Final decision

Electricity transmission network service providers

Post-tax revenue model

September 2007

AUSTRALIAN ENERGY REGULATOR

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Shortened forms

ACCC	Australian Competition and Consumer Commission
AER	Australian Energy Regulator
capex	capital expenditure
CGS	Commonwealth Government Securities
CPI	consumer price index
ETNOF	Electricity Transmission Network Owners Forum
MAR	maximum allowed revenue
MEU	Major Energy Users Inc.
NEM	National Electricity Market
NER	National Electricity Rules
opex	operating and maintenance expenditure
PTRM	post-tax revenue model
RAB	regulated asset base
RFM	roll forward model
TNSPs	transmission network service providers
WACC	weighted average cost of capital

1. Introduction

The Australian Energy Regulator (AER) is responsible for regulating the revenues of transmission network service providers (TNSPs) in the National Electricity Market (NEM) in accordance with the National Electricity Rules (NER).

In January 2007, the AER developed and published its first proposed post-tax revenue model and invited submissions from interested parties. The AER received seven submissions in response to the first proposed PTRM.

This decision sets out the AER's consideration of comments raised in relation to the first proposed PTRM. It has been prepared to satisfy the AER's obligations under clause 6A.20(e) of the NER.

2. Rule requirements

This PTRM has been developed by the AER under clause 6A.5.1 and will be used to calculate a TNSP's maximum allowed revenue (MAR) for future revenue determinations.

The PTRM must comply with the principles prescribed in the NER under clause 6A.5. Clause 6A.5.2(c) of the NER requires the AER to publish the PTRM by 28 September 2007.

In accordance with clause 11.6.18, the AER will apply the first proposed PTRM for the purpose of making a transmission determination for SP AusNet, VENCorp and ElectraNet in 2008.

3. Reasons for the post-tax revenue model

The AER will use the PTRM to determine the MAR to be earned by a TNSP over a regulatory control period. The TNSP uses the MAR to calculate the transmission prices to be paid by network users at each connection point in its network.

The PTRM calculates the MAR for a regulatory control period using the building blocks approach. Under clause 6A.5.4(a) of the NER, the building blocks may include, for each year:

- indexation of the regulated asset base (RAB)
- the return on capital
- the return of capital (depreciation)
- the estimated amount of corporate income tax payable
- increments or decrements to revenue arising from the efficiency benefit sharing scheme
- forecast operating and maintenance expenditure (opex)
- compensation for other risks.

4. Issues raised in submissions and the AER response

4.1 Depreciation

Several submissions identified the methodology for calculating depreciation to be an issue. Network businesses support the use of depreciation schedules other than the straight-line method. Network users, however, expressed concern that the approach used to calculate depreciation may be used as a tool for increasing or decreasing costs for current or future users.

The Electricity Transmission Network Owners Forum (ETNOF) argued that the PTRM should allow for the use of alternative depreciation schedules as nominated by the TNSP, provided the nomination complies with clause 6A.6.3(b). EnergyAustralia stated that by fixing the straight-line method for calculating depreciation the PTRM is inconsistent with clause 6A.6.3(a)(2), which provides discretion to the TNSP to establish an appropriate method.

EnergyAustralia also suggested that in its current form, the roll forward model (RFM) is not compliant with the NER, as it does not adequately capture the discretion for calculating different depreciation profiles.

The Major Energy Users Inc. (MEU) suggested that TNSPs should be required to fix the approach to depreciation and not be permitted to vary the approach for the same assets in subsequent resets, unless the AER considers that such an approach would not be contrary to the interests of present and future users.

AER response

The AER's consideration of the treatment of depreciation relates to both the PTRM and the RFM, as this matter and the AER's response are common to both models.

The AER considers that the straight-line method for calculating depreciation is most likely to satisfy the NER requirements in clause 6A.6.3(b) in each case. This is because the expenditure profile reflects the nature of the assets over their economic life and the sum of real depreciation values over the asset's economic life is equivalent to the value at which that asset was first included in the RAB.

Accordingly, the straight-line depreciation method in the PTRM may be considered a default or 'safe harbour' position, although the AER will in each case assess the depreciation schedules against the requirements of clause 6A.6.3(b). To the extent that TNSPs propose a depreciation method other than straight-line, the AER considers that TNSPs must explain how the alternative method satisfies the requirements in clause 6A.6.3(b) of the NER. If the AER is satisfied that the proposed alternative depreciation method meets the requirements, adjustments may be made to the PTRM in consultation with the AER as part of pre-lodgement discussions. There is no need to modify the guidelines associated with these models to deal with all possible depreciation methods.

