

24 December 2010

Mr John Pierce  
Chairman  
Australian Energy Market Commission  
PO Box A2449  
SYDNEY SOUTH NSW 1235

Dear Mr Pierce

**REVIEW INTO THE USE OF TOTAL FACTOR PRODUCTIVITY (TFP) FOR THE  
DETERMINATION OF PRICES AND REVENUES – DRAFT REPORT**

Energy Safe Victoria (ESV) is pleased to present its submission to the Australian Energy Market Commission (AEMC) Review into the use of TFP for the determination of prices and revenues.

ESV looks forward to the Commission's final Report being published and commends the AEMC staff involved in managing this project over the past two years.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Paul Fearon".

Paul Fearon  
**DIRECTOR OF ENERGY SAFETY**



SUBMISSION TO THE AEMC  
REVIEW INTO THE USE OF  
TOTAL FACTOR PRODUCTIVITY  
FOR THE DETERMINATION OF  
PRICES AND REVENUES

DRAFT REPORT

DECEMBER 2010

Energy Safe Victoria (ESV) is pleased to provide comments on the Australian Energy Market Commission's (AEMC's) *Draft Report* in its *Review into the Use of Total Factor Productivity for the Determination of Prices and Revenues* (TFP Review). ESV supports the submission of Victoria's Department of Primary Industries (DPI) on this *Draft Report*. However, ESV would like to elaborate on two important points in the DPI submission: 1) the conditions that must be satisfied before a TFP methodology could be applied; and 2) the benefits of applying a TFP-based methodology on a jurisdiction by jurisdiction basis. Drawing on our discussion of these points, ESV then recommends an alternate 'initial Rule' for facilitating a TFP-based methodology which we believe would better achieve the National Energy Objective (the Objective).

### **Necessary Conditions for Applying a TFP-Based Methodology**

The ESV's chief concern with the *Draft Report* pertains to the conditions which it says must be met before a TFP methodology could be applied. The *Draft Report* says that the Australian Energy Regulator (AER) must examine the data provided by regulated businesses each year "and test for the conditions necessary to support the implementation of a TFP methodology and to inform stakeholders on its assessment (of these conditions) in its annual TFP report. The conditions are:

1. The available data is robust and consistent and can produce a TFP growth rate consistent with the criteria specified for the TFP index calculation.
2. That the TFP index is likely to be a reasonable estimate of future potential productivity growth of the industry group.
3. Service providers within an industry group face comparable productivity growth prospects (p. 101).

In ESV's opinion, these conditions are both unnecessary and counterproductive. Most fundamentally, the *Draft Report* appears to have lost sight of the fact that the TFP-based methodology will be an *option*. Companies facing a regulatory review of prices or revenues would have the choice of selecting either a conventional building block review or the TFP methodology. Companies evaluating these options would naturally examine the estimated TFP trend for their regulated industry and determine whether it is a reasonable estimate of their firm's future productivity growth. Assessing whether estimated productivity growth is appropriate to the firm's own circumstances is part and parcel of the decision process. Indeed, whether the X-factor is perceived to be reasonable going forward may be the most important element in whether a company elects the TFP-based alternative.

The conditions outlined in the *Draft Report* substitute regulatory judgments for this decision process. These conditions essentially put the AER, rather than the companies themselves, in the position of determining whether the estimated TFP trend is robust, reasonable, and appropriate to a service provider's own circumstances. This is clearly sub-optimal, because the businesses themselves are in a far better position than the AER to determine the reasonableness of a TFP/X factor estimate for their firms' own circumstances.

Moreover, by making the firm's exercise of the TFP option contingent on a set of regulatory tests and determinations, the *Draft Report* interjects an extraneous layer of command and control regulation into an optional regulatory methodology. This is antithetical to the spirit and intent of the rule change application, which was designed to create a light-handed alternative to the building block approach. The *Draft Report's* mandated tests and determinations obviously impose additional, and unnecessary, costs of administering the TFP-based option. These

additional costs directly reduce the net benefits associated a TFP methodology. The conditions also delay the realisation of the other benefits discussed in the *Draft Report* that may result from the use of the TFP methodology. For example, a business may want to select the TFP-based option given the most recent estimate of the electricity (or gas) distribution TFP trend, but the AER would prevent that business from doing so – and effectively force that business into a building block review – if the AER’s view on whether that TFP estimate was robust, reasonable and appropriate differed from the company’s assessment.

