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Jemena Limited
ABN 95 052 167 405

Level 20
111 Pacific Highway
North Sydney NSW 2060
PO Box 1220
North Sydney NSW 2059
T +61 2 9455 1500
F +61 2 9455 1501
www.jemena.com.au

By online submission

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Review into the use of Total Factor Productivity for the determination of prices and revenues—reference EMO0006

Dear Sirs

Jemena Limited (**Jemena**) appreciates the opportunity to comment on the Commission's draft report published in connection with its review into the use of total factor productivity for the determination of prices and revenues. Our detailed response is set out in **Attachment 1.**

The Commission's draft findings and proposals for further evaluation of total factor productivity (**TFP**) regulation will potentially affect a number of gas and electricity infrastructure assets in which Jemena has an ownership interest. Jemena directly owns Jemena Gas Networks in NSW, the largest individual gas distribution network in Australia, Jemena Electricity Networks in Victoria, the Eastern Gas Pipeline and the Queensland Gas Pipeline. Jemena partially owns the United Energy Distribution electricity distribution business in Victoria (34%) and the ActewAGL gas and electricity distribution business in the ACT (50%).

Jemena supports the Commission's proposed two phase approach to advancing the evaluation and possible introduction of TFP regulation. However Jemena has reservations about a number of aspects of the Commission's findings and proposed way forward including:

- the Commission's preferred option for resetting prices to cost, and its implications
- the proposal for a rule specifically to authorise the AER to collect data to support the further evaluation of TFP regulation
- the proposal that transmission service providers should be required to provide information to support the further evaluation of TFP regulation
- whether TFP regulation in the form proposed would be compatible with the revenue and pricing principles for electricity and gas.

We also note that a move to TFP regulation implies acceptance by policy-makers that price paths can be set without the need for detailed analytical forecasting of costs and volumes and that extrapolation of historical trends is a valid forecasting technique. If those principles are accepted then there are likely to be other alternatives to building blocks, besides TFP regulation, that could be considered.

If you wish to discuss the submission, please contact Warwick Tudehope, Manager Network Regulation on 02 9455 1551 or warwick.tudehope@jemena.com.au.

Yours sincerely

Sandra Gamble
General Manager Regulation and Strategy

Attachment:

1. Jemena, *Review into the use of total factor productivity for the determination of prices and revenues—Jemena submission in response to the AEMC's draft report*.

ATTACHMENT 1

Review into the use of total factor productivity for the determination of prices and revenues—Jemena submission in response to the AEMC's draft report

1 Introduction

Jemena is pleased to make this submission in response to the document entitled *Review into the use of total factor productivity for the determination of prices and revenues, Draft Report* (the **draft report**) which the Commission published in November 2010.

As the owner and operator of regulated gas and electricity networks and of unregulated gas transmission pipelines, Jemena has a strong interest in the orderly development of the regulatory regime for energy infrastructure.

The draft report provides a thorough discussion of the total factor productivity (**TFP**) methodology as an alternative to building blocks for the regulation of prices and revenues for energy infrastructure services.

Jemena accepts the Commission's finding that a TFP methodology can advance the national gas and electricity objectives and supports the Commission's proposed staged approach to advancing the evaluation and possible introduction of a TFP methodology. Having said that, Jemena has reservations about a number of aspects of the Commission's findings and proposed way forward including:

- the Commission's preferred option for resetting prices to cost, and its implications
- the proposal for a rule specifically to authorise the AER to collect data to support the further evaluation of TFP regulation
- the proposal that transmission service providers should be required to provide information to support the further evaluation of TFP regulation
- whether TFP regulation in the form proposed would be compatible with the revenue and pricing principles for electricity and gas.

We also note that a move to TFP regulation implies acceptance by policy-makers that price paths can be set without the need for detailed analytical forecasting of costs and volumes and that extrapolation of historical trends is a valid forecasting technique. If those principles are accepted then there are likely to be other alternatives to building blocks, besides TFP regulation, that could be considered.

These and other matters are discussed in detail in the following sections of this submission.

As we have stated in previous submissions made in the course of the Commission's consultation on TFP regulation, it is only when the TFP methodology is fully specified that businesses will be able to make an informed decision as to whether it is an acceptable alternative to building blocks and they should opt in.

The remainder of this submission is arranged as follows:

Section 2 Consistency with national energy objectives and revenue and pricing principles

Section 3 Resets to cost

Section 4 A new paradigm – TFP and forecasting

Section 5 Relative risk and incentive properties

Section 6 Data requirements

Section 7 The way forward.