The AER notes that manipulation of the depreciation profile can alter the incentive properties of the regulatory framework. In previous determinations, existing assets were generally depreciated based on a particular approach (usually straight-line method). The AER does not envisage TNSPs having the ability to change the depreciation profiles of existing assets.

Where the PTRM calculates forecast depreciation for capital expenditure (capex) based on a particular method (e.g. straight-line), under clause 6A.6.3(b)(3) the RFM would also use the same depreciation method based on actual capex.

AER decision

The AER considers that the straight-line depreciation method is most likely to satisfy the requirements in clause 6A.6.3(b) and notes that straight-line depreciation remains as the default position in the PTRM, although the AER will in each case assess the depreciation schedules against the requirements of clause 6A.6.3(b). The use of straight-line depreciation as the default method has been noted in the PTRM handbook. TNSPs may propose a method other than straight-line but must justify how it satisfies the requirements in the NER. In consultation with the AER as part of pre-lodgement discussions, adjustments may be made to the PTRM for implementing alternative depreciation calculations.

4.2 Timing of cash flows

A number of submissions raised the issue of the timing of cash flows assumed in the PTRM.

ETNOF supported the timing assumptions currently used in the PTRM—that is, capex is incurred in the middle of the year, while opex and revenues are assumed to be end of the year values. EnergyAustralia submitted that the existing timing assumptions are pragmatic and transparent and should remain unaltered.

The MEU expressed concern that the PTRM's simplified timing assumptions may entrench a bias in favour of the TNSPs. The MEU suggested that the AER should carry out a quarterly cash flow analysis using quarterly consumer price index (CPI) adjustments.

AER response

Historically, the timing of cash flows assumed in the PTRM is based on capex being incurred in the middle of the year to reflect that it occurs evenly throughout the year. Opex and revenue cash flows are assumed to be end of the year values for administrative simplicity. The majority of submissions agreed that the current timing assumption is transparent and pragmatic and supported the timing of cash flows assumption in the first proposed PTRM.

The AER has decided not to change the current approach to the timing of cash flows in the PTRM. Without further consideration and sufficient data to assess the effects of timing of cash flows, it is unclear what the costs and benefits to TNSPs and users would be of changing the cash flow timing. The AER reserves its right to consider this issue again at a later time following a further analysis of the costs and benefits of

such a change, including the feasibility of developing a benchmark timing adjustment of the cash flows for TNSPs.

AER decision

The AER is not proposing any immediate changes in the current treatment of cash flows in the PTRM. However, it intends to further consider this issue in the future and as a result may refine the timing assumption of cash flows in the PTRM. Any such changes would be required to be considered under the guideline amendment processes under clause 6A.20 of the NER.

4.3 Recognition of capital expenditure

A number of submissions raised the issue of the recognition of capex:

- Energex supported the calculation of the return of capital (depreciation) component on an as-commissioned approach.

- TransGrid noted that the requirement to recognise return of capital on an as-commissioned approach would impact negatively on its current cash flows and would result in additional costs to implement and maintain.

- EnergyAustralia preferred to maintain its approach to recognise capex on a full as-incurred approach.

AER response

The PTRM is based on the partially as-incurred (or hybrid) approach for recognising capex—that is, return on capital is calculated based on recognising capex on an as-incurred basis and return of capital is calculated based on recognising capex on an as-commissioned basis.

The hybrid approach is being retained in the PTRM as a default or 'safe harbour' position because depreciating assets on an as-commissioned basis ensures that TNSPs are not recovering the cost of assets before they contribute to service delivery. In most cases this approach will be consistent with the NER requirements.

The AER, however, recognises that the NER might be read such that a TNSP may propose the full as-incurred approach to recognising capex.[1] If a TNSP proposes the full as-incurred approach and the AER accepts this, adjustments to the PTRM would need to be made in consultation with the AER as part of pre-lodgement discussions. There is no need for the guidelines associated with the models to be modified to deal with all possible approaches relating to the recognition of capex.

[1] A full as-commissioned approach to recognising capex is not consistent with the NER requirements.

