

27 February 2009

Mr John Tamblyn Chairman Australian Energy Market Commission Level 5, 201 Elizabeth Street Sydney NSW 2000

By email: <u>submissions@aemc.gov.au</u>

Dear John,

## Review into the use of Total Factor Productivity: Framework and Issues Paper

### 1. Introduction and Overview

Grid Australia welcomes the opportunity to respond to the Commission's Framework and Issues Paper for the Review into the use of total factor productivity (TFP) for the determination of prices and revenue.

Grid Australia comprises transmission networks service providers (TNSPs) ElectraNet Pty Limited, Powerlink Queensland, SP AusNet, Transend Networks Pty Ltd and TransGrid. Collectively, this group owns and operates over 40,000 km of high voltage transmission lines and has assets in service with a current regulatory value in excess of \$10 billion. A priority for Grid Australia is ensuring regulatory certainty and stability for both investors and users of the transmission networks.

The objectives for the review are:

- to advise the MCE on the circumstances in which a permitted application of a TFP based methodology would contribute to either the National Electricity Objective (NEO) or the National Gas Objective (NGO); and
- where appropriate, recommend for consideration by the MCE draft Rules to allow a TFP based methodology for any individual or group of service providers.

Grid Australia supports the Commission's staged approach to the review, which means that draft Rules would only be developed if the Commission considered that TFP based regulation would contribute to achievement of the NEO or NGO. Grid Australia considers that the Commission's staged approach is particularly appropriate given that TFP based regulation is much more likely to be suited to some industry sectors than others.











In particular, sectors that comprise similar network companies operating in 'steady state' conditions will typically be more suited to TFP based regulation.

From Grid Australia's perspective, an important background element to this review is that the Commission has only recently completed a detailed and wide-ranging review of the economic regulatory arrangements for electricity transmission<sup>1</sup>. In its final determination on the regulatory framework for transmission, the Commission concluded (amongst other things) that:

- prescribed transmission services should be subject to a CPI-X revenue cap;
- the revenue cap should be determined using a building block approach; and
- industry-wide benchmarks, such as TFP based approaches, are inappropriate given the lumpiness and uniqueness of transmission investment.

The Commission's determination also noted the Expert Panel's conclusion that the case for TFP appears less compelling in electricity transmission, where significant lumpiness of future capital expenditure demands is an important part of the industry landscape<sup>2</sup>.

In light of the Commission's determination on the regulatory framework for transmission services and the Expert Panel's comments on TFP, Grid Australia concurs with the Commission's comments in its Framework and Issues Paper that<sup>3</sup>:

"...there are serious questions about the suitability of applying a TFP based methodology to determine the revenue path of electricity transmission service providers. For these reasons, the existing building block approach may better accommodate situations where the investment profile is lumpy and uncertain because prices and revenues are more closely tied to a business's own cost base."

Grid Australia agrees with the Commission that the characteristics of transmission networks are fundamentally different to distribution networks. In this regard, Grid Australia has identified two further reasons why the application of TFP based regulation to electricity transmission would be contrary to the NEO:

- Developing a sector-wide X factor to apply to all TNSPs would deliver inappropriate outcomes in terms of revenues, profits and investment; and
- TFP based regulation creates particular data challenges and regulatory uncertainty for TNSPs.

Each of these matters is briefly discussed in turn. This submission concludes with a short summary of Grid Australia's views in accordance with the Commission's assessment criteria.

<sup>&</sup>lt;sup>1</sup> AEMC, Rule Determination, National Electricity Amendment (Economic Regulation of Transmission Services), Rule 2006 No.18.

<sup>&</sup>lt;sup>2</sup> AEMC, Rule Determination, National Electricity Amendment (Economic Regulation of Transmission Services), Rule 2006 No.18. 16 November 2006, page 40.

<sup>&</sup>lt;sup>3</sup> AEMC, Framework and issues paper, 12 December 2008, page 33.

## 2. Financial implications of TFP based regulation

The Commission's Framework and Issues Paper notes that one of the key benefits of TFP based regulation is that a single X factor can be applied to all companies in a particular sector. The Commission explains that the possible benefits from a sector-wide X factor are<sup>4</sup>:

- It should be easier to implement and administer compared to calculating firm specific X factors with no need to allocate businesses to specific groups as well as less emphasis on detailed cost assessments for each service provider.
- It establishes a clearer break between a service provider's costs and its regulated revenues and prices. The 'de-linking' of costs and revenues is one aspect of the incentives that can be established from the use of a TFP based approach.

