Final decision

Amendment

Electricity transmission network service providers

Post-tax revenue model

December 2010

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Shortened forms

AER	Australian Energy Regulator
capex	capital expenditure
CPI	consumer price index
MAR	maximum allowed revenue
NER	National Electricity Rules
NPV	net present value
opex	operating expenditure
PTRM	post-tax revenue model
RAB	regulatory asset base
RFM	roll forward model
TNSP	transmission network service provider

1 Introduction

The Australian Energy Regulator (AER) is responsible for the economic regulation of prescribed transmission services provided by transmission network service providers (TNSPs) in the National Electricity Market, in accordance with the National Electricity Rules (NER).

Chapter 6A of the NER requires the AER to prepare and publish a post-tax revenue model (PTRM) and roll forward model (RFM) for TNSPs. In September 2007 the AER published the first version (version 1.0) of the PTRM and RFM for TNSPs.

In modelling the revenue requirements for a TNSP the AER uses the PTRM. The PTRM employs certain assumptions, including how capital expenditure (capex) is to be recognised. The PTRM recognises capex on a 'partially as-incurred' approach—that is, the return on capital is calculated recognising capex on an as-incurred basis and the return of capital (regulatory depreciation) is calculated recognising capex on an as-commissioned basis.

Version 1.0 of the PTRM was developed to transition TNSPs to adopt the partially as-incurred approach for recognising capex. Given that all TNSPs have now transitioned to recognising capex under the partially as-incurred approach, the next version of the PTRM will require inputs for separate regulatory asset bases (RABs)—one that is based on rolling in as-commissioned capex and another based on rolling in as-incurred capex.

In August 2010 the AER published an explanatory statement setting out proposed amendments to version 1.0 of the PTRM and invited submissions from interested parties. The AER proposed amendments to specific aspects of the PTRM, including:

- modifying the input section for the opening RAB (based on as-commissioned capex) and adjustments to formulae to calculate depreciation with reference to this RAB
- inserting summary tables to enhance presentation.[1]

The AER received one submission from Grid Australia—attaching a report from NERA Economic Consulting (NERA)—on the proposed amendments.[2] This final decision sets out the AER's consideration of the comments raised in the submission.

The AER's 2007 transmission network revenue cap for Powerlink Queensland (Powerlink) was the first determination to recognise capex on a partially as-incurred basis. As such, the amended PTRM and RFM (version 2) have been finalised in time for Powerlink to prepare its revenue proposal for the 2012–17 regulatory control period due on 31 May 2011.

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1 AER, *Proposed amendment, Electricity transmission network service providers, Post-tax revenue model, Explanatory statement*, August 2010, pp. 5–6.

2 Grid Australia, *Proposed amendments to the RFM and PTRM*, 28 September 2010. NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010.

2 NER requirements

Clause 6A.5.2(b) of the NER allows the AER to amend or replace the PTRM and sets out the requirements the AER must comply with in doing so.

When amending the PTRM the transmission consultation procedures, as set out in clause 6A.20(b) of the NER, require the AER:

- to publish the proposed amended model
- to publish an explanatory statement setting out the purpose of the proposed amended model
- invite submissions on the proposed amended model.

Interested parties must be allowed at least 30 business days to make submissions to the AER. Within 80 business days of publishing the proposed amended model, under clause 6A.5.2(e), the AER must publish:

- its final decision that sets out:
  - the amended model
  - the purpose of the amended model
  - the reasons for the amended model.
- a notice of the making of the final decision.

Clause 6A.5.3 of the NER sets out the contents of the PTRM, which must include: the manner in which the total revenue cap for the regulatory control period, the maximum allowed revenue (MAR) for each regulatory year of the regulatory control period and the annual building block revenue requirement for each regulatory year of the regulatory control period are to be calculated.

The PTRM must specify:

- a methodology that the AER determines is likely to result in the best estimates of expected inflation
- the timing assumptions and associated discount rates that are to apply in relation to the calculation of the building blocks
- the manner (if any) in which working capital is to be treated
- the manner in which the estimated cost of corporate income tax is to be calculated
- the consumer price index (CPI) – X methodology that is to be applied in escalating the MAR for the TNSP for each regulatory year (other than the first regulatory year) of a regulatory control period.

The PTRM must be such that:

- the net present value (NPV) of the expected MAR for the TNSP for each regulatory year of the regulatory control period is equal to the NPV of the annual building block revenue requirement for the TNSP for each regulatory year

- the MAR for the TNSP for the first regulatory year is expressed as a dollar amount

- the MAR for the TNSP for each regulatory year (other than the first regulatory year) is calculated by escalating the MAR for the TNSP for the previous regulatory year using a CPI – X methodology

- the total revenue cap for the TNSP for a regulatory control period is calculated as the sum of the MAR for the TNSP for each regulatory year.

