27 February 2009

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Australian Energy Market Commission
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Dear Sirs,

Total Factor Productivity Review – Framework and Issues Paper, EMO006

Jemena appreciates the opportunity to make this submission to the Commission's review into the use of Total Factor Productivity (TFP) for the determination of prices and revenues for regulated infrastructure businesses.

The Commission has provided a thorough examination and discussion of the matters that are relevant to the application of TFP in its Framework and Issues Paper (the Paper). It is clear from the number and nature of questions that there are still many aspects of TFP and its implementation that are unresolved. That is despite extensive examination of TFP and its application over recent years, particularly by the ESC in Victoria.

Jemena supports the evolutionary development of regulatory practice where it advances the national gas and electricity objectives. The implicit aim in proposing TFP regulation appears to be to devise a regulatory scheme that provides stronger incentives for further efficiency gains in future than building blocks and at the same time reduces the intrusiveness and cost of regulatory processes. If that is correct, then TFP is only one possible solution and perhaps not the best one. We outline a possible alternative scheme that should be considered alongside TFP. The current review presents an ideal opportunity to consider such alternatives.

In Jemena's view the form of consultation which AEMC has embarked upon is unlikely to result in a satisfactory resolution of all the questions that are posed in the Paper. Given the highly technical and inter-related nature of many of the questions, and particularly those canvassed in Chapter 3 of the Paper, Jemena recommends that the consultation be undertaken in two stages:

1. In-principle consideration of TFP and other alternatives to building blocks
2. Detailed design to be informed by consultation with appropriately constituted technical working groups.

In our view there is no urgency about this review. A period of 18 months to two years should be considered for reaching a final position on an appropriate alternative to building blocks.

Jemana's submission is attached. Please contact Warwick Tudehope on (02) 9270 4551 if you require any further information.

Yours sincerely

Sandra Gamble
Group Manager Regulatory

Australian Energy Market Commission review into the use of Total Factor Productivity (TFP) for the determination of prices and revenues for regulated infrastructure businesses

Submission by Jemena Limited, February 2009

The Australian Energy Market Commission (the Commission) is conducting a review into the use of Total Factor Productivity (TFP) for the determination of prices and revenues for regulated infrastructure businesses. This submission by Jemena Limited (Jemena) is made in response to the Framework and Issues paper published by the Commission in November 2008 (the Paper).

Jemena owns and/or provides asset management and operational services to a number of regulated gas and electricity infrastructure assets. Relevantly for the Commission's review, Jemena owns manages and operates the principal gas network in NSW and an electricity distribution network in Victoria, and has a 50% interest in the electricity and gas distribution networks in the ACT. Jemena also owns the Eastern Gas Pipeline and the Queensland Gas Pipeline, both of which are uncovered.

Summary

The Commission's Paper provides a thorough examination and discussion of the matters that are relevant to the application of TFP. It is clear from the number and nature of questions posed in the Paper that there are still many aspects of TFP and its implementation that are unresolved. That is despite extensive examination of TFP and its application over a number of years, particularly by the Victorian ESC.

Jemena supports evolutionary development of regulatory practice that advances the national electricity and gas objectives. The purpose of proposing TFP as an alternative to building blocks has not been stated. The implicit objective is to devise a regulatory scheme that provides stronger incentives for further efficiency gains in future than building blocks and at the same time reduces the intrusiveness and cost of regulatory processes. If that is correct, then TFP is only one possible solution and perhaps not the best one.

A decision by policy-makers to move to TFP should be based on a high level of stakeholder confidence that it will engender more efficiency gains than building block regulation and that it will not create unmanageable risks for industry and customers. Implicit in this decision would be faith that there are more gains to be made by setting regulated prices by extrapolation of the past rather than by forecasts of future costs and volumes.

If this paradigm shift is acceptable for TFP, then it opens the door to other alternatives that may have superior properties to both building blocks and TFP. Jemena proposes such an alternative. This review presents an ideal opportunity to consider such alternatives. One alternative would be to set a firm's price path for a regulatory period to "glide" from today's price to the price (at the end of the period) that would be required to yield a benchmark rate of return assuming the firm's costs and volumes were to remain constant at today's levels throughout the period.