The Commission's Framework and Issues Paper suggests that an assessment of TFP based regulation should examine the outcomes from that regime against the counterfactual outcomes if the current building block regime continues<sup>5</sup>. With this type of counterfactual analysis in mind, the table below shows the average revenue and price increases for each TNSP as determined by the AER in its most recent revenue cap decisions (or draft decisions in the case of TransGrid and Transend).

TNSP	Revenue – average increase in real terms	Price – average increase per annum in real terms
Powerlink, 14 June 2007	1.9% followed by 7.6% p.a.	2.8%
ElectraNet, 11 April 2008	18.0% followed by 5.0% p.a.	5.6%
SP AusNet <sup>6</sup> , 31 January 2008	12.55% followed by 1% p.a.	2.4%
TransGrid <sup>7</sup> , 28 November 2008	6.4% followed by 4.4% p.a.	4.0%
Transend <sup>8</sup> , 28 November 2008	18.9% followed by 5.8% p.a.	5.4%

# Recent AER Decisions in relation to average revenues and prices

Three observations should be noted from the above table:

• The magnitude of the required revenue increases has been significant, which reinforces the earlier observation that transmission capital expenditure is lumpy and cyclical in nature;

- <sup>6</sup> It should be noted that SP AusNet's revenue cap does not include network augmentation, and therefore direct comparisons with other TNSPs are, to some extent, inappropriate.
- <sup>7</sup> AER Draft Decision, final decision to be released later in 2009.

<sup>&</sup>lt;sup>4</sup> Ibid, page 23.

<sup>&</sup>lt;sup>5</sup> Ibid, section 2.4, page 11.

<sup>&</sup>lt;sup>8</sup> AER Draft Decision, final decision to be released later in 2009.

- There is a significant range of increases in average revenue and average prices across the TNSPs, which reflects each company's particular circumstances, including differing capital expenditure requirements; and
- Each TNSP's average price increase takes account of its demand forecasts, which are likely to vary across the sector and over time.

As noted above, TFP based regulation would seek to apply a single sector-wide X factor to all TNSPs<sup>9</sup>. It is self-evident from the above table that if such an approach had been applied in place of the AER's most recent revenue cap decisions, the financial outcomes for some or all TNSPs would have been significantly different. In particular:

- The wide-range of P<sub>o</sub> and X factor combinations in the AER's recent decisions (to achieve revenue smoothing) could not be accommodated by a single Po and X factor combination across the sector; and
- A single P<sub>0</sub> and X factor combination that satisfied ElectraNet's revenue requirements (18.0% followed by 5.0% per annum) would be inadequate for Transend (18.9% followed by 5.8% p.a.) and excessive for SP AusNet (12.55% followed by 1% p.a).

The latter point is particularly important because it indicates that TFP based regulation would not reflect the relative productivities of the individual TNSPs. The significant differences in  $P_0$  adjustments and X factors highlight the potential arbitrary impacts of a TFP approach on transmission companies and the problems that arise from a one-size-fits-all approach.

As the AER's transmission revenue cap decisions are company-specific and reflect the NEO, the price and revenue outcomes from these decisions set a benchmark against which TFP based regulation can be measured. It follows from the above discussion that a single, sector-wide X factor applied to all TNSPs is highly likely to be inconsistent with the NEO in regard to "promoting efficient investment in, and efficient operation... of electricity services". Therefore, TFP based regulation would be inappropriate for electricity transmission.

Grid Australia also notes that TNSPs are subject to revenue cap regulation, and therefore a broader question arises as to whether a TFP approach can be successfully applied to this form of regulation. The Commission discusses this issue in the following terms<sup>10</sup>:

"The Rule Change Proposal suggested that a TFP approach can only be applied where the form of control is a price cap (whether as individual price caps or as a weighted average tariff basket). It argues that the relationship between allowed prices, TFP and inflation which justifies the use of TFP in a CPI-X framework is based upon the assumption that the control applies to prices rather than to revenue or average revenue.

However, it may also be feasible to apply a TFP based methodology to a revenue cap form of regulation. Comments are sought on whether market participants agree with this. The Review will investigate the conditions that apply to the use of TFP methods in price and revenue caps and the implications for efficiency."

