



# **Access arrangement final decision**

**Envestra Ltd**

**2013–17**

**Part 1**

March 2013

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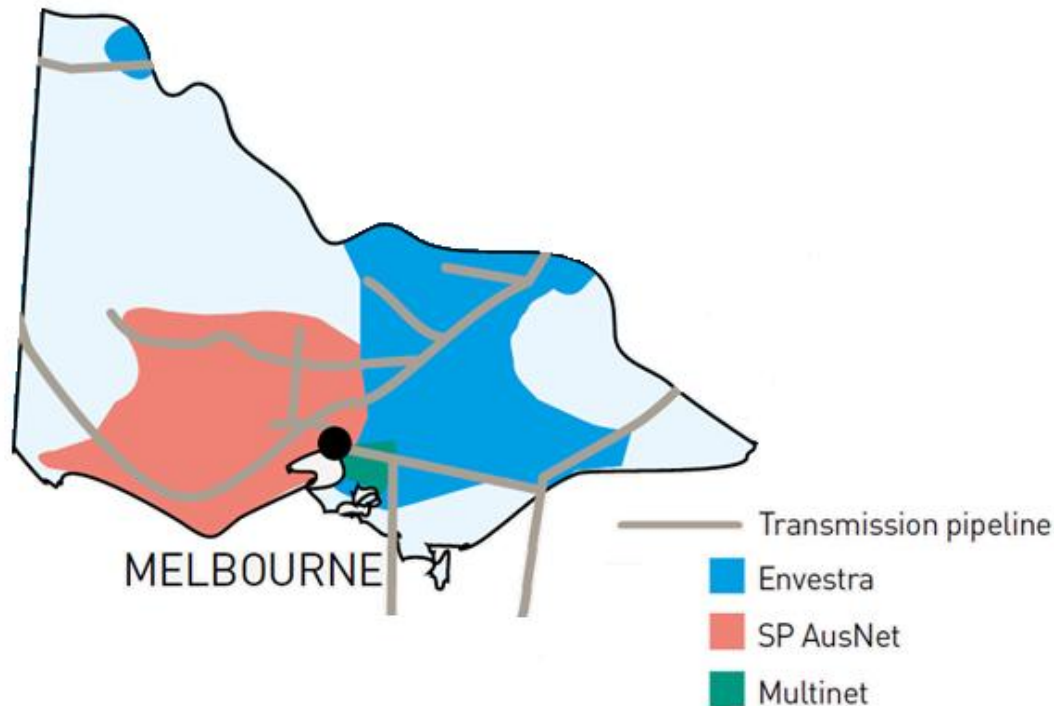
## Shortened forms

Shortened form	Full title
2008-12 access arrangement	Access arrangement for Envestra effective from 1 January 2008 to 31 December 2012
2013-17 access arrangement	Access arrangement for Envestra effective from 1 January 2013 to 31 December 2017
2018-22 access arrangement	Access arrangement for Envestra effective from 1 January 2018 to 31 December 2022
ACCC	Australian Competition and Consumer Commission
AER	Australian Energy Regulator
access arrangement information	Envestra, Access arrangement information, 30 March 2012
revised access arrangement information	Envestra, Revised access arrangement information, 9 November 2012
access arrangement proposal	Envestra, Access arrangement proposal, 30 March 2012
revised access arrangement proposal	Envestra, Revised access arrangement proposal, 9 November 2012
capex	capital expenditure
CAPM	capital asset pricing model
CPI	consumer price index
Code	National Third Party Access Code for Natural Gas Pipeline Systems
DRP	debt risk premium
Envestra	Envestra Limited (ACN 078 551 685)
Envestra Albury	Envestra's distribution network in Albury, NSW and surrounding area
Envestra Victoria	Envestra's distribution network in Victoria
ESC	Essential Services Commission (Victoria)
MRP	market risk premium
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
opex	operating expenditure
PTRM	post tax revenue model
RAB	regulatory asset base
RFM	roll forward model
RPP	revenue pricing principles
WACC	weighted average cost of capital

# 1 About the review

The AER is responsible for the economic regulation of covered natural gas distribution and transmission pipelines in all states and territories except Western Australia. The AER is currently conducting a review of the revised access arrangements of the three Victorian gas distribution networks, including Envestra, and the Victorian gas transmission network. A map of the Victorian gas distribution and transmission networks is at Figure 1.1.

**Figure 1.1 Map of the Victorian gas distribution and transmission networks**



The National Gas Law (NGL) and National Gas Rules (NGR) provide the overarching regulatory framework for the gas distribution and transmission sectors.

The Victorian gas distribution networks are subject to 'full regulation', which requires a service provider<sup>1</sup> to submit an initial access arrangement to the AER for approval, and to revise it periodically (typically every five years). The access arrangement sets out the terms and conditions on which third parties can access the distribution pipeline.<sup>2</sup>

The provisions of an access arrangement must be consistent with the National Gas Objective (NGO) as detailed in the NGL. The NGO is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price,

<sup>1</sup> Under s.8 of the NGL a service provider is a person who owns, controls or operates a gas pipeline.

<sup>2</sup> Providers of gas distribution services typically negotiate contracts to sell pipeline services to customers such as energy retailers. Section 322 of the NGL provides that contracts between service providers and users may differ from those approved by the AER as part of an access arrangement review. In the event of a dispute, however, a user or prospective user may request dispute resolution by the AER under Chapter 6, Part 3 of the NGL. In the event that the AER makes an access determination in order to resolve the dispute, it must give effect to the access arrangement: s. 189.

quality, safety, reliability and security of supply of natural gas.<sup>3</sup> The AER is also guided by the revenue and pricing principles (RPP).<sup>4</sup>

As the owner and operator of a gas distribution network, Envestra is required to submit an access arrangement to the AER for approval. An access arrangement must describe all pipeline services Envestra proposes to offer. Envestra must also specify the pipeline services likely to be sought by a significant part of the market. These are referred to as reference services. Envestra is required to specify the tariff and the terms and conditions on which those reference services will be provided.<sup>5</sup>

The reference services in this access arrangement are the gas haulage services provided by Envestra on its Victorian and Albury networks. These provide for the injection, withdrawal and conveyance of gas. The AER's final decision on the services covered by the access arrangement is set out in attachment 2 of the final decision.

## 1.1 AER final decision

The AER does not approve Envestra's revised access arrangement proposals for its Victorian and Albury gas distribution networks.<sup>6</sup>

The AER's decision on Envestra's 2013–17 access arrangement proposals is made in accordance with the relevant sections of the NGL and NGR.

The AER's approval of an access arrangement proposal implies approval of every element of the proposal. It follows that, if the AER withholds its approval to any element of an access arrangement proposal, the proposal cannot be approved.<sup>7</sup>

As required by the NGL and NGR, in forming its decision the AER has:

- considered Envestra's revised access arrangement proposals and supporting information
- considered information provided by Envestra in response to information requests from the AER
- considered submissions from interested parties
- considered views expressed at stakeholder events
- undertaken its own analysis to verify the information provided by Envestra
- considered expert advice or analysis commissioned in relation to certain aspects of Envestra's access arrangement proposal.

For more on the steps undertaken by the AER in coming to this final decision, as well as an overview of the regulatory framework, see attachment 1.

The remainder of this document contains the AER's reasons for its final decision.

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<sup>3</sup> NGL, s. 23; r 100(a).

<sup>4</sup> Under s 28(2) of the NGL, the AER must take into account the revenue and pricing principles when exercising a discretion in approving or making those parts of an access arrangement relating to a reference tariff and may take into account the principles when performing or exercising any other AER economic regulatory function or power. The revenue and pricing principles are specified in s. 24 of the NGL.

<sup>5</sup> r. 101(a) of the NGR; r. 48(1)(c) and (d). A pipeline service means a service provided by means of a pipeline and includes a haulage service and a service ancillary to the provision of a haulage service: s 2 of the NGL.

<sup>6</sup> NGR, r. 62.

<sup>7</sup> R. 41 of the NGR.

In this final decision, the AER proposes revisions to the access arrangements for Envestra's distribution pipelines having regard to the NGL, NGR, Envestra's proposals and the AER's reasons for not approving those proposals.<sup>8</sup> The AER will make a decision giving effect to its own proposals within two months of this final decision.<sup>9</sup>

## 1.2 Structure of the final decision

This document is the AER's final decision on Envestra's access arrangement for the 2013–17 access arrangement period for both Envestra's Victorian and Albury gas distribution networks. The AER decided to combine the two draft decisions having regard to the size of the Albury network and the similarities between the two access arrangement proposals.

The final decision paper is set out as follows:

- Part 1: AER final decision – the final decision on Envestra Victoria and Envestra Albury's revised access arrangement proposal and a summary of reasons
- Part 2: attachments – detailed analysis of the various components of the final decision (excluding analysis based on confidential information)
- Part 3: appendices – detailed discussion of technical issues and issues common to multiple parts of the decision
- Part 4: confidential appendices – sections of the AER's analysis that include protected information

## 1.3 Tariffs for reference services

Tariffs for reference services are set at a level that allows a service provider the opportunity to earn sufficient revenue to cover the efficient cost of providing these services.<sup>10</sup> This is consistent with the NGO in that it promotes efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas.

The AER assesses Envestra's tariffs by reference to its total revenue requirement and the likely usage of reference services over the access arrangement period. This information is used to calculate tariffs that will allow Envestra the opportunity to earn its total revenue requirement.

The AER uses the building block approach to determine the efficient level of costs to provide the reference services and therefore the amount of revenue required by Envestra. This approach is set out in r. 76 of the NGR and includes the following capital and non-capital costs of providing reference services:

- a return on the projected capital base incorporating:
  - the capital base—the AER's analysis of Envestra's proposed capital base is discussed in chapter 3 and attachment 3
  - capital expenditure—chapter 4 and attachment 4
  - a rate of return—chapter 5 and attachment 5

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<sup>8</sup> NGR, 64(1) and (2).

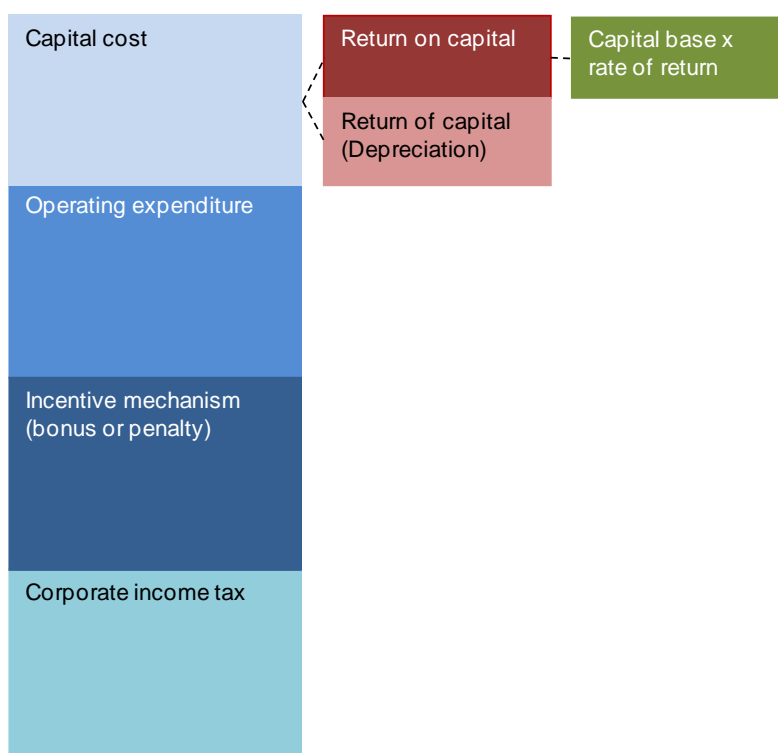
<sup>9</sup> NGR, r. 64(4)

<sup>10</sup> This approach is detailed within the Revenue and Pricing principles, NGL s. 24

- an allowance for depreciation of the projected capital base—chapter 6 and attachment 6
- operating expenditure—chapter 7 and attachment 7
- increments and decrements resulting from an incentive mechanism<sup>11</sup>—chapter 8 and attachment 8
- corporate income tax<sup>12</sup>—chapter 9 and attachment 9.

The building block approach is also shown in Figure 1.2.

**Figure 1.2 Building block approach**



These building block costs are used to determine Envestra's total revenue requirement for the five year access arrangement period.<sup>13</sup>

The AER must also consider the likely usage of the reference service to determine the appropriate tariff (or suite of tariffs). To do this, the AER forecasts the demand for reference services over the access arrangement period.<sup>14</sup> Tariffs are then set at a level that will allow Envestra the opportunity to collect its total revenue requirement.

<sup>11</sup> This may relate to operating expenditure and/or capital expenditure depending on the incentive mechanism.

<sup>12</sup> This will be included as a building block revenue component in the estimate of corporate income tax payable under the post-tax framework or in the return on the capital under the pre-tax framework. The AER employs the post-tax framework.

<sup>13</sup> A summary of the AER's decision on Envestra's required revenue is provided in the next chapter (chapter 2).

<sup>14</sup> The AER's decision on demand is discussed in chapter 10 and attachment 10.



The discussion above describes the general approach to tariff setting. Specific detail on tariff setting and how tariffs can be varied is provided within the access arrangement. The AER's decision on these aspects of the access arrangement is provided at:

- chapter 11 and attachment 11 discuss how tariffs for reference services will be set
- chapter 12 and attachment 12 discuss the mechanism for varying tariffs annually and arrangements for varying tariffs in certain pre-specified conditions.

## 1.4 Non-tariff components

Non-tariff components refer to the terms and conditions that are not directly related to the nature and level of tariffs paid by users, but which are important to the relationship between the service provider and users. They include capacity trading requirements, queuing requirements, extension and expansion requirements, and other terms and conditions on which the reference services will be provided.<sup>15</sup>

In considering Envestra's revised proposals, the AER assesses whether the proposed terms and conditions are consistent with the NGL and the broader regulatory framework. Although parties can agree to terms that are different to those set out in Envestra's access arrangement proposal, the AER's approved terms and conditions can act as a starting point for negotiations.<sup>16</sup>

The AER's consideration of the access arrangement's non-tariff components is set out in attachment 13.