In Jemena's view the form of consultation which AEMC has embarked upon is unlikely to produce a satisfactory resolution of all the questions that are posed in the Paper. Jemena has an informed position on only some of them and we believe most other businesses will be in a similar position. Given the highly technical and inter-related nature of many of the questions, and particularly those canvassed in Chapter 3 of the Paper, Jemena recommends that the consultation be undertaken in two stages:

1. In-principle consideration of TFP and other alternatives to building blocks
2. Detailed design to be informed by consultation with appropriately constituted technical working groups.

In Jemena's view there is no urgency about this review. Given the length of time that it has taken to consult on other matters of similar complexity, and the demands of other consultations, as well as the demands of business-as-usual work, a period of 18 months to two years should be considered for reaching a final position on an appropriate alternative to building blocks.

Our detailed discussion follows. We discuss TFP Regulation in principle; Measuring and applying TFP; and An alternative approach – the Glide Path Method. We have also reproduced the Commission's list of issues from the Paper in an attachment and added a summary of out position on selected issues.

TFP Regulation in principle

As originally conceived, incentive regulation was a response to the fact that efficient costs for a business are unknown and cannot be determined by inspection or analysis. Incentive based regulation is founded on the principle that:

(i) businesses will be motivated to improve efficiency if they are given the opportunity to retain the benefits of those efficiencies – improved profit – for some time; and
(ii) consumers will be better off because the future benefits of these incentive-driven efficiency improvements will be transferred to them over time through lower prices and/or enhanced services.

Under the building blocks approach the firm's price (or revenue) path is set for a period by reference to the firm's forecast costs and the business can earn additional profits by delivering services for less than the forecast cost. In practice, regulators are set the impossible task of setting the price (or revenue) path to recover the firm's forecast efficient costs. The result is that consumers are handed the benefits of anticipated efficiency improvements, irrespective of whether they can be delivered and the firm does not share in any of the benefits created in moving from its current level of costs to "efficient" costs as estimated by the regulator. Finally, because efficient costs cannot be known, there can be no guarantee that the estimate is achievable, efficient, or sustainable.

It is generally accepted that the incentive to improve efficiency is strengthened if the price (or revenue) path is set on the basis of measures that are independent of the firm's costs and if the duration of the path is extended. TFP provides a rational basis and a mechanism for establishing such a price path. Conceptually, it is superior to building blocks and more closely aligned to the principles of true incentive regulation.

However, de-linking prices and costs may not sustainable in the long run for either policy-makers (if profits are excessive or firms fail) or for firms themselves if they fail. Various mechanisms have been devised for dealing with this problem under TFP including periodic price re-sets (to efficient cost), dead-bands and off-ramps. Other mechanisms such as "stretch targets" have been devised to deal with situations where firms that are relatively inefficient (however that is determined) are making the transition to TFP.

The more restrictive these refinements, the more the result will be like cost of service regulation, and the less likely it is that the potential advantages of TFP will be realised. There is a real possibility that a fully-specified TFP regime will have many of the characteristics of the building blocks regime. The only real difference is that one unreliable method of calculating X (building blocks) is replaced by another (TFP).

Moreover, an X value set equal to TFP does not have any particular significance in terms of its incentive properties – an X value chosen at random would have the same incentive properties. Apart from its theoretical appeal, the principal advantage of using TFP as opposed to any other value appears to be that it could permit longer periods between re-sets (or triggering off-ramps) for a greater proportion of firms (assuming that most firms' productivity growth will be close to the industry average TFP).

To date the focus of economic regulation in Australia has been on improving productive efficiency. There is no doubt that building block regulation has been an effective tool in that process. However the focus now needs to move from productive efficiency to improving dynamic efficiency. Energy infrastructure businesses are facing significant change over coming years. Live issues include responding to a carbon constrained world; ensuring energy security; a greater emphasis on demand-side management; the introduction of smart meters; and the introduction of new market structures (for gas). All of these require responses, including substantial investments in assets and/or research and development.

It is by no means clear that building blocks, or TFP for that matter, is the most effective mechanism for encouraging dynamic efficiency. For example, it is generally accepted that TFP is not suitable in cases where capital expenditure is lumpy. Because it is an average over firms and time, TFP is not responsive to cost increases for an individual firm.

