



Final decision—Public

## **Jemena Gas Networks**

### **Access arrangement proposal for the NSW gas networks**

**1 July 2010 – 30 June 2015**

June 2010

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# Contents

|  |            |
|--|------------|
| <b>Shortened forms .....</b>                                 | <b>6</b>   |
| <b>Overview .....</b>  | <b>7</b>   |
| <b>1 Introduction .....</b>                                  | <b>11</b>  |
| 1.1 Chapter summaries.....                                   | 11         |
| 1.2 Preliminary matters .....                                | 18         |
| <b>Part A—Total revenue (building block components).....</b> | <b>21</b>  |
| <b>2 Pipeline services .....</b>                             | <b>22</b>  |
| 2.1 Introduction.....  | 22         |
| 2.2 Ancillary services.....                                  | 22         |
| 2.3 Legacy services .....                                    | 26         |
| <b>3 Capital base.....</b>                                   | <b>29</b>  |
| 3.1 Introduction.....  | 29         |
| 3.2 Revised access arrangement proposal.....                 | 29         |
| 3.3 Consultant’s report.....                                 | 33         |
| 3.4 Submissions .....  | 36         |
| 3.5 AER’s analysis and considerations.....                   | 40         |
| 3.6 Conclusion .....   | 93         |
| 3.7 Revisions.....   | 93         |
| <b>4 Depreciation .....</b>                                  | <b>101</b> |
| 4.1 Introduction.....  | 101        |
| 4.2 Revised access arrangement proposal.....                 | 101        |
| 4.3 AER’s analysis and considerations.....                   | 102        |
| 4.4 Conclusion .....   | 105        |
| <b>5 Rate of Return.....</b>                                 | <b>106</b> |
| 5.1 Introduction.....  | 106        |
| 5.2 Revised access arrangement proposal.....                 | 106        |
| 5.3 Cost of equity—Fama-French three-factor model .....      | 108        |
| 5.4 Cost of equity—Capital asset pricing model .....         | 172        |
| 5.5 Risk-free rate.....                                      | 174        |
| 5.6 Debt risk premium .....                                  | 174        |
| 5.7 Inflation forecast .....                                 | 199        |
| 5.8 Conclusion .....   | 200        |
| 5.9 Revisions.....   | 201        |
| <b>6 Taxation.....</b>                                       | <b>202</b> |
| 6.1 Introduction.....  | 202        |
| 6.2 Revised access arrangement proposal.....                 | 202        |
| 6.3 Submissions .....  | 204        |
| 6.4 Consultants’ review .....                                | 204        |
| 6.5 AER’s analysis and considerations.....                   | 205        |
| 6.6 Conclusion .....   | 227        |
| 6.7 Revisions.....   | 227        |
| <b>7 Incentive mechanisms .....</b>                          | <b>228</b> |

|           |  |            |
|-----------|--|------------|
| 7.1       | Introduction.....                                      | 228        |
| 7.2       | Revised access arrangement proposal.....               | 228        |
| 7.3       | Submissions .....                                      | 228        |
| 7.4       | AER’s analysis and considerations.....                 | 229        |
| 7.5       | Conclusion .....                                       | 232        |
| 7.6       | Revisions.....   | 232        |
| <b>8</b>  | <b>Fixed principles.....</b>                           | <b>233</b> |
| 8.1       | Introduction.....                                      | 233        |
| 8.2       | Revised access arrangement proposal.....               | 233        |
| 8.3       | AER’s analysis and considerations.....                 | 233        |
| 8.4       | Conclusion .....                                       | 233        |
| 8.5       | Revisions.....   | 233        |
| <b>9</b>  | <b>Operating expenditure .....</b>                     | <b>235</b> |
| 9.1       | Introduction.....                                      | 235        |
| 9.2       | Revised access arrangement proposal.....               | 235        |
| 9.3       | Consultant’s report.....                               | 237        |
| 9.4       | Submissions .....                                      | 237        |
| 9.5       | AER's analysis and considerations .....                | 238        |
| 9.6       | Revisions.....   | 283        |
| <b>10</b> | <b>Total revenue .....</b>                             | <b>285</b> |
| 10.1      | Introduction.....                                      | 285        |
| 10.2      | Revised access arrangement proposal.....               | 285        |
| 10.3      | Submissions .....                                      | 286        |
| 10.4      | AER’s analysis and considerations.....                 | 286        |
| 10.5      | Conclusion .....                                       | 288        |
| 10.6      | Revisions.....   | 288        |
|           | <b>Part B—Tariffs.....</b>                             | <b>290</b> |
| <b>11</b> | <b>Demand forecasts .....</b>                          | <b>291</b> |
| 11.1      | Introduction.....                                      | 291        |
| 11.2      | Revised access arrangement proposal.....               | 291        |
| 11.3      | Consultant’s report.....                               | 294        |
| 11.4      | Submissions .....                                      | 296        |
| 11.5      | AER’s analysis and considerations.....                 | 298        |
| 11.6      | Conclusion .....                                       | 327        |
| 11.7      | Revisions.....   | 327        |
| <b>12</b> | <b>Reference tariffs.....</b>                          | <b>330</b> |
| 12.1      | Introduction.....                                      | 330        |
| 12.2      | Tariffs.....   | 330        |
| 12.3      | Trunk pipeline pricing.....                            | 335        |
| 12.4      | New tariff classes.....                                | 338        |
| 12.5      | Demand first response.....                             | 339        |
| 12.6      | Minimum demand bill.....                               | 343        |
| 12.7      | Introduction and withdrawal of reference tariffs ..... | 346        |
| 12.8      | Other matters.....                                     | 350        |
| <b>13</b> | <b>Tariff variation mechanism .....</b>                | <b>352</b> |

|   |   |            |
|---|---|------------|
| 13.1  | Introduction.....   | 352        |
| 13.2  | Annual tariff variation mechanism .....                         | 352        |
| 13.3  | Cost pass through tariff variation mechanism .....              | 380        |
| <b>Part C—Other provisions of an access arrangement .....</b> |   | <b>393</b> |
| <b>14</b>   | <b>Non-tariff components.....</b>                               | <b>394</b> |
| 14.1  | Introduction.....   | 394        |
| 14.2  | Terms and conditions .....                                      | 394        |
| <b>A.</b>   | <b>Confidential Self Insurance .....</b>                        | <b>442</b> |
| <b>B.</b>   | <b>Summary of non-tariff issues raised in submissions .....</b> | <b>456</b> |
| <b>C.</b>   | <b>Submissions .....</b>  | <b>470</b> |

# Shortened forms

## Shortened form

access arrangement period

access arrangement proposal

access arrangement information

AER

Code

draft decision

earlier access arrangement period

IPART

JGN

NGL

NGR

revised access arrangement information

access arrangement revision proposal

initial response to the draft decision

## Extended form

1 July 2010 to 30 June 2015

Jemena Gas Networks (NSW) Ltd, Access arrangement, August 2009

Jemena Gas Networks (NSW) Ltd, Access arrangement information, August 2009

Australian Energy Regulator

National Third Party Access Code for National Gas Pipeline Systems

AER, Draft decision: Jemena access arrangement proposal for the NSW gas networks 1 July 2010–30 June 2015, February 2010

1 July 2005 to 30 June 2010 inclusive

Independent Pricing and Regulatory Tribunal

Jemena Gas Networks (NSW) Ltd

National Gas Law

National Gas Rules

Jemena Gas Networks (NSW) Ltd, Revised access arrangement information, 19 March 2010

Jemena Gas Networks (NSW) Ltd, Access arrangement (revision in response to AER draft decision: marked), 19 March 2010

Jemena Gas Networks (NSW) Ltd, Initial response to the AER draft decision, 19 March 2010

## Overview

On 25 August 2009, Jemena Gas Networks (NSW) Ltd (JGN) submitted the Jemena Gas Networks (NSW) Ltd, Access arrangement, August 2009 (access arrangement proposal). The access arrangement proposal outlined the terms and conditions of access for the JGN NSW gas networks for the period 1 July 2010 to 30 June 2015.

On 9 February 2010 the Australian Energy Regulator (AER) released its draft decision on JGN's access arrangement for its NSW gas distribution network. The AER held a public forum on the draft decision on 24 February 2010.

In response, on 19 March 2010, JGN submitted a revised access arrangement proposal and supporting materials. JGN also submitted additional information before this final decision was made to support the revised access arrangement proposal.<sup>1</sup>

The final decision addresses the issues raised in the revised access arrangement proposal, supplementary materials and stakeholders' views and should be read in conjunction with its draft decision.