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<sup>15</sup> NGR, R. 48(1).

<sup>16</sup> Under s. 322 of the NGL, subject to the queuing requirements of an access arrangement, a service provider may enter into an agreement with a user or prospective user about access to a pipeline service provided by means of a scheme pipeline that is different to an applicable access arrangement that applies to that pipeline service.

## 2 Total revenue

The total revenue requirement is a forecast of the efficient cost of providing gas distribution services over the access arrangement period.

The total revenue set out in this decision has been determined by assessing each building block cost of Envestra's access arrangement proposal. The AER has assessed whether these building block costs are consistent with the costs that would be incurred by an efficient provider of gas distribution services.

### 2.1 Final decision

The AER does not accept Envestra's (revised) proposed total revenues of \$1009.5 million (\$nominal) for Envestra Victoria, and \$31.5 million (\$nominal) for Envestra Albury.<sup>17,18</sup> The AER has calculated total revenue allowances of \$913.4 million (\$nominal) for Envestra Victoria and \$29.5 million (\$nominal) for Envestra Albury over the access arrangement period.<sup>19</sup>

The AER's final decision on Envestra's ancillary reference service revenues over the 2013–17 access arrangement period is:

- Envestra Victoria—\$13.0 million (\$nominal)
- Envestra Albury—\$0.8 million (\$nominal).

This revenue requirement is 9.5 per cent lower than Envestra Victoria's proposed revenue and 6.3 per cent lower than Envestra Albury's proposed revenue over the 2013–17 access arrangement period. The AER accepts that some aspects of Envestra's revised proposal are consistent with the requirements of the NGR. However, the AER has not approved all elements. The key elements of the AER's final decision that reduce Envestra's proposed revenue include:

- rate of return—the AER has calculated a rate of return of 7.39 per cent as compared to Envestra's proposal of 7.96 per cent. The reduction in total unsmoothed revenue attributable to the AER's final decision on the rate of return is \$51.1 million (\$nominal) or 5.0 per cent for Envestra Victoria and \$1.4 million or 4.4 per cent for Envestra Albury (see Table 2.1 and Table 2.2).
- capital expenditure (capex)—the AER considers that \$444.1 million (\$nominal) is conforming capex as compared to Envestra Victoria's proposal of \$587.5 million (\$nominal) (a reduction of approximately 24.4 per cent). For Envestra Albury, the AER considers that \$7.0 million (\$nominal) of the \$7.6 proposal is conforming capex (a reduction of approximately 8.3 per cent). This will reduce overall revenue by approximately 3.0 per cent and 0.6 per cent respectively.
- operating expenditure<sup>20</sup> (opex)—the AER has calculated an opex allowance of \$344.9 million (\$nominal) for Envestra Victoria and \$11.6 million (\$nominal) for Envestra Albury, compared with proposals of \$366.2 million and 12.2 million respectively (a reduction of approximately 5.8 and 4.4

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<sup>17</sup> The figures in this paragraph represent revenue smoothed across the access arrangement period.

<sup>18</sup> The AER's smoothed revenues are derived from the AER's smoothed tariffs. Smoothed tariffs multiplied by forecast demand equals the smoothed revenue. The smoothed revenues are equal in net present value terms to Envestra's unsmoothed building block revenue requirements.

<sup>19</sup> The revenue allowances are determined by smoothing the total building block revenue requirement of \$916.2 million (\$nominal) for Envestra Victoria and \$29.6 million (\$nominal) for Envestra Albury.

<sup>20</sup> Includes carryover amounts.

per cent respectively). This will reduce overall revenue by approximately 2.1 per cent and 1.6 per cent respectively.

**Table 2.1 Changes to Envestra Victoria's proposed total unsmoothed revenue, when AER's final decision WACC parameters are adopted**

	Scenario WACC (per cent)	Revenue change (\$million, nominal)	Revenue change (per cent)
Envestra's revised proposal	7.96	–	–
Cost of debt updated for the final decision averaging period	7.97	0.65	0.1
AER final decision WACC <sup>a</sup>			
(including both cost of debt and cost of equity updated for the final decision averaging period)	7.39	–55.1	–5.1

Source: AER analysis.

Notes: The above scenario analysis was undertaken using the proposed Post-tax Revenue Model, with the formulae in the 'WACC' sheet corrected for the AER's approach.

(a) This scenario only differs from the second scenario due to the AER's final decision on the appropriate risk free rate used to estimate the cost of equity.

**Table 2.2 Changes to Envestra Albury's proposed total unsmoothed revenue, when AER's final decision WACC parameters are adopted**

	Scenario WACC (per cent)	Revenue change (\$million, nominal)	Revenue change (per cent)
Envestra's revised proposal	7.96	–	–
Cost of debt updated for the final decision averaging period	7.97	0.0	0.0
AER final decision WACC <sup>a</sup>			
(including both cost of debt and cost of equity updated for the final decision averaging period)	7.39	–1.4	–4.4

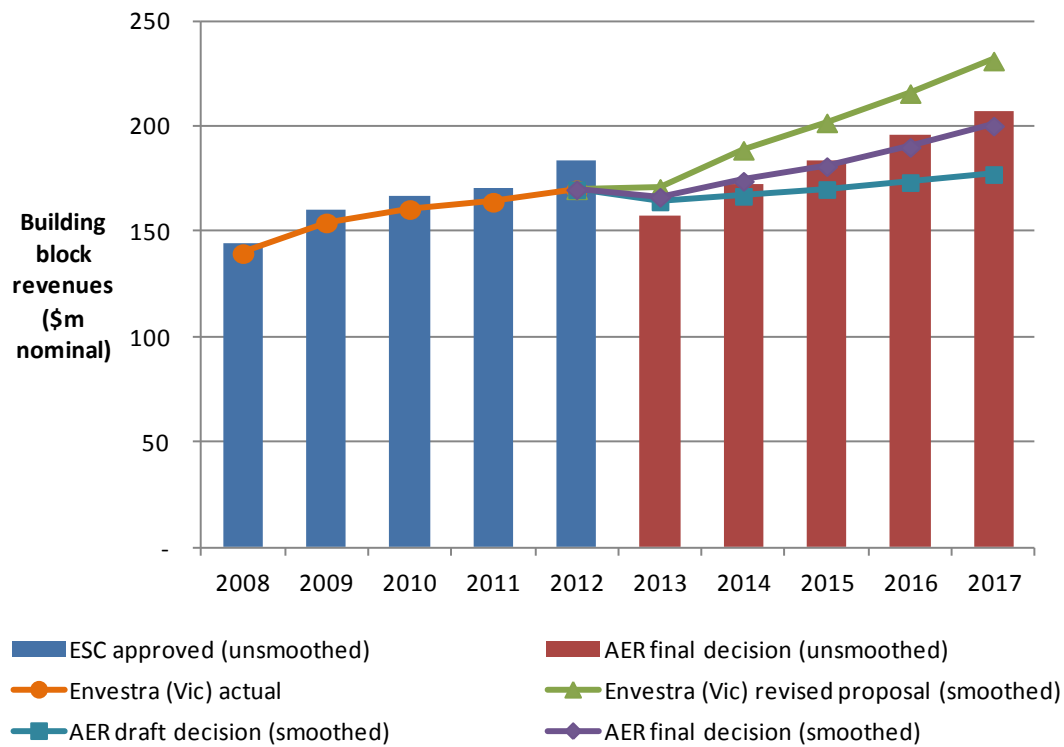
Source: AER analysis.

Notes: The above scenario analysis was undertaken using the proposed Post-tax Revenue Model, with the formulae in the 'WACC' sheet corrected for the AER's approach.

(a) This scenario only differs from the second scenario due to the AER's final decision on the appropriate risk free rate used to estimate the cost of equity.

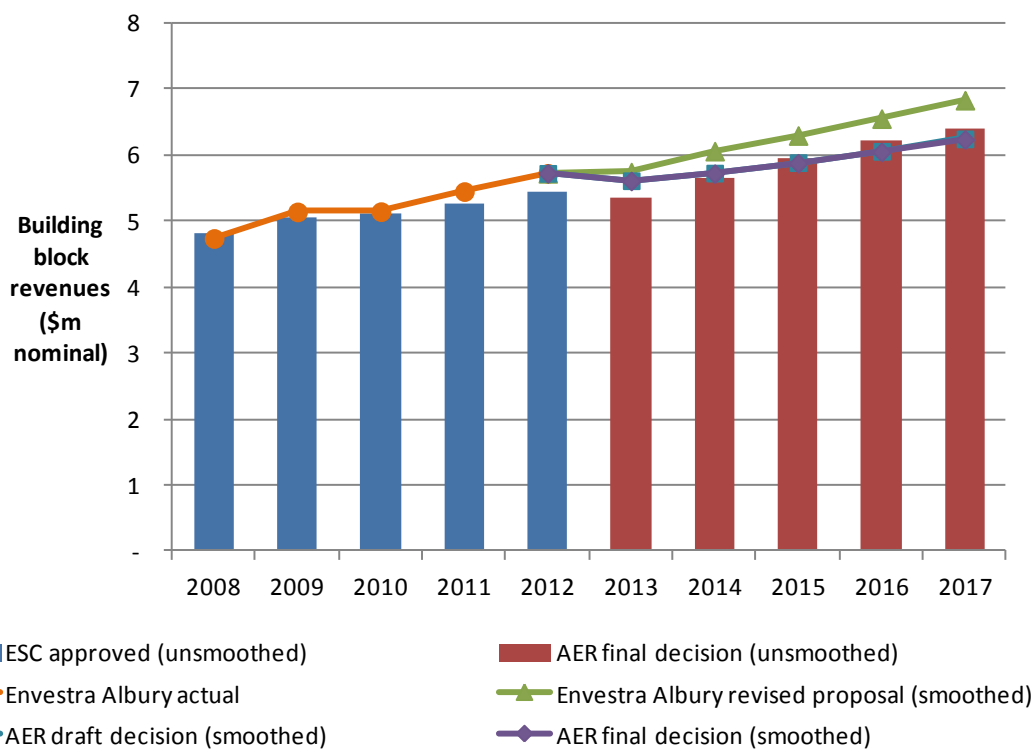
Figure 2.1 (Envestra Victoria) and Figure 2.2 (Envestra Albury) compare Envestra's revised proposal with the AER's final decision for revenues over the 2013–17 access arrangement period and the revenue approved by the ESC over the 2008–12 access arrangement period. As shown, Envestra's proposed smoothed revenues for the 2013–17 are 22.1 per cent and 22.6 per cent higher than the ESC allowed revenues for the 2008–12 for the Victorian and Albury networks respectively.

**Figure 2.1 AER's final decision and Envestra Victoria's proposed revenue requirement (unsmoothed), by building block (\$million, nominal)**



Source: AER analysis.

**Figure 2.2 AER's final decision and Envestra Albury's proposed revenue requirement (unsmoothed), by building block (\$million, nominal)**



Source: AER analysis.

The AER's final decision on Envestra's total revenue is arrived at by summing the building block costs. These costs are shown in Table 2.3 for Envestra Victoria and Table 2.3 for Envestra Albury and are each discussed in greater detail in this final decision and the attachments to this decision.

**Table 2.3 AER's final decision on Envestra Victoria's revised proposal revenue requirements for its reference services (\$million, nominal)**

	2013	2014	2015	2016	2017	Total
Return on capital	82.6	88.4	94.4	99.4	104.9	469.8
Regulatory depreciation	12.2	14.4	18.0	20.7	22.9	88.1
Operating expenditure	62.7	66.2	69.2	72.0	74.9	344.9
Efficiency carry-over	0.0	0.0	0.0	0.0	0.0	0.0
Net corporate income tax	2.4	5.7	5.1	6.1	7.1	26.4
Annual building block revenue requirement (unsmoothed)	159.8	174.7	186.7	198.2	209.8	929.2
Less: ancillary reference services revenue	2.4	2.5	2.6	2.7	2.8	13.0
Net reference tariff services revenue	157.4	172.2	184.1	195.5	207.0	916.2
X factor	0.17%	-1.50%	-2.00%	-3.00%	-3.00%	n/a
Annual expected revenue requirement (smoothed)	166.8	174.3	181.3	190.4	200.5	913.4

Source: AER analysis.  
n/a Not applicable.