TFP regulation is also portrayed as being less intrusive and less expensive to administer than building blocks regulation because it is based for the most part on reported historical information. However, it is not necessarily that simple. For example:

- WACC will be an input to TFP regulation as it is for building blocks
- If the regime includes price re-sets, then those are likely to be contentious
- There will be reviews and processes around the calculation of TFP itself including the form of the TFP model and decisions as to which businesses should be included in the "industry" for which TFP is calculated
- It will be necessary to decide whether a business qualifies to transfer from building blocks to TFP and from TFP to building blocks
- Forecasting may be required to obtain assurance that a TFP price path conforms to the Revenue and Pricing Principles
- Additional costs will be involved to the extent that reporting requirements are more onerous for all businesses than they would be under building blocks

- If TFP and building blocks are both available as options then there are likely to be additional cost for the AER (and the AEMC) in maintaining two systems.

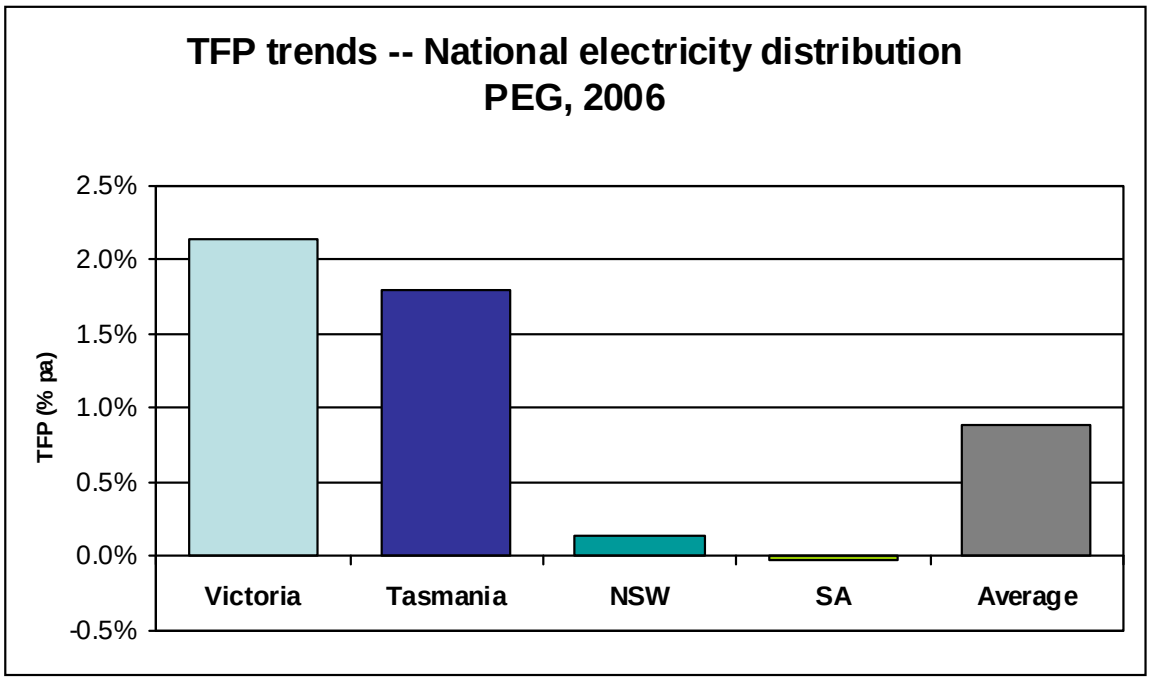
Measuring and applying TFP

Chapter 3 of the Paper deals with the Design of TFP approaches. The questions posed go to the detail of a TFP regime including technical aspects of the calculation itself (such as definition of inputs and outputs and their weights) and structural matters (such as the duration of a regulatory period and the role or price-resets). Most of these questions have been debated at length in the course of the work that has been done in Victoria, culminating in the Victorian Rule Change Proposal. Despite that debate, there is no consensus on a number of the matters that are likely to have the greatest effect on the value of TFP and on the shape of the regime.

Technical matters:

A number of the issues canvassed in Chapter 3 of the Paper have a significant bearing on the calculated value of TFP. They include the definition of the "industry" for which TFP is calculated; consistency and quality of data; the definition of the TFP model – inputs and output and their weightings, and others.