The PTRM must also include the X factors to apply in the regulatory control period.

3 Reasons for the post-tax revenue model

The PTRM is part of the suite of regulatory requirements designed to streamline and improve the quality of economic regulation of energy networks, reduce regulatory costs and enhance regulatory certainty, consistent with the Council of Australian Government's objectives.

The principal reason for the PTRM is to calculate the MAR for a TNSP in each regulatory year of a regulatory control period as part of its revenue determination. A TNSP's MAR, calculated using the PTRM, must be determined using the building block approach set out in clause 6A.5.4 of the NER. The building blocks include:

- an indexation of the RAB
- a return on capital
- a return of capital (regulatory depreciation)
- the estimated cost of corporate income tax
- revenue increments or decrements arising from the application of the efficiency benefit sharing scheme
- forecast operating expenditure
- compensation for other risks.

4 Issues raised in submission and AER response

This section outlines the issues raised in the Grid Australia submission and the report by NERA on the AER's proposed amendments to version 1.0 of the PTRM, and the AER's response to these issues.

Grid Australia submitted that TNSPs should be allowed to propose relatively minor changes to the PTRM to reflect their particular circumstances during a revenue determination.[3] The AER considers minor changes to the PTRM can be accommodated through pre-lodgement discussions between a TNSP and the AER before a revenue determination process begins. Any proposed changes by a TNSP, in consultation with the AER as part of pre-lodgement discussions, would need to comply with the NER.

4.1 Inclusion of equity raising cost calculations

Stakeholder comments

Grid Australia stated that the AER approach for calculating equity raising costs should be included in the PTRM. Equity raising costs are calculated in a separate model, using outputs of the PTRM, and the costs become inputs to the PTRM.[4]

The advantages of including the equity raising cost calculations in the PTRM are:

- Increased transparency in the PTRM guideline process because it allows for the calculations to be reviewed by all interested stakeholders.
- Ensures a consistent approach to calculate equity raising costs is adopted because TNSPs are required to apply the PTRM guideline.

AER response

The AER agrees with Grid Australia that the calculations for benchmark equity raising costs associated with forecast capex should be included in the PTRM. The AER approach for calculating equity raising costs was the subject of significant consultation during the NSW and Tasmanian transmission determination processes.[5] This approach has also been applied in subsequent AER regulatory determinations.[6]

The AER has made the following amendments to the PTRM:

- *Equity raising cost–capex* worksheet—included a new worksheet setting out the cash flow calculations for benchmark equity raising costs. The calculations are

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3 Grid Australia, *Proposed amendments to the RFM and PTRM*, 28 September 2010, p. 2.

4 NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, p. 16.

5 AER, *Final decision, TransGrid transmission determination 2009–10 to 2013–14*, 28 April 2009, pp. 90–97, 238–247; AER, *Final decision, Transend transmission determination 2009–10 to 2013*–14, 28 April 2009, pp. 109–111, 241–251.

6 AER, *Draft decision, Queensland distribution determination 2010–11 to 2014–15*, 25 November 2009, pp. 175–176, 775–776; AER, *Final decision, Queensland distribution determination 2010–11 to 2014–15*, May 2010, pp. 199–202.

based on the building block cash flows calculated in the PTRM and inputs for unit costs.

- *Input* worksheet—amended to allow inputs for unit costs, such as the cost per dollar of subsequent equity raised and dividend reinvestment plan cost, which are used in calculating equity raising costs.[7]

As a result of these amendments, the AER has also updated the PTRM handbook to include functional descriptions of the *Equity raising cost–capex* worksheet and additional descriptions for the *Input* worksheet.

4.2 Removal of RAB calculations that use as-incurred capex

Stakeholder comments

Grid Australia noted that the term RAB is used interchangeably in the models (PTRM and RFM) to refer to either the RAB that uses as-incurred capex or the RAB that uses as-commissioned capex. Grid Australia considered this confusing and submitted that it should be simplified. To simplify the PTRM and RFM, Grid Australia proposed to remove the calculations that use as-incurred capex for each asset class and instead use only as-commissioned capex inputs with the inclusion of a new work in progress (WIP) asset class. The WIP asset class would represent the difference between as-incurred and as-commissioned capex across the total asset base. Grid Australia stated that this modification would minimise potential confusion, reduce the TNSP's administrative costs and simplify the models.[8]

AER response

The AER does not agree with Grid Australia's proposal to remove the calculations of the RAB that uses as-incurred capex from the models.

In modelling the revenue requirements for a TNSP the AER uses the PTRM. The PTRM employs certain assumptions, including how capex is recognised. Capex is recognised on a partially as-incurred basis in the models. The outputs from the RFM are inputs into the PTRM. Grid Australia proposed the calculations of the RAB that uses as-incurred capex inputs be removed from the models. Given the relevance of this issue to both the RFM and the PTRM, the AER's consideration of Grid Australia's proposal to remove the RAB calculations that use as-incurred capex is set out in section 4.3 of the *Final decision—Roll forward model* (December 2010).