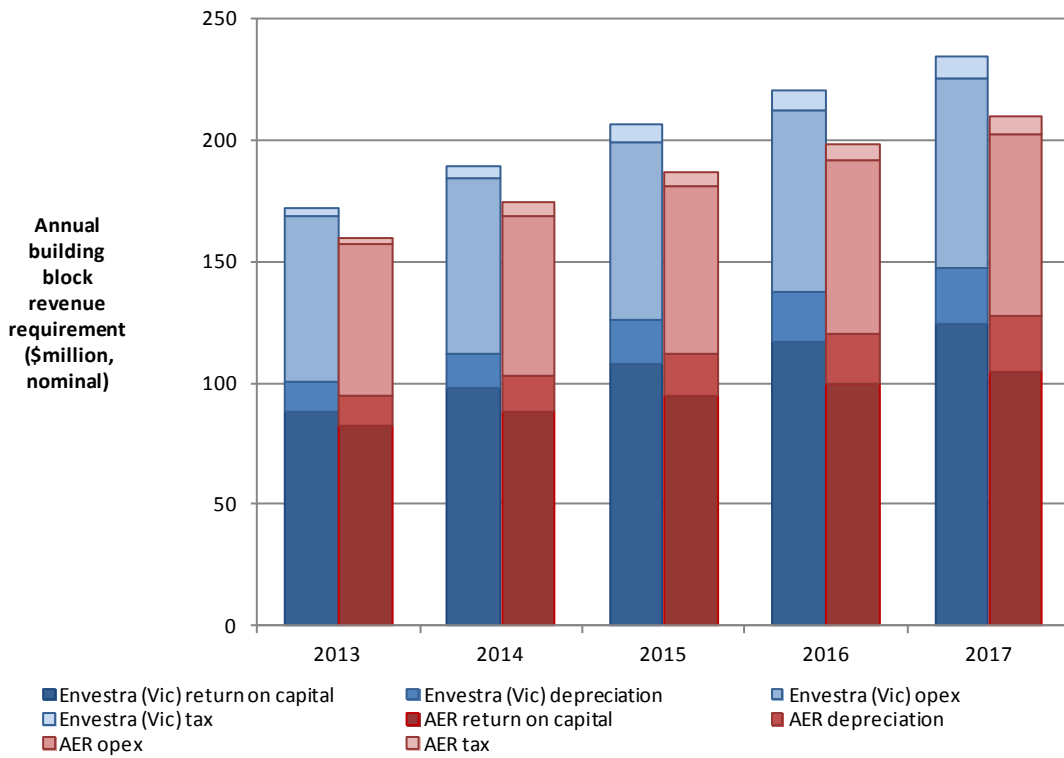
**Table 2.4 AER's final decision on Envestra Albury's revised proposal revenue requirements for its reference services (\$million, nominal)**

	2013	2014	2015	2016	2017	Total
Return on capital	2.6	2.6	2.7	2.7	2.7	13.3
Regulatory depreciation	0.5	0.7	0.8	0.9	1.0	3.8
Operating expenditure	2.2	2.2	2.3	2.4	2.5	11.6
Efficiency carry-over	0.0	0.0	0.0	0.0	0.0	0.0
Net corporate income tax	0.2	0.3	0.3	0.4	0.4	1.6
Annual building block revenue requirement (unsmoothed)	5.5	5.8	6.1	6.4	6.6	30.4
Less: ancillary reference services revenue	0.2	0.2	0.2	0.2	0.2	0.8
Net reference tariff services revenue	5.4	5.6	6.0	6.2	6.4	29.6
X factor	3.5%	0.0%	0.0%	0.0%	0.0%	n/a
Annual expected revenue requirement (smoothed)	5.6	5.7	5.9	6.1	6.2	29.5

Source: AER analysis.  
n/a Not applicable.

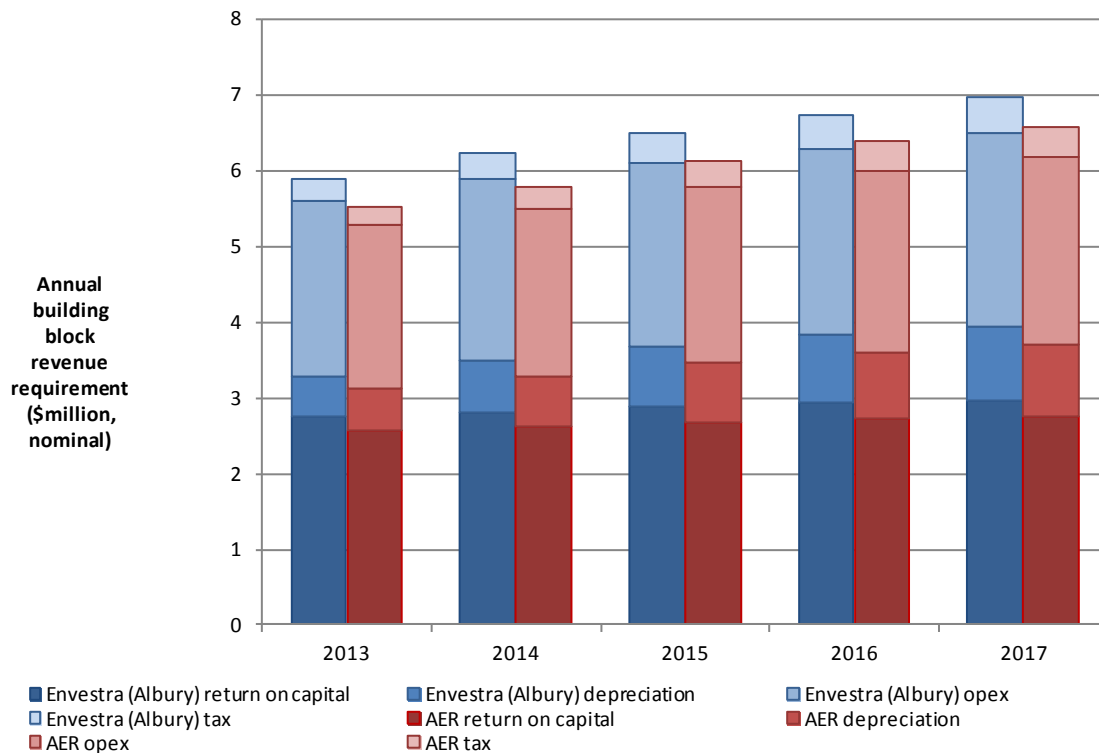
The effect of the components of the AER's final decision on Envestra's (revised) proposed total (unsmoothed) revenue requirement is displayed in Figure 2.3 and Figure 2.4. These show that the AER's final decision will reduce Envestra's revised proposals for the return on capital, opex, depreciation and tax building blocks.

**Figure 2.3 AER's final decision and Envestra Victoria's revised proposal revenue requirement (unsmoothed), by building block (\$million, nominal)**



Source: AER analysis.

**Figure 2.4 AER's final decision and Envestra Albury's revised proposal revenue requirement (unsmoothed), by building block (\$million, nominal)**



Source: AER analysis.

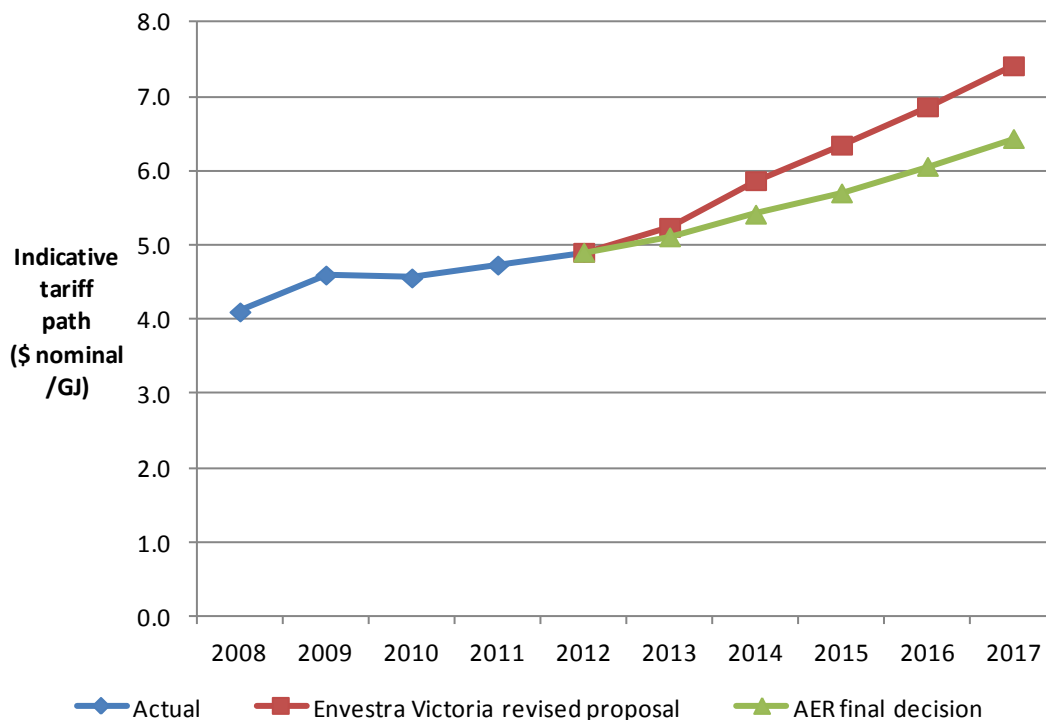
## 2.2 Impact on reference tariffs

The AER's final decision will reduce Envestra's proposed forecast reference tariffs on average by 9.5 per cent and 9.2 per cent, for its Victorian and Albury networks respectively, over the 2013–17 access arrangement period (in nominal dollar terms).

The AER's final decision will result in average reference service distribution charges (\$/GJ of demand) for Envestra's Victoria and Albury networks over the 2013–17 access arrangement period that are 25.5 per cent and 12.4 per cent respectively higher than average reference service charges per GJ for the 2008–12 access arrangement period.

The AER's final decision on Envestra's Victoria network results in lower forecast revenues in real terms compared to the 2008–12 access arrangement period. In relation to Envestra's Albury network, the AER's final decision results in forecast revenues in real terms comparable to the 2008–12 access arrangement period. However, the effects of inflation and lower forecast demand for Envestra's Victoria and Albury networks during 2013–17 contribute to higher overall average reference tariffs in nominal terms respectively. The indicative tariff paths arising from the AER's final decision compared with that in Envestra's revised proposal for its Victoria and Albury networks are shown in Figure 2.5 and Figure 2.6 respectively.

**Figure 2.5 Indicative reference tariff paths for Envestra Victoria's reference services from 2013 to 2017 (\$/GJ, nominal)**

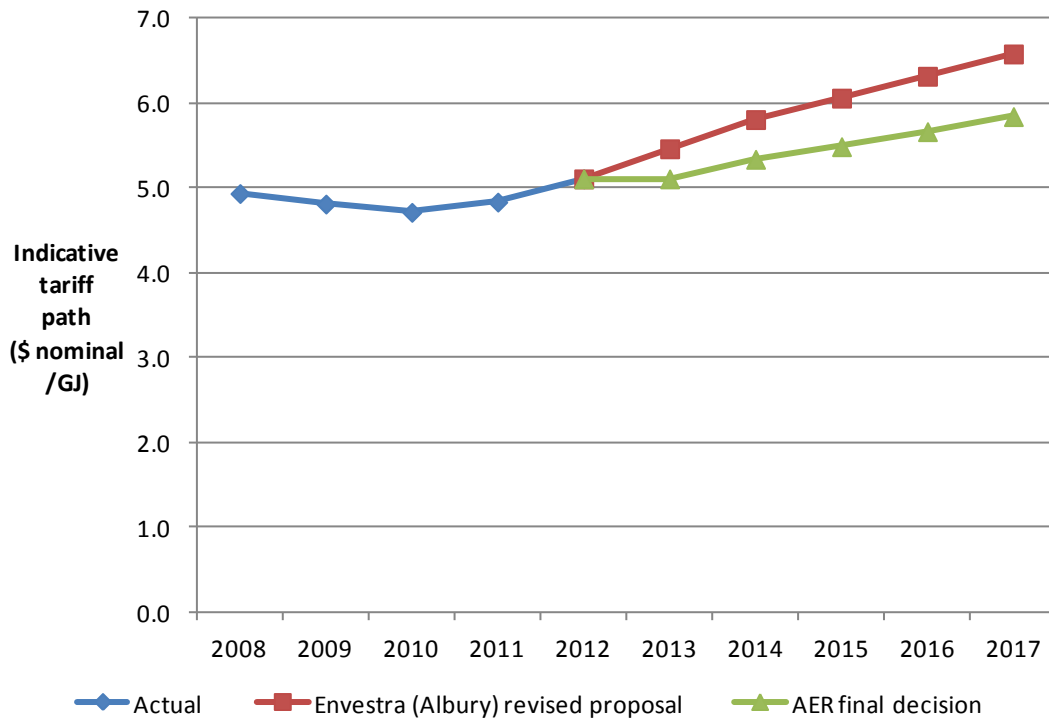


Source: AER analysis.

Note: This chart shows an indicative tariff path, based on forecast revenues and forecast demand for Envestra's network. Envestra's actual tariffs will first be updated on 1 July 2013 to reflect the AER's decision. For this reason, the indicative 2013 tariff above is an average of the higher 2012 tariffs, and lower 2013 tariffs (from 1 July 2013 to 31 December 2013) to reflect the AER's decision. On 1 January 2014, the AER's final decision forecasts that actual tariffs will increase to reflect CPI.



**Figure 2.6** Indicative reference tariff paths for Envestra Albury's reference services from 2013 to 2017 (\$/GJ, nominal)



Source: AER analysis.

Note: This chart shows an indicative tariff path, based on forecast revenues and forecast demand for Envestra's network. Envestra's actual tariffs will first be updated on 1 July 2013 to reflect the AER's decision. For this reason, the indicative 2013 tariff above is an average of the higher 2012 tariffs, and lower 2013 tariffs (from 1 July 2013 to 31 December 2013) to reflect the AER's decision. On 1 January 2014, the AER's final decision forecasts that actual tariffs will increase to reflect CPI.

### 3 Capital base

The capital base accounts for the value of Envestra's regulated assets, including gas distribution pipelines, connections, IT systems, plant and equipment, motor vehicles and buildings. It is the value on which Envestra can earn a rate of return and depreciation allowance.<sup>21</sup> The capital base is therefore a fundamental input to the calculation of these building blocks.

As part of this final decision, the AER is required to assess Envestra's proposed opening values for its capital base for each year of the 2008–12 and 2013–17 access arrangement periods. To carry out this assessment, the AER:

- determines the value of the opening capital base as at 1 January 2008 (the first year of the 2008–12 access arrangement period)
- rolls forward<sup>22</sup> the capital base from 1 January 2008 to determine the opening capital base as at 1 January 2013
- rolls forward the projected capital base for each year of the 2013–17 access arrangement period (using forecast depreciation, forecast capex, disposals and inflation approved by the AER in this final decision) to determine the closing capital base as at 31 December 2017.

The full final decision and the AER's detailed reasons and analysis on the capital base can be found in attachment 3.

#### 3.1 Final decision

The AER does not approve Envestra's proposed opening capital bases of \$1109.7 million for Envestra Victoria and \$34.6 million for Envestra Albury as at 1 January 2013. The AER has calculated opening capital bases of \$1117.4 million (\$nominal) for Envestra Victoria and \$34.8 million (\$nominal) for Envestra Albury. The AER's capital base roll forward for the 2008–12 access arrangement period for Envestra Victoria is set out in Table 3.1, while the corresponding figures for Envestra Albury are set out in Table 3.2.