ESV believes the conditions specified in the *Draft Report* are unwarranted and should be eliminated from the initial Rule. Instead, the AER should simply estimate industry TFP trends, integrate the updated TFP information into the TFP-based regime, and allow the regulated businesses to determine whether a building block or TFP-based approach is a better fit for their own circumstances. This approach allows the most knowledgeable entity to determine whether available TFP estimates are robust and appropriate: the regulated firm itself. This approach will also reduce administrative costs and create greater net benefits than a TFP-based regime that includes the conditions contained in the *Draft Report*.

### **Jurisdictional Applications**

The DPI submission argued that there could be benefits from applying the TFP-based methodology on a jurisdiction-by-jurisdiction basis. It said “(i)t would not be out of character” to do so since “(t)he form of regulatory control under Chapter 6 of the National Electricity Rules is set for each jurisdiction by the AER, and it would not – in the DPI’s view – be inappropriate for the derivation of the X-factor and other determinants of a TFP or building block approach to be similarly set.” The DPI also noted that, because of the extensive TFP research sponsored by the Essential Services Commission of Victoria, “Victoria’s network sector is most mature in its adoption of the (TFP-based) regulatory regime, most able to move to a long term regulatory setting as enabled by the TFP approach, and most likely to benefit from doing so for the aforementioned reasons.”

In essence, DPI argues that the PEG’s TFP research for Victoria’s energy networks represents a reasonable and feasible source of TFP information that can be applied in a TFP-based regime for Victoria’s energy networks sooner rather than later. DPI recognises the *Draft Report*’s concerns with the year-to-year volatility in PEG’s TFP estimates but says it is unreasonable to expect smooth TFP growth from year to year given that energy throughput is heavily influenced by climate, which varies from year to year. DPI also notes that, if the AER waited to collect eight new years of data before implementing the TFP-based option, this option would be delayed for five years for Victoria compared with the alternative of using PEG’s existing TFP estimates. DPI notes that “the benefits identified by the AEMC in its draft report would be foregone by Victorian consumers for five years longer if the AEMC’s proposed approach is followed. If these foregone benefits are not manifestly outweighed by costs avoided from implanting TFP based on current Victorian data for five years, then it is difficult to see how this achieves the Objective.”

ESV strongly concurs with these points. We believe PEG’s TFP research represents a valuable source of TFP information for Victoria’s energy networks. At the very least, this information can be integrated into a TFP-based regime for Victoria’s electricity distributors. The Victorian distributors themselves can examine the estimated TFP trend for the (Victorian) electricity distribution industry and determine if it is appropriate for their own circumstances going forward. Developing a TFP-based regime for the Victorian electricity distribution industry would accordingly be a low-cost, feasible means of implementing a TFP-based option for some Australian distributors. The value of implementing TFP-based regulation could therefore be

realised more quickly. The AER could also gain significant experience with administering the TFP-based option, which would prove useful whether PEG's TFP research was used as the foundation for a nationwide TFP regime or not.

ESV also believes the concern over volatility in PEG's TFP trends is misplaced. Dr. Kaufmann discussed this issue extensively in his April 2010 submission.<sup>1</sup> He notes that previous discussions of TFP index stability "essentially refers to its year-to-year volatility. This has no necessary implications for the 'stability of the price path,' which depends on the behavior of the long-term trend over a multi-year period... (u)ltimately, the year to year change in a TFP index does not translate into year to year variability in prices under TFP-based regulation. Instead, allowed prices are determined by the average change in TFP growth over a multi-year period."<sup>2</sup> Dr. Kaufmann also presents an alternative figure which shows the multi-year TFP trends from his Victorian research – which would be the relevant measures in a TFP-based regime – have in fact been quite stable. Nevertheless, the *Draft Report* reproduces the same graph of year-to-year TFP growth that was presented in the *Preliminary Findings Report* and claims that "erratic year-to-year movements may point to specification and/or data problems" (p. 86).