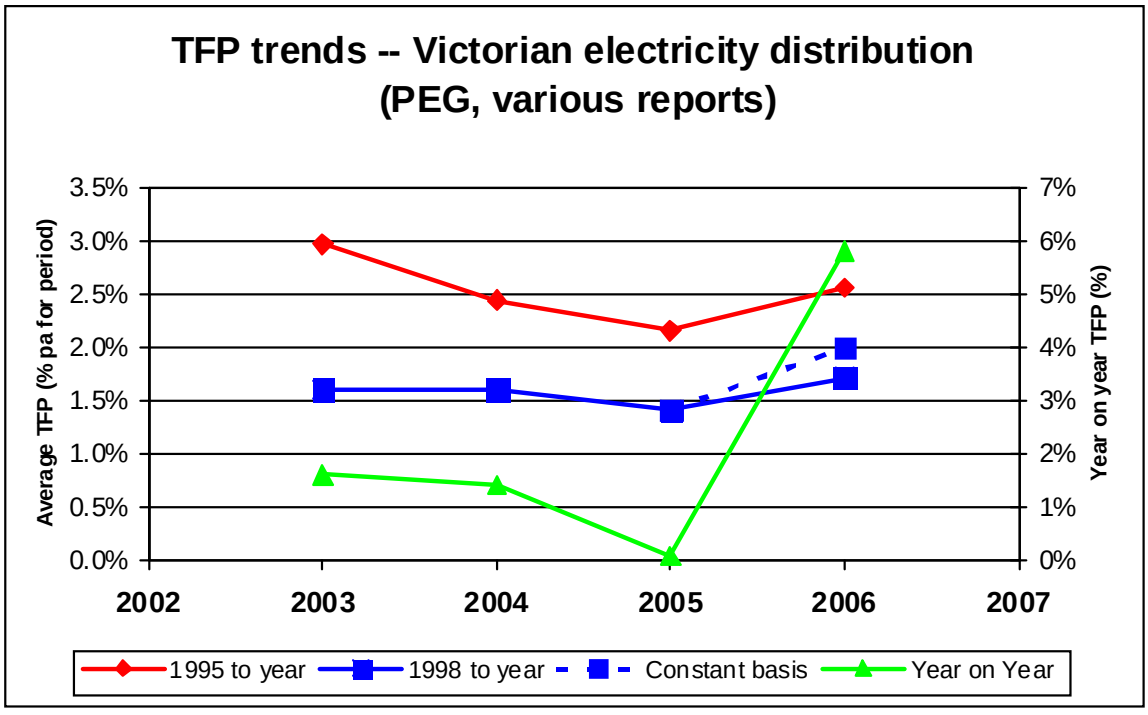
The importance and significance of some of these issues is highlighted by work that Pacific Economic Group (PEG) has done with the ESC. The Commission refers to that work in Appendix F to the Paper. In that work, PEG determines what we assume are comparable TFP values for electricity distribution businesses in four States. Values range from minus 0.03% for South Australia to 2.14% for Victoria. The average is 0.88%.



PEG did not have access to consistent data for all four jurisdictions so had to adopt what it describes as a second best approach for Tasmania, NSW and SA.

If the observed differences between jurisdictions reflect real differences between the businesses then the industry average value of 0.88% would not be sustainable for any jurisdiction suggesting that there is a case for providing firm-specific adjustments. If the differences between businesses are not real, then it shows how sensitive the results are to data quality and method. Either way, there are significant considerations in determining what firms should be included in the "industry". It could well be difficult to establish objective criteria for determining whether a business or jurisdiction should be eligible for inclusion. Victoria attempted to do that in its rule change proposal by reference to a number of factors including whether the firm had been privatised within the previous 5 years.

PEG has also calculated an updated TFP trend for the five Victorian electricity distribution businesses as new data is added for each of the years 2003 to 2006. Even in that case, where there is extensive detailed and consistent data, there are significant uncertainties. An analysis of these results highlights the significance of the TFP model definition (inputs, outputs and weights) and also the significance of price re-sets (given PEG's model definition).



PEG has calculated the TFP trend on two bases – 1995 to the relevant year, and 1998 to the relevant year. The latter series (the blue line in the graph above) excludes the "burst" or productivity improvement that followed the privatisation of the businesses. PEG recommends the resultant value (1.6% to 1.7%) as an appropriate estimate of the long term productivity trend for the Victorian industry. However, it should be noted that PEG based the 1998-to-year trend values up to 2005 on the average output index over the period from1995. For 2006, PEG based the TFP trend estimate of 1.71% on the average output index from 1998. If the previous basis had been used for 2006, the consistent value would be 1.99% (the dashed blue line). Alternatively, if the 2006 basis (i.e. Output Index averaged over the period since 1998) had been used in earlier years, the values would have been 1.2% (for 2003 and 2004) and 1.0% (for 2005). Either way, the addition

of 2006 data results in an increase in estimated long run TFP of the order of 0.5 per cent to 0.6 per cent.