**Table 3.1 AER's final decision on Envestra Victoria's capital base roll forward for the 2008–12 access arrangement period (\$million, 2012)**

	2008	2009	2010	2011	2012
Opening capital base	992.2	1013.6	1022.1	1037.7	1067.6
Net capex	55.5	46.2	56.8	73.7	95.6
Less: regulatory depreciation	34.1	37.8	41.1	43.8	45.8
Closing capital base	1013.6	1022.1	1037.7	1067.6	1117.4

Source: AER analysis.

Note: Totals may not add due to rounding.

<sup>21</sup> The AER's decision on these aspects of the access arrangement are at attachments 5 and 6.

<sup>22</sup> The opening capital base value for a regulatory year is rolled forward by indexing it for inflation, adding any conforming capex, and subtracting depreciation and other possible factors (for example, disposals or customer contributions). Following this process, the AER arrives at a closing value of the capital base at the end of the relevant year.

**Table 3.2 AER's final decision on Envestra Albury's capital base roll forward for the 2008–12 access arrangement period (\$million, 2012)**

	2008	2009	2010	2011	2012
Opening capital base	35.5	35.8	35.9	35.8	35.5
Net capex	1.5	1.3	1.3	1.1	0.8
Less: straight-line depreciation	1.2	1.3	1.3	1.4	1.5
Closing capital base	35.8	35.9	35.8	35.5	34.8

Source: AER analysis.

Note: Totals may not add due to rounding.

Based on the AER's approved opening capital base (as at 1 January 2013) and the final decisions on forecast capex and forecast depreciation, the AER has determined projected closing capital bases as at 31 December 2017 of \$1473.4 million (\$nominal) for Envestra Victoria and \$38.0 million (\$nominal) for Envestra Albury. Table 3.3 sets out the AER's projected capital base roll forward for Envestra Victoria during the 2013–17 access arrangement period. Table 3.4 sets out the corresponding information for Envestra Albury.

**Table 3.3 AER's final decision on Envestra Victoria's projected capital base roll forward during the 2013–17 access arrangement period (\$million, nominal)**

	2013	2014	2015	2016	2017
Opening capital base	1117.4	1196.8	1277.8	1345.4	1420.0
Net capex	91.5	95.4	85.6	95.3	76.3
Less: straight-line depreciation	40.1	44.3	50.0	54.3	58.4
Indexation	27.9	29.9	31.9	33.6	35.5
Closing capital base	1196.8	1277.8	1345.4	1420.0	1473.4

Source: AER analysis.

Note: Totals may not add due to rounding.

**Table 3.4 AER's final decision on Envestra Albury's projected capital base roll forward during the 2013–17 access arrangement period (\$million, nominal)**

	2013	2014	2015	2016	2017
Opening capital base	34.8	35.4	36.2	36.8	37.1
Net capex	1.2	1.4	1.3	1.2	1.8
Less: straight-line depreciation	1.4	1.5	1.7	1.8	1.9
Indexation	0.9	0.9	0.9	0.9	0.9
Closing capital base	35.4	36.2	36.8	37.1	38.0

Source: AER analysis

Note: Totals may not add due to rounding.

## 3.2 Summary of analysis and reasons

### 3.2.1 Opening capital base as at 1 January 2008

The AER does not approve Envestra's proposed opening capital bases as at 1 January 2008.

In its revised proposal, Envestra adopted the revisions that the AER required in its draft decision. However, the AER has considered further information that supports the need to apply an additional 6 months of indexation to Envestra's capital bases. This is to transition from the Essential Services Commission of Victoria's (ESC) modelling framework to the AER's modelling framework.<sup>23</sup>

The additional six months of indexation will align Envestra's capital bases with the AER's approach at 1 January 2013. The AER's method to make this adjustment affects the opening capital bases at 1 January 2008. This adjustment flows through to the closing capital bases for 2012, and ensures that the capital bases are valued correctly at 1 January 2013.

The AER has determined Envestra's opening capital bases as at 1 January 2008 to be \$992.2 million (\$nominal) for Envestra Victoria and \$35.5 million (\$nominal) for Envestra Albury.

### 3.2.2 Opening capital base as at 1 January 2013

The AER does not approve Envestra's proposed opening capital bases as at 1 January 2013.

In its revised proposal, Envestra adopted the AER's draft decision for determining the opening capital bases as at 1 January 2013—including the forecast capex and depreciation which are inputs to the capital base roll forward. However, the indexation adjustment to the opening capital bases at 1 January 2008 flows through in the capital base roll forward to determine the opening capital bases as at 1 January 2013.

As a result of this adjustment, the AER determines Envestra's opening capital bases as at 1 January 2013 to be \$1117.4 million for Envestra Victoria and \$34.8 million for Envestra Albury.

### 3.2.3 Projected closing capital base as at 31 December 2017

The AER does not approve Envestra's projected Victorian capital base as at 31 December 2017. The AER's forecast of Envestra's projected capital bases as at 31 December 2017 is \$1473.4 million (\$nominal) for Envestra Victoria and \$38.0 million (\$nominal) for Envestra Albury.

The AER's decision on the projected capital bases has been made to reflect the decrease in the opening capital bases as at 1 January 2013 (as discussed in section 3.2.2 above). It also reflects adjustments to other components of Envestra's proposal that have had a consequential effect on the projected capital bases as at 31 December 2017. These are discussed in other attachments and include a reduction in:

- forecast capex allowances (see attachment 4)
- forecast depreciation allowance (see attachment 6).

The AER's final decision is to use forecast depreciation to establish Envestra's opening capital base as at 1 January 2018 for the next access arrangement review. The AER does not approve Envestra's

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<sup>23</sup> The ESC's approach indexed the capital base each financial year, while the AER's approach will index the base at each calendar year.

revised proposal to move to an actual depreciation approach. This is consistent with the AER's draft decision.<sup>24</sup>

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<sup>24</sup> AER, *Draft decision: Envestra access arrangement proposal for 1 January 2013 – 31 December 2017*, September 2012, pp. 25–27.

## 4 Capital expenditure

Forecast capital expenditure (capex) is an estimate of the cost of new assets that are likely to be required by a network business during an access arrangement period for the efficient operation of the network. Forecast capex is used in conjunction with the opening capital base and rate of return as an input to the return on capital building block.

Capex is broken down into several categories:

- Augmentation capex—assets that expand the capacity of the network or provide connections to new customers
- Refurbishment and upgrade capex—used to replace or upgrade aging, obsolete or inefficient assets
- Non-network capex—includes IT, plant and equipment, motor vehicles and buildings.

The amount of overall capex required will vary based on the circumstances facing the service provider. Factors that influence the required level of capex include the age and condition of existing assets, and changes in both the number of customers connected to the network and demand profile of customers.

The AER assesses the capex forecasts of regulated gas network businesses to determine whether they comply with the applicable NGL and NGR requirements.<sup>25</sup> In particular, the forecast capex must:

- be arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances<sup>26</sup>
- be expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of providing pipeline services<sup>27</sup>
- be justifiable on a ground stated in r. 79(2) of the NGR.

As well as assessing forecast capex, the AER reviews actual capex undertaken during the previous access arrangement periods (specifically the period 2007–2011). This assessment is used to set the opening capital base as at 1 January 2013 (see chapter 3).

In assessing Envestra's proposed capex for both the previous and upcoming regulatory access agreement periods, the AER reviewed Envestra's proposal and supporting material. This included information on Envestra's reasoning and, where relevant, business cases, audited regulatory accounts, and other relevant information. In addition, the AER engaged consultants to review aspects of Envestra's capex proposals.

The full final decision and the AER's detailed reasons and analysis on capex can be found in attachment 4.

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<sup>25</sup> NGR, r. 79(1).

<sup>26</sup> NGR, r. 74(2).

<sup>27</sup> NGR, r. 79(1).

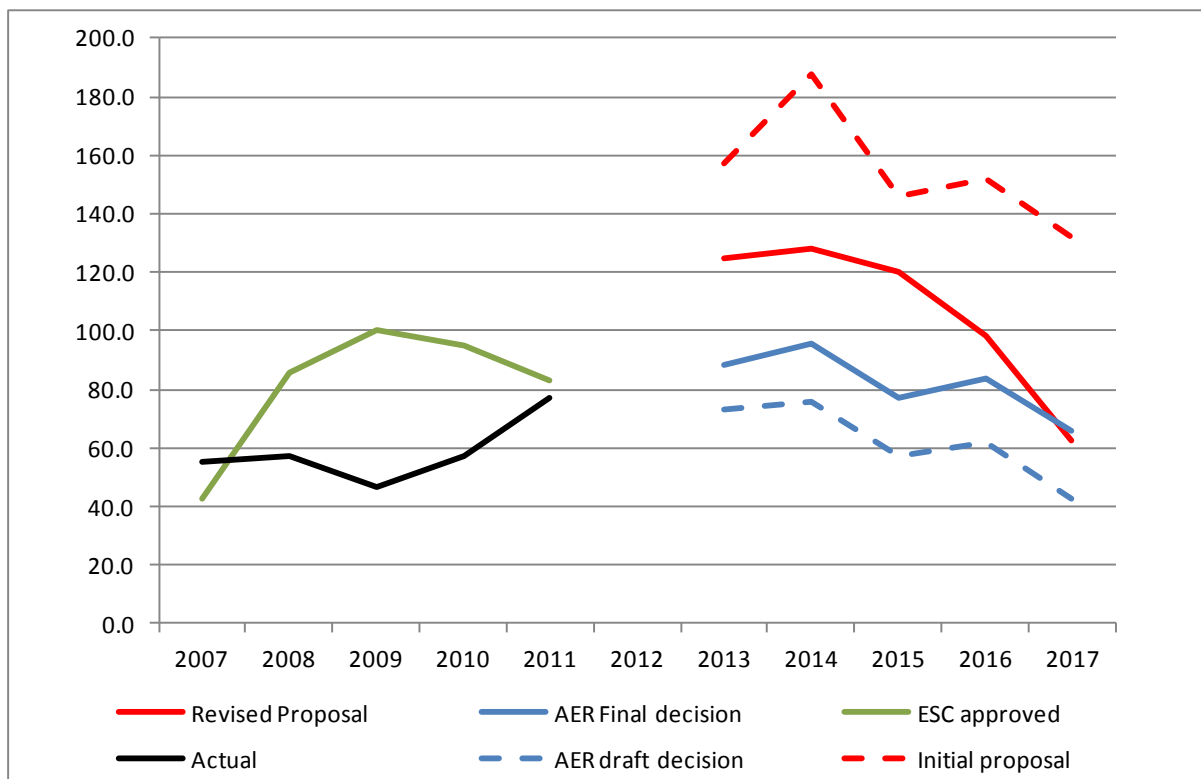
## 4.1 Final decision

### 4.1.1 Envestra Victoria

The AER does not approve Envestra Victoria's revised capex proposal for the 2013–17 access arrangement period of \$521.8 million. The AER considers that a capex allowance of \$393.6 million complies with the requirements in the NGR.<sup>28</sup>

Figure 4.1 compares Envestra Victoria's actual and approved capex for the 2008–12 access arrangement period, and its proposed and approved forecast capex for the 2013–17 period. Table 4.1 compares the AER's final decision against Envestra Victoria's proposals and the AER's draft decision by capex category.

**Figure 4.1 Comparison of Envestra Victoria's historical, proposed and approved capex (\$million, 2011)**



Source: AER analysis

**Table 4.1 Envestra Victoria proposed and AER approved capital expenditure for the 2013–17 access arrangement period (\$million, 2011)**

Category	Envestra initial proposal	AER draft decision	Envestra revised proposal	AER final decision
Mains replacement	328.6	73.9	183.7	117.0
Residential connections	141.7	95.6	113.6	107.6

<sup>28</sup> NGR, r.74(2) and r.79(1).

Commercial/industrial connections	25.6	14.9	57.1	28.4
Residential meter replacement	28.1	21.6	26.4	21.4
Commercial/industrial meter replacement	7.7	7.1	9.3	7.0
Augmentation	52.0	27.6	39.7	27.5
IT	19.3	15.5	17.3	15.4
SCADA	1.1	1.0	1.0	1.0
Other	53.2	18.5	20.7	19.2
Gas Extensions-NGEP	9.3	0.0	12.9	12.6
Gas Extensions-Other	10.4	0.0	4.6	5.8
Overheads	97.5	46.2	47.4	47.8
GROSS TOTAL CAPITAL EXPENDITURE	774.4	321.9	533.6	410.6
Customer contributions	9.5	6.5	11.8	9.5
Government contributions	0.0	0.0	0.0	7.5
NET TOTAL CAPITAL EXPENDITURE	764.9	315.4	521.8	393.6

Source: AER analysis.

Note: This table incorporates the effects of the AER's decision on cost escalation and the NMF.

The AER approves Envestra Victoria's proposed capex for 2007–11 of \$277.9 million as conforming capex for the purpose of setting the capital base as at 1 January 2013.