<sup>&</sup>lt;sup>9</sup> This assumes that the regulator does not apply any 'catch up' factors of the kind described in The Brattle Group paper, page 30.

<sup>&</sup>lt;sup>10</sup> AEMC, Framework and Issues Paper, page 31.

Grid Australia notes the Commission's comments that it *may be feasible* to apply a TFP based methodology to a revenue cap form of regulation. However, as already noted, TFP based regulation cannot deliver the company-specific outcomes that the AER has considered appropriate in its recent revenue cap decisions. Specifically, the range of  $P_o$  and X factor outcomes from the recent AER revenue cap decisions is very broad indeed ( $P_o$  ranges from 1.9% to 18.9%; and X factors range from 1% to 7.6% per annum). By comparison, the average real price increases exhibit a much narrower range of 2.8% to 5.6%, which reflects greater revenue smoothing and the impact of demand growth.

The wide range of recent outcomes under a revenue cap regime casts doubt on the practicality of applying TFP based regulation to transmission. In essence, the rationale for a revenue cap form of control – principally the lumpy nature of investment and the high proportion of costs that are fixed – is contrary to the ongoing productivity trends and 'steady state' conditions which are conducive to TFP based regulation.

### 3. Data issues and regulatory uncertainty

The Commission has identified the following tasks that must be undertaken in order to apply TFP regulation appropriately<sup>11</sup>:

- a selection of the group of comparable businesses (defining the industry) over which to calculate the measure;
- specification of the businesses' outputs and how to measure each;
- specification of the businesses' inputs and how to measure each;
- the methodology for determining the weights for each output and each input in total revenue and total cost, respectively; and
- the time period over which TFP growth is to be calculated.

In relation to the first task, Grid Australia has already noted that for electricity transmission it would not be appropriate to select a group of comparable businesses to define the industry for the purposes of establishing a single X factor. Notwithstanding this overarching concern, it is useful to comment briefly on the challenges in relation to defining business outputs and inputs<sup>12</sup>.

In relation to the specification of business outputs, Grid Australia has serious doubts whether objective measures, including service performance, could be readily obtained for electricity transmission. The particular choice of output measure(s) is particularly challenging for electricity transmission because of the wide variation in the physical characteristics of the networks. The output of a transmission business has at least three major elements – how much is being transported, how far it is being transported, and the reliability of the transport service. The differences in the dimensions of those two elements among the Australian entities are very large

<sup>&</sup>lt;sup>11</sup> Ibid, pages 13 and 14.

<sup>&</sup>lt;sup>12</sup> It is noted that the Commission's Framework and Issues paper includes useful discussion of the data challenges on pages 13-20. For the sake of brevity, Grid Australia's submission only focuses on a subset of these challenges.

- a situation which is not readily amenable to a "one size fits all" approach. Grid Australia is therefore concerned that TFP based regulation for electricity transmission may arbitrarily create winners and losers amongst the TNSPs - in much the same way that benchmarking has proved to be problematic in comparing TNSPs cost and service performance. As a result, protracted debates and disputes may arise regarding the selection of the output measure for TNSPs.

Similarly, the task of specifying inputs for electricity transmission is also likely to be controversial because of the differences across the sector in terms of asset base values and average asset ages. In particular, Grid Australia notes that the financial outcome for a particular TNSP under TFP based regulation may also depend on the choice of capital input measure. The Commission's Framework and Issues Paper described the measure of capital employed in the following terms<sup>13</sup>:

"Defining an appropriate measure of the capital employed by a network business is another difficult challenge for TFP studies. The quantity of capital inputs can be measured either directly in quantity terms (for example, using measures of line length adjusted for voltage differences and transformer capacity) or indirectly using a constant dollar measure of the depreciated value of assets. The main difference between these approaches is what they imply for the assumed physical depreciation profile of network assets."