It is difficult to accept that these changes, and the year on year change between 2005 and 2006 in particular, are all attributable to actual changes in the firms' productivity performance. The year 2006 was the first of a new regulatory period which included significant P_0 adjustments between 2005 and 2006. PEG has adopted an "ex post" financial formulation to quantify capital inputs which means that the input side of PEG's TFP estimate is linked to actual revenue as determined by the regulatory decision. Significantly, under the ex post approach, the annual cost of capital is taken to be the observed return on capital i.e. revenue less O&M expenditure and regulatory depreciation.

The observed reduction in inputs between 2005 and 2006 was therefore a function of the regulatory decision rather than the businesses' independent actions. There is no certainty that those reductions were efficient or sustainable.

PEG's output specification is weighted heavily to throughput measures – peak deliveries, off-peak deliveries and peak demand – which are largely outside the businesses' control. Output growth accounted for 4.2% of the 5.8% TFP year on year increase between 2005 and 2006. A significant proportion of that output growth would have been met from existing assets/capacity. (It must also be recalled that 5.8% is the average for five businesses.)

The Commission describes the alternative approaches for measuring inputs and outputs in Appendix B to the Paper. In Jemena's view, the observations above support the view that:

- capital inputs should be measured in physical terms
- outputs should include a weighting towards capacity measures, and
- the cost of capital should be just that. The outturn return on capital is not necessarily the cost of capital.

Finally, in Victoria, there is disagreement as to how the TFP trend should be estimated from the TFP index numbers for a period. PEG favours taking the average growth between the beginning and end of the period so that the implicit assumption is that the end-point values are free from error. The result is a TFP value of 1.71% for the period 1998 to 2006. If a regression approach was used instead, the corresponding value would be 1.27%.

Even where all necessary data to support TFP is available on a consistent basis (as is said to be the case for the Victorian electricity distribution industry) there are fundamental decisions to be made about the form of the TFP calculation model. If the incorrect choice is made the result will be a biased value of TFP and, whatever the choice of model, the result can only be an estimate of the true TFP.

Structural matters:

Significant structural matters include:

- the role and form of price re-sets, firm-specific adjustments and off-ramps;
- eligibility criteria for moving from building blocks to TFP and vice versa;
- the point in the regulatory cycle at which it is confirmed that a firm can move to (or from) TFP; and

- the duration of the regulatory period.

Importantly, TFP does no more than determine the rate of change of revenue/prices. It does not address the level of prices. In that regard we note that the Victorian Rule Change proposal would have involved a price reset to "efficient costs" at each review. This would perpetuate the feature of the building blocks approach that is so problematic, namely that nobody knows or can determine what efficient costs are for a firm. Arguably, business revenues are more sensitive to potential errors in price re-sets than to likely errors in X because errors in the level of prices go directly to present value. If the errors in level of prices and X are in the same direction, then the problem is exacerbated.

There are also questions as to whether a TFP regime would be consistent with the National Objectives and Revenue and Pricing Principles for both gas and electricity. In particular, it is not clear how TFP can ensure that "a service provider [is] provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs … " (NGL s24 and NEL s7A).

If the price path for the future is set simply by assuming that the observed TFP trend from the past will continue then that amounts to a crude forecast. While extrapolation is contemplated in the National Gas Rules (NGR) (Rule 75) it is not clear how extrapolation in the case of TFP can sit with the requirements in NGR Rule 74 that:

"(2) A forecasts or estimate
(a) must be arrived at on a reasonable basis and
(b) must represent the best forecast or estimate possible in the circumstances."

Summary:

There are significant and contentious technical and structural matters to be resolved in setting up a TFP regime. Many of these are interrelated, for example, a wider definition of the "industry" or a less precise method of estimating TFP may mean that firm-specific adjustments and/or off-ramps are required. The length of the regulatory period may also have a bearing on the need for off-ramps and/or price re-sets.

If TFP is established as an alternative to building blocks, it is not difficult to imagine combinations of outcomes, both on technical and structural matters, that could result in it being an unattractive or inappropriate option for at least some businesses. It is for that reason that Jemena insists that it must be for businesses alone to opt to move from building blocks to TFP. Businesses' acceptance of TFP will depend ultimately on the structure of the TFP "package" taken as a whole, not just the form of TFP calculation itself.