In fact, it can be easily demonstrated that the factor driving year-to-year volatility in PEG's TFP estimates for Victoria's electricity distributors is not "specification and/or data problems" but the factor highlighted in the DPI submission – weather-driven changes in throughput. This is evident in the graph below, which replicates the same PEG TFP data presented on page 85 of the *Draft Report*, except the year-to-year fluctuations in kWh deliveries (which are overwhelmingly driven by year-to-year fluctuations in weather) are replaced by the average growth in kWh deliveries over the sample period.<sup>3</sup>

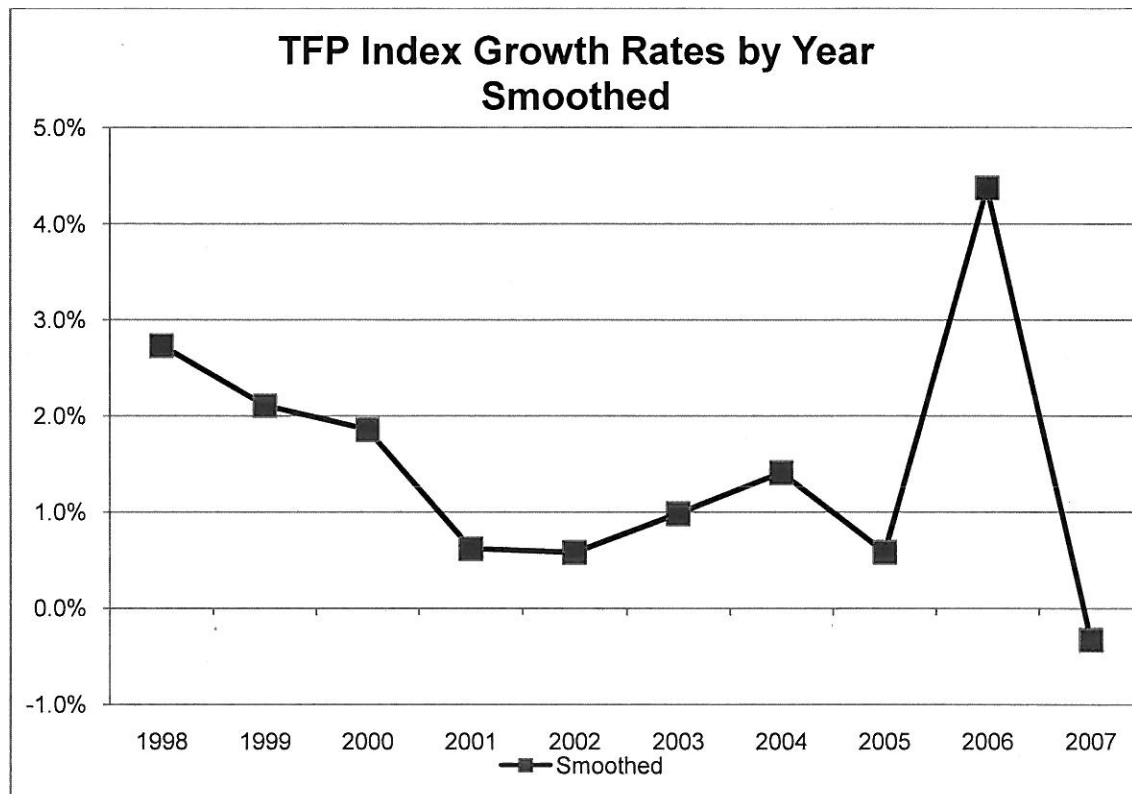
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<sup>1</sup> The *Draft Report* refers to this as the "PEG" submission, which is understandable since Dr. Kaufmann was also the lead author on PEG's TFP research. However, Dr. Kaufmann is now an independent consultant with advisory relationships to PEG as well as other institutions, and has resigned his partnership in PEG. The submission is therefore from Dr. Kaufmann himself and not PEG.

<sup>2</sup> Kaufmann, L., *Submission to Australian Energy Market Commission: Preliminary Findings Report*, April 2010, pp. 13-14.

<sup>3</sup> The graph also presents annual TFP changes from 1998 on, since Dr. Kaufmann has long recognised that there was a 'burst' of TFP gains in 1995-98 following the privatisation of Victoria's electricity distribution industry, and this experience was anomalous and would not be incorporated in any TFP estimate used in a TFP-based regulatory regime. The 1995-98 data are therefore irrelevant for evaluating the merits or reasonableness of the PEG research.





It can be seen that, once weather-driven year-to-year changes in kWh are controlled for, there is far less volatility in PEG's annual TFP changes. Of course, there is still some volatility, as there is in any industry TFP series (including Economic Insights' TFP estimates for New Zealand electricity distributors). This is why multi-year averages of TFP growth are always used in TFP-based regulation.