### ***JGN NSW gas networks***

The JGN NSW gas networks provide gas to more than a million customers across Sydney, Newcastle, the Central Coast, Wollongong, and over 20 country centres, including those within the Central Tablelands, Central West, Southern Tablelands and Riverina districts.<sup>2</sup>

The gas networks consist of approximately 267 km of trunk mains, 143 km of primary mains, 1428 km of secondary mains and 22 596 km of medium and low pressure pipelines and are classified as covered distribution pipelines.<sup>3</sup>

They transport close to 100 petajoules (PJ) of gas per annum. The networks transport an estimated 66 PJ of gas per year to large customers, who consume more than 10 terajoules (TJ) each per year and 35 PJ of gas per year to approximately 1 050 000 small users. Large customers contribute approximately 12 per cent of annual revenue and small users 88 per cent of annual revenue.<sup>4</sup>

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1 Note: Jemena Gas Networks (NSW) Ltd, Access arrangement (revision in response to AER draft decision: marked), 19 March 2010 (access arrangement revision proposal); Jemena Gas Networks (NSW) Ltd, Revised access arrangement information, 19 March 2010 (revised access arrangement information); Jemena Gas Networks (NSW) Ltd, Initial response to the AER draft decision, 19 March 2010 (initial response to the draft decision); and other material submitted after the 19 March 2010 but prior to the AER making the final decision is collectively referred to as the revised access arrangement proposal.

2 Jemena Gas Networks (NSW) Ltd, *Access arrangement information*, August 2009, p. 9 (JGN, *Access arrangement information*, August 2009, p.9).

3 Australian Energy Market Commission, *List of natural pipelines - descriptions and classifications*, viewed 27 April 2010, < <http://www.aemc.gov.au/Gas/Scheme-Register/Pipeline-list-summary/NSW---NSW-Gas-Networks.html>>.

4 JGN, *Access arrangement information*, August 2009, p. 13.

### ***AER draft decision***

Following consideration of the access arrangement proposal, the draft decision reduced the revenue requirement to \$390 million (\$2009–10) from \$466.8 million (\$2009–10). This was the result of:

- a reduction in forecast capital expenditure resulting from among other things changes in input costs and escalators; removal of overheads and a margin provided to Jemena Asset Management Pty Ltd (JAM) under the asset management agreement (AMA) for services provided to JGN
- removal of the Fama-French three-factor model (FFM) rather than the Capital Asset Pricing Model (CAPM) to estimate a rate of return on equity and an increase in the gamma value to 0.65.

The draft decision reduced the proposed increase in average tariffs for reference haulage services in the order of 34 per cent to 1.23 per cent in real terms in 2010–11.

### ***Revised access arrangement proposal***

In making this decision, the AER has considered the revised access arrangement proposal, including the:

- revised demand forecasts that, compared to the access arrangement proposal, increase demand in the first two years of the access arrangement but significantly reduce demand in the final three years of the access arrangement period
- increased forecast capital expenditure resulting from changes in input costs and escalators; incorporation of overheads and a margin provided to JAM under the AMA for services provided to JGN
- reinstatement of the FFM rather than the CAPM to estimate a rate of return on equity
- reinstatement of a gamma value of 0.2
- reinstatement of the market expansion incentive mechanism
- revision of forecast operating expenditure for errors and omissions in the access arrangement proposal; reinstatement of the margin as part of the fee payable to JAM under the AMA for the operating and maintenance services it provides; reinstatement of the self insurance operating expenditure; and removal of the site remediation operating expenditure
- reinstatement of the weather adjustment and other factors for inclusion in the annual tariff variation mechanism.

### ***AER decision***

The AER engaged Wilson Cook & Co Limited to provide engineering advice and ACIL Tasman Pty Ltd to assess the forecasting methodology and resulting demand



forecasts. The AER has also considered submissions from users and other interested parties as outlined in appendix C.

The AER does not approve the revised access arrangement proposal for the reasons set out in this decision.<sup>5</sup>

Following consideration of the revised access arrangement proposal, the AER has reduced the total revenue by \$352.4 million (\$2009–10) to \$2071.6 million (\$2009–10) over the access arrangement period. The reduction in total revenue is due primarily to:

- a lower weighted average cost of capital because of the removal of the FFM additional risk factors to determine the cost of equity and a lower debt risk premium
- a gamma value of 0.65 rather than a value of 0.2 proposed in the revised access arrangement proposal
- forecast capital expenditure of \$759.9 million (\$2009–10) excluding equity raising costs, which is 14.7 per cent less than the \$891.0 million (\$2009–10) excluding equity raising costs proposed in the revised access arrangement proposal. This is an increase of 42.0 per cent from the earlier access arrangement period resulting from changes in input costs and escalators; market expansion capital expenditure for an increase in the number of new connections; completion of existing projects and projects deferred from the previous period for capacity development of the network; an upgrade of IT systems; and incorporation of overheads and a margin provided to JAM under the AMA for services provided to JGN
- forecast operating expenditure of \$704.3 million (\$2009–10) which is lower by 3.1 per cent than in the revised access arrangement proposal. This is a result of reductions in base year costs, including a reduction in the fee (margin) payable to JAM and the corporate costs and reduction in step changes and the removal of all self insurance operating expenditure which are offset by the reclassification of proposed capital expenditure as operating expenditure.

JGN submitted updated forecasts of its customer numbers and total gas demand for the access arrangement period. While the revised forecasts are largely consistent with the total demand forecasts approved in the draft decision for 2010–11 and 2011–12, JGN's revised forecasts for total demand for the remainder of the access arrangement period is below current levels of demand. The AER accepts that the forecast number of customers and new connections is appropriate, but that this is referable to a higher total customer load than contained in the revised access arrangement proposal. The AER has determined its own total demand forecasts and in doing so has taken into account the forecast stronger growth in NSW Gross State Product (GSP), than those that underpin the revised demand forecasts.

Taking into consideration the changes in total revenue and changes to demand for the JGN NSW gas networks outlined above, the final decision approves an increase in

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5 NGR, r. 62(2) and r. 62(4).

haulage reference services tariffs of 8.04 per cent in 2010–11 and an increase in meter data services of 33.06 per cent in 2010–11. In subsequent years of the access arrangement real haulage reference service tariffs will increase on average by 4.6 per cent (not taking account of potential pass through events). Throughout the access arrangement period meter data services will increase by inflation.

In terms of an average residential customers in New South Wales with annual gas charges of \$587 in 2009–10, the increase in network charge (which make up about 51 per cent of the annual bill) will result in an increase in the annual gas charge by \$28 (around 5 per cent) in 2010–11 and around \$16 (around 2.3 per cent) each year thereafter in nominal terms.

### *Next steps*

As required by the NGR, the AER has prepared an access arrangement proposal incorporating the outcomes of its final decision.

The AER will make a decision in respect of its access arrangement proposal within two months of making its final decision.<sup>6</sup> The AER expects to publish its access arrangement proposal by the end of June 2010.

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6 NGR, r. 64(4).

# 1 Introduction

## 1.1 Chapter summaries

### Pipeline services

Ancillary services are approved as reference services and the proposed legacy services are renamed as pipeline services.

## Part A—Total revenue (building block components)

### Capital base

#### Opening capital base

The revised access arrangement proposal proposes an opening capital base of \$2357.0 million (\$nominal) for the access arrangement period. The estimation of the opening capital base is shown in table 1.

**Table 1: Revised opening capital base (\$m, nominal)**

|                                       | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 | 2010–11 |
|---------------------------------------|---------|---------|---------|---------|---------|---------|
| Opening capital base                  | 1965.3  | 2051.4  | 2131.8  | 2238.7  | 2273.7  | 2357.0  |
| Add capital expenditure               | 86.3    | 118.7   | 99.7    | 93.7    | 100.0   |         |
| Add revaluation of assets             | 79.6    | 43.7    | 98.1    | 33.3    | 69.6    |         |
| Less depreciation                     | 67.9    | 73.7    | 81.4    | 82.9    | 83.9    |         |
| Less capital contributions            | 6.2     | 4.3     | 7.8     | 8.6     | 3.8     |         |
| Less disposals                        | 5.7     | 3.9     | 1.7     | 0.4     | 2.0     |         |
| Add reused redundant asset (end year) | 0.0     | 0.0     | 0.0     | 0.0     | 3.5     |         |
| Closing capital base                  | 2051.4  | 2131.8  | 2238.7  | 2273.7  | 2357.0  |         |

Source: JGN, *Revised access arrangement information*, March 2010, p. 26.