TFP estimation is not a precise science so in that sense TFP regulation is susceptible to error and requires the exercise of judgement, just as building blocks does. We concur with the Expert Panel when it says that: "TFP estimation might itself be characterised as involving as much 'art' as hard science, and it could not reasonably be expected that regulators and service providers will reach ready agreement on the precise approach and its outcomes." (p103)

An alternative approach – the Glide Path Method

To date the focus of economic regulation in Australia has been on improving productive efficiency. There is no doubt that building block regulation has been an effective tool in that process. However the focus now needs to move from productive efficiency to improving dynamic efficiency. Energy infrastructure businesses are facing significant change over coming years. Live issues include responding to a carbon constrained world; ensuring energy security; an increasing emphasis on demand-side management; the introduction of smart meters; and the introduction of new market structures (for gas). All of these require responses, including substantial investments in assets and/or research and development.

It is by no means clear that building blocks, or TFP for that matter, is the most effective mechanism for encouraging dynamic efficiency. For example, it is generally accepted that TFP is not suitable in cases involving "lumpy" capital expenditure.

A decision by policy-makers to move to TFP should be based on a high level of stakeholder confidence that it will engender more efficiency gains than building block regulation and that it will not create unmanageable risks for industry and customers. Implicit in this decision would be faith that there are more gains to be made by setting regulated prices by extrapolation of the past rather than by forecasts of future costs and volumes.

As discussed previously, there may be questions about whether setting prices on such a basis can be consistent with the current National Objectives and Revenue and Pricing Principles for gas and electricity. Setting that aside, if it is assumed that regulators and policy-makers can accept that regulated prices can be set on the basis of extrapolation of the past and without reference to forecast costs and volumes (as is the case for TFP), then it opens up the possibility of different approaches altogether that may be superior to both building blocks and TFP. One such alternative approach can be summarised as follows:

> A firm's price path for a regulatory period is set to "glide" from today's price to the price (at the end of the period) that would be required to yield a benchmark rate of return assuming the firm's costs and volumes were to remain constant at today's levels throughout the period.

This "glide path model" has a number of favourable characteristics:

- Conceptually the model is very simple and gives life to the principles of incentive regulation as originally conceived. That is, the business is left to reveal its efficient costs by responding to incentives.
- Efficiency gains made over one period are given to consumers progressively over the subsequent period i.e. there is an in-built efficiency carry-over mechanism.
- There is no need for off-ramps or re-sets to "efficient costs" as assessed by the regulator or anyone else.
- The scheme is "firm specific" by its nature and so avoids the problems associated with TFP of how to deal with firms that have different operating environments and states of (in)efficiency. Being firm specific, the scheme is also more responsive to changes in the firm's circumstances than TFP which is calculated as an average over firms and time.

- Importantly, because it is more responsive to changes in the firm, the approach encourages and more readily accommodates dynamic efficiency than building blocks and TFP which focus on productive efficiency.
- It should be less costly to administer than the building block and TFP approaches.

There is likely to be some requirement for the glide path model to incorporate constraints and adjustments. For example:

- There may be a need for a prudency test on capital expenditure as a safeguard against gold-plating, and for a mechanism to discourage businesses from loading "today's costs" to influence the gradient of the glide path.
- A mechanism might be included to compensate businesses for the delay between the time that capital is spent and when its cost is reflected in prices. In fact, such a mechanism may be necessary if the model is to conform to the Revenue and Pricing Principles.

Under the glide path model the business accepts volume risk as it would under TFP. The model would require a standardised approach to depreciation (which would also be a feature of TFP), and WACC would be an input to the model as it is for both TFP and building blocks.

It is generally acknowledged that elements such as demand management and service incentive schemes would have to be dealt with as separate adjustments under TFP as they are for building blocks. The glide path model would be amenable to the inclusion of such adjustments.

Available productive efficiency gains have been largely extracted from Australian network businesses in three or four past rounds of building blocks regulation. There is therefore little risk that firms moving to the glide path model will reap excessive profits even if they are relatively inefficient today.

On the face of it, the glide path model warrants consideration as an alternative to both building blocks and TFP.