AER decision

The AER considers that the partially as-incurred approach for recognising capex should be retained as the default position in the PTRM because it is most likely to be consistent with the requirements of the NER. The recognition of capex on a partially as-incurred approach as the default position has been noted in the PTRM handbook. TNSPs may propose a full as-incurred approach and if the AER accepts this, adjustments may be made to the PTRM for implementing this approach in consultation with the AER as part of pre-lodgement discussions.

4.4 Capitalisation formula

ETNOF submitted that the AER should correct the capitalisation formula in the PTRM for the timing assumption of capex occurring in the middle of the year by applying a half-nominal weighted average cost of capital (WACC) instead of a half-real WACC. It was argued that the application of the real vanilla WACC rather than the nominal vanilla WACC to capex means that TNSPs will not be compensated for inflation over the six-month capitalisation period.

AER response

The AER considers that the half-real WACC formulation is correct because the real capex inputs to the PTRM are based on end of the year values.[2] Consequently, a TNSP's capex allowance includes compensation for inflation over the six month capitalisation period. The AER notes that the NERA Economic Consulting (NERA) report accompanying the ETNOF submission recognised that if the PTRM uses real capex estimates that were end of the year values, the issue of there being no compensation for six months of expected inflation would not be relevant.[3] The AER has also included notes in the relevant input cells of the PTRM specifying that the timing assumption of the inputs is in end of the year terms.

AER decision

The AER has maintained the half-real WACC formulation in the PTRM.

4.5 Efficient benchmarks

The MEU submitted that the AER should develop a guideline to demonstrate that the taxable income of a TNSP and the method used to set the debt risk premium provide outcomes reflective of an efficient benchmark entity. It also submitted that the AER should conduct a formal review of the PTRM within two years of its release and considered that the AER should integrate its experiences into future models.

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2 Outputs from the PTRM are similarly based on end of the year values.

3 NERA Economic Consulting, *AER's first proposed post-tax revenue model, roll forward model and efficiency benefit sharing scheme—ETNOF*, 1 May 2007, p. 2.

AER response

As the inputs to the PTRM are based on efficient and benchmarked parameters, the AER considers there is no need to change the current approach. The outcomes of the PTRM—for example, the tax payable component—are consistent with efficient benchmark assumptions because the cash-flow calculations are modelled on forecast tax depreciation and efficient expenditure allowances.

In addition to the NER specifications, the AER's recent revenue cap determinations—for example, the Powerlink revenue determination—provide detail about the method used to determine the debt risk premium (or debt margin).[4] The AER confirms that the debt premium allowed for a TNSP and used in the PTRM is based on an efficient benchmark entity as required under the NER.

Further, the AER's review of a TNSP's proposal is based on its findings of what constitutes an efficient expenditure allowance. The specific values relating to the AER's decisions are distinct from those incorporated into the AER's models.

The AER agrees with the MEU that it should build on its experience and apply that experience to future models. As noted in section 4.2, the AER has maintained its discretion to make relevant refinements to the PTRM.

AER decision

The AER considers that the taxable income of a TNSP and the method used to set the debt premium within the PTRM provide outcomes reflective of an efficient benchmark entity.

4.6 More targeted inflation indices

Energex submitted that the AER should use more targeted inflation indices that reflect the cost pressures on the range of inputs faced by the business.

AER response

Clause 6A.5.3(c) of the NER requires that the PTRM be based on a CPI–X framework. The AER considers that an assessment of targeted indices (e.g. labour and materials) is more appropriately addressed during consideration of cost estimation processes for inputs (such as opex and capex) into the PTRM as part of a revenue reset determination. This is consistent with the process currently used by the AER when assessing revenue proposals.

In the recent Powerlink revenue determination, the AER considered that there was some merit to developing industry-specific indices for future revenue resets. The AER has begun developing such indices and envisages being able to consult on this matter in the near future.

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[4] AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12: Draft decision*, 8 December 2006, pp. 101–04.

AER decision

The AER has not amended the inflation indices in the PTRM because the issue raised is more relevant to revenue reset processes rather than the current guideline development process. The inflation forecast is used in the PTRM to maintain a constant dollar value for revenues, and this objective is best met by adjusting a TNSP's revenues by the CPI.

