



# **Explanatory statement**

## **Proposed amendment**

### **Electricity transmission network service providers**

#### **Roll forward model (version 3)**

July 2015

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AER Reference: 56886

# Request for submissions

Interested parties are invited to make written submissions on the proposed amendments to the roll forward model (RFM) to us, the Australian Energy Regulator (AER), by close of business, 19 August 2015.

We prefer that all submissions sent in an electronic format are in Microsoft Word or other text readable document form. Submissions should be sent electronically to [AERInquiry@aer.gov.au](mailto:AERInquiry@aer.gov.au)

Alternatively, submissions can be sent to:

Mr Warwick Anderson  
General Manager – Networks Finance and Reporting Branch  
Australian Energy Regulator  
GPO Box 3131  
Canberra ACT 2601

We prefer that all submissions be publicly available to facilitate an informed and transparent consultative process. Submissions will be treated as public documents unless otherwise requested. Parties wishing to submit confidential information are requested to:

- clearly identify the information that is the subject of the confidentiality claim
- provide a non-confidential version of the submission in a form suitable for publication.

All non-confidential submissions will be placed on our website at [www.aer.gov.au](http://www.aer.gov.au). For further information regarding our use and disclosure of information provided to us, see the ACCC/AER Information Policy, October 2008 available on our website.

Enquires about this paper, or about lodging submissions, should be directed to Kenny Yap on (02) 6243 1224.

## Next steps

We will consider and respond to submissions on this explanatory statement. Key dates for our amendment process are set out in Table 1.

**Table 1 Amendment process**

Task	Date
AER issues explanatory statement on proposed amendments	8 July 2015
Stakeholder submissions on proposed amendments close	19 August 2015
AER issues final decision	October 2015

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## Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
Capex	Capital expenditure
CESS	Capital expenditure sharing scheme
CPI	consumer price index
DMS	data management system
NEM	National Electricity Market
NER	National Electricity Rules
PTRM	post-tax revenue model
RAB	regulatory asset base
RFM	roll forward model
TAB	tax asset base
TNSP	transmission network service provider
WACC	weighted average cost of capital
WARL	weighted average remaining lives

# 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 (NEM), in accordance with the National Electricity Rules (NER).

Chapter 6A of the NER requires the AER to prepare and publish a roll forward model (RFM) for the regulatory asset base (RAB) of TNSPs.<sup>1</sup> In September 2007 we published the first version (version 1) of the RFM for TNSPs. In December 2010, we published a second version (version 2).

Table 2 outlines the previous versions of the RFM for TNSPs, the key changes to the model and when they were made.

**Table 2 RFM revisions**

Date	TNSP version	Key changes
September 2007	1	n/a
December 2010	2	Modified calculations to allow for establishing a closing RAB based on as-commissioned capex.  Formulae to calculate depreciation adjusted for the RAB roll forward.  Summary tables and weighted average remaining asset lives calculations added.

Version 3 is necessary to allow continuation of certain regulatory approaches. We use the RFM to determine the closing RAB value for a regulatory control period. This value becomes the opening RAB used in the post-tax revenue model (PTRM) for the purposes of making a revenue determination for the next regulatory control period.

In modelling the revenue requirements for a TNSP we use the PTRM. The PTRM employs certain assumptions, including how capital expenditure (capex) is to be recognised. The PTRM for TNSPs 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. This approach requires the TNSPs to provide two profiles of capex:

1. As-incurred capex—this represents the profile of capex as-spent (incurred) in each year of the regulatory control period. This is used to calculate the return on capital building block.

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<sup>1</sup> NER, clause 6A.6.1(b).

2. As-commissioned capex—this represents the profile of capex reflecting when assets are commissioned (placed in service) in each year of the regulatory control period. This is used to calculate the depreciation building block.

As a result, two RABs are rolled forward over the regulatory control period:

1. A partially as-incurred RAB—the opening RAB is rolled forward by adding as-incurred capex, subtracting straight-line depreciation based on as-commissioned capex/RAB and indexation of opening RAB by actual inflation.
2. An as-commissioned RAB—the opening RAB is rolled forward by adding as-commissioned capex, subtracting straight-line depreciation based on as-commissioned capex/RAB and indexation of opening RAB by actual inflation.