Appendix

Australian Energy Market Commission review into the use of Total Factor Productivity (TFP) for the determination of prices and revenues for regulated infrastructure businesses

List of issues and summary of Jemena position (on selected issues)

Chapter	For comment	Summary of Jemena position (selected issues)
1 Scope of the Review	1. Is the Commission's proposed scope of the Review appropriate?	Jemena proposes that the scope of the review be extended to include consideration of other alternatives to building blocks besides TFP. If change is considered desirable, then TFP is not necessarily the only or the best alternative.
2 Assessment framework	2. Are the Commission's proposed assessment criteria appropriate? Are there other desirable criteria?	The Commission's proposed assessment criteria are appropriate.
3 Designing TFP based approaches	3. If TFP were to be available for revenue and pricing decisions, what would be the correct industry definitions for the respective each sectors? Also, in determining an industry definition for a TFP based approach, would adjustments for operating environment conditions be necessary and, if so, under what conditions? 4. What is the appropriate method for determining TFP growth estimates? (a) How should the outputs and inputs for the different energy sectors be classified? (b) What should be the approach for determining the weightings for inputs and outputs? 5. What are the variables that would be needed to compute a TFP growth estimate for the gas and electricity transmission and distribution sectors? 6. What is the current availability of TFP-relevant data and its quality and consistency?	3. to 8 and 17. These questions go to the technical detail of TFP calculation. All of them are significant in determining the value of TFP. Evidence from the work done in Victoria is that the resultant value of TFP can vary widely depending on how they are resolved. It is clear from the debate in Victoria that there is significant disagreement (including between experts) on most of these questions. There is certainly no consensus. 9. to 16. These questions are more related to the structure of the regime of which the calculated TFP value would be a part. The work done by PEG to estimate TFP values for Victoria, South Australia, NSW and Tasmania suggests that either there are significant differences in TFP performance between jurisdictions or that data quality and model definition have a significant effect on the resultant TFP value. Either way, it points to a need for great care in defining the "industry" – and the possible need for firm-specific adjustments if the industry is defined widely. There is no doubt that introducing overseas data would result in a

Chapter	For comment	Summary of Jemena position (selected issues)
	7. What would be the appropriate balance between precision and availability of data for the calculation of TFP? 8. If a TFP based approach is adopted, what sample period would be appropriate for the data and what adjustments, if any, would be needed for it to be extrapolated for future circumstances? 9. If a TFP based approach is used, should any Australian data be supplemented with overseas data? Under what conditions would this be appropriate? 10. What characteristics of the dataset would need to be met for a TFP calculation to be robust and credible? Should the regulator be permitted to 'clean up' data? 11. What should be the pre-conditions relating to industry characteristics required for the implementation of a TFP based approach? 12. If implementing a TFP based approach, should adjustments to an industry wide X be allowed to account for specific business characteristics? 13. If a TFP based methodology was to be introduced, should fixed or rolling X factors be used? Alternatively, should the regulator have the option to choose between these in applying the TFP based methodology? 14. If a full application of a TFP based approach were to be introduced: (a) Should periodic assessments of efficient costs and the resetting of the X factor be undertaken? (b) Would it be appropriate for the building block approach be applied to an assessment of single year of costs? (c) Does the building block approach need amending to allow it to work	different TFP value. Whether it would be a better indicator of forecast TFP performance for Australian businesses is a moot point. The larger the "industry" the less responsive TFP will be to actual changes in the Australian industry and individual businesses. The proposition that prices can be re-set to "efficient costs" is illusory. The more that a TFP regime has features such as routine price re-sets, price re-openers, and firm-specific adjustments, the more it will look like building blocks. Summary: Most of the questions in this section are technical in nature and many are inter-related. For example the need for re-openers will be a function of the length of the regulatory period and perhaps also the "precision" of the TFP estimate. As noted above, there are genuine and strongly held differences of view on some of these questions which are in turn fundamental to the calculation of TFP. It is unlikely that these questions can be resolved through the AEMC's current consultation process. They are best dealt with by appropriately qualified working groups.

Chapter	For comment	Summary of Jemena position (selected issues)
	within a TFP framework (particularly in relation to the asset base, depreciation, new capital expenditure and the rate of return)? 15. Under a full application TFP approach, what should be the length of the regulatory period? 16. If a TFP based methodology was introduced, could earnings based re-openers or cost pass through mechanisms be used? What features of these mechanisms would be desirable (or not desirable)? 17. If a TFP based methodology was introduced, what would be the appropriate index for measuring input prices?	