The AER approves an opening capital base of \$2307.4 million (\$nominal) by:

- amending the methodology JGN uses to adjust the capital base for inflation
- removing \$3.5 million (\$nominal) for redundant assets.

#### Projected capital base

The revised access arrangement proposal proposes a projected capital base of \$3069.4 million (\$nominal), which is shown in table 2.

**Table 2: Revised projected capital base (\$m, nominal)**

|                           | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|---------------------------|---------|---------|---------|---------|---------|-------|
| Opening capital base      | 2357.0  | 2495.9  | 2629.7  | 2760.1  | 2909.8  | na    |
| Add capital expenditure   | 171.7   | 176.2   | 176.2   | 204.9   | 225.8   | 954.8 |
| Add revaluation of assets | 61.6    | 65.1    | 68.5    | 72.1    | 76.2    | 343.5 |
| Forecast depreciation     | 88.1    | 98.8    | 109.3   | 121.7   | 136.2   | 554.1 |
| Capital contributions     | 3.9     | 6.9     | 3.1     | 3.6     | 4.0     | 21.5  |
| Disposals                 | 2.5     | 1.8     | 1.9     | 2.0     | 2.1     | 10.3  |
| Closing capital base      | 2495.9  | 2629.7  | 2760.1  | 2909.8  | 3069.4  | na    |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 28–29.

na: Not applicable.

The AER does not approve the proposed total capital expenditure of \$954.7 million (\$nominal). The AER approves total capital expenditure of \$817.20 million (\$nominal) to remove the Jemena Asset Management (JAM) margin on capital expenditure that JAM outsources and reclassify capital expenditure items that the AER considers to be operating expenditure.<sup>7</sup>

## Depreciation

The AER approves the methodology to estimate depreciation and considers the depreciation schedule meets the requirements of the NGR.

## Rate of return

The revised access arrangement proposal accepts the draft decision to use a post-taxation framework incorporating the nominal vanilla weighted average cost of capital (WACC) to estimate the rate of return on capital. The revised access arrangement proposal does not accept the draft decision in relation to using the Sharpe-Lintner capital asset pricing model (CAPM) to estimate the return on equity and maintains its proposal to use the Fama-French three-factor model (FFM). The revised access arrangement proposal also does not accept the draft decision in relation to the method used to establish the debt risk premium. The revised access arrangement proposal accepts the AER's methodologies to estimate the risk-free rate and the inflation forecast, and accepts the averaging period specified in the draft decision.

The revised access arrangement proposal proposes a nominal vanilla WACC of 10.86 per cent. The AER estimates a nominal vanilla WACC of 9.69 per cent for the final decision, based on the updated risk-free rate and debt risk premium. Table 3

<sup>7</sup> This capital expenditure is calculated as nominal gross capital expenditure before adjusting for the timing of expenditure and including equity raising costs.

summarises the WACC parameter values proposed in the revised access arrangement proposal and those approved in the final decision.

**Table 3: WACC parameters (units as stated)**

| Parameter                            | Revised access arrangement proposal | Final decision     |
|--------------------------------------|-------------------------------------|--------------------|
| Nominal risk-free rate (%)           | 5.58 <sup>a</sup>                   | 5.85 <sup>b</sup>  |
| Inflation rate (%)                   | 2.52 <sup>a</sup>                   | 2.60 <sup>c</sup>  |
| Real risk-free rate (%)              | 2.98                                | 3.17 <sup>b</sup>  |
| Equity beta <sup>d</sup>             | na                                  | 0.80               |
| Market beta <sup>e</sup>             | 0.59                                | na                 |
| Growth beta <sup>e</sup>             | 0.48                                | na                 |
| Size beta <sup>e</sup>               | 0.30                                | na                 |
| Market risk premium (%) <sup>f</sup> | 6.5                                 | 6.5                |
| Growth risk premium (%) <sup>f</sup> | 6.24                                | na                 |
| Size risk premium (%) <sup>f</sup>   | -1.23                               | na                 |
| Debt risk premium (%)                | 4.48                                | 2.93 <sup>b</sup>  |
| Debt to total assets (gearing) (%)   | 60                                  | 60                 |
| Nominal return on equity (%)         | 12.04                               | 11.05 <sup>b</sup> |
| Nominal return on debt (%)           | 10.06                               | 8.78 <sup>b</sup>  |
| Nominal vanilla WACC (%)             | 10.86                               | 9.69 <sup>b</sup>  |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 31–32.

- a: JGN has adopted the AER methodologies to estimate the risk-free rate and inflation forecast determined in the draft decision.
- b: These figures have been updated using data for the 20 business days averaging period ending on 6 May 2010.
- c: This figure has been updated using the latest data from the RBA's statement on monetary policy dated 7 May 2010, p. 56.
- d: Equity beta is used in the CAPM but not the FFM.
- e: The FFM uses three beta values (market beta, growth beta and size beta) to predict equity returns.
- f: The FFM uses a market risk premium (MRP), a growth risk premium for high book-to-market firms, and a size risk premium for small firms compared to large firms.

## Taxation

The revised access arrangement proposal estimates the cost of corporate income taxation using a post-taxation framework. This means that the cost of corporate income taxation is included as a building block component of total revenue. This is in contrast to a pre-taxation framework where the estimated cost of corporate income

taxation is included as part of the rate of return on capital. The revised access arrangement proposal also uses the diminishing value approach to estimate taxation depreciation.

The AER approves the use of a post-taxation framework and the diminishing value approach to estimate depreciation for taxation purposes. However, the estimated cost of corporate income taxation must be updated to reflect changes to other elements of the access arrangement proposal such as capital expenditure, operating expenditure, gamma value and the return on capital.

The revised access arrangement proposal uses a gamma value of 0.2. The final decision approves a gamma value of 0.65.

### **Incentive mechanism**

The revised access arrangement proposal submits a market expansion incentive mechanism. Under this mechanism, capital expenditure on network expansion into unreticulated areas is not added to the covered pipeline until at least five years after the commencement of the specific reticulation project.

The AER does not approve the proposed incentive mechanism.

### **Fixed principles**

The revised access arrangement proposal proposes to reinstate the fixed principles relating to the proposed incentive mechanism and the proposed cross-period pricing factors. The AER does not approve these fixed principles.

### **Operating expenditure**

The revised access arrangement proposal proposes operating expenditure for the access arrangement period of \$727.2 million (\$2009–10), which is \$78.5 million (\$2009–10) higher than the estimated operating expenditure in the earlier access arrangement period.

The final decision does not approve forecast operating expenditure and reduces it by \$22.9 million (\$2009–10) or 3.1 per cent to \$704.3 million (\$2009–10). This represents an increase in operating expenditure in real terms of approximately 8.6 per cent compared to the period 1 July 2005 to 30 June 2010. The AER notes that the approved operating expenditure includes certain items transferred from capital to operating expenditure.

Table 4 sets out the operating expenditure approved in the final decision.

**Table 4: Final decision on forecast operating expenditure (\$m, real, 2009–10)**

|                               | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|-------------------------------|---------|---------|---------|---------|---------|
| Non-operating and maintenance | 42.9    | 43.3    | 43.8    | 44.4    | 45.1    |
| Operating and maintenance     | 90.4    | 90.6    | 101.8   | 99.8    | 102.1   |
| Total operating expenditure   | 133.3   | 133.9   | 145.6   | 144.2   | 147.3   |

**Total revenue**

The revised access arrangement proposal proposes total revenue for each year of the access arrangement period as set out in table 5.