Version 2 of the RFM allows for rolling forward both set of capex profiles into the RAB to obtain the two closing RABs. However, version 2 of the RFM only accommodated one opening RAB as an input to RFM itself. This was because there was only a single RAB at that time when TNSPs were transitioning to apply the partially as-incurred approach to recognising capex. Separate as-commissioned and partially as-incurred RABs have since developed. In order to continue with recognising capex under the partially as-incurred approach in the RFM, the proposed version of the RFM (version 3) has been modified to allow for inputs associated with both an opening partially as-incurred RAB and an opening as-commissioned RAB, rather than a single opening RAB.

Version 3 is also necessary to provide flexibility to implement recent regulatory decisions. This is because version 2 of the RFM used only an actual depreciation approach (straight-line method) to roll forward the RAB. Under this approach the depreciation deducted from the RAB depended on the actual capex commissioned and rolled into the RAB during the regulatory control period, rather than that forecast at the time of the reset. The proposed version 3 of the RFM has been modified to give the option for selecting a forecast or actual depreciation approach to be used to roll forward the RAB. The forecast depreciation approach deducts the real forecast depreciation approved at the time of the previous reset from the RAB, and does not adjust for actual capex. This matches what the TNSP received in real depreciation allowed during the regulatory control period. This amendment reflects the AER's new *Capital expenditure incentive guideline*, which discussed the use of forecast depreciation to roll forward the RAB in conjunction with the application of a capital expenditure sharing scheme (CESS).<sup>2</sup> This policy change also has consequential impacts on the way remaining asset lives are calculated in the RFM.

The proposed RFM has also been modified to accommodate inputs for different annual rates of return. This gives effect to the AER's new *Rate of return guideline*, which allows for an annual update for the return on debt.<sup>3</sup>

Section 4 explains the above changes, and other minor changes, in further detail.

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<sup>2</sup> AER, *Better regulation, Capital expenditure incentive guideline*, November 2013, pp. 21–22.

<sup>3</sup> AER, *Better regulation, Rate of return guideline*, December 2013, p. 19.

## 2 NER requirements

The NER allows the AER to amend or replace the RFM and sets out the requirements the AER must comply with in doing so.<sup>4</sup>

When amending the RFM, the transmission consultation procedures in the NER require us to:<sup>5</sup>

- publish the proposed amended model
- publish an explanatory statement setting out the provision of the NER under which the model is proposed to be prepared, made or developed or is required to be reviewed and the reasons for the proposed amended model
- invite written submissions on the proposed amended model.

This explanatory statement complies with these requirements.

Interested parties must be allowed no less than 30 business days to make submissions to the AER.<sup>6</sup> Within 80 business days of publishing the proposed amended RFM we must publish:<sup>7</sup>

- our final decision that sets out:
  - the amended model
  - the provision of the NER under which the model is being amended
  - the reasons for the amendment; and
- a notice of the making of the final decision.

The NER also sets out the required contents of the RFM.<sup>8</sup> It must include the method for rolling forward the RAB from one regulatory control period to the next regulatory control period, and from one regulatory year to the next regulatory year in the same regulatory control period.

We must also have regard to provisions related to the RAB contained in schedule 6A.2 of the NER. This schedule covers:

- Establishment of the opening RAB for a regulatory control period
- Adjustments for prudent and efficient capex
- Decision on depreciation approach based on forecast or actual capex
- Circumstances where other assets may be removed from the RAB
- How the (forecast) roll forward should occur within the regulatory control period.

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<sup>4</sup> NER, cl. 6A.6.1(c).

<sup>5</sup> NER, cl. 6A.20(b).

<sup>6</sup> NER, cl. 6A.20(c).

<sup>7</sup> NER, cl. 6A.20(e).

<sup>8</sup> NER, cl. 6A.6.1(e).



### 3 Reasons for the RFM

The principal reason for the RFM is to calculate the value of the closing RAB for a regulatory control period by rolling forward the RAB for each regulatory year of a regulatory control period to reflect:<sup>9</sup>

- additions for actual capex
- reductions for the disposal value of assets
- reductions for depreciation
- indexation for actual inflation
- adjustment for the difference between estimated and actual capex for a previous regulatory control period
- other adjustments for removal or addition of assets made under certain circumstances (such as a change in service classification) in accordance with the NER.

The closing RAB value for a regulatory control period as calculated by the RFM becomes the opening RAB to be used for the purposes of making a revenue determination for the next regulatory control period.