4.7 Consultation on the determination of the risk free rate and inflation forecast

CitiPower and Powercor stated that the AER should initiate a consultation process to specifically address the issues involving the alleged bias in the observed bond rate proxies for the nominal and indexed risk free rates and the resulting forecast inflation. They considered that guidance on how these parameters will be determined in future reviews is necessary to provide clarity to all network service providers.

AER response

The AER notes that these matters have been raised in particular electricity and gas transmission applications before it and the Australian Competition and Consumer Commission (ACCC). The AER is required to consider them as part of these reviews.

The consideration of the issues is set out in the AER's draft decision on SP AusNet's 2008 electricity transmission determination.[5] In summary, the AER agrees that there appears to be some evidence of distortions in the indexed Commonwealth Government Securities (CGS) market and therefore the observed yields may no longer be providing an appropriate benchmark. Consequently, the market-implied inflation estimate using the Fisher equation is likely to exceed the best estimate of forecast inflation.[6] The AER notes that no other market-based methodology exists that can be relied upon to objectively derive an inflation forecast. Accordingly, for the time being the AER will use a range of indicators for guidance when determining the appropriate forecast inflation rate.

The AER considers that an inflation forecast of 3 per cent, based on this approach, provides the best estimate in the PTRM framework at this time. The issue of a preferred approach for determining inflation forecast will be revisited in the future review of WACC parameters as required under the NER.

The AER notes that clause 6A.6.2 of the NER sets out how to determine the nominal risk free rate parameter. In particular, the AER's role is limited to assessing the reasonableness of the proposed averaging period and using the proposed period (or the period determined by the AER) to calculate the nominal risk free rate using the methodology set out under clauses 6A.6.2(c) and 6A.6.2(d) the NER. The AER considers that any separate adjustments to the prescribed WACC values or

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5 AER, *SP AusNet transmission determination 2008–09 to 2013–14: Draft decision*, 31 August 2007, pp. 113–24.

6 (1 + inflation rate) = (1 + nominal bond rate) ÷ (1 + indexed bond rate).

methodologies would be inconsistent with the Australian Energy Market Commission's stated objective of locking these parameters into the NER.

The AER's first proposed PTRM applies the Fisher equation to derive the forecast inflation rate. To allow an input for forecast inflation, the AER has made the necessary modifications to the **Input** sheet of the PTRM. The **WACC** sheet has also been modified so that the real risk free rate is not referenced to an input but is derived from the Fisher equation.

AER decision

The AER notes these issues have been raised in the context of electricity and gas transmission applications currently before the AER and the ACCC. Consideration of the issues is set out in the AER's draft decision on SP AusNet's 2008 electricity transmission determination.

The AER considers, based on an approach using a range of indicators, that an inflation forecast of 3 per cent provides the best estimate in the PTRM framework at this time. It will further consider these issues in the future review of WACC parameters (as required under the NER), and any changes will be reflected in revisions to the PTRM.

4.8 Other AER modifications to the model

The AER has made the following refinements to the PTRM:

- Real and nominal forecast capex values reported in the **Assets** sheet have been broken down into asset classes.
- ETNOF's suggestion that the use of the term *economic depreciation* should be removed has been accepted. References to *economic depreciation* have been changed to *regulatory depreciation*.
- Input cells for debt beta and asset beta have been removed and replaced with an equity beta input in the **Input** sheet to reflect that the equity beta is prescribed by the NER. Similarly, the **WACC** sheet has been amended to refer only to the equity beta input.
- A macro that automatically calculates a single X factor for the regulatory control period has been included as a default position.
- Formulae to determine the MAR over the regulatory control period in real terms have been inserted into the **Smoothing** sheet.
- Additional formulae have been included so that the revenue outputs are reported for a regulatory control period of up to 10 years.
- A **Price path (real)** sheet similar to the **Price path (nominal)** sheet has been added.
- Formula errors in the **Assets** sheet have been corrected.

Appendix A: Submissions received on the PTRM

The following interested parties provided submissions on issues relevant to the AER's first proposed PTRM:

- Alinta
- CitiPower and Powercor Australia
- Electricity Transmission Network Owners Forum
- Energex
- EnergyAustralia
- Major Energy Users Inc.
- TransGrid.

Copies of these submissions are available on the AER's website at www.aer.gov.au.

Appendix B: Post-tax revenue model

Appendix C: Post-tax revenue model handbook