2 Consistency with national energy objectives and revenue and pricing principles

The Commission acknowledges that, in assessing the TFP methodology, "it must have regard to the NEO and NGO and the revenue and pricing principles"[1].

The Commission concludes that the introduction of a TFP methodology in the national gas law (**NGL**) and national electricity law (**NEL**) will advance the national energy objectives[2]. Jemena accepts that conclusion. However, the Commission does not make an explicit statement in relation to the revenue and pricing principles.

In Jemena's view there must be some doubt as to whether a TFP methodology would satisfy the revenue and pricing principles and in particular the principle that:

> A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs …[3]

In summarising its findings, the Commission states that:

> Under normal circumstances TFP–based regulation gives service providers achieving industry group average productivity growth the opportunity to recover their revenue requirement. It thus provides service providers with a reasonable opportunity to recover their prudently-incurred costs and maintains investment incentives.

and

> A TFP-based methodology can handle significant changes and adverse cost shocks affecting the industry as a whole relatively well provided there are regular price resets or equivalent safeguard mechanisms in place. With resets every five years, the TFP-based approach can handle even large changes such as a 'wall of wire' effect and produce similar profitability outcomes to the business as usual case[4]

[1] Draft report, p. 16.

[2] Draft report, p. 60.

[3] NGL s. 24(2); NEL s. 7A(2).

[4] Draft report, p. 18.

Between them, these statements gloss over a number of important assumptions that should be recognised:

> Under normal circumstances, but not necessarily under all reasonably foreseeable circumstances, TFP–based regulation gives those service providers achieving productivity growth equal to or better than extrapolated historically-observed industry group average productivity growth, and subject also to the step-off year being representative and P_0 being set correctly, the opportunity to recover their revenue requirement. It thus provides only those service providers with a reasonable opportunity to recover their prudently-incurred costs and maintains investment incentives.

At best, only some service providers will have a reasonable opportunity to recover their efficient costs under TFP. In the absence of an analytical assessment of:

- whether costs in the step-off year are representative and sustainable
- the forecast TFP trend and the particular business's capacity to at least match that trend, and
- foreseeable changes in the business's circumstances

and provision for those assessments to be taken into account, it is difficult to see how a TFP methodology can be compatible with the revenue and pricing principles for every service provider. It is for that reason that, if TFP is introduced, it must be offered as an optional alternative to building blocks and it must be for the service provider alone to decide to opt in to and out of TFP.

3 Resets to cost

Jemena has commented previously that P_0 is at least as significant as X in determining revenue and hence value for the service provider under the TFP methodology. The value of X will be set extrinsically by reference to TFP so the value of P_0 will be the focus of attention at each review. It follows that the principles for setting P_0 and how they are administered will be critical. The Commission's draft report suggests strongly that the AER should have powers to review and substitute its preferred values for reported and forecast prices and quantities that are taken into account in setting P_0. The way in which those powers are defined and exercised will be particularly important.

The Commission considers options for setting P_0 in Appendix C. The Commission's preference is for option 1, described as the "change required to align revenues with the annual revenue requirement in the last year (or years) of the preceding regulatory period based on efficient input prices and actual input quantities"[5]. Jemena concurs with this choice but with significant reservations.

3.1 Definition and exercise of regulator's discretion around price resets will be critical

Jemena accepts that the regime should include safeguards to ensure that incentives for perverse action are minimised and that costs in the step-off year(s) are legitimately incurred. However, any mechanism that allows the AER to substitute its preferred values raises a

5 Draft report, p. 126.

significant risk for the service provider that legitimately incurred costs—actual and forecast—will be disallowed and that the starting price and hence prices for the whole of the subsequent regulatory period will be understated. The way in which the AER's discretion is defined and exercised will be critical.

In discussing option 1, the Commission notes at pages 76 and 130 of the draft report that businesses may have an incentive to increase or bring-forward expenditure in the period before transferring from building blocks to TFP in order to influence the level of prices under TFP and then benefit by subsequent under-expenditure. The Commission concludes that option 1 would maximise the efficiency properties of a TFP methodology and provide ongoing benefits to consumers subject to the important proviso that "gaming risks can be adequately addressed". It then goes on to say that:

> the AER would need to do a reasonableness check of reported costs when the service provided first moved from the building block approach to a TFP methodology to assure itself that the service provider had not purposely increased its input use at the end of the building block period to gain a more favourable starting price under the TFP methodology.[6]

It is not clear why this incentive would exist only in the transition from building blocks to TFP. Arguably it would also exist between successive regulatory periods under TFP. In fact the Commission appears to acknowledge that is the case in the discussion on page 127 of the draft report.