**Table 5: Revised proposed total revenue and X factors (\$m, real, 2009–10 unless otherwise stated)**

|  | 2010–11            | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|--|--------------------|---------|---------|---------|---------|
| Total revenue building blocks              |                    |         |         |         |         |
| Return on capital                          | 258.2              | 266.3   | 273.4   | 280.9   | 289.3   |
| Depreciation                               | 25.9               | 32.1    | 37.9    | 44.9    | 53.0    |
| Operating and maintenance                  | 138.2              | 140.9   | 145.5   | 149.0   | 153.6   |
| Corporate income taxation                  | 21.8               | 24.4    | 26.0    | 29.5    | 33.4    |
| Incentive mechanism payments               | na                 | na      | na      | na      | na      |
| Total                                      | 444.1              | 463.7   | 482.8   | 504.2   | 529.3   |
| <b>X factor tariff revenue<sup>a</sup></b> |                    |         |         |         |         |
| Haulage reference services (%)             | –30.1 <sup>b</sup> | 0.0     | 0.0     | 0.0     | 0.0     |
| Meter data service (%)                     | –29.3 <sup>b</sup> | 0.0     | 0.0     | 0.0     | 0.0     |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 43; JGN, *Initial response to the draft decision*, March 2010 (appendix 12.5 (confidential)); JGN, *Revised access arrangement proposal*, March 2010, p. 21.

na: Not applicable.

a: Negative values for X indicate real price increases under the CPI–X formula.

b: The 2010–11 X factor is the initial change in tariffs ( $P_0$  adjustment).

The AER does not approve the revised total revenue. The final decision estimates total revenue over the access arrangement period to be \$2071.6 million (\$2009–10) compared to \$2424.0 million<sup>8</sup> (\$2009–10) proposed in the revised access arrangement proposal. The reduction in total revenue is based on the AER’s assessment of the

8 This figure is the total submitted in the revised access arrangement proposal.

building block components against the relevant NGR criteria. The total revenue approved in the final decision and relevant X factors are summarised in table 6.

**Table 6: Final decision on total revenue requirements and X factors (\$m, real, \$2009–10 unless otherwise stated)**

|  | 2010–11             | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|--|---------------------|---------|---------|---------|---------|
| Return on capital                          | 224.8               | 231.6   | 236.1   | 240.7   | 246.3   |
| Depreciation                               | 11.7                | 25.1    | 30.4    | 36.8    | 43.5    |
| Operating and maintenance                  | 133.6               | 134.2   | 145.9   | 144.5   | 147.6   |
| Corporate income taxation                  | 5.0                 | 6.7     | 7.8     | 9.0     | 10.2    |
| Incentive mechanism payments               | na                  | na      | na      | na      | na      |
| Total                                      | 375.2               | 397.6   | 420.1   | 431.0   | 447.7   |
| <b>X factor tariff revenue<sup>a</sup></b> |                     |         |         |         |         |
| Haulage reference services (%)             | -5.31 <sup>b</sup>  | -1.96   | -1.96   | -1.96   | -1.96   |
| Meter data service (%)                     | -29.69 <sup>b</sup> | 0.00    | 0.00    | 0.00    | 0.00    |

Source: Table 6 is based on information from Part A of the final decision.

a: Negative values for X indicate real price increases under the CPI–X formula.

b: The 2010–11 X factor is the initial change in tariffs (P<sub>0</sub> adjustment).

## Part B–Tariffs

### Demand

Demand forecasts for the access arrangement period are outlined in table 4. These demand forecasts support the proposed capital expenditure and operating expenditure forecasts.

**Table 7: Revised forecast demand for the access arrangement period (TJ)**

|                  | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|------------------|---------|---------|---------|---------|---------|
| Volume customers | 34 700  | 34 694  | 34 351  | 34 110  | 34 466  |
| Demand customers | 65 936  | 67 183  | 64 765  | 62 942  | 60 969  |
| Total demand     | 100 637 | 101 878 | 99 116  | 97 052  | 95 436  |

Source: JGN, *Revised access arrangement information*, March 2010, pp.14–15.

The AER does not consider that all of the assumptions underlying the proposed demand forecasts are adequately supported and as a consequence does not approve the demand forecasts. The demand forecasts approved by the AER are summarised in table 5.



**Table 8: Final decision forecast demand for the access arrangement period (TJ)**

|                  | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|------------------|---------|---------|---------|---------|---------|
| Volume customers | 34 701  | 34 695  | 35 429  | 35 171  | 35 171  |
| Demand customers | 65 936  | 67 183  | 65 529  | 63 685  | 63 685  |
| Total demand     | 100 637 | 101 878 | 100 959 | 98 856  | 98 856  |

Source: AER analysis.

Note: numbers may not add due to rounding.

### Reference tariffs

The revised access arrangement proposal proposes 36 tariff classes: two volume tariff classes (coastal and country) and 34 demand tariff classes (one country tariff class, one demand throughput tariff class, 11 coastal capacity tariff classes plus an additional 11 demand first response tariff classes and 10 new tariff classes for large Sydney users). The final decision approves these tariff classes, including the demand first response tariff classes which provide users with a 50 per cent discount for participating in emergency supply curtailment, and the 10 new tariff classes for large Sydney users which caps the price transition for these users.

The final decision approves the average increase in tariffs for haulage reference tariff of 5.3 per cent as at 1 July 2010 (real 2009–10) and by 1.96 per cent in real terms over the remaining years of the access arrangement period. Meter data reference service will increase 29.7 per cent (real 2009–10) as at 1 July 2010 and will rise in line with the consumer price index (CPI) over the remaining years of the access arrangement period. These estimates do not take into account the impact of cost pass throughs.

The AER removes the minimum demand bill for demand customers who transition from the volume tariff class to the demand tariff class, and also does not approve the ability for JGN to be able to introduce and remove reference tariffs within the access arrangement period.

### Tariff variation mechanism

The revised access arrangement proposal proposes two tariff variation mechanisms, a tariff variation formula mechanism and a cost pass through mechanism. The final decision requires that the tariff variation formula does not include an adjustment for the following factors: weather variation, unaccounted for gas (UAG), licence fee and other cost pass throughs. The final decision approves that these factors except the weather variation factors are included in the cost pass through mechanism which operates independently of the tariff variation formula mechanism. The AER does not approve the revised access arrangement proposal X-factors of 0 per cent and reinstates the X factors of -1.96 from the access arrangement proposal.

### Non-tariff components

The AER does not approve the revised access arrangement proposal for certain terms and conditions including the extensions and expansions policy and trigger events. The AER includes a trigger event for certain changes to the NGL and NGR and the

commencement of the National Energy Retail Law (NERL) and National Energy Retail Rules (NERR) in New South Wales.

## **1.2 Preliminary matters**

### **1.2.1 Introduction**

This section sets out several matters raised by JGN in the revised access arrangement proposal and subsequent correspondence that concerns the review process or general matters that are not outlined in other chapters of the final decision.

### **1.2.2 Revised access arrangement proposal**

The revised access arrangement proposal mentions certain preliminary matters relevant to the access arrangement review process and documents as outlined below.

#### **1.2.2.1 Consideration of confidential material**

The revised access arrangement proposal outlines that confidential information has been provided by both JGN and stakeholders in this review process. JGN considers that it must be afforded opportunity to respond to all materials related to the access arrangement review process and that it is willing to work with the relevant stakeholders and the AER to determine an appropriate basis for disclosure of confidential information.<sup>9</sup>

#### **1.2.2.2 Consultation during the review process**

In subsequent correspondence received during the consultation period on the draft decision and the revised access arrangement proposal, JGN again outlines its view that it must be afforded a reasonable opportunity to respond to all materials that are relevant to the review process, including any new information the AER intends to take into account or any change in thinking on issues on which the AER has not previously consulted.<sup>10</sup>

### **1.2.3 Submissions**

#### **1.2.3.1 Consideration of confidential material**

The Energy Markets Reform Forum (EMRF) in its submission (EMRF submission) states that it is concerned that significant elements of the draft decision and the consultants' reports contain redacted information that stakeholders needed to use to provide informed comments to the AER.<sup>11</sup>

The EMRF submission states that the decision to exclude such information is regrettable and that the AER has an obligation to limit the amount of confidential information necessary for stakeholders to fully participate in the regulatory process.

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9 Jemena Gas Networks (NSW) Ltd, *Initial response to the AER draft decision*, 19 March 2010, p. 15 (JGN, *Initial response to the draft decision*, March 2010).

10 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN further response to the draft decision*, April 2010, p. 3.

11 EMRF, *Australian Energy Regulator, NSW gas distribution revenue reset, AER draft decision, A response by the Energy Markets Reform Forum*, April 2010, p. 8 (EMRF, *Submission to the AER*, April 2010).

### **1.2.3.2 Consultation during the review process**

Ms Madeleine Kingston refers to meaningful stakeholder consultation and why the draft decision was published without a further public forum. Ms Kingston outlines that this case is a test case for National Gas Rule (NGR) processes.<sup>12</sup>

### **1.2.4 AER's analysis and considerations**

#### **1.2.4.1 Consideration of confidential material**

As outlined in the *Access arrangement guideline* and the *ACCC–AER information policy: the collection, use and disclosure of information*, the AER's preference is that all information is made publicly available to allow for transparency of the review process.<sup>13</sup> This is so all parties are afforded an opportunity to respond to and consider issues raised in the context of the review.