Grid Australia notes that the definition of capital inputs is likely to be less challenging in respect of electricity distribution, where companies in particular jurisdictions may be less diverse. Protracted debates are more likely in sectors such as transmission where particular companies may be materially affected by the design of the TFP index. In this regard, Grid Australia notes that The Brattle Group has commented on the sensitivity of TFP outcomes to the particular design choices and the wide range of X factors that can result<sup>14</sup>:

"Technical choices in the design of the method can have significant impacts on the results. For example, in the Ontario case two different methods were proposed which resulted in X factors that differed by about 2%. In the TFP analysis for gas distribution (a case in which there was no detailed time series data for the regulated sector), Ofgem's consultants recommended using a TFP growth rate in the range of 0.1%–4.8%, in part because different TFP methods gave rather different results. This range is rather wide compared to the typical magnitude of X factors adopted by regulators."

For Grid Australia, TFP based regulation would probably create demanding methodological issues for TNSPs and the AER to resolve. Inevitably, the outcome from these debates for electricity transmission will be far less certain than the recent experience from building block regulation, which is now well-developed and understood. Grid Australia accepts that in other sectors, such as distribution (or a subset thereof), the potential benefits of TFP may outweigh the costs. However, for electricity transmission, Grid Australia considers that the introduction of TFP based regulation would be inappropriate for the reasons outlined in this submission.

<sup>&</sup>lt;sup>13</sup> AEMC, Framework and Issues Paper, 12 December 2008, pages 15 and 16.

<sup>&</sup>lt;sup>14</sup> The Brattle Group, Use of Total Factor Productivity Analyses In Network Regulation Case Studies Of Regulatory Practice, October 2008, pages 10 and 11.

## 4. Concluding comments

The Commission's assessment criteria<sup>15</sup> is intended to test whether TFP based regulation would contribute to the achievement of the NEO (and the NGO) and be consistent with the pricing and revenue principles in the National Electricity Law (and National Gas Law). Grid Australia supports the Commission's assessment criteria and brief comments are provided on each element in the table below.

AEMC assessment criteria		Grid Australia's response	
1.	Strength of the incentives on the service provider to pursue cost efficiencies and the extent to which such cost efficiencies are shared with end-users	For electricity transmission, the current framework already provides strong and appropriate incentives for efficient investment and operation and 'fair sharing' with customers, especially through the efficiency benefit sharing scheme. Grid Australia therefore does not consider that a TFP regime is appropriate for transmission.	
2.	The ability of the framework to ensure efficient investment to promote long term innovation and technical progress for the benefit of the service provider and end-users	As explained in section 2 of this submission, TFP based regulation is likely to deliver inappropriate financial outcomes for some TNSPs, given the particular characteristics of electricity transmission. In these circumstances, the incentives for efficient transmission investment to promote long term innovation and technical progress will be substantially lessened. A different conclusion may be reached in other sectors.	
3.	Clarity, certainty and transparency of the regulatory framework and processes to reduce avoidable risks for service providers and users	As noted in this submission, Grid Australia considers that TFP based regulation would be materially less certain for electricity transmission than building block regulation. Distribution companies operating in closer to steady state conditions may have a different view.	
4.	Minimisation of the costs and risks of regulation to service providers	Overall, TFP based regulation would expose TNSPs and customers to increased costs and risks.	

#### Grid Australia's response to the AEMC's assessment criteria

<sup>&</sup>lt;sup>15</sup> AEMC, Framework and Issues Paper, page 8.

AEMC assessment criteria	Grid Australia's response
5. Appropriate resolution of transition and implementation issues and costs	The application of TFP is a major reform, which is regularly raised in regulatory debate. The debate has a long way to go before it can be settled and the potential impact of a TFP regime on the transmission sector can be surmised. Given this, issues of transition are, at this stage, unclear but are likely to be material.

In conclusion, Grid Australia concurs with the Commission's view that there are serious questions about the suitability of applying TFP based regulation to determine the revenue path of electricity transmission service providers. Moreover, an examination of the AER's most recent revenue cap decisions illustrates that a single sector-wide X factor would deliver inappropriate financial outcomes for TNSPs.

Whilst Grid Australia does not support TFP based regulation in respect of electricity transmission, this does not imply that the regime has no possible role in respect of electricity or gas distribution. Grid Australia notes that the characteristics of the distribution sector may lend itself to TFP based regulation more readily than transmission.

Grid Australia looks forward to further opportunities to engage with the AEMC and stakeholders in the relation to this review. If you require any further information from Grid Australia, please do not hesitate to contact me on 08 8404 7983.

Yours sincerely,

Rainerkorte

Rainer Korte Chairman Regulatory Managers Group