The RAB values from the RFM are inputs into the PTRM, where they are rolled forward from one regulatory year to the next regulatory year on a forecast indicative basis. They are used in the PTRM as part of the calculation of the annual building block revenue requirements.

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<sup>9</sup> NER, clauses 6A.6.1(e) and S6A.2.1(f)–(g).

## 4 Proposed amendments

This section sets out our proposed amendments to the RFM for the TNSPs and the associated handbook. Table 3 shows which worksheets have been amended or added.<sup>10</sup>

The specific changes are listed in a temporary '*Change log*' worksheet in the proposed amended RFM. This detailed log will be deleted from the final version and a summary instead provided in the '*Intro*' worksheet to the RFM.

**Table 3 Changes to the transmission RFM worksheets**

Old RFM worksheets	Status	New RFM worksheets
Intro	Minor changes only	Intro
N/a	Added	DMS input
Input	Amended	RFM input
Adjustment for previous period	Amended	Adjustment for previous period
Actual RAB roll forward	Amended	RAB roll forward
Total actual RAB roll forward	Amended	Total RAB roll forward
Tax value roll forward	Amended	TAB roll forward
Asset lives roll forward	Split/amended	RAB remaining lives
Asset lives roll forward	Split/amended	TAB remaining lives
Output summary	Minor changes only	PTRM input summary

The proposed amended RFM and handbook are at appendices A and B respectively. The changes are now discussed in more detail.

### 4.1 Accommodating the as-commissioned opening RAB

We apply a partially as-incurred approach to the recognition of capex for TNSPs. Capex can be recognised as it is incurred (spent) or when the asset is commissioned (put into service). In the PTRM for TNSPs, the partially as-incurred approach provides for the return on capital to be calculated using a RAB determined on an as-incurred basis and the return of capital (regulatory depreciation) is calculated using a RAB determined on an as-commissioned basis.

Version 2 of the RFM was modified to allow the roll forward of two closing RABs based on as-commissioned capex and as-incurred capex. This was because all TNSPs transitioned from a single RAB to recognising capex under the partially as-incurred approach resulting in the need to keep track of two RABs. The change was consistent with the PTRM which

<sup>10</sup> Minor changes relate to formatting, labelling or formula updates which, while noted for completeness, are not consequential to the operation of the RFM.

required inputs for the two separate RABs. Version 2 of the RFM, however, only accommodated a single RAB as an input to itself.

For the next round of transmission determinations the RFM will also require these two separate RAB inputs consistent with the PTRM. To accommodate the separate opening RAB values—one based on rolling in as-commissioned capex and another based on rolling in as-incurred capex—amendments have been made to the '*RFM input*' worksheet in the proposed RFM to allow for inputs associated with the as-commissioned RAB. The formulae on the RAB roll forward calculations for the '*Adjustment for previous period*', '*RAB roll forward*', '*Total RAB roll forward*' and '*TAB roll forward*' worksheets have also been amended to accommodate these inputs.

## 4.2 Forecast or actual depreciation in RAB roll forward

To date, all versions of the RFM calculated the depreciation based on actual capex for use in the RAB roll forward. This approach is referred to as an 'actual depreciation' approach. The use of actual depreciation reflected in part that there was no capex incentive schemes applied in the past. Under an actual depreciation approach the TNSP keeps the difference between actual and forecast depreciation over the regulatory control period if it can reduce its actual capex below the amount that was forecast.

However, in recent decisions and based on the development of our *Capital expenditure incentive guideline*, we applied the CESS and decided that in future a 'forecast depreciation' approach—where the real forecast depreciation amount (based on forecast capex) approved at the last reset for the TNSP—be used to roll forward the RAB.<sup>11</sup> Using the forecast depreciation amount to roll forward the RAB means a service provider would not receive any windfall gain/loss in terms of depreciation from actual capex being different from that forecast.<sup>12</sup> The forecast depreciation subtracted from the RAB therefore reflects the amount that was recovered by the TNSP during the regulatory control period.

Accordingly, we have created a section for recording forecast depreciation inputs in the '*RFM input*' worksheet of the proposed RFM. The formulae in the '*RAB roll forward*' and '*Total RAB roll forward*' worksheets have also been amended to allow either the forecast depreciation approach or actual depreciation approach to be used to roll forward the RAB. The forecast depreciation amounts are entered in real terms, so that actual inflation is applied as part of the RAB roll forward, consistent with other components of the RAB.