In circumstances where JGN has requested access to confidential information submitted by interested stakeholders, the AER has facilitated disclosure of public versions of such submissions to JGN and also made this information available to all interested parties by placing these public versions of submissions on its website. The National Gas Law (NGL) provides that the AER is authorised but is not required to disclose confidential information to another party.<sup>14</sup>

The AER notes the EMRF submission about the extent of confidential material in the draft decision. The AER also notes that the confidential material in the draft decision reflects the extent of the confidential material submitted by JGN in the access arrangement proposal. The AER notes that it has not made any decisions under s. 329 of the NGL to disclose confidential information.

### **Consultation process during review**

As outlined in the revised access arrangement proposal, the NGR sets out the decision making process and timing for the AER when undertaking an access arrangement review. This process is the outcome of substantial consultation with stakeholders including JGN over a number of years taken to develop the NGR. The purpose of the NGR decision making process and timing is to provide for an open, timely and transparent process. While the AER notes Ms Kingston's submission about the need for meaningful stakeholder consultation, the AER has undertaken the review of the access arrangement proposal consistent with other processes conducted for other service providers under both the gas and electricity frameworks which came into operation in 2008. Consistent with the processes of review for other service providers, the AER has also undertaken additional steps not required under the NGR including holding a public forum on the access arrangement proposal and the draft decision. In addition to these public forums, the AER held two additional forums for the JGN review process in December 2009. These forums, which concerned the terms and conditions of access and tariff issues and which were open to interested parties,

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12 Madeleine Kingston, *Open submission on the revised access arrangement proposal for Jemena Gas Networks*, April 2010, pp. 26-27 (Kingston, *Submission to the AER*, April 2010).

13 ACCC and AER, *ACCC–AER information policy: the collection, use and disclosure of information*, October 2008, p. 5 and AER, *Access arrangement guideline*, March 2009, especially pp. 33-35.

14 NGL, s. 324.

enabled specific submissions to be made on these aspects of the access arrangement proposal.

The AER has also, during its decision making process, held meetings with JGN and, through correspondence, has made inquiries of JGN to clarify aspects of its access arrangement proposal. These interactions have provided JGN with further opportunity to provide additional information to support and explain the access arrangement proposal and the revised access arrangement proposal.

The AER considers that the steps it has taken are consistent with the NGR, go beyond the requirements in the NGR for consultation and further provide for a consistent process for review of entities across both the electricity and gas frameworks.

That said, the AER notes that despite JGN's submissions about its expectations to have an opportunity to respond to and provide new information, the NGR process does not provide for such an opportunity.

The NGR process has been designed to enable the AER to make a decision within a reasonable period of time while balancing the need to provide all parties with an opportunity to respond to issues of relevance to them. The AER considers that it has undertaken the review process consistent with Division 8 of Part 8 of the NGR.<sup>15</sup>

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<sup>15</sup> NGR, r. 56 to r. 62.

**Part A—Total revenue (building block components)**

## 2 Pipeline services

### 2.1 Introduction

The AER's analysis and consideration of the access arrangement proposal and submissions in relation to pipeline services is set out in chapter 2 of the draft decision.

The revised access arrangement proposal outlines that JGN has: (i) partially accepted amendments 2.1, 2.2 and 2.4 of the draft decision; (ii) accepted amendment 2.3 of the draft decision with modification about ancillary services; and (iii) not accepted amendments 2.5 and 2.6 of the draft decision about legacy services.<sup>16</sup>

### 2.2 Ancillary services

#### 2.2.1 Revised access arrangement proposal

Amendment 2.1 of the draft decision requires JGN to include ancillary and legacy services in its definition of 'Reference Service' set out in clause 1.1 of schedule 3 of the access arrangement proposal. JGN submits that it has modified the definitions of its proposed reference services and the wording of the revised schedule 3 of the access arrangement proposal (schedule 3) in order to clarify that ancillary activities and charges are provided as part of the reference services for haulage or meter data. In particular, it submits that ancillary fees should be included within the tariffs for the relevant reference service.<sup>17</sup> JGN submits that it will levy ancillary fees when the relevant services are requested.<sup>18</sup> JGN submits that ancillary services are not themselves pipeline services but that these are services required from time to time to facilitate the delivery of pipeline services.<sup>19</sup> JGN cites an extract from the Ministerial Council on Energy Standing Committee of Officials which states that a forward-looking approach is to be taken when determining which services are likely to be sought by a significant part of the market.<sup>20</sup>

Amendment 2.2 of the draft decision requires JGN to include ancillary and legacy services in its definition of 'Reference Services' in clause 1.1 of schedule 1 of the access arrangement proposal. JGN submits that it has modified the definition of its proposed reference services and the wording of schedule 3 so that it is clearer that these activities and charges are provided as part of JGN's reference haulage or meter data services.<sup>21</sup>

Amendment 2.3 of the draft decision requires JGN to define the term ancillary reference services in schedule 3. JGN proposes to include ancillary fees within the tariffs of the reference and meter data reference services and it does not define the term ancillary reference services. JGN also submits that its distinction between

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16 JGN, *Initial response to the draft decision*, March 2010, pp. 19–20.

17 JGN, *Initial response to the draft decision*, March 2010, pp. 20–21.

18 JGN, *Initial response to the draft decision*, March 2010, p. 21.

19 JGN, *Initial response to the draft decision*, March 2010, p. 21.

20 JGN, *Initial response to the draft decision*, March 2010, p. 20.

21 JGN, *Initial response to the draft decision*, March 2010, p. 20.

reference and non-reference services is consistent with r. 48(c) and r. 101 of the NGR.<sup>22</sup>

Amendment 2.4 of the draft decision requires JGN to reflect amendments 2.1–2.3 of the draft decision in the access arrangement information. JGN submits that it has amended the definitions for haulage reference service and meter data service to incorporate related ancillary fees and their terms and conditions.<sup>23</sup>

## **2.2.2 Submissions**

The AER received a submission on pipeline services from the Energy Users Association of Australia (EUAA).<sup>24</sup>

## **2.2.3 AER's analysis and considerations**

The AER notes that JGN has not changed the definition of 'Reference Services' to include ancillary and legacy services as required in amendment 2.1 of the draft decision.

JGN submits that the ancillary services do not represent a discrete or separate reference service.<sup>25</sup> The AER remains of the view that the ancillary services constitute reference services because: (i) the ancillary services represent a pipeline service within the meaning of s. 2(b) of the NGL; and (ii) ancillary services are reasonably likely to be sought by a significant part of the market.<sup>26</sup>

Section 2 of the NGL defines 'reference service' as 'a pipeline service specified by, or determined or approved by the AER under, the Rules as a reference service'. Section 2 of the NGL provides that 'pipeline service' means:

- (a) a service provided by means of a pipeline, including—
  - (i) a haulage services (such as firm haulage, interruptible haulage, spot haulage and backhaulage); and
  - (ii) a service providing for, or facilitating, the interconnection of pipelines; and
- (b) a service ancillary to the provision of a service referred to in paragraph (a),  
  
but does not include the production, sale or purchase of natural gas or processable gas.

Terms used in the NGR have the meaning given to them in the NGL unless a contrary intention is specified in the NGR.<sup>27</sup> Given that no contrary intention is specified in the

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22 JGN, *Initial response to the draft decision*, March 2010, p. 20.

23 JGN, *Initial response to the draft decision*, March 2010, p. 30.

24 EUAA, *Submission to the AER*, April 2010.

25 NGL, s. 20 and clauses 1, 13 and 52 of schedule 2.

25 JGN, *Initial response to the draft decision*, March 2010, p. 21.

26 NGR, r. 101.

27 NGL, s. 20 and clauses 1, 13 and 51 of schedule 2.

NGR, the AER considers that these definitions apply. The ancillary services accordingly represent a pipeline service.

In addition, r. 101(2) of the NGR provides that a reference service is a pipeline service that is likely to be sought by a significant part of the market. JGN submits two points:

- a forward-looking view needs to be taken when determining whether a significant part of the market is likely to seek a service.<sup>28</sup> This is consistent with the draft decision.<sup>29</sup>
- the ancillary services form a part of the reference haulage and meter data services because these services may be required by users from time to time.<sup>30</sup> The AER notes JGN's submission but considers that the ancillary services<sup>31</sup> are likely to be sought by a significant part of the market over the access arrangement period, as set out in the draft decision.