#### 4.1.2 Envestra Albury

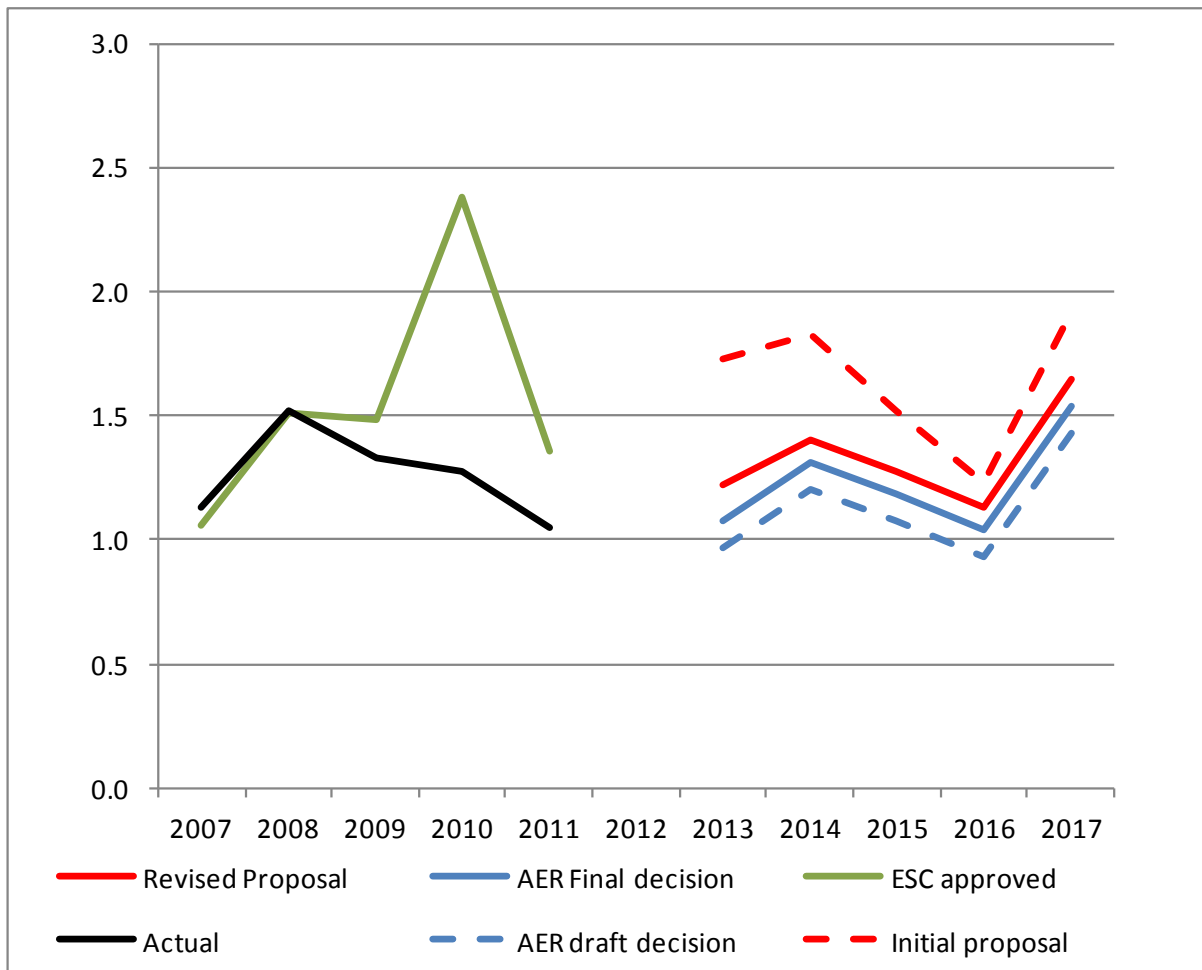
The AER does not approve Envestra Albury's revised capex proposal for the 2013–17 access arrangement period of \$6.7 million. The AER considers that a capex allowance of \$6.1 million complies with the requirements in the NGR.<sup>29</sup>

Figure 4.2 compares Envestra Albury's actual and approved capex for the 2008–12 access arrangement period, and its proposed and approved forecast capex for the 2013–17 period.

<sup>29</sup> NGR, r. 74(2) and r. 79(1)



**Figure 4.2 Comparison of Envestra Albury's historical, proposed and approved capex (\$million, 2011)**



Source: AER analysis

Table 4.2 compares the AER's final decision against Envestra Albury's proposals and the AER's draft decision by capex category.

**Table 4.2 Envestra proposed and AER approved capital expenditure for the 2013–17 access arrangement period (\$'000s, 2011)**

Category	Envestra initial proposal	AER draft decision	Envestra revised proposal	AER final decision
Mains replacement	0.04	0.04	0.04	0.04
Residential connections	3.88	2.71	3.14	2.82
Commercial/industrial connections	0.19	0.13	0.56	0.57
Residential meter replacement	0.38	0.35	0.32	0.34
Commercial/industrial meter replacement	0.15	0.13	0.27	0.13
Augmentation	0.53	0.47	0.48	0.47
IT	0.70	0.56	0.63	0.56
SCADA	0.11	0.10	0.10	0.10
Other	0.82	0.01	0.04	0.01
Gas Extensions-NGEP	0.00	0.00	0.00	0.00
Gas Extensions-Other	0.00	0.00	0.00	0.00
Overheads	1.36	1.10	1.10	1.09
<b>GROSS TOTAL EXPENDITURE</b>	<b>8.17</b>	<b>5.60</b>	<b>6.68</b>	<b>6.14</b>
Customer contributions	0.00	0.00	0.00	0.00
Government contributions	0.00	0.00	0.00	0.00
<b>NET TOTAL EXPENDITURE</b>	<b>8.17</b>	<b>5.60</b>	<b>6.68</b>	<b>6.14</b>

Source: AER analysis.

Note: This table incorporates the effects of the AER's decision on cost escalation and the NMF.

The AER approves Envestra Albury's proposed capex for 2007–11 of \$6.1 million for the purpose of setting the capital base as at 1 January 2013.

## 4.2 Summary of analysis and reasons

### 4.2.1 Envestra Victoria

The AER has determined a forecast capex allowance for Envestra Victoria of \$384.8 million (\$2011). This represents a reduction of \$123.2 million (\$2011) from Envestra Victoria's revised forecast capex.<sup>30</sup>

The main differences between the AER's final decision and Envestra's revised proposal relate to mains replacement, residential and commercial connections, and augmentation.

#### Mains replacement<sup>31</sup>

Distribution mains are the pipes that convey gas to service pipes at each end user point. Envestra's largest mains replacement program is low pressure mains replacement. This program involves upgrading the low and medium pressure mains to high pressure mains. This reduces the safety risk associated with aging cast iron and unprotected steel pipes and provides increased ability to manage demand growth.

The AER does not accept Envestra's low pressure pipeline replacement expenditure because the volume proposed is not prudent and efficient, and the estimate of the unit rates is not the best forecast in the circumstances, as required under the NGR.<sup>32</sup> Unit rates refer to the cost to Envestra of completing one metre of mains replacement.

The AER considers that the scale of mains replacement works should be determined using the historic volumes delivered by Envestra over the 2008–12 access arrangement period. The AER considers that this level of works reflects a robust benchmark for what a prudent and efficient service provider would undertake. Envestra met its safety and reliability obligations in the 2008–12 period.

To allow for changing circumstances, the AER has provided a pass through event that will permit Envestra to apply to the AER to complete additional volumes during the course of the access arrangement period.

The AER has also applied a reduced unit rate, as it considers there are flaws in Envestra's proposed methodology for calculating unit rates from unawarded tenders.

The AER considers that \$100.4 million (\$2011) for low pressure pipe replacement and \$3.4 million (\$2011) for medium pressure supply mains (which are necessary for carrying out the low pressure pipe replacement program), is conforming capex. The approved volumes consist of 359 kilometres of low pressure to high pressure block rollout mains replacement and 6 kilometres of integral medium pressure supply mains replacement.

#### Residential and commercial connections<sup>33</sup>

Distribution businesses have a regulatory obligation to connect new residential and commercial customers to the distribution network upon request. The capex associated with connecting customers to the network generally includes the cost of new mains, gas service pipes from the main to the meter, and the meter itself.

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<sup>30</sup> These total capex numbers apply Envestra's revised labour and material cost escalation and exclude the NMF.

<sup>31</sup> The numbers in this section are unescalated direct costs, excluding overheads.

<sup>32</sup> NGR, r. 79(1).

<sup>33</sup> The numbers in this section are unescalated direct costs, excluding overheads.

The AER does not accept Envestra Victoria's proposed capex of \$159.7 million (\$2012) for connections. The AER considers that a capex allowance of \$128.2 million (\$2012) is consistent with the NGR.

The AER does not accept Envestra's forecast number of gross industrial and commercial connections, because it does not accept Envestra's forecast of the number of industrial and commercial abolishments.<sup>34</sup> Envestra's forecast of abolishments was significantly higher than historic levels.

Additionally, the AER does not accept Envestra's proposed average unit rates for a number of components of a connection. Envestra based its forecast unit rates on a two-year average of actual data. The AER considers that in many cases a five-year averaging period is required to calculate the average historical unit rate. The longer averaging period ensures all relevant information is incorporated into the calculation of the unit rates.

### Augmentation<sup>35</sup>

Envestra proposed augmentation capex to deliver the following:

- Reinforcement of network areas that are vulnerable to gas supply constraints, as well as improvements to reduce the likelihood of gas outages occurring.
- A network that is capable of continuously satisfying the demand for services, particularly in high growth areas.
- The availability of high pressure gas in a manner that supports the systematic and planned replacement of low pressure mains.

The AER considers that the majority of Envestra's augmentation capex is justifiable as it is necessary to maintain or improve the safety and integrity of services.

The AER does not, however, accept Envestra's proposed capex of \$10.8 million (\$2011) for the Dandenong to Crib Point augmentation.

The AER considers that Envestra did not provide evidence that the particular augmentation is required in the 2013-17 access arrangement period. Therefore, the AER considers the proposed capex is not prudent and efficient, or justifiable. Specifically, the AER considers that the modelled pressures in the network area is at the minimum system pressure for the 2013–17 access arrangement period, and that Envestra's forecasts of customer numbers and demand growth in the area are overstated compared to expected growth.

The AER considers that \$25.9 million (\$2011) of augmentation expenditure for Envestra's Victorian network is consistent with the requirements in the NGR.

## 4.2.2 Envestra Albury

The AER considers a forecast capex allowance for Envestra Albury of \$5.8 million (\$2011) is consistent with the requirements in the NGR. This represents a reduction of \$0.5 million (\$2011) from Envestra Albury's revised proposal of \$6.2 million (\$2011).<sup>36</sup>

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<sup>34</sup> An abolishment is the permanent removal of gas supply and metering infrastructure from a customers property.

<sup>35</sup> The numbers in this section are unescalated direct costs, excluding overheads.

## 5 Rate of return

Providing a return on capital allows a business to service the interest on its loans and to give a return on equity to investors. The return on capital building block is calculated by multiplying the rate of return with the value of the capital base (see chapter 3 for a discussion of the capital base). The rate of return is considered in this chapter.

The return on capital is to be commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>37</sup>

Consistent with Envestra's revised proposal and previous AER decisions, the rate of return adopted by the AER is the nominal vanilla WACC formulation.

The AER's detailed reasons for its decision on the rate of return are provided in attachment 5, with additional reasons on some matters set out in appendix B.

### 5.1 Final decision

The AER does not approve Envestra's proposed rate of return of 7.98 per cent (nominal vanilla).<sup>38</sup> The AER considers 7.39 per cent is a preferable alternative that is commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services. The AER's rate of return for Envestra combines a cost of equity of 8.33 per cent and a cost of debt of 6.76 per cent.

Consistent with the draft decision, the AER agrees with a number of aspects of Envestra's proposed rate of return in its revised access arrangement proposal. Specifically, the AER agrees with:

- adopting a weighted average of the cost of equity and the cost of debt (known as the weighted average cost of capital (WACC)) to determine the rate of return
- adopting a 60 per cent gearing ratio
- adopting the capital asset pricing model (CAPM) to determine the cost of equity
- adopting the yield on 10 year Commonwealth Government Securities (CGS) as the proxy for the risk free rate
- adopting a 0.8 equity beta
- adopting a 6 per cent market risk premium (MRP)
- specifying the cost of debt as the debt risk premium (DRP) over the risk free rate
- determining the DRP by defining the benchmark bond as a 10 year corporate bond with a BBB+ credit rating and measuring the benchmark bond rate using the extrapolated Bloomberg BBB rated 7 year fair value curve (FVC)

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<sup>36</sup> These total capex numbers apply Envestra's revised labour and material cost escalation and exclude the NMF.

<sup>37</sup> NGR, r.87(1).

<sup>38</sup> Envestra, *Revised Access Arrangement Information, Attachment 9.11 Response to Draft Decision – Rate of return*, 9 November 2012, section 7. Envestra's revised proposal document stated a nominal vanilla WACC of 7.96 per cent. This was based on an indicative estimate for Envestra's proposed cost of debt, because Envestra's proposed averaging period for the cost of debt had not yet expired. The AER has updated this estimate, based on Envestra's proposed averaging period, which produces a nominal vanilla WACC of 7.98 per cent.

- extrapolating the Bloomberg BBB rated 7 year FVC to a 10 year maturity (consistent with the definition of the benchmark bond) using 'paired bond' analysis
- adopting a recent and short term averaging period for determining the risk free rate and DRP components of the cost of debt (specifically, the 20 business day period from 31 January 2013 to 20 February 2013)
- determining forecast inflation based on the Reserve Bank of Australia's (RBA's) short term forecasts and the mid-point of the RBA's inflation targeting band.

The AER does not agree with Envestra's proposed historical averaging period for determining the risk free rate component of the cost of equity.<sup>39</sup> Rather, the AER adopts a recent and short term averaging period. The AER has used the risk free rate averaging period Envestra proposed and that the AER agreed for the cost of debt. The AER's position on the averaging period in this final decision is consistent with its position in the draft decision.

The individual WACC parameters and consequent overall rate of return are set out in Table 5.1.

**Table 5.1 AER's final decision on Envestra's rate of return (nominal)**

Parameter	AER draft decision <sup>(a)</sup>	Envestra revised proposal <sup>(a)</sup>	AER final decision
Nominal risk free rate (cost of equity)	3.53%	5.00%	3.53%
Nominal risk free rate (cost of debt)	3.53%	3.53%	3.53%
Equity beta	0.80	0.80	0.80
Market risk premium	6.00%	6.00%	6.00%
Debt risk premium	3.23%	3.23%	3.23%
Gearing ratio	60.00%	60.00%	60.00%
Inflation forecast	2.50%	2.50%	2.50%
Nominal post-tax cost of equity	8.33%	9.80%	8.33%
Nominal pre-tax cost of debt	6.76%	6.76%	6.76%
Nominal vanilla WACC	7.39%	7.98%	7.39%

Source: Envestra, *Revised Access Arrangement Information, Attachment 9.11 Response to Draft Decision – Rate of return*, 9 November 2012, and AER analysis.

(a) The AER draft decision and Envestra revised access arrangement proposal parameters have been updated to reflect the final averaging period, based on the respective methodologies. The parameters published in the draft decision and revised access arrangement proposal were calculated based on indicative averaging periods, and hence differ from those in the above table for some parameters.