The Commission's discussion also suggests that despite option 1 being defined as a reset "based on efficient prices and actual input quantities", the reasonableness checking process could include provision for the AER to review and possibly adjust quantities as well as prices. In other words, option 1 may be very similar to option 2 in practical terms.

As the option is described, prices are to be aligned to the final year's revenue requirement "based on efficient input prices". We have commented previously on the problems of setting the regulator the task of determining efficient prices and costs for a business. If that were possible then there would be no need for incentive regulation.

In summary, any mechanism that allows the AER to substitute its preferred values raises a significant risk of regulatory error for the service provider in that legitimately incurred costs may be disallowed so that the starting price and hence prices for the whole of the subsequent regulatory period are understated. The way in which the AER's discretion is defined and exercised will be critical.

3.2 Return on assets and depreciation are also important factors

The Commission's discussion of price resets focuses on prices and quantities. There is only passing reference on page 130 of the draft report to the fact that the revenue requirement in the step-off year(s) and the value of P_0 is also a function of return on assets and depreciation. Together, return on assets and depreciation make up 60 to 70 per cent of a typical service provider's revenue requirement. Operating and maintenance costs make up the remaining 30 to 40 per cent. Capex contributes only a relatively small amount to revenue requirements for the period in which it is spent and is (and will continue to be) subject to ex post prudency review for gas at least.

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6 Draft report, p. 132.

Return on assets and depreciation will be just as significant for the service provider under a TFP methodology as they are under building blocks:

- Return on assets

  Historically, the return on assets (**WACC**) has been highly contentious and that may well continue to be the case. Jemena notes the Commission's expectation that WACC will be set in the same way under TFP as it is for building blocks so the service provider should be in the same position with respect to WACC under either regime. However that will only be the case if the regulatory periods are the same length. If a longer regulatory period is permitted under TFP then the service provider's exposure to error will be increased.

- Depreciation

  At present a service provider has some flexibility in deciding on the depreciation profile it should adopt. In some cases, such as green field developments, it may even be appropriate to charge negative depreciation in the initial years of operation as the market served by the asset develops. There are at least two questions that arise. How will the current flexibility be recognised in:

  a. determining the annual revenue requirement in the last year (or years) of the preceding regulatory period i.e. the step-off years?

  b. the reporting regime where it might be argued that depreciation should be standardised if reported depreciation is an input to the calculation of the TFP index, and so that valid comparisons can be made between businesses?

3.3 Access to merits review is essential

Given the potential for regulatory error and the significance of any such error, it is essential that decisions on allowed costs and starting prices be subject to merits review. Jemena is pleased to see that the Commission supports this position [7].

4 The role of forecasting under TFP—a different paradigm

The building block method is founded on forecasts of costs and output volumes and, rightly or wrongly, forecasting under building blocks has become an exercise in exhaustive analysis. Opex and capex are each broken down into multiple components, the drivers for and growth of each component are analysed in forensic detail, and the results aggregated. Similarly output volume forecasts are built up from multiple components which are analysed and forecast in great detail. Extrapolation of past trends is rarely if ever accepted as a valid forecasting method, not even for a minor element of costs or volumes.

TFP regulation doesn't obviate the need for forecasting. Although not stated in such terms, TFP regulation involves forecasting the value of X such that, when combined with P_0, the average or better performing business can be expected to recover at least its efficient costs. However, the TFP methodology as proposed would simply avoid the problem of forecasting X analytically by codifying extrapolation as the forecasting method. That is, extrapolation would

[7] Draft report, p. 129.

become the basis for forecasting not just some minor sub-component of costs or outputs, but one of only two parameters that determine prices for the entire output of the business for the regulatory period.

The implied assumptions are that:

- the TFP specification ultimately adopted is an unbiased estimator of actual industry TFP
- the extrapolated historical trend of TFP (as specified) is an unbiased estimate of future TFP growth that can and will be achieved by the average business operating efficiently.

Acceptance of TFP as proposed implies acceptance that:

- it is appropriate to re-set prices by reference to observed actual costs alone
- simple extrapolation is a valid forecasting methodology
- it is reasonable to set the rate of change of prices without regard to forecast costs and/or output volumes.

This represents a significant departure from the rules and practices that define and constrain the building block method and contribute significantly to its cost. Moreover, if such a departure is considered acceptable then it opens up the possibility of a range of options for regulatory reform other than TFP.

Jemena is not advocating an immediate wholesale review of regulatory arrangements—it is too soon after the last round of major changes. However, we should avoid embarking on a process now which locks in TFP as the only alternative to the current implementation of building blocks.