Rule 48(1)(d)(i) of the NGR requires an access arrangement to specify the reference tariff of each reference service. The AER considers that this means that the reference tariffs for the ancillary reference services need to be separately determined and identified.

The AER considers that these amendments will ensure compliance with r. 48(1)(c), r. 48(1)(d) and r. 101 of the NGR.

Amendment 2.2 of the draft decision requires that the definition for reference services includes 'ancillary reference service' and 'legacy services'. For the reasons set out above, the AER does not approve the revised access arrangement proposal's exclusion of 'ancillary reference service' from the definition of 'reference service' and requires the definition of 'reference service' to include the ancillary reference service. For the reasons set out in section 2.3 below it is not necessary to include 'legacy services' in this definition.

Amendment 2.3 of the draft decision requires JGN to include a specified definition of 'ancillary reference service'. JGN has not made this amendment. The revised access arrangement proposal does not define ancillary services as a reference service. As the AER considers that ancillary services are a reference service, schedule 3 needs to set out a definition of 'ancillary reference service' in order to ensure compliance with r. 48(1)(c) of the NGR.

That said the AER considers that these ancillary services are ancillary to the haulage reference services and the meter data reference services. As ancillary services are connected to the provision of the haulage reference services and the meter data

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28 JGN, *Initial response to the draft decision*, March 2010, p. 20.

29 AER, *Draft decision: Jemena access arrangement proposal for the NSW gas networks 1 July 2010–30 June 2015*, February 2010, p. 18, (AER, *Draft decision*, February 2010).

30 JGN, *Initial response to the draft decision*, March 2010, pp. 20–21.

31 The ancillary services consists of the following services: (i) requests for services; (ii) special meter reads; (iii) temporary disconnections; (iv) permanent disconnections; and (v) decommissioning and meter removals, JGN, *Initial response to the draft decision*, March 2010, p. 21.



services the AER considers it appropriate to classify these services with either the haulage reference or meter data service. That said, separate terms and conditions attach to the ancillary services. As outlined in chapter 13 the tariff for ancillary services are separately established and identified but are classified under either the haulage reference services or the meter data services as relevant.

Amendment 2.4 of the draft decision requires JGN to reflect amendments 2.1–2.3 of the draft decision in the access arrangement proposal and the access arrangement information. JGN has not made these amendments in fully.<sup>32</sup> The AER requires amendments 2.1–2.3 of the draft decision to be reflected in the access arrangement and access arrangement information in order to ensure consistency and to provide users with accurate information.

#### **2.2.4 Conclusion**

The AER does not approve the revised treatment of ancillary services as it does not comply with r. 48(1)(c), r. 48(1)(d) and r. 101 of the NGR.

#### **2.2.5 Revisions**

The AER proposes the following revisions:

**Revision 2.1:** amend schedule 3 of the revised access arrangement proposal to delete the definition of 'Reference Service' in clause 1.1 and replace it with the following:

**Reference Service** means the Haulage Reference Service and, until the Meter Data Service Date, the Meter Data Service. Unless a contrary intention is clear, the terms Haulage Reference Service and Meter Data Service include the Ancillary Reference Service;

**Revision 2.2:** amend schedule 1 of the revised access arrangement proposal to delete the definition of 'Reference Service' in clause 1.1 and replace it with the following:

**Reference Service** means:

- (a) the Haulage Reference Service. This includes the Ancillary Reference Service unless a contrary intention is clear.
- (c) the Meter Data Service. This includes the Ancillary Reference Service unless a contrary intention is clear.

**Revision 2.3:** amend schedule 3 of the revised access arrangement proposal to include the following definition in clause 1.1:

**Ancillary Reference Service** means the Service described at sections 1.3 F(k) and 1.3 G(c) of Schedule 2 to the Access Arrangement;

**Revision 2.4:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revisions 2.1 to 2.3.

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32 JGN, *Initial response to the draft decision*, March 2010, p. 19.

## 2.3 Legacy services

### 2.3.1 Revised access arrangement proposal

Amendment 2.5 of the draft decision requires JGN to specify the other terms and conditions on which the legacy reference services are offered. The revised access arrangement proposal has not included this amendment, as it has removed legacy services.<sup>33</sup> The revised access arrangement proposal outlines that legacy services will not be sought by a significant part of the market as the short term trading market's (STTM) commencement on 4 June 2010 predates the start of the access arrangement period and legacy services as previously defined in the access arrangement cannot be provided in a STTM environment. JGN submits that this is because legacy services operate to provide services on a point to point basis.<sup>34</sup> Under the STTM, the Australian Energy Market Operator (AEMO) will schedule gas delivery for the Sydney hub and take over the gas balancing operations.<sup>35</sup> This means that JGN will not be able to:

- provide operational balancing of the Wilton section in its current form since the AEMO will allocate gas entering the Sydney hub and allot charges arising from imbalances.<sup>36</sup> JGN submits that even if it could provide this service, the duplication of this function would make it unattractive from a commercial standpoint<sup>37</sup>
- schedule gas flows through its receipt points at the STTM hub as this will be done by the AEMO. JGN will accordingly not be able to identify where gas is entering the network.<sup>38</sup> Equally, customers will not be able to acquire services that require them to nominate receipt points<sup>39</sup>
- supply to nominated receipt points. Under the STTM users acquire gas from the market generally and not from a particular supplier at a particular point<sup>40</sup>
- provide trunk and local services as a bundle given the reclassification of its trunk services by the National Competition Council (NCC) which has made the concept of a trunk and local bundle meaningless. As this is the case, JGN submits there will be no continuing demand for legacy services insofar as they incorporate bundling.<sup>41</sup>

JGN submits that it is phasing out legacy services. It is doing this through commercial arrangements with its users in advance of the STTM's commencement.<sup>42</sup> The pricing

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33 JGN, *Initial response to the draft decision*, March 2010, p. 25.

34 JGN, *Initial response to the draft decision*, March 2010, pp. 24–25.

35 JGN, *Initial response to the draft decision*, March 2010, pp. 24, 28–29.

36 JGN, *Initial response to the draft decision*, March 2010, pp. 27, 28.

37 JGN, *Initial response to the draft decision*, March 2010, p. 29.

38 JGN, *Initial response to the draft decision*, March 2010, p. 27.

39 JGN, *Initial response to the draft decision*, March 2010, p. 29.

40 JGN, *Initial response to the draft decision*, March 2010, p. 27.

41 JGN, *Initial response to the draft decision*, March 2010, p. 29.

42 JGN, *Initial response to the draft decision*, March 2010, p. 25.

premium proposed in the access arrangement proposal (of approximately 5 per cent) is therefore no longer relevant.<sup>43</sup>

JGN also submits that it is making available a set of replacement services which account for the STTM under the revised access arrangement proposal.<sup>44</sup>

Amendment 2.6 of the draft decision requires JGN to include a specified definition for 'legacy service agreement'. JGN has not included this amendment, as it has removed legacy services in the revised access arrangement proposal.<sup>45</sup> Its reasons for doing this are outlined above in relation to amendment 2.5 of the draft decision.

JGN submits in correspondence of 28 April 2010, that it will not be able to supply and a significant part of its users cannot and will not seek point to point gas transportation (legacy) services (as these are defined in the current access arrangement and reference services agreements) following the introduction of the STTM. It submits that it contacted each of its users in March 2010 to outline the likely impact of the STTM on the supply and acquisition of certain legacy services and to advise users that certain obligations under the existing arrangements may be inconsistent with the arrangements that will apply following the STTM's commencement.<sup>46</sup>

### **2.3.2 Submissions**

The EUAA submits that legacy services are a transitional service. It submits that their classification as a reference service may cause confusion as reference services are those that can be chosen by any customer in the market. In order to avoid confusion, the AER should identify a way to remove the confusion regarding tariff selection.<sup>47</sup>

### **2.3.3 AER's analysis and considerations**

The revised access arrangement proposal outlines that JGN has removed legacy services as: (i) they cannot function in an STTM environment; and (ii) they are not compatible with the NCC's reclassification of the Wilton to Newcastle and Wilton to Wollongong trunk services.<sup>48</sup> JGN submits that at the time that it developed its access arrangement proposal, the commencement date of the STTM was uncertain and it included legacy services in the access arrangement proposal with a view to transitioning existing customers onto new arrangements after the access arrangement period's commencement.<sup>49</sup>

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43 JGN, *Initial response to the draft decision*, March 2010, p. 25.