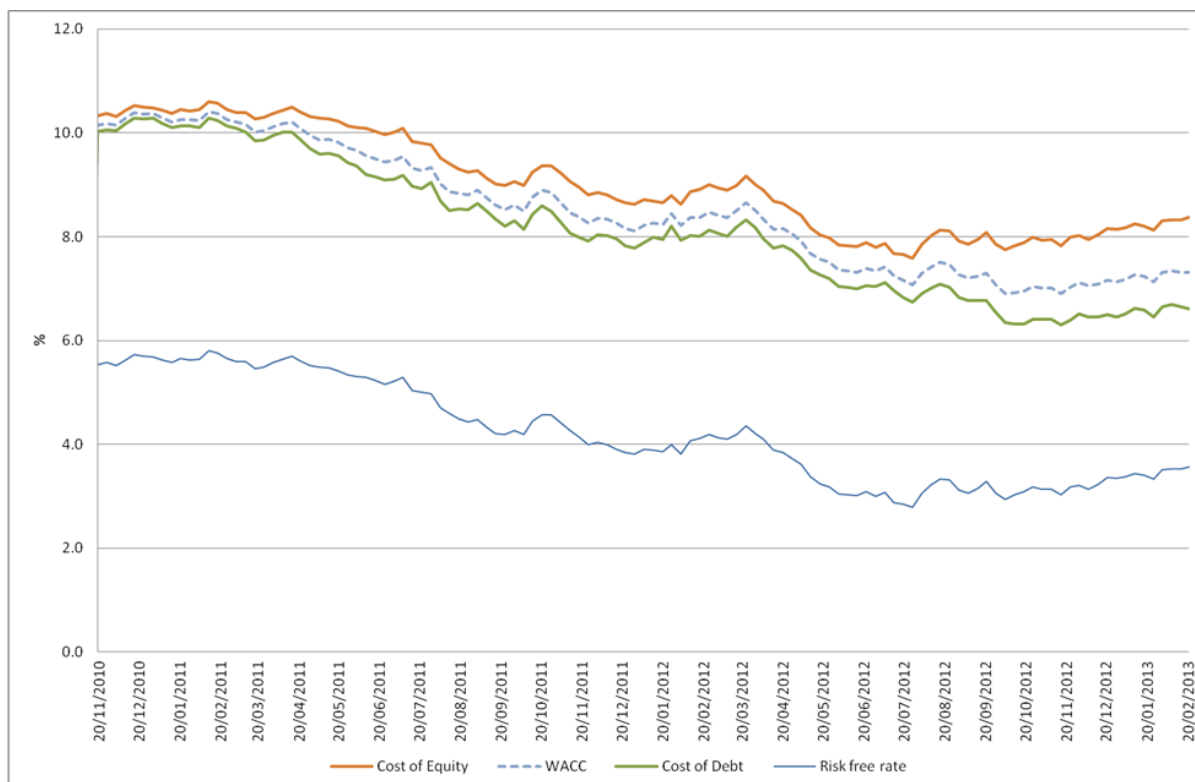
Envestra's rate of return in this decision is similar to the rates the AER determined in decisions over the past year.<sup>40</sup> It is lower than rates the AER determined in decisions before then. Nonetheless, the AER considers its decision on the rate of return is commensurate with prevailing conditions in the market for funds and the risk involved with providing reference services.

<sup>39</sup> Specifically, Envestra proposed a 10 year average to October 2012 minus actual inflation over the period, plus forecast inflation of 2.5 per cent. This was one of two alternatives proposed by CEG. CEG, *Response to the AER Vic gas draft decisions*, November 2012, p. 16.

<sup>40</sup> AER, *Final decision: APT Petroleum Pipeline Pty Ltd, Access arrangement final decision, Roma to Brisbane Pipeline 2012–13 to 2016–17*, August 2012; AER, *Final distribution determination, Aurora Energy Pty Ltd 2012–13 to 2016–17*, April 2012.

The cost of debt has fallen by approximately 1.5 per cent from its level in late 2011 and early 2012. As a result, the AER and Envestra agree that the lower cost of debt that currently prevails has reduced the overall rate of return from the levels that prevailed around a year ago (all things equal). The cost of debt in this decision accounts for 60 per cent of the overall rate of return. The AER and Envestra agree on the approach to determining the cost of debt. Figure 5.1 illustrates the results from applying the AER's rate of return approach in this decision over time.

**Figure 5.1 AER's rate of return approach over time (nominal, per cent)<sup>41</sup>**



In this access arrangement review, the cost of equity is the key area of disagreement. Envestra's revised access arrangement proposal maintains its initial proposal position. Envestra's main submission was that the AER mixes a "spot" risk free rate with a "long term" average MRP and this currently produces a cost of equity that is too low.<sup>42</sup> As part of this submission, Envestra's suggested the cost of equity is relatively stable over time, and related to this point, that the risk free rate and MRP are strongly negatively correlated.<sup>43</sup>

The AER acknowledges that Envestra was concerned with the impact of the lower risk free rate on its cost of equity and this was a driving factor in its proposing a historical average risk free rate for use in calculating the cost of equity.<sup>44</sup>

<sup>41</sup> This chart illustrates the AER's current approach extrapolated backwards (assuming a 6 per cent MRP over that period). The starting date is chosen as this is when paired bond data was first available (the paired bond approach is applied in this decision when determining the debt risk premium - see attachment 5.3.5 below for further discussion).

<sup>42</sup> This is an incorrect characterisation of the AER's approach. The AER estimates a 10 year forward looking risk free rate and a 10 year forward looking MRP. See below and appendix B for more detail.

<sup>43</sup> Envestra, *Revised Access Arrangement Information, Attachment 9.11 Response to Draft Decision – Rate of return*, 9 November 2012, section 2.

<sup>44</sup> Envestra, *Revised Access Arrangement Information, Attachment 9.11 Response to Draft Decision – Rate of return*, 9 November 2012, section 2.

As illustrated in Figure 5.1, the risk free rate has been continuously less than 4 per cent since early 2012.<sup>45</sup> Combined with a 0.8 equity beta and 6 per cent MRP, this has resulted in a cost of equity in AER decisions since this time that is lower than earlier decisions. The AER has made determinations for Aurora, the Roma-to-Brisbane (RBP) pipeline, and now the Victorian gas businesses, over this time period<sup>46</sup>. In each decision, the cost of equity arising from the low risk free rate has been a contentious issue, and the AER has considered the matter carefully.

The material in the next few pages provides a high level overview of the process the AER has employed to assess the proposals and subsequent material submitted by the Victorian gas businesses on the cost of equity. A brief summary of the AER's key reasons for its decision then follows. A more detailed explanation of the AER's reasons is then set out later in this attachment. Further detailed consideration of some specific issues is then set out in a separate appendix.

### 5.1.1 AER process

In view of the substantial material Envestra submitted, the AER has carefully reconsidered the issues raised and has also reassessed its analysis and reasons for the draft and this decision. It has also obtained additional expert advice on the material submitted Envestra. The AER has also extended and expanded its analysis in areas questioned by Envestra. In particular, in the areas of:

- the relationship between the risk free rate and the MRP, and the related issue of the extent of stability in the cost of equity over time
- the relationship between the cost of debt and the cost of equity, and the extent to which changes in the cost of debt over time can be used to inform the estimation of the cost of equity.

The AER has sought a substantial amount of expert advice on the cost of equity over the past 12 months. The advice has come from:

- the Reserve Bank of Australia (RBA)
- the Commonwealth Treasury and Australian Office of Financial Management (AOFM)
- finance academics (Professor McKenzie and Associate Professor Partington from the University of Sydney; Associate Professor Lally from the Victoria University of Wellington), and
- an economic consultancy firm (Cambridge Economic Policy Associates (CEPA))

The AER has sought advice on a wide range of issues associated with the cost of equity. This has included seeking follow up advice from certain experts to consider comments raised by Envestra and its consultants. This process has included:

- In a submission as part of the Aurora determination process, CEG suggested CGS yields might not be an appropriate proxy for the risk free rate in current market circumstances.<sup>47</sup> The AER sought advice from the RBA, Commonwealth Treasury and AOFM. They each advised that the

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<sup>45</sup> The 10 year CGS yield fell below 3 per cent for a brief period in June and July 2012.

<sup>46</sup> Note over this period, the AER also made determinations for Powerlink and is in the process of making determinations for Murraylink and ElectraNet. However these transmission determinations are not comparable to other AER decisions over this time as the WACC approach and parameters were largely prescribed by the NER and the 2009 WACC review.

<sup>47</sup> CEG, *A report on the cost of equity in Aurora's revised proposal: Prepared for Citipower, Jemena, Powercor, SP AusNet, and United Energy*, February 2012, p. 12.



CGS market remains liquid and well functioning. The RBA also advised that CGS bonds remained the best proxy for the risk free rate in Australia.<sup>48</sup>

- In 2011, the AER commissioned a report on the MRP from Professor McKenzie and Associate Professor Partington that comprehensively reviewed each major class of evidence on the MRP. McKenzie and Partington recommended the AER adopt 6 per cent. A regulated business questioned the relevance of the report because it did not directly consider the MRP in the context of a historically low risk free rate.<sup>49</sup> The AER sought further advice from McKenzie and Partington. The experts concluded there are good reasons for the AER to adopt a 6 per cent MRP and they saw no reason to switch from using the current 10 year CGS yield as the proxy for the risk free rate.<sup>50</sup>
- In the draft decision, the AER set out its reasons for adopting a prevailing risk free rate and 6 per cent MRP and published consultants' reports it had commissioned and accepted in forming this position. This provided an opportunity for the Victorian gas businesses, including Envestra, to respond to this position. The businesses did respond to this position and provided substantial additional material. The AER subsequently sought further advice from experts to critically review their original advice in light of the new material submitted by the businesses.
- For this final decision, the AER sought advice from three separate experts on the reasonableness of adopting prevailing risk free rate and 6 per cent MRP.
  - In a third report, McKenzie and Partington concluded the AER's approach was reasonable. This report contains an extensive review of the theoretical and empirical evidence on the relationship between the risk free rate and MRP. McKenzie and Partington's conclusion is based on a more comprehensive analysis of the academic literature on this issue than that contained in the consultant reports submitted by the Victorian gas businesses.
  - Associate Professor Lally also concluded it is reasonable for the AER to adopt a prevailing risk free rate and 6 per cent MRP.
  - CEPA identified some concerns with the AER's approach. However, the current market evidence suggests the AER's current estimate is in line with market expectations. It concluded that, based on various criteria it identified, the AER should not change its estimation approach.

### 5.1.2 Overview of reasons

Compared with the cost of debt, the cost of equity is more challenging to estimate. This is because the cost of debt is observable while the cost of equity is not.<sup>51</sup> Accordingly, a model must be used to estimate the cost of equity. The NGR require that the AER use a well accepted financial model to estimate the cost of equity. The AER and Envestra agree that it is appropriate to use the Sharpe-Lintner capital asset pricing model (Sharpe CAPM) for this purpose.

This model requires the estimation of three parameters:

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<sup>48</sup> See section 5.3.2 below for further discussion.

<sup>49</sup> Aurora, *AER's draft distribution determination—Return on capital*, Submission, 20 February 2012, p.2.

<sup>50</sup> M. McKenzie, and G. Partington, *Report to Corrs Chambers Westgarth: Equity market risk premium*, December 2011, p. 37. (McKenzie and Partington, *Equity market risk premium*, December 2011)

<sup>51</sup> See, for example, RBA, *Letter to the AER*, July 2012, p. 1. The cost of debt can be observed by looking at yields on market traded bonds that match the benchmark characteristics, or fair value curves published by financial data service providers that match the benchmark characteristics.

- The risk free rate—this compensates investors for the time value of money. This is compensation for an investor having committed funds to an investment for a period of time and therefore forgoing the opportunity to spend that money and consume goods now.
- The market risk premium (MRP)—this compensates an investor for the systematic risk of investing in the market portfolio or the "average firm" in the market. Systematic risk is risk that affects all firms in the market (such as macroeconomic conditions and interest rate risk) and cannot be eliminated or diversified away through investing in a wide pool of firms.
- The equity beta—this reflects the systematic risk exposure of a particular firm, relative to the average firm in the market.

While the equity beta is difficult to estimate with precision, the AER and Envestra agree that 0.8 is a reasonable estimate for this parameter in this determination.

In determining the two remaining parameters within the Sharpe-Linter CAPM, the AER estimates:

- a 10 year forward looking risk free rate based on prevailing conditions in the market for funds, and
- a 10 year forward looking MRP based on prevailing conditions in the market for funds.

Conceptually, the adoption of a 10 year forward looking risk free rate and a 10 year forward looking MRP, based on prevailing conditions in the market for funds at the commencement of the access arrangement period:

- is consistent with the present value principle—this principle states that the present value of a regulated business's revenue stream should match the present value of its expenditure stream (plus or minus any efficiency rewards or penalties). As Lally explains, this is a fundamental principle of economic regulation. Satisfying this principle both promotes efficient investment and avoids the excess profits that regulation seeks to prevent.<sup>52</sup>
- is consistent with the building block model
- is consistent with the Sharpe-Lintner CAPM
- is internally consistent, and
- promotes regulatory certainty and consistency.

Practically, in estimating a 10 year forward looking risk free rate, the AER adopts the prevailing yield on 10 year CGS averaged over a period which is short and as close as practicably possible to the commencement of the access arrangement period.<sup>53</sup> The AER adopts this method because:

- An observable market proxy for the risk free rate is available.
- The yield on CGS is the best proxy for the risk free rate in Australia, as supported by RBA advice.
- The RBA, Commonwealth Treasury and AOFM advised that the CGS market is liquid and functioning well.<sup>54</sup>

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<sup>52</sup> M. Lally, *The risk free rate and the present value principle*, 22 August 2012, p. 8, (Lally, *Risk free rate and present value*, August 2012)

<sup>53</sup> The exact dates of the averaging period are proposed by the regulated business and are accepted by this AER so long as the proposed period: (1) is short (10-40 business days); (2) is as close as practicably possible to the commencement of the access arrangement period; (3) is nominated in advance.

