view.

Furthermore, as discussed earlier, electricity transmission accounts for only about 7% of average end-user tariffs. This implies that the impact of allocative efficiency losses would be very small to end-users, whilst the dynamic and productive efficiency costs to end-users are potentially much higher, primarily due to restricted competition in the market but, in the most extreme case, due to reduced reliability in electricity supply affecting production.

5. Regulatory Discretion

Issue Raised

The level of regulatory discretion/guidance that should be provided to the Australian Energy Regulator when setting or assessing regulated prices and to the Australian Energy Market Commission when assessing changes to the ‘Rules’ for electricity and gas. In particular the Panel will need to arrive at a view on the extent to which, and the level at which, common or differentiated principles should be:

- a. Included in the National Gas Law;
- b. Included in the initial version of the new National Gas Rules, and permitted or required in the future changes to those initial Rules (i.e. guiding the Australian Energy Market Commission’s consideration of future rule changes);
- c. Contained in any Statement of Policy Principles for gas that is issued by the Ministerial Council on Energy; or
- d. Included in any consequent amendments to the National Electricity Law, proposals for changes to the National Electricity Rules, and/or any Statement of Policy Principles for electricity that is issued by the Ministerial Council of Energy

Response

For the reasons outlined earlier the TNO’s do not advocate a ‘one size fits all’ approach to regulation. The following comments on the level of discretion in network regulation are based on the experience of electricity transmission businesses.

The TNO’s strongly support the framework established in the National Electricity Law (NEL) to guide the level of regulatory discretion/guidance that should be provided to the Australian Energy Regulator in the setting or assessing of regulated prices for electricity transmission. Further, in response to the AEMC review of transmission revenue and price setting Rules, TNO’s have set out in detail how this framework should be applied in practice.

The NEL establishes a number of the high level principles associated with revenue regulation for electricity transmission as well as high level guidance to both the AEMC as rule-maker and the AER as regulator. The TNOs believe that these principles are appropriate and should be retained within the NEL and that additional guidance be incorporated in the Rules to clarify the extent of prescription and discretion appropriate to the AER. Specifically, the TNOs support the scope of the Rules the AEMC is required to make as set out in the NEL (Schedule 1, items 15-24) and the criteria to be applied in making and applying these Rules as set out in Sections 7,16(2) and 36.

Much of the TNO support for the current NEL provisions stems from the very limited requirements associated with electricity transmission regulation in the current National Electricity Rules. The unclear regulatory requirements and absence of access to merits review have led to poor quality electricity transmission decision making processes to date.

Significantly improved regulatory certainty and accountability can be achieved by establishing appropriate Rules that bind the AER on key elements of the regulatory framework. The TNOs recognise that the current gas access regime framework may provide an improved model for regulatory certainty and accountability, particularly when amended to reflect findings of the PC Review..

As discussed in the joint submission to the AEMC review of transmission revenue and pricing, the TNOs support the general proposition that the Rules should:

- expressly limit the AER’s discretion with regard to the methodologies and approaches that can be applied;
- provide criteria to be applied where discretions are to be exercised; and
- provide criteria setting out the requirements and procedures for regulatory decision making.

Specifically, the TNOs have applied this hierarchy to show that, in relation to electricity transmission, the level of discretion available to the AER ought to vary depending on the matter in question as set out in the following Table:

<u>Examples of Matters to be Addressed by a Rule Binding or Guiding the Exercise of AER Discretion</u>	<u>Examples of Matters to be Addressed by a Binding AER Guideline</u>
<p>The form of regulation to be applied to a particular sector e.g. building block Broad prescription of the form of price control e.g. price cap vs revenue cap The general methodology to be applied in setting and updating regulatory asset values.</p> <p>Detailed guidance to the AER in relation to how the regulatory return should be set.</p> <p>Rules setting out important constraints on the design of incentive arrangements.</p> <p>The adoption of a propose-respond framework, including a preset timetable, clear rights for parties to make submissions and have them considered, clear requirements for the AER to provide full reasons for its decisions.</p>	<p>Details and accompanying financial model to outline the revenue calculation and the methodology for updating regulatory values</p> <p>Definitions of the input assumptions and methodologies used to derive the regulatory return. The detailed design of the incentive arrangements.</p> <p>The detailed arrangements associated with making a revenue application, the timetable and consultation periods.</p>

The appropriate balance between regulatory certainty over time and ability for the regulatory regime to develop to reflect evolving best practice is also an important consideration. The more important regulatory certainty is in relation to a particular matter the higher in the hierarchy of regulatory instruments it should reside and the more specifically it should be prescribed. This is further outlined in the attached TNO submission to the AEMC Revenue Requirements Issues Paper.

In this regard there appears to be a compelling case for many aspects of the regime not covered by the NEL to be included in the Rules. This enables the Rules to be changed against the overarching objectives in the NEL using the Rule change process as the basis for capturing evolving best practice regulation, without undermining the separation of Rule making and Rule enforcement responsibilities.