5 Relative risk and incentive properties

Economic Insights conclude that:

> The model demonstrates that relatively small errors in forecasts in building blocks regulation can lead to significant divergences of realised revenue from revenue requirements. Because forecasting errors will inevitably occur in practice, TFP–based regulation is likely to be a somewhat less risky alternative compared to building blocks regulation under normal circumstances.[8]

The conclusion that TFP-based regulation may be less risky than building blocks is the product of Economic Insights' assumptions about the potential forecasting errors under building blocks. The DB–favourable forecast and DB–unfavourable forecast building block cases assume a 5 per cent bias in capex and opex forecasts and a 1 per cent bias in volume forecasts in every one of the 15 out-years. Biases of this magnitude and duration cannot be regarded as "relatively small errors in forecasts". Moreover, the analysis and conclusion do not recognise that the TFP methodology will also be susceptible to regulatory error and, potentially, to bias:

8 Draft report, p. 38.

- the TFP specification chosen may result in a biased estimate of actual TFP growth
- extrapolation of past performance to predict future TFP growth is not a reliable forecasting technique—at the very least it produces a lagging estimate
- depending on how it is specified and administered, the price resetting process may result in inaccurate or biased values for P_0.

As a general observation, and assuming no bias, TFP without price resets must be more risky than building blocks since prices and costs would be delinked. This higher risk is reflected in the potential for higher rewards and for more severe adverse outcomes than under building blocks.

Jemena accepts the conclusion from Economic Insights' modelling that the potential for higher rewards under TFP–based options generally provides stronger incentives than building blocks to reduce rates of input growth[9]. Having said that, several submissions in previous rounds of this consultation have observed that a value of X selected at random would have the same incentive properties as a value based on measured TFP. It could be instructive to analyse that alternative.

Economic Insights' analysis also reinforces the importance of including price resets if TFP is to accommodate abnormal events:

> The scenarios examined in the accompanying spreadsheet models demonstrate that TFP–based regulation can handle significant changes and adverse shocks relatively well provided there are regular price resets.[10]

This conclusion is reflected in the Commission's draft report where there are numerous statements that desired outcomes will be achieved "provided there are regular price resets or equivalent safeguard mechanisms in place". [11]

Resets or off-ramps are necessary because, when:

- initial prices are set without regard to reasonably foreseeable changes in circumstances and
- X is based on the historically observed TFP industry trend

prices do not respond immediately or adequately to step changes in costs and demand for individual businesses or for the industry.

This highlights once again the significant role that P_0 resets will have in determining outcomes: the TFP methodology involves much more than moving to TFP as a mechanism for setting the rate of change of prices.

9 Economic Insights, *A Model of Building Blocks and Total Factor Productivity–based Regulatory Approaches and Outcomes*, June 2010, p. 38.

10 Economic Insights, *A Model of Building Blocks and Total Factor Productivity–based Regulatory Approaches and Outcomes*, June 2010, p. 38.

11 See for example, pp i, 10, 22, 33, 35, 41, 42, 45, 48, 74, 82, 87.

6 Data requirements

The Commission proposes that the lists of data requirements set out in Appendix E in its preliminary findings report published in December 2009 should be the starting point for consultation to establish a data reporting regime to support TFP[12].

It is inevitable that, for many businesses, some of the information listed in Appendix E is not currently available at all or, where it is available, it will not be consistent with the definitional, (dis)aggregation, quality and other requirements of the reporting regime that are yet to be specified.

Some classes of information would need to be created specially. For example few if any businesses would maintain values for replacement cost, optimised replacement cost (**ORC**) and depreciated optimised replacement cost (**DORC**). Reliable estimates of ORC and DORC are costly to produce and, even then, the values are subject to significant estimation uncertainty. The definitions of ORC and DORC are also contentious. For example the principles of ORC and DORC valuation were significant issues in the Moomba-Sydney pipeline case which was ultimately determined in the High Court. [13] Where ORC and DORC values have been determined, the basis of the determination is likely to be different as between businesses.

The information listed in Appendix E can no doubt be produced, but it will be at some cost.

We note that the AEMC envisages that a "collaborative approach to forming the data specifications will have the benefit of addressing some of the key regulatory principles such as communication, consultation, and transparency."[14] The process of developing the reporting requirements must be founded on those principles.

7 The way forward

Jemena supports in principle the Commission's proposed two phase approach which would involve the collection and analysis of data over a number of years (phase 1) before a decision is made whether to introduce TFP as an optional alternative to building blocks (phase 2).