44 JGN, *Initial response to the draft decision*, March 2010, p. 24.

45 JGN, *Initial response to the draft decision*, March 2010, p. 22.

46 JGN, letter to the AER, *JGN access arrangement revision proposal: Legacy services update*, 28 April 2010, p. 2 (public version).

47 EUAA, *Submission to the AER on AER's draft decision on the access arrangements to be applied to Jemena gas networks in the period from 1 July 2010 to 30 June 2015*, April 2010, p. 7 (EUAA, *Submission to the AER*, April 2010).

48 JGN, *Initial response to the draft decision*, March 2010, p. 25.

49 JGN, *Initial response to the draft decision*, March 2010, p. 22.

On 20 May 2010, the AEMO advised the market that the STTM's commencement has been delayed to 1 September 2010.<sup>50</sup> JGN submits that the delay does not impact on the position set out in the revised access arrangement proposal.<sup>51</sup>

The AER accepts JGN's submission that the legacy services cannot operate in an STTM environment and that the reclassification of JGN's trunk pipelines has blurred the distinction between distribution and trunk services and that the requirement for service bundling is unsustainable.<sup>52</sup> In these circumstances, the AER accepts that the removal of legacy services in the revised access arrangement proposal represents an amendment necessary to address the changed circumstances of the pipeline and the new market operation to commence on 1 September 2010.

The AER further notes that although the STTM's commencement has been delayed until 1 September 2010, commercial certainty and with it the efficient investment in and operation of and user of natural gas is best served in the long term interests of users by the AER approving the removal of the legacy services.

The AER considers that this approach addresses the EUAA's submission as outlined above.

As the legacy services cannot be acquired in the access arrangement period, the AER does not consider that it constitutes a reference service within the meaning of r. 101 of the NGR.

#### **2.3.4 Conclusion**

The AER approves the removal of legacy services in the revised access arrangement proposal as it complies with r. 48 and r. 101 of the NGR.

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50 AEMO, *Notice of Determination: STTM start date has been changed to 1 September 2010*, 20 May 2010, viewed 21 May 2010, <<http://www.aemo.gov.au/>>.

51 JGN, *JGN access arrangement revision proposal: delay to STTM start date*, 20 May 2010, p. 1.

52 JGN, *Initial response to the draft decision*, March 2010, p. 28.

## 3 Capital base

### 3.1 Introduction

This chapter sets out the AER's consideration and analysis of the opening capital base and projected capital base in the revised access arrangement proposal.

The AER's analysis and consideration of the access arrangement proposal in relation to the opening capital base and projected capital base are set out in chapter 3 of the draft decision.<sup>53</sup>

The opening capital base forms the initial value of the projected capital base.<sup>54</sup> This chapter considers the components of the opening capital base and projected capital base, including the capital expenditure proposed by JGN in the revised access arrangement proposal.<sup>55</sup>

The AER's consideration of the depreciation schedule is set out in chapter 4 of the final decision.

### 3.2 Revised access arrangement proposal

#### 3.2.1 Opening capital base

Table 3.1 shows the opening capital base in the revised access arrangement proposal. The proposed opening capital base of \$2357.0 million (\$nominal) is higher than the \$2277.9 million (\$nominal) approved in the draft decision (amendment 3.2).<sup>56</sup>

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53 AER, *Draft decision*, February 2010, pp. 14–77.

54 NGR, r. 78.

55 Jemena Gas Networks (NSW) Ltd, *Revised access arrangement information*, 19 March 2010, (JGN, *Revised access arrangement information*, March 2010), pp. 19–40.

56 AER, *Draft decision*, February 2010, p. 73.

**Table 3.1: Revised opening capital base (\$m, nominal)**

|  | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10          | 2010–11 |
|--|---------|---------|---------|---------|------------------|---------|
| Opening capital base                   | 1965.3  | 2051.4  | 2131.8  | 2238.7  | 2273.7           | 2357.0  |
| Add capital expenditure                | 86.3    | 118.7   | 99.7    | 93.7    | 100.0            |         |
| Add revaluation of assets <sup>a</sup> | 79.6    | 43.7    | 98.1    | 33.3    | 69.6             |         |
| Less depreciation                      | 67.9    | 73.7    | 81.4    | 82.9    | 83.9             |         |
| Less capital contributions             | 6.2     | 4.3     | 7.8     | 8.6     | 3.8              |         |
| Less disposals                         | 5.7     | 3.9     | 1.7     | 0.36    | 2.0              |         |
| Add reused redundant asset (end year)  | 0.0     | 0.0     | 0.0     | 0.0     | 3.5 <sup>b</sup> |         |
| Closing capital base                   | 2051.4  | 2131.8  | 2238.7  | 2273.7  | 2357.0           |         |

Source: JGN, *Revised access arrangement information*, March 2010, p. 26.

a: JGN refers to adjustments to the capital base as ‘revaluation of assets’.

b: Refers to redundant capital on the Wilton to Wollongong pipeline.

### 3.2.1.1 Redundant assets

The revised access arrangement proposal does not incorporate the draft decision requirement (amendment 3.1) to remove the redundant capital on the Wilton to Wollongong pipeline of \$3.5 million (\$nominal) from the opening capital base.<sup>57</sup>

### 3.2.1.2 Capital expenditure

The revised access arrangement proposal does not incorporate the draft decision requirement (amendment 3.2) to remove mine subsidence of \$4.6 million (\$2004–05) from the opening capital base.<sup>58</sup>

### 3.2.1.3 Depreciation

The revised access arrangement proposal accepts the draft decision (amendment 3.2) to deflate the depreciation estimation approved by the Independent Pricing and Regulatory Tribunal (IPART) using the forecast inflation rates approved by the IPART and then indexing those amounts using actual inflation.<sup>59</sup>

57 JGN, *Initial response to the draft decision*, March 2010, p. 40.

58 JGN, *Initial response to the draft decision*, March 2010, p. 35.

59 JGN, *Initial response to the draft decision*, March 2010, pp. 34-35.

### 3.2.1.4 Adjustment to the capital base for inflation

The revised access arrangement proposal does not incorporate the draft decision requirement (amendment 3.1) to apply the year on year change in the consumer price index (CPI) to the December quarter to adjust the capital base.<sup>60</sup>

JGN submits the value of the CPI index used to adjust the capital base should be determined at a time that is as close as practicable to the time at which the capital base (or new tariffs) is determined. JGN submits that there is no practical or theoretical reason why the indexing bases for the capital base roll-forward and tariff variation should be the same.<sup>61</sup>

The revised access arrangement proposal adjusts the capital base for inflation using the June quarter on June quarter CPI.<sup>62</sup>

### 3.2.2 Projected capital base

The revised access arrangement proposal does not incorporate the draft decision requirement to make amendments 3.3 to 3.5. The revised access arrangement proposal proposes a projected capital base of \$3069.4 million (\$nominal), which incorporates forecast capital expenditure of \$954.8 million (\$nominal) and depreciation of \$554.1 million (\$nominal) for the access arrangement period.<sup>63</sup> The projected capital base is outlined in table 3.2.

**Table 3.2: Revised projected capital base (\$m, nominal)**

|                                      | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|--------------------------------------|---------|---------|---------|---------|---------|-------|
| Opening capital base                 | 2357.0  | 2495.9  | 2629.7  | 2760.1  | 2909.8  | na    |
| Add capital expenditure <sup>a</sup> | 171.7   | 176.2   | 176.2   | 204.9   | 225.8   | 954.8 |
| Add revaluation of assets            | 61.6    | 65.1    | 68.5    | 72.1    | 76.2    | 343.5 |
| Forecast depreciation                | 88.1    | 98.8    | 109.3   | 121.7   | 136.2   | 554.1 |
| Capital contributions                | 3.9     | 6.9     | 3.1     | 3.6     | 4.0     | 21.5  |
| Disposals                            | 2.5     | 1.8     | 1.9     | 2.0     | 2.1     | 10.3  |
| Closing capital base                 | 2495.9  | 2629.7  | 2760.1  | 2909.8  | 3069.4  | na    |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 28–29 and AER analysis.

a: Gross capital expenditure.

na: Not applicable.