Hence, while annual TFP changes are not relevant for a TFP-based regime, it should be recognised that some year-to-year TFP volatility is inherent for energy networks simply because of weather-driven year-to-year changes in throughput. PEG's results reflect this reality, as would any TFP estimates developed for the AER, since the *Draft Report* has said that for, at least for the medium term, TFP estimates will be developed using the same output specification that PEG used in Victoria. This output specification uses revenue-share weighted billing determinants for output quantities. Since a large share of most distributors' revenues are collected from kWh deliveries, and these deliveries fluctuate from year to year because of weather, this implies that the volatility reflected in PEG's TFP estimates will also be evident in any alternate TFP specification used by the AER.

ESV would also caution against unfounded speculation regarding TFP "specification problems." The issue of the TFP specification is important to the operation of a TFP-based regime, and the analysis of this issue should be conducted in the most systematic, rigorous, and transparent manner possible. In his April 2010 submission, Dr. Kaufmann presented a detailed way forward and series of testable, empirical hypotheses that can be used to evaluate the merits of alternate TFP specifications. ESV believes Dr. Kaufmann's suggestions merit careful consideration by the AEMC and AER as it commences Stage II of its Review.

## The Initial Rule

In light of our previous comments, ESV recommends that the Initial Rule outlined in Section 5.3 of the *Draft Report* be amended as follows:

- Allow an interim, TFP-based methodology for Victorian electricity distributors (at least) using PEG's TFP research conducted on behalf of the Essential Services Commission of Victoria. The rules for an interim, TFP-based regime for Victorian would be identical to those that will eventually apply for energy distributors nationwide. However, during the interim period, PEG's TFP research would be used to set the X factor(s) for regulated industries. This TFP research would be updated annually, with new information rolled into the TFP estimates used as the basis for the interim TFP-based methodology.

This interim TFP-based regime would apply while the AER investigates the issues involved in developing a permanent, TFP-based methodology. These issues are described in general terms below. At the very least, the interim TFP-based regime would be available to electricity distributors in Victoria. At the AEMC and/or AER's discretion, the interim regime can also be opened up to electricity distributors from other States and territories. An interim regime can also be established for the gas distribution sector, using PEG's TFP research for Victoria's gas distributors.

- Collection of data for a permanent TFP methodology; the process for collecting these data are generally outlined in Section 5.3.1 of the *Draft Report*.
- Use the data to test TFP methodology issues. It is critical that the TFP specification be resolved as quickly as possible. Dr. Kaufmann has outlined a roadmap and series of testable empirical hypotheses that can be used to test all suggested specifications. ESV believes this way forward is valuable and deserves consideration. The basis for selecting one TFP specification vis-à-vis another should be based, to the greatest extent possible, on rigorous, transparent and verifiable empirical tests and/or statements of fact.

Section 5.3.5 of the *Draft Report* presents a brief, alternative statement of "Principles for the Design of a TFP methodology." ESV believes these principles are more vague and less useful than the transparent, empirically- and factually-based approach presented by Dr. Kaufmann. For example, one such principle is that the TFP specification "creates no systematic bias in the TFP growth estimate," but this simply begs the question of how the AER is to determine whether 'systematic bias' exists and, if so, what degree of bias is evident in alternate specifications. Similarly, another principle is that the specification "results in a reasonably stable index over time," without presenting a quantitative standard for "reasonably stable." Another principle says that capital costs "will need to be calculated exogenously," but this will be true in any TFP regime since the TFP estimate will be determined for the industry and therefore be exogenous to any individual company. ESV believes that general principles of this type are not sufficient for resolving the critical TFP specification debate, and Dr. Kaufmann's approach is more transparent, rigorous, and subject to independent testing and verification.

PEG's TFP research for Victoria would be updated annually and serve as the basis for an interim TFP regime until two conditions are satisfied: 1) a permanent TFP specification is established; and 2) the AER is satisfied that it has collected a sufficient amount of data (e.g. eight years of new data) to transition from the interim to the permanent regime.

- Requirement of the regulator to produce an annual TFP data and index calculation report; this annual report will include an update of PEG's TFP research for Victoria, since this will serve as the foundation for the interim regime, as well as annual TFP calculations for electricity and gas distributors in other States and territories, using the permanent TFP specification. No TFP calculations outside of Victoria can be undertaken until the TFP specification is finalised. If the permanent TFP specification is identical to that currently used in Victoria, data from other States and territories can be rolled into the Victorian TFP estimates to produce nationwide TFP trends.
- During both the interim and permanent TFP-based regime, the decision to select the TFP-based regime would be left entirely to the regulated company's discretion. The permanent TFP regime would take effect after the permanent TFP specification is established and the AER is satisfied that it has collected a sufficient amount of data to transition from the interim to the permanent regime.

Energy Safe Victoria  
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