Chapter	For comment	Summary of Jemena position (selected issues)
4 Application of TFP to national energy markets	18. Is a TFP based methodology consistent with a revenue cap form of control? 19. If a TFP based methodology was introduced, should it be a requirement for service providers to consent to an application of TFP to determine allowed revenue/prices? 20. Would a TFP based approach be suitable to determine the revenue path for electricity transmission service providers? 21. If a TFP based methodology was to be introduced, should it be applied in electricity distribution determinations? Are there such significant differences in the DNSPs across the jurisdictions that classifying the sector as a single industry would be difficult or inappropriate? 22. Would a TFP based approach be suitable for determining the price path for gas transmission pipeline service providers? 23. Can a TFP based methodology be applied to the gas distribution sector? Are there such significant differences in the gas distribution systems across the jurisdictions to make classifying the sector as a single industry inappropriate?	18. As Jemena understands it, the theoretical underpinnings of TFP would say that it is most compatible with price control. However, the principle of TFP regulation is that prices and costs can be de-linked. We have noted that an X value chosen at random would have the same incentive properties as an X value set at TFP, so in that sense, TFP regulation could be applied to revenue cap control. 19. Jemena is strongly of the view that TFP (if it is to be introduced) must be offered as an optional alternative to building blocks and it must be for the business alone to make the election to opt in to TFP. 20. Jemena accepts the observations made in the Paper, that TFP regulation is probably not appropriate for electricity transmission, principally because of the lumpy nature of capital expenditure. 22. There are significant differences between gas transmission pipelines – size, length, terrain, looping/compression, technology, load profiles, market maturity, capital bases, and capex profiles etc. This suggests that TFP regulation is probably not workable for gas transmission. Even if it was, the number of regulated pipelines that might be eligible to choose TFP is small. 21 and 23. The viable candidates for TFP would appear to be electricity and gas distribution in the first instance. There are clearly differences between businesses and jurisdictions as evidenced by the work done by PEG comparing electricity distribution businesses in Victoria, Tasmania, South Australia and NSW. The significance of these differences and their consequences for the applicability of TFP are a matter for analysis and judgement. On the face of it, the average TFP of 0.88% for those jurisdictions as calculated by PEG would not be a sustainable value for “industry” TFP.

Chapter	For comment	Summary of Jemena position (selected issues)
5 Whether to introduce a TFP based approach approach	24. What would be the ability of a TFP based methodology to address any perceived problems with the current applications of the building block approach? 25. Under a TFP based approach, what would be the impact on the incentives to make efficiency improvements and make efficient investments? 26. If a TFP based methodology was to be introduced, would the existing incentives schemes be needed? And if so, do they require any amendment? 27. If a TFP based methodology was to be introduced, how should service quality be regulated? 28. What would be the benefits and costs from having two forms of control in the regulatory framework? 29. Would giving service providers the option between either a TFP based methodology and a building block methodology be appropriate? Would the option create any perverse incentives? 30. What would be the likely participation by service providers under a TFP based methodology?	24. The answer to this question depends very much on the form of the total TFP "package". For example, if forecasting and routine price re-sets are part of the package then the end result may be something that looks very similar to building blocks. WACC will continue to be an input for TFP. 25. Once again this depends on the form of the total TFP "package". If there is an opportunity for firms to retain the benefits of efficiency gains for an extended period then, directionally, the incentives are stronger than under building blocks. However, TFP is an average over firms and time so it is not responsive to the actions of an individual form. Thus recovery of cost increases that may be associated with investments in dynamic efficiency will be delayed. This may deter such investments. 27. There will be additional costs in maintaining multiple systems (e.g. building blocks and TFP) in parallel. In order to justify those costs, there must be an appropriate uptake of TFP. The level of uptake will depend on individual businesses' assessment of the total TFP "package" as an alternative to building blocks. 29. As noted above it must be a matter for businesses alone to elect to move to TFP. It cannot be otherwise at this stage given the uncertainties about the structure and consequences of a TFP regime for individual businesses.

Chapter	For comment	Summary of Jemena position (selected issues)
6 Implementation and transition	31. If a TFP based methodology was to be introduced, what should be the procedures for collecting the TFP dataset? Should confidential data which have previously been provided to the regulator for regulatory determinations now be allowed to be used for calculating TFP growth estimates? 32. What are the costs of implementation a TFP based methodology? 33. What is the required level of specification on a TFP based methodology that needs to be included in the Rules? 34. What are the criteria for assessing whether a TFP based methodology should be applied? 35. If a TFP based methodology was to be introduced, what would be the appropriate timing for its introduction? Should implementation process include a trial period? 36. How could the balances under the existing incentive schemes be carried over from a building block methodology to a TFP based methodology?	Once again, these questions are best resolved by appropriately qualified working groups.