## 4.3 Remaining asset lives

The adoption of forecast depreciation in the RAB roll forward requires a modification to the way the weighted average remaining asset lives (WARL) of each asset class is calculated for the RAB. This is because any differences between forecast and actual capex could

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<sup>11</sup> A recent discussion on the choice of depreciation approach was in the AER decision on TransGrid. See AER, *Draft decision: TransGrid transmission determination 2015–16 to 2017–18, Attachment 2: Regulatory asset base*, November 2014, pp. 14–15 and AER, *Final decision: TransGrid transmission determination 2015–16 to 2017–18, Attachment 2: Regulatory asset base*, April 2015, p. 6.

<sup>12</sup> The tax asset base is rolled forward using depreciation based on actual capex, consistent with the tax framework.

impact the weighting of the old and new assets.<sup>13</sup> The distortion created by any forecast error could result in an asset life that does not reflect the nature of the asset class over the economic life of that asset class.<sup>14</sup>

To prevent any forecast error in capex from distorting the WARL, we have extended the current calculations and propose to track the remaining asset life of each capital expenditure individually over the period of its standard life. Version 2 of the RFM calculated the WARL only over the 5 years of the current regulatory control period. Version 3 of the RFM will allow the WARL to be calculated over multiple regulatory control periods. For example, after 20 years of using version 3 of the RFM there would be 20 individual capex expenditures for each asset class with their remaining lives individually tracked.<sup>15</sup> These individual lives are then weighted by the expected remaining value of these assets depreciated under a straight-line method and based on the expected standard life of the asset at the time they were acquired.

These calculations are made in the '*RAB remaining lives*' worksheet for the RAB and the '*TAB remaining lives*' worksheet for the tax asset base (TAB). These two worksheets are also set up to accommodate the historical capex data (that is, capex commissioned in one regulatory control period where this tracking started becomes historical data in future resets) needed to track the remaining asset lives individually. There would be no historical capex for the first time the version 3 of the RFM is used as there is no scope to go back further than the remaining asset lives the AER last approved.<sup>16</sup> The historical capex, however, would have to be recorded as inputs to the RFM for subsequent resets.

## 4.4 Annual WACC updates

The weighted average cost of capital (WACC) is used as an input to the RFM to:

- account for the timing assumption of capex being rolled into the RAB
- calculate the accumulated return on capital associated with the difference between actual and estimated capex used in the previous regulatory control period.

The proposed RFM has been modified so that it can accommodate different annual WACCs over the regulatory control period in the '*RFM input*' worksheet. This change is a consequence of changes to the PTRM (version 3) in January 2015 providing for annual WACC updates during the regulatory control period.<sup>17</sup> Consistent with the changes to the

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<sup>13</sup> For example, forecast depreciation for an asset class may be \$60 million over the regulatory control period. However, based on actual capex the actual depreciation is \$40 million. This means that \$20 million of the \$60 million removed from this asset class for forecast depreciation at the end of the regulatory control period relates to assets that never existed (although the revenue was received by the TNSP). To not control for this impact would distort the remaining asset lives of actual assets (based on existing and new assets actually commissioned during the regulatory control period) in that asset class.

<sup>14</sup> NER, clause 6A.6.3 (b)(1).

<sup>15</sup> Individual tracking of remaining asset lives also allows accurate switching back to an actual depreciation approach if required.

<sup>16</sup> The first application of version 3 of the RFM results in the same WARLs as if version 2 were used a last time.

<sup>17</sup> Refer to the explanatory statement for the PTRM amendment for background on this change. See AER, *Explanatory statement: Proposed amendment Electricity transmission and distribution network service providers Post-tax revenue models (version 3)*, 3 October 2014, pp. 10–11.

PTRM, the proposed RFM gives effect to the AER's *Rate of return guideline*, which allows for an annual update for the return on debt.<sup>18</sup>

## 4.5 Input worksheet for AER data management system

We have developed a data management system (DMS) to collect data from regulatory information notices and from the various regulatory models. We have added a new '*DMS input*' worksheet to help our system ingest the relevant data from the RFM. This worksheet has no impact on the operation of the RFM. The worksheet previously labelled '*Input*' has been renamed '*RFM input*' to distinguish the two input worksheets. The TNSP will need to complete both input worksheets when submitting its proposed RFM. The additional information required is minimal (contact details and a few cells identifying the context for the RFM submission).