- CGS yields are an observable market determined parameter.
- The prevailing rate at any point in time is the benchmark that returns on risky investments must better
- Prevailing 10 year CGS yields reflect expectations of the risk free rate over the appropriate forward looking investment horizon (which is 10 years).
- Selecting an averaging period in advance ensures the method is unbiased.
- There is no clear evidence that CGS yields are abnormally low. McKenzie and Partington suggest that the current rates may be consistent with a longer term trend.

In estimating a 10 year forward looking MRP, the AER adopts 6 per cent. After carefully assessing the information submitted by the Victorian gas businesses, the AER remains of the view that the available evidence supports a MRP of 6.0 per cent as commensurate with prevailing conditions in the market for funds. This is because:

- historical excess returns—these estimates provide a range of 4.9–6.1 per cent if calculated using an arithmetic mean and a range of 3.0–4.7 per cent if calculated using a geometric mean.
- academic research on excess return predictability—over the past decade, there is an increased scepticism about the ability for particular variables to predict returns. New empirical evidence has cast doubt on previous empirical evidence that suggested particular variables were good predictors of returns. Some studies indicate there is no better forecast of excess returns than the historical average.
- survey evidence—surveys of market practitioners consistently support 6 per cent as the most commonly adopted value for the MRP. These surveys also indicate that the average MRP adopted by market practitioners was approximately 6 per cent.
- forward looking MRP measures—these give mixed results, and are each subject to various limitations. On the one hand, dividend growth model (DGM) estimates suggest the MRP is in the range of 5.9–8.4 per cent. These estimates were provided by Associate Professor Lally who used CEG's DGM method, after adjusting for certain deficiencies in CEG's method. On the other hand, implied volatility based MRP estimates suggest the MRP is currently below its historical average level.
- recent Tribunal decisions—the Tribunal held the view that it was open for regulators to adopt a 6 per cent MRP in all of the recent decisions where regulated businesses sought Tribunal review.
- consultant advice—Associate Professor Lally, Professor McKenzie and Associate Professor Partington all advised the AER that a 6 per cent MRP is reasonable in the prevailing market conditions in their most recent reports and CEPA found the valuation reports do support an MRP that is equal to about 6 per cent..
- recent decisions among Australian regulators—the AER notes both the ERA and the QCA consistently adopted an MRP estimate of 6 per cent under the same CAPM framework. The AER also notes while the IPART consistently adopted an MRP range of 5.5–6.5 per cent, it has made

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<sup>54</sup> Reserve Bank of Australia, *Letter to the ACCC: The Commonwealth Government Securities Market*, 16 July 2012, (RBA, *Letter regarding the CGS market*, July 2012); Australian Treasury and Australian Office of Financial Management, *Letter to the ACCC: The Commonwealth Government Securities Market*, 18 July 2012, p. 2 (Treasury and AOFM, *Letter regarding the CGS Market*, July 2012).

an upward adjustment to the overall WACC in its recent decisions due to the current low risk free rate.

The AER is aware that there are some academic papers that present a plausible argument for an inverse relationship between the risk free rate and MRP. Accordingly, the AER has given careful consideration to this issue in estimating the MRP. The advice from McKenzie and Partington provides a comprehensive review of the academic literature on the theoretical and empirical evidence on the relationship between these two parameters. Among other findings, McKenzie and Partington note:

Ang and Bekaert (2007) find a negative relationship between short term risk free rates and the equity risk premium. The general message of Ang and Bekaert's work, however, is that "... predictability is mainly a short-horizon, not a long-horizon phenomenon" (p.696). Their implication is that predictive regressions might help forecast market returns at say a one year horizon, but are little use at say a ten year horizon.<sup>55</sup>

This is relevant to the present matter as the AER is estimating a 10 year forward looking MRP, not a short term MRP.

Overall, McKenzie and Partington find that there is evidence to support both a positive and negative relationship between the risk free rate and MRP. They conclude:

An examination of the relevant evidence leads us to conclude that the relation between the MRP and the level of interest rates is an open question and that the relation, if any, is not sufficiently well established to form the basis for a regulatory adjustment to the MRP.<sup>56</sup>

The AER also considers reasonableness checks on the overall rate of return. These reasonableness checks suggest that the overall rate of return broadly accords with market expectations. For example, recent regulated assets have generally been sold at a premium to the RAB. In addition, recent RAB trading multipliers are consistently greater than one (averaging around 1.2). This evidence provides the AER with a degree of confidence that its approach to determining the rate of return is reasonable.

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<sup>55</sup> M. McKenzie, and G. Partington, *Review of the AER's overall approach to the risk free rate and market risk premium*, February 2013, p.26 (McKenzie and Partington, *Review of the AER's overall approach*, February 2013).

<sup>56</sup> McKenzie and Partington, *Review of the AER's overall approach*, February 2013, p. 6.

## 6 Regulatory depreciation

Depreciation represents the amount of original capital expenditure that a business pays back to its investors each year (return of capital), as distinct from the interest on capital expenditure which is referred to as the return on capital. When determining the total revenue for Envestra's Victorian and Albury networks, the AER must assess the depreciation for the projected capital base.<sup>57</sup> This is used to assess the depreciation allowance in the building block model. The AER assesses the regulatory depreciation allowance by first forecasting the nominal value of Envestra's assets over the 2013–17 access arrangement period. The regulatory depreciation allowance is then calculated as net total of the straight-line depreciation (negative) and the annual inflation indexation (positive) on the projected capital base.

Envestra is required to provide a forecast of depreciation for the 2013–17 access arrangement period, setting out a depreciation method and demonstrating how the depreciation method has been applied. This depreciation schedule sets out the basis on which the capital base is to be depreciated for the purpose of determining a reference tariff. The AER assesses whether the proposed depreciation schedule complies with the depreciation criteria set out in the NGR.<sup>58</sup>

The full final decision and the AER's detailed reasons and analysis on regulatory depreciation are in attachment 6.

### 6.1 Final decision

The AER does not approve Envestra's proposed regulatory depreciation allowances for the 2013–17 access arrangement period of:

- \$88.5 million (\$nominal) for Envestra Victoria
- \$3.9 million (\$nominal) for Envestra Albury.

The AER's final decision on Envestra's regulatory depreciation allowance over the 2013–17 access arrangement period is \$88.1 million (\$nominal) for Envestra Victoria and \$3.7 million for Envestra Albury (see and Table 6.2). This represents a reduction of:

- \$0.4 million (\$nominal) or 0.4 per cent of Envestra's proposed total regulatory depreciation allowance for its Victorian network
- \$0.1 million (\$nominal) or 1.3 per cent of Envestra's proposed total regulatory depreciation allowance for its Albury network.

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<sup>57</sup> NGR, r. 76(b).  
<sup>58</sup> NGR, r. 89(1).

**Table 6.1 AER's final decision on Envestra Victoria's depreciation allowance (\$million, nominal)**

	2013	2014	2015	2016	2017	Total
Straight-line depreciation	40.1	44.3	50.0	54.3	58.4	247.1
Less: indexation on opening capital base	27.9	29.9	31.9	33.6	35.5	158.9
Regulatory depreciation	12.2	14.4	18.0	20.7	22.9	88.1

Source: AER analysis.

**Table 6.2 AER's final decision on Envestra Albury's depreciation allowance (\$million, nominal)**

	2013	2014	2015	2016	2017	Total
Straight-line depreciation	1.4	1.5	1.7	1.8	1.9	8.3
Less: indexation on opening capital base	0.9	0.9	0.9	0.9	0.9	4.5
Regulatory depreciation	0.5	0.7	0.8	0.9	1.0	3.8

Source: AER analysis.

## 6.2 Summary of analysis and reasons

The AER does not approve Envestra's proposed regulatory depreciation allowances. This is because the AER's adjustments to other building block components have had a consequential effect on the forecast regulatory depreciation allowance. These are discussed in other attachments and include the roll forward of the opening capital base (attachment 3) and forecast capex (attachment 4). While the AER does not approve the proposed regulatory depreciation allowance, it accepts Envestra's approach to calculating depreciation, standard economic life and remaining economic life as set out in its revised proposal.

## 7 Operating expenditure

Operating expenditure (opex) refers to the operating, maintenance and other non-capital costs incurred in the provision of reference services.<sup>59</sup> Opex incorporates labour costs associated with providing reference services. Opex is one of the building blocks used to determine Envestra's total revenue requirement.

The AER is required to assess Envestra's forecast opex to decide whether it is satisfied that its opex complies with applicable criteria prescribed by the NGL and NGR. In particular, opex must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services.<sup>60</sup> In addition, opex forecasts must be arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances.<sup>61</sup>

The AER typically applies a 'base, step and trend' approach to assessing opex.

The AER uses actual costs from a 'base year' in the previous access arrangement period (typically the fourth year) as the starting point for forecasting opex in the next period. The regulatory regime provides incentives for service providers to deliver reference services at the lowest sustainable cost, (see chapter 8). Given these incentives, actual opex can be used to reveal the efficient level of opex required in providing reference services.

This means that rather than assess all aspects of opex the AER can instead focus on what changes need to be made to this base level of opex. In particular, once the base year is set, the AER assesses the following adjustments:

- step changes, to provide an additional opex allowance where a certain circumstance, requirement or project will require the business to undertake expenditure that is not incorporated in the base year
- annual cost trends, to account for forecast labour and material cost changes, output growth and productivity growth.

The full final decision and the AER's detailed reasons and analysis on operating expenditure can be found in attachment 6.

### 7.1 Final decision

The AER does not approve Envestra's forecast opex of \$328.0 million (\$2011) for its Victorian network and \$10.9 million (\$2011) for its Albury network. The AER considers that a forecast opex allowance of \$308.7 million (\$2011) is consistent with the NGR for the Victorian network and \$10.4 million (\$2011) for the Albury network.

Table 7.1 shows how Envestra Victoria's revised proposal compares with the AER's final decision on opex.

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<sup>59</sup> NGR, r. 69.

<sup>60</sup> NGR, r. 91(1).

<sup>61</sup> NGR, r. 74.

**Table 7.1 Comparison of Envestra Victoria's initial and revised proposals, and AER draft and final decisions (\$million, 2011)**

	2013	2014	2015	2016	2017	Total
Envestra initial proposal	63.8	71.8	75.4	76.0	77.8	364.8
AER draft decision	57.5	58.2	58.9	59.6	60.3	294.5
Envestra revised proposal	64.2	66.0	65.6	65.5	66.7	328.0
AER final decision	59.0	60.8	62.0	62.9	63.9	308.7

Source: AER analysis.

Table 7.2 compares the corresponding information for Envestra Albury.

**Table 7.2 Comparison of Envestra Albury's initial and revised proposals, and AER draft and final decisions (\$million, 2011)**

	2013	2014	2015	2016	2017	Total
Envestra initial proposal	2.14	2.41	2.53	2.56	2.69	12.33
AER draft decision	2.65	2.67	2.70	2.71	2.73	13.46
Envestra revised proposal	2.17	2.22	2.18	2.15	2.18	10.91
AER final decision	2.04	2.05	2.09	2.10	2.13	10.41

Source: AER analysis.

## 7.2 Summary of analysis and reasons

Envestra proposed an opex forecast calculated using a 'base, step and trend' approach, setting 2011 as the base year for both its networks. It then proposed cost trends and step changes to provide for year on year adjustments to this base level of opex. Table 7.3 shows the factors driving opex and differences between Envestra Victoria's forecast opex outlined in its revised proposal and the AER's final decision. Table 7.4 shows the corresponding information for Envestra Albury.

**Table 7.3 Envestra Victoria proposed and AER's final decision on opex (\$million, 2011)**

	Envestra revised proposal	AER final decision	Difference
Base year costs	255.6	255.6	–
Labour cost escalation	7.4	4.1	–3.2
Network growth	3.7	3.6	–0.0
Step changes	35.8	21.0	–14.8
NMF	13.9	12.6	–1.3
ARS	11.7	11.7	–
<b>Total</b>	<b>328.0</b>	<b>308.7</b>	<b>–19.3</b>

Note: Totals may not add due to rounding  
Source: AER analysis



**Table 7.4 Envestra Albury proposed and AER's final decision on opex (\$million, 2011)**

	Envestra proposal	AER final decision	Difference
Base year costs	8.9	8.9	–
Labour cost escalation	0.2	0.1	–0.1
Network growth	0.1	0.1	–
Step changes	0.5	0.2	–0.4
NMF	0.4	0.4	–0.0
ARS	0.7	0.7	–0.0
<b>Total</b>	<b>10.9</b>	<b>10.4</b>	<b>–0.5</b>

Note: Totals may not add due to rounding  
Source: AER analysis

As can be seen from Table 7.3 the main differences between Envestra Victoria's proposed opex and the AER's final decision on opex relate to differences in labour cost escalation and the AER not accepting some step changes. The main differences for Envestra Albury are in labour cost escalation and the AER not accepting some step changes. These differences are discussed below.

### 1.1.1 Step changes

Step changes allow for additional funding where the service provider faces a new obligation or change in circumstance requiring it to undertake additional expenditure that was not accounted for in the base year level of opex. Examples of a change in circumstances that may result in a step change in forecast opex include: the imposition of new safety regulations or other new legislative requirements, or the commencement of new capital projects that involve ongoing maintenance or operating activities.

Where the AER considers these step changes meet the requirements in the NGR<sup>62</sup> an incremental increase in base year opex is included in total forecast opex.

In general, the AER considers an increase in opex is not consistent with the above requirement where the additional expenditure is intended to comply with a regulatory requirement or industry standard that has not changed since the 2008–12 access arrangement period. In such cases, it is the AER's view that such expenditure would already be included in base year opex.

In considering the above, the AER made some revisions to Envestra's proposed step changes. These adjustments led to Envestra's proposed step change related opex being reduced by \$14.8 million (\$2011) for Envestra Victoria and \$368 thousand (\$2011) for Envestra Albury.