The Commission proposes a number of new rules to implement the data collection and analysis phase in section 5.3 of the draft report. Apart from the rule proposed in section 5.3.1, which Jemena considers is inappropriate, the scope and general direction of the proposed rules is sensible. Jemena's comments on the proposed rules follow.

7.1 Facilitating the collection of data—section 5.3.1

The proposed rule is intended to facilitate the collection of data. In Jemena's view this rule is inappropriate because it would be inconsistent with the current structure of the gas and electricity regimes where that AER's information-gathering powers are codified in the respective laws rather than the rules.

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[12] Draft report, p. 97.

[13] *East Australian Pipeline Pty Limited v Australian Competition and Consumer Commission* [2007] HCA 44.

[14] Draft report, p. 97.

The Commission's concern appears to be that the role proposed for the AER in analysing the TFP methodology is outside the scope of the AER's functions as currently defined in the NGL and NEL, and so existing information-gathering powers cannot be used to collect information for that purpose[15]. If that is the case then all that is required is to formalise the new/additional function thus allowing the AER to use existing information-gathering powers. The other features of the proposed rule—consultation, guidelines, confidentiality, auditing and level of sign-off—are covered adequately in the laws defining existing powers.

The Commission also argues that the reporting requirement should extend to transmission service providers. In the case of gas, the AER's information-gathering powers are currently restricted to scheme pipeline service providers and related providers as defined in the NGL. [16] The AER has no power to require information from service providers of uncovered pipelines. Jemena strongly opposes any suggestion that the scope of the AER's powers should be varied to allow it to collect information from service providers of uncovered pipelines for any purpose, including to support TFP.

It is unfortunate that the Commission has not ruled out categorically the application of TFP to transmission and gas transmission in particular given the strength of submissions on that point.

7.2 Requirement for AER to report—section 5.3.2

The proposed rule sets out requirements for the AER to report on TFP matters, and the circumstances in which the AER would be permitted to adjust data.

Jemena has no immediate comment on the proposed rule.

7.3 Testing alternative TFP specifications and specification of industry groups—section 5.3.3

The proposed rule would require the AER to test alternative TFP specifications and the appropriate definition of industry groups.

Jemena has no immediate comment on the proposed rule.

7.4 Necessary conditions for introduction of TFP—section 5.3.4

The proposed rule would require the AER to test whether the conditions necessary to support the introduction of TFP have been satisfied.

The first of the three conditions deals with the adequacy of data and is reasonable, however it is difficult to see how either of the second and third conditions could be assessed quantitatively since both involve forecasting. Put the other way, if it was possible to make reliable forecasts of productivity growth for an industry group and individual service providers then many of the issues surrounding TFP and its implementation would evaporate.

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[15] Draft report, p. 96.

[16] See National Gas Law, s. 43.

7.5 Principles for the design of a TFP methodology—section 5.3.5

Although the heading is “Principles for the design of a TFP methodology”, the proposed rule is mostly to do with the criteria for the TFP specification itself. In Jemena’s view, it is appropriate that the rule should focus on the TFP specification. Other aspects of implementing the TFP methodology are more properly dealt with if and when a decision is made to proceed with TFP.

Jemena questions three of the criteria. They are that the specification should:

- result in a reasonably stable index over time
- create no systematic bias in the TFP growth estimate
- be consistent with promoting economic efficiency and does not result in perverse incentives.

The ultimate objective must be to arrive at a specification that produces an accurate estimate of actual TFP growth. If that growth is in fact erratic—which we acknowledge is unlikely—then the index should reflect that variability. If the choice is between a specification that is stable but inaccurate and one that is erratic and accurate, then the latter should be chosen. It follows that stability is not a relevant criterion although, as the Commission notes, erratic movements may indicate problems with the specification or data[17].

The second criterion above deals with the important issue of bias. Clearly a biased estimate cannot be accurate. However, we cannot see how this criterion can be applied in practice. Different specifications will inevitably produce different results but there is no objective measure or standard against which to evaluate those results for bias.

The third criterion above is, in Jemena’s view, not relevant to the specification of the TFP index. The purpose of the proposed rule should be to set the criteria for assessing whether a particular TFP specification produces an accurate measure of actual TFP growth and ultimately, for deciding between specifications. Different specifications simply produce different estimates. The question of whether the TFP methodology will promote economic efficiency is a separate matter. Likewise, the matter of perverse incentives should have no bearing on the TFP specification. The Commission concludes that individual businesses or industry groups will not be able to manipulate the TFP index[18] so, if perverse incentives exist, they will not be resolved by choosing a different TFP specification.

[17] Draft report, p. 103.

[18] Draft report, section 4.4.