## 4.6 Presentational and other functional improvements

We have taken the opportunity to improve the presentation and functionality of some calculations in the RFM by making a few minor presentational and operational changes. The changes include:

- Extending the number of asset classes from 30 to 50.
- Adjusting the minimum supported regulatory control period length from five years to two years for displaying RAB roll forward outputs.
- Adding a section for inputs relating to asset adjustments at the end of the regulatory control period—for example, due to a change in service classification
- Removing sections that were made redundant or replicated in other worksheets.

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<sup>18</sup> AER, *Better regulation, Rate of return guideline*, December 2013, p. 19.

## 5 Consultation

This section summarises the first steps in the consultation process already undertaken, and identifies key issues for comment on our proposed RFM for TNSPs.

### 5.1 Initial consultation

In the lead up to developing the proposed RFM we conducted ad-hoc consultation with parties interested in the progress of the RFM amendment. Most notably, AusNet Services and Powerlink Queensland who are the two TNSPs due next for their revenue resets (proposals due in end of October 2015 and end of January 2016) and would need to use the amended RFM for their proposals. They were provided with a draft model (along with other TNSPs in Grid Australia) and asked to provide feedback on the proposed changes.

A number of issues were discussed and addressed during this process, as set out in section 4.

We also engaged an external consultant (Motorbis Pty Ltd) to review our changes to the proposed RFM and identify computational errors in the spreadsheet calculations.

During this process an issue was raised regarding the approach to indexing the annual opening RAB value by CPI. In the '*RAB roll forward*' worksheet the 'Nominal actual inflation on opening RAB' is calculated by multiplying the opening RAB value with the CPI rate for the given year. However, to calculate the 'Nominal (actual/forecast) straight-line depreciation' and 'Nominal actual net capex' values the RFM uses a one-year lagged CPI index to inflate the real values to nominal terms. This apparent mismatch has also been raised in the Victorian electricity distribution resets as the approach used by the Essential Services Commission of Victoria was to apply a lagged CPI for all aspects of the RAB roll forward.

The current approach in the RFM has been discussed during our previous development process for the AER models in 2007.<sup>19</sup> At that time, stakeholders submitted that the indexation in the RAB roll forward should use a lagged CPI. We accepted this because it satisfied the requirements of the NER that the RAB be adjusted for actual inflation consistent with the methodology used for indexation of the annual revenue during the regulatory control period. NERA Economic Consulting submitted, on behalf of the Electricity Transmission Network Owners Forum (now Grid Australia), the relevant calculations for making the lagged CPI adjustment to the RFM.<sup>20</sup> The current approach was therefore adopted based on NERA Economic Consulting's submission, which indexed the 'Real (actual/forecast) straight-line depreciation' and 'Real actual net capex' values by lagged CPI, and the opening RAB value is indexed by the non-lagged CPI rate. At present, we have maintained the current approach to indexation of the opening RAB value in the '*RAB roll forward*' worksheet.

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<sup>19</sup> AER, *Final decision, Electricity transmission network service providers roll forward model*, September 2007, pp. 6–7.

<sup>20</sup> ETNOF, *Roll forward model - Response to AER's first proposed guidelines*, 1 May 2007, pp. 2–3;  
NERA, *AER's first proposed post-tax revenue model, roll forward model and efficiency benefit sharing scheme*, 1 May 2007, pp. 5–7.

## 5.2 Key issues for comment

Our positions in the proposed amended RFM reflect our consideration of the issues raised during initial consultation. However, we are open to receiving submissions on any aspects of the proposed amendments.

Further, we seek comment on:

- The approach to indexation of the opening RAB in the '*RAB roll forward*' worksheet:
  - Should a lagged CPI be used to calculate the 'Nominal actual inflation on opening RAB' value, consistent with the 'Nominal (actual/forecast) straight-line depreciation' and 'Nominal actual net capex' values?

## Appendices

The appendices include the proposed RFM and handbook. As noted above, the proposed RFM includes a '*Change log*' worksheet that will be removed from the final version, with only a high level summary of changes in the '*Intro*' worksheet. The proposed handbook currently includes highlighted text to indicate where proposed changes were made. This highlighting will be removed for the final decision.

### **Appendix A: Roll forward model (transmission)**

### **Appendix B: Roll forward model handbook (transmission)**