### 7.2.1 Real cost escalation

Real cost escalation is a method of accounting for expected changes in the cost of inputs such as labour and materials from those present in the base year. Due to market forces, these costs may not increase at the same rate as inflation, in which case a more suitable forecast will be adopted.

<sup>62</sup> NGR, rr. 74, 91.

The AER does not approve Envestra's proposed forecast real labour cost escalators. Envestra did not take into account labour productivity, which is a material component of labour costs. The AER considers labour cost escalations to be made up of changes in labour price and labour productivity.

The AER considers Deloitte Access Economics' (DAE's) forecast of the labour price index (LPI) represents the best possible estimate of labour cost escalations in the circumstances.<sup>63</sup> Although DAE's forecast LPI historically has been lower than actual LPI, the AER considers this forecast to be appropriate given the AER has not adjusted for labour productivity which, based on available data, is shown to be positive.

The AER accepts Envestra's proposal to adopt CPI only for materials cost escalation.

The revision to Envestra's proposed labour cost escalators has reduced total opex by \$3.2 million (\$2011) for Envestra Victoria and \$99 thousand (\$2011) for Envestra Albury.

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<sup>63</sup> NGR, r. 74(2).

## 8 Incentive mechanisms

Incentive mechanisms operate to incentivise service providers to reduce costs and increase efficiency in the provision of pipeline services. They provide a financial reward (or penalty) for efficiency gains (or losses) achieved relative to opex or capex benchmarks for the access arrangement period. Any rewards (or penalties) for efficiency gains (or losses) are added to the service provider's total revenue allowance (as determined using the building block approach) and carried forward for five years after the year in which the efficiency gain (or loss) is made. This five year period corresponds to the length of the access arrangement period.

The AER is required under transitional arrangements to ensure that any rewards or penalties resulting from the operation of the incentive mechanisms in Envestra's current access arrangements are properly reflected in its total revenue allowances.<sup>64</sup> The AER must also consider whether the incentive mechanisms proposed by Envestra for the 2013–17 access arrangement will encourage efficiency in the provision of services by the service provider, and is consistent with the revenue and pricing principles.<sup>65</sup>

The full final decision and the AER's detailed reasons and analysis on incentive mechanisms can be found in attachment 8.

### 8.1 Final decision

The AER approves Envestra Victoria and Envestra Albury's proposed carryover of zero from the 2008–12 access arrangement period.

The AER does not approve Envestra Victoria and Envestra Albury's proposed opex incentive mechanisms for the 2013–17 access arrangement period. The AER considers that a table of opex benchmarks should be inserted to clarify the values to be used to calculate efficiency gains (losses).

The AER does not approve Envestra Victoria and Envestra Albury's proposed capex incentive mechanisms for the 2013–17 access arrangement period. The AER does not propose to include any alternative capex incentive mechanism.

### 8.2 Summary of analysis and reasons

The AER accepts that the Gas Code, under which Envestra's 2008–12 access arrangements were approved by the ESC, allowed only for positive carryovers, not negative carryovers. As a result, the AER accepts Envestra's revised proposal that a negative carryover from the 2008–12 access arrangement period should not apply and that the carryover amount should be zero.

The AER does not approve Envestra Victoria and Envestra Albury's proposed opex incentive mechanisms for the 2013–17 access arrangement period. In its draft decision, the AER required Envestra Victoria and Envestra Albury to include a table in their access arrangements specifying the forecast opex amounts to be used in calculating efficiency gains (losses). The purpose of this revision was to remove any potential uncertainty as to which values should be used when efficiency gains (losses) are calculated at the end of the access arrangement period. Envestra Victoria and Envestra Albury did not include the table of opex benchmarks in their revised proposals and therefore the AER does not approve the proposed opex incentive mechanisms.

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<sup>64</sup> NGR, Schedule 1, clause 5(1)(a).

<sup>65</sup> NGR, r. 98(1) and (3).

The AER does not accept Envestra Victoria and Envestra Albury's revised proposal to retain the capex incentive mechanism in their 2008–12 access arrangements for the 2013–17 access arrangement period. The AER does not propose to include any alternative capex incentive mechanism.

## 9 Corporate income tax

Envestra is required to pay tax on the income that it generates in operating its business. Envestra adopted the post-tax framework to derive its revenue requirement for the 2013–17 access arrangement period. Under the post-tax framework, a separate corporate income tax allowance is calculated as part of the building block assessment.

The AER uses the post-tax revenue model (PTRM) to produce an estimate of the taxable income that would be earned by an efficient company operating Envestra's business. All tax expenses are offset against the service provider's forecast revenue to estimate the taxable income. The statutory income tax rate of 30 per cent is then applied to the estimated taxable income to arrive at a notional amount of tax payable. The AER then applies a discount to this to account for the assumed utilisation of imputation credits. This net amount is the benchmark corporate income tax estimate included as a separate building block in determining Envestra's total revenue.<sup>66</sup>

The full final decision and the AER's detailed reasons and analysis on corporate income tax can be found in attachment 9.

### 9.1 Final decision and reasons

The AER does not approve Envestra's proposed corporate income tax allowances for the 2013–17 access arrangement period of \$33.1 million (\$nominal) for Envestra Victoria and \$1.9 million (\$nominal) for Envestra Albury. This is because the AER's final decision on other building block components, such as capex and opex (see attachments 4 and 7), have had a consequential effect on the forecast corporate income tax allowances.

The AER approves a corporate income tax allowance of:

- \$26.4 million (\$nominal) for Envestra Victoria as shown in Table 9.1. This is a reduction of \$6.7 million (\$nominal) or 20.2 per cent of the revised proposed corporate income tax allowance for Envestra Victoria
- \$1.6 million (\$nominal) for Envestra Albury as shown in Table 9.2. This is a reduction of \$0.3 million (\$nominal) or 15.1 per cent of the revised proposed corporate income tax allowance for Envestra Albury.

Based on the approach to modelling the cash flows in the PTRM, the AER has derived effective tax rates of 22.5 per cent and 33.0 per cent for Envestra Victoria and Envestra Albury, respectively.

The AER approves Envestra's proposed opening tax asset bases as at 1 January 2013 of \$382.7 million (\$nominal) for Envestra Victoria, and \$7.8 million (\$nominal) for Envestra Albury.

The AER accepts Envestra's proposed tax depreciation approach and the standard tax asset lives for group 7 tax assets. These relate to forecast capex for the 2013–17 access arrangement period.

Consistent with the draft decision, the AER accepts Envestra's proposed value for the utilisation of imputation credits ( $\gamma$ ) of 0.25.

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<sup>66</sup> NGR, r. 76(c).

**Table 9.1 AER's final decision on corporate income tax allowance for Envestra Victoria (\$million, nominal)**

	2013	2014	2015	2016	2017	Total
Tax payable	3.2	7.6	6.7	8.2	9.4	35.2
Less: value of imputation credits	0.8	1.9	1.7	2.0	2.4	8.8
Net corporate income tax allowance	2.4	5.7	5.1	6.1	7.1	26.4

Source: AER analysis.

**Table 9.2 AER's final decision on corporate income tax allowance for Envestra Albury (\$million, nominal)**

	2013	2014	2015	2016	2017	Total
Tax payable	0.3	0.4	0.5	0.5	0.5	2.2
Less: value of imputation credits	0.1	0.1	0.1	0.1	0.1	0.5
Net corporate income tax allowance	0.2	0.3	0.3	0.4	0.4	1.6

Source: AER analysis.

## 10 Demand forecasts

Demand forecasts are an estimate of how much each reference service is likely to be used over the upcoming five year access arrangement period. This allows the AER to assess the quantum of each tariff based on Envestra's total revenue allowance—as determined using the building block approach—and the overall efficient allocation of tariffs.

Demand forecasts may also be relevant to the AER's assessment of Envestra's forecast opex and capex, where the increase in expenditure is largely driven by network growth.

The NGR requires an access arrangement to include a forecast of pipeline demand (driven by gas demand) over the access arrangement period and the basis on which the forecast is derived.

The full final decision and the AER's detailed reasons and analysis on demand forecasts can be found in attachment 9.

### 10.1 Final decision

Envestra's demand for its Victorian network is forecast to decrease slightly over the 2013–17 regulatory period. Whereas for its Albury network, demand is forecast to remain relatively flat over the same period. The AER accepts Envestra's proposed demand forecasts. They are arrived at on a reasonable basis and represent the best forecasts possible in the circumstances.<sup>67</sup>

### 10.2 Summary of analysis and reasons

Envestra adopted the majority of the AER's draft decision on demand.<sup>68</sup> However, Envestra did not accept a required revision in the AER's draft decision in respect of the proposed network development program, or the extension of the network to Merrifield and one of the proposed new towns.<sup>69</sup> Envestra resubmitted its capex for network extensions to these towns and proposed a new capex item for another extension project.

As discussed in attachment 4, the AER's final decision is to approve capex for these extensions. Given the AER accepted the proposed extensions, the AER also accepts the inclusion of the incremental demand arising from these projects.

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<sup>67</sup> NGR, r. 74(2).

<sup>68</sup> Envestra, Revised proposal, Attachment 13.6: Demand forecasts, 9 November 2012, pp. 1–2.

<sup>69</sup> Envestra, Revised proposal, Attachment 13.6: Demand forecasts, 9 November 2012, p. 1 and p. 3.

## 11 Tariff setting

A service provider collects its revenue for reference services by charging users to access these services. The tariffs charged for reference services allow a service provider to collect its revenue allowance.

As part of its access arrangement, Envestra is required to set out how it intends to charge for reference services. This must include an explanation of the basis for setting reference tariffs, including the different tariff classes, the method used to allocate costs between these classes, and a demonstration of the relationship between costs and tariffs.<sup>70</sup>

The AER assessed Envestra's proposed reference tariffs for its Victorian and Albury networks against the relevant sections of the NGR,<sup>71</sup> revenue and pricing principles, and the NGO. Where the AER does not approve Envestra's proposal, the AER has proposed the initial reference tariffs.

The final decision and the AER's detailed reasons and analysis on tariff setting can be found in attachment 11.

### 11.1 Final decision and reasons

The AER does not approve the reference tariffs proposed by Envestra in its revised proposal. This is because of the AER's adjustments to total revenue (chapter 2) and forecast demand (chapter 10). The AER accepts the proposed structure of Envestra's reference tariffs as set out in its revised proposals, but considers the level of the tariffs must be adjusted to take account of the AER's decision on total revenue and forecast demand.

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<sup>70</sup> NGR, r. 72(1)(j), 95(1) and 95(3)(a).

<sup>71</sup> NGR, rr. 93 and 94.



## 12 Tariff variation mechanism

The tariff variation mechanism defines how tariffs may be varied during the course of an access arrangement period. Specifically, the tariff variation mechanism:

- permits building block revenues to be recovered smoothly over the access arrangement period
- accounts for actual inflation
- accommodates other tariff adjustments that may be required, such as for an approved cost pass through event
- sets administrative procedures for the approval of any proposed changes to tariffs.

The AER is required to assess Envestra's proposed tariff variation mechanism against the requirements of the NGR.<sup>72</sup> The full final decision and the AER's detailed reasons and analysis on the tariff variation mechanism can be found in attachment 12.

### 12.1 Final decision

The AER does not approve Envestra's proposed tariff variation mechanism for the 2013–17 access arrangement period. The AER considers that some aspects of Envestra's proposed tariff variation mechanism are inconsistent with the NGR, or that there are alternatives to elements of the proposed tariff variation mechanism that are preferable having regard to the NGR.

### 12.2 Summary of analysis and reasons

In its revised proposal, Envestra adopted most of the revisions required by the AER in its draft decision. These included a reduction in the rebalancing constraint, a revised definition of CPI and the removal of an Energy Safe Victoria (ESV) levy factor.<sup>73</sup>

The AER does not accept a number of aspects of the tariff variation mechanism in Envestra's revised proposal. These include:

- The initial reference tariffs and X factors—the AER considers that these should be amended to reflect the changes to Envestra's forecast total revenue allowance, as identified in the revenue section of this final decision (see chapter 2).
- The procedures for oversight and approval of a tariff variation—the AER considers that there should be a 50 business day requirement for Envestra to notify the AER of any reference tariff variations. The AER considers that this will facilitate earlier market notification of approved tariffs, providing greater certainty to retailers and consumers.
- The definition of the revision commencement date—the AER considers that revisions must commence on a date fixed in the access arrangement. The nominated commencement date of the 2018-2023 access arrangement period is 1 January 2018.
- The cost pass through mechanism, including definitions of certain nominated pass through events.

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<sup>72</sup> NGR, rr. 92, 97.

<sup>73</sup> Envestra, Response to draft decision, Attachment 15.2, section 1, 9 November 2012.

In relation to the cost pass through mechanism, this allows Envestra to apply to the AER during the course of an access arrangement period to pass through costs (or savings) to consumers for a number of specified events. These events are typically unexpected events that are outside the service provider's control. In assessing Envestra's revised cost pass through mechanism, a key consideration of the AER was to ensure consistency in the cost pass through regimes applying to all gas service providers.

The aspects of Envestra's proposed cost pass through mechanism that the AER does not approve include:

- The inclusion of an unaccounted for gas (UAFG) event as this event is inconsistent with the ESC's benchmarking scheme that currently operates in Victoria to allocate the costs of UAFG between service providers and consumers.
- The definition of an insurance cap event and the NECF event (the AER proposes amendments to the NECF event to align it with the amendments proposed by SP AusNet and Multinet)
- The procedure for cost pass through event variations as a number of changes are required to ensure that it aligns with the AER's approach to assessing pass through applications for other gas distributors.
- The definition of a mains replacement event.

The AER proposes to amend the definition of a mains replacement event. This event allows for changing circumstances that may impact Envestra's mains replacement program. Certain costs may be passed through where Envestra undertakes mains replacement in excess of the volumes approved as part of its capital expenditure in this final decision. For Envestra, the trigger event for the pass through is completion of 251 kilometres of mains replacement. This differs from the AER's draft decision, in that it is calculated by deducting 9 months worth of mains replacement from the historical volumes over the 2008–12 period. The AER considers that this will give Envestra sufficient lead time apply for and receive approval for additional work and to maintain continuity in contracting.