The AER considers the benefits of transparency associated with the AER's amendments to version 2.0 of the models outweigh any advantages arising from Grid Australia's proposed approach. Therefore, the AER does not accept Grid Australia's proposed modification to remove the calculations of the RAB that uses as-incurred capex from the models. The AER maintains its decision to make the amendments to version 2.0 of the RFM and PTRM.

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7 This amendment is set out in rows 265 to 270 of the *Inputs* worksheet.

8 NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, pp. 8–11, 17.

4.3 Inclusion of input worksheet for contingent projects

Stakeholder comments

Grid Australia proposed that the PTRM should include a contingent project input worksheet to allow for the calculation of revenues from such projects during a regulatory control period. When contingent projects are triggered, a TNSP's revenue determination needs to be adjusted for the approved additional costs. Grid Australia stated that the input worksheet would facilitate a transparent process for revising the PTRM calculations for an existing revenue determination.[9]

AER response

The AER agrees with Grid Australia that a contingent project input worksheet would be a useful tool to include in the PTRM. However, a contingent project input worksheet would also add to the complexity and size of the PTRM. The AER has decided not to include such a worksheet in the PTRM.

Contingent projects are generally only included in the PTRM after the contingent project is triggered. This is due to the level of uncertainty that an approved trigger event (such as demand growth) will occur and require the contingent project to be undertaken. If a contingent project is triggered, the approved value of the project—namely the capex and/or incremental operating expenditure (opex)—has to be added to forecast capex and/or opex in the PTRM for the purposes of modelling the required additional revenues during the remainder of the regulatory control period.

The AER has reviewed the proposed contingent project input worksheet submitted by Grid Australia and notes that the worksheet would allow contingent projects to be tracked within the regulatory control period. However, it appears that the proposed worksheet would still require forecast capex and opex for a contingent project to be manually entered into the main input worksheet of the PTRM.

The AER considers the approach of tracking approved contingent projects' capex and opex during the regulatory control period has merit but needs to be explored further. The AER considers that a non-integrated contingent project input worksheet in the manner proposed by Grid Australia is unlikely to add much benefit to the PTRM and would be better maintained separately to the PTRM. Therefore, at this stage, the AER does not consider that the non-integrated contingent project input worksheet should be incorporated into the PTRM.

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9 NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, p. 19.

4.4 Capability to vary corporate income tax rates

Stakeholder comments

Grid Australia noted that different company tax rates may apply during a regulatory control period. Grid Australia proposed that the PTRM should allow for company tax rates to vary over a regulatory control period.[10]

AER response

The AER agrees with Grid Australia that the PTRM should contain the capability to handle inputs for different company tax rates which may occur during a regulatory control period.

The AER has made the following amendments:

- *Input* worksheet—amended to allow inputs for expected corporate tax rate over the regulatory control period.[11]

- *Analysis* worksheet—inserted a new row 39 that refers to the expected corporate tax rate from the *Input* worksheet. Adjusted the formulae in rows 42, 44 and 69, which uses the tax rate for tax calculation purposes, to refer to the new row 39.[12]

As a result of this amendment, the AER has also updated the PTRM handbook to include additional descriptions to the *Input* worksheet. The AER notes that the company tax rates to apply in each year of a regulatory control period are decided at the time of a revenue determination.

4.5 Ability to automatically add asset classes

Stakeholder comments

Grid Australia submitted a significant enhancement to the PTRM would be the ability to automatically add new asset classes by way of a macro. It stated that some TNSPs have more than 20 asset classes (the maximum number of asset classes catered for in version 1.0 of the PTRM) and that the need to manually add new asset classes in the PTRM raises the risk of introducing formula errors.[13]

AER response

The AER agrees with Grid Australia that the ability to automatically add asset classes would be an enhancement to the PTRM. The AER also understands that some TNSPs may require more than 20 asset classes for revenue modelling purposes. However, the AER considers that including a macro to add asset classes is a complex task due to the numerous links that need to be created in the PTRM for each new asset class. A macro

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10 NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, pp. 19–20.

11 This amendment is set out in rows 251 to 253 of the *Inputs* worksheet.

12 Cell F14 in the *WACC* worksheet has been adjusted to report the average tax rate for the regulatory control period.

13 NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, p. 20.

to incorporate this functionality would increase the size of the PTRM and likely reduce the stability of the model. For these reasons, the AER has decided not to include a macro to automatically add new asset classes at this time.

To accommodate TNSPs which require more than 20 asset classes, the AER has expanded the PTRM to cater for an additional 10 asset classes. This should reduce the need for TNSPs to expand the PTRM for further asset classes.

4.6 Revenue summary worksheet to report relevant smoothed MAR option

Stakeholder comments

Grid Australia noted that the *Smoothing* worksheet provides two options for smoothing the MAR. It stated that the *Revenue summary* worksheet should be able to report the relevant option that is selected for the smoothed MAR. The *Price path* worksheets and charts should also report the relevant selected option.[14]

AER response

The AER agrees with this comment and has made the following amendments:

- *Revenue summary* worksheet—amended the formulae for the smoothed MAR and X factor in rows 21 and 23 respectively by using conditional statements to report the relevant option selected in the *Smoothing* worksheet.
- *Smoothing* worksheet—adjusted the formula for the real smoothed revenue in row 26 to refer to the smoothed MAR in row 21 of the *Revenue summary* worksheet.
- *Price path (nominal)* worksheet—adjusted the formula for the smoothed revenue in row 8 to refer to the smoothed MAR in row 21 of the *Revenue summary* worksheet.
- *Chart 1 – MAR*—adjusted the formula for the nominal smoothed revenue line to refer to the smoothed MAR in row 21 of the *Revenue summary* worksheet.

The AER has also updated the PTRM handbook to clarify the steps for selecting the option for smoothing the MAR in the *Smoothing* worksheet.

4.7 Inclusion of version number in the title of each worksheet

Stakeholder comments

Grid Australia proposed that each worksheet within the PTRM should contain the version number to help keep track of different versions used by TNSPs when developing their revenue proposals.[15]

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[14] NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, p. 20.

[15] NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, p. 20.

AER response

The AER agrees with Grid Australia and has included the version number alongside the title of each worksheet of the PTRM. The version number on each worksheet is linked to the version number on the *Intro* worksheet.

4.8 Audit of formulae

Stakeholder comments

Grid Australia proposed that the AER should seek an independent audit of the PTRM to identify computational errors before a final decision is published.[16]

AER response

The AER notes the PTRM was independently audited as part of the AER guideline development process in 2007. In relation to the amendments to the PTRM the AER has conducted an open consultation process and GridAustralia's submission (incorporating the report from NERA) has assisted in identifying errors. The AER has also reviewed the PTRM for computational errors, focussing on the specific amendments that have been made.

The AER agrees that an external audit of the PTRM would assist in identifying computational errors. In accordance with the transmission consultation procedures of the NER, the AER must publish the amended PTRM within 50 business days after receiving submissions on the explanatory statement and this limit the time available to conduct an external audit.[17] The AER notes that any computational errors identified will not alter the approach of rolling forward two asset bases, which has been adopted in this final decision. Therefore, given the timeframe mandated by the transmission consultation procedures the AER considers that its internal audit of the PTRM and the review conducted by NERA is sufficient for the purposes of this final decision.

The AER will seek an external audit of the PTRM to be undertaken to identify any computational errors at the earliest possible date after publishing this final decision. The AER expects that an external audit would be completed in first quarter of 2010. Any errors identified will be noted in the *Intro* worksheet and corrected for in an updated PTRM, which will be uploaded onto the AER website.

4.9 Compatibility with different Microsoft Excel versions

Stakeholder comments

Grid Australia proposed that the AER publish the PTRM in all versions of Excel currently supported by Microsoft. It submitted that this would remove the need for

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16 NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, p. 20.

17 Under clause 6A.20 of the NER, the AER must publish a final amended model within 80 business days of publishing a proposed amended model, where interested parties must be allowed at least 30 business days to make submissions. The AER published the proposed amended PTRM on 17 August 2010 and is therefore required to publish a final amended PTRM by 7 December 2010.

some TNSPs to update their information technology infrastructure to access regulatory models.[18]

AER response

The AER agrees that the PTRM should be compatible with different versions of Excel. The PTRM has been published in a format based on Excel version 1997–2003 and the AER is unaware of any functionality lost when using later versions of Excel. The AER has used Excel version 2007 to access the PTRM and has not identified any compatibility issues. For this reason, the AER does not consider it necessary to publish numerous Excel versions of the PTRM.

If specific compatibility issues arise while using the PTRM in a later version of Excel, the AER will consider addressing these particular issues as they are identified. The AER considers that at this time it is appropriate to continue publishing the PTRM in a format based on Excel version 1997–2003.

[18] NERA, *Review of the proposed version 2 of the RFM and PTRM—Grid Australia*, 28 September 2010, p. 21.

5 AER final decision

The AER has published the amended PTRM at appendix A in accordance with the consultation procedures in clause 6A.20(e) of the NER. The AER has also published the amended handbook to accompany the PTRM at appendix B.

Appendix A: Post-tax revenue model

Appendix B: Post-tax revenue model handbook