60 JGN, *Initial response to the draft decision*, March 2010, p. 31.

61 JGN, *Initial response to the draft decision*, March 2010, p. 34.

62 JGN, *Initial response to the draft decision*, March 2010, p. 31.

63 JGN, *Revised access arrangement information*, March 2010, pp. 28–29 and AER analysis.

### 3.2.2.1 Capital expenditure

The revised access arrangement proposal does not incorporate the forecast capital expenditure of \$575.9 million (\$2009–10) approved in the draft decision (amendment 3.3). JGN proposes conforming capital expenditure of \$891.0 million (\$2009–10) in the revised access arrangement proposal<sup>64</sup> compared with \$885.2 million (\$2009–10) in the access arrangement proposal.<sup>65</sup>

The revised access arrangement proposal includes higher forecast capital expenditure than proposed in the access arrangement proposal. The forecast expenditure for market expansions is \$394.5 million (\$2009–10)<sup>66</sup> which is 6.3 per cent higher than the \$371.0 million (\$2009–10) in the access arrangement proposal.<sup>67</sup>

The revised access arrangement proposal proposes \$368.5 million (\$2009–10)<sup>68</sup> of systems upgrade expenditure which is 3.3 per cent lower than forecast in the access arrangement proposal.<sup>69</sup> The proposed non-system assets forecasts of \$128.1 million (\$2009–10)<sup>70</sup> is 3.8 per cent lower than forecast in the access arrangement proposal.<sup>71</sup> The capital expenditure in the revised access arrangement proposal is set out in table 3.3.

**Table 3.3: Revised capital expenditure<sup>a</sup> (\$m, real, 2009–10)**

|  | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|--|---------|---------|---------|---------|---------|-------|
| Market expansion                             | 61.2    | 73.1    | 75.0    | 88.3    | 96.7    | 394.5 |
| System reinforcement/<br>renewal/replacement | 80.6    | 78.4    | 73.8    | 65.5    | 70.1    | 368.5 |
| Non-system assets                            | 24.4    | 18.2    | 16.7    | 33.9    | 34.9    | 128.1 |
| Total  | 166.2   | 169.8   | 165.5   | 187.7   | 201.8   | 891.0 |

Source: JGN, *Revised access arrangement information*, March 2010, p. 19.

a: Gross capital expenditure.

### 3.2.2.2 Adjustment to the capital base for inflation

The revised access arrangement proposal proposes an inflation forecast of 2.52 per cent using the methodology in the draft decision.

64 JGN, *Revised access arrangement information*, March 2010, p. 19.

65 JGN, *Access arrangement information*, August 2009, p 104.

66 JGN, *Revised access arrangement information*, March 2010, pp. 11, 19.

67 JGN, *Access arrangement information*, August 2009, p. 116 and AER analysis.

68 JGN, *Revised access arrangement information*, March 2010, p. 19.

69 JGN, *Revised access arrangement information*, March 2010, p. 19.

70 JGN, *Revised access arrangement information*, March 2010, p. 19.

71 JGN, *Access arrangement information*, August 2009, p. 116 and AER analysis.



### 3.2.2.3 Depreciation

As a consequence of not accepting the draft decision amendments relating to forecast capital expenditure and the adjustment to the capital base for inflation, JGN does not incorporate the depreciation in the draft decision (amendment 3.4) in the revised access arrangement proposal.<sup>72</sup>

### 3.2.3 Capital redundancy

The revised access arrangement proposal does not incorporate the draft decision requirement (amendment 3.6) to delete the proposed capital redundancy policy in the access arrangement proposal.<sup>73</sup>

JGN submits an alternative capital redundancy policy that ensures assets that cease to contribute in any way to the delivery of pipeline services are removed from the capital base.<sup>74</sup> That alternative capital redundancy policy is:<sup>75</sup>

In accordance with Rule 77(2)(e) and (f), redundant assets identified during the course of the access arrangement period and pipeline assets disposed of during that access arrangement period, will be removed from the opening Capital Base with effect from the commencement of the following access arrangement period.

## 3.3 Consultant's report

The AER engaged Wilson Cook & Co, engineering and management consultants, to review the revised capital expenditure (the 2010 Wilson Cook report).<sup>76</sup> This report should be read in conjunction with the Wilson Cook report referred to in the draft decision (2009 Wilson Cook report).<sup>77</sup>

### 3.3.1 Forecast capital expenditure

For market expansion capital expenditure, the 2010 Wilson Cook report outlines that the revised increase appears to be related to the increase in forecast of new residential connections in the last two years of the access arrangement period. A review of the demand forecasts however is outside of the scope of review. The 2010 Wilson Cook report outlines that the market expansion unit rates used to estimate the revised capital expenditure are within a reasonable range.<sup>78</sup>

The 2010 Wilson Cook report does not review the reasons for the reduction in system reinforcement, renewal and replacement; and non-system assets capital expenditure.<sup>79</sup>

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72 JGN, *Initial response to the draft decision*, March 2010, p. 39.

73 JGN, *Initial response to the draft decision*, March 2010, p. 33.

74 JGN, *Initial response to the draft decision*, March 2010, p. 41.

75 Jemena Gas Networks (NSW) Ltd, *Access arrangement (revision in response to AER draft decision: marked)*, 19 March 2010 (JGN, *Revised access arrangement proposal*, March 2010), p. 37.

76 Wilson Cook, *Review of expenditure of ACT & NSW gas distributors: Jemena Gas Networks (NSW) Ltd*, April 2010 (Wilson Cook report 2010).

77 Wilson Cook, *Review of expenditure of ACT & NSW gas distributors: Jemena Gas Networks (NSW) Ltd*, December 2009 (Wilson Cook report 2009).

78 Wilson Cook report 2010, p. 24.

79 Wilson Cook report 2010, p. 24.

### **3.3.2 Adequacy of information**

The 2010 Wilson Cook report reviews a representative sample of business cases that are submitted with the revised access arrangement proposal and considers that these incorporate:

- descriptions of the proposed works and the need for the works
- discounted cash flow analyses, options considered, identification of the least cost option and reasons for selecting the preferred option
- optimality of timing, risk analyses and explanations of how the projects fit in with the long term network development plans
- consideration of trade offs if any between capital and operating expenditure
- supporting appendices where necessary such as network analyses.<sup>80</sup>

The 2010 Wilson Cook report considers that the cost estimates in the business cases provide details of the major components of each project and these estimates are as expected at the early stage of project formulation and approval.<sup>81</sup>

The 2010 Wilson Cook report considers that the unit rates for the work, as far as they could be deduced from the information supplied, were within an acceptable range.<sup>82</sup>

While the 2010 Wilson Cook report considers that the unit rates are acceptable and the cost estimates are as expected, the 2010 Wilson Cook report reiterates its concerns about the margins and overhead costs applied to the revised capital expenditure forecasts.<sup>83</sup>

### **3.3.3 Work undertaken internally and work that is outsourced**

The 2010 Wilson Cook report outlines that the corresponding proportion of forecast expenditure that is outsourced may be considered to reflect market tested rates.<sup>84</sup>

For the proportion of work that is undertaken internally or contracted to related parties or not contracted competitively, the 2010 Wilson Cook report outlines that the efficiency of this work cannot be assessed from the data provided.<sup>85</sup>

### **3.3.4 Efficiency of forecast capital expenditure**

On the basis of the information provided in the revised access arrangement proposal, the 2010 Wilson Cook report considers that the revised capital expenditure for the

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80 Wilson Cook report 2010, pp. 25–26.

81 Wilson Cook report 2010, p. 26.

82 Wilson Cook report 2010, p. 26.

83 Wilson Cook report 2010, p. 26.

84 Wilson Cook report 2010, p. 27.

85 Wilson Cook report 2010, p. 27.

access arrangement period is reasonable and, in general, efficient subject to modified adjustments.<sup>86</sup>

The 2010 Wilson Cook report outlines that the cost efficiency is qualified by continued doubts concerning the appropriateness of the JAM margin and estimated expenditure for overheads being added to the forecast capital expenditure. However, the 2010 Wilson Cook report notes that it was not required to examine the issues of the margin and overhead costs further.<sup>87</sup>

### **3.3.5 Specific adjustments**

For aged residential meter replacements, the 2010 Wilson Cook report, consistent with its original view,<sup>88</sup> recommends a reduction of this capital expenditure to half of the amount proposed in the access arrangement proposal for the following reasons:

- the revised access arrangement proposal appears to rely on the stated experience of JGN on this matter and does not provide evidential material in support of its submission that a second extension of residential meters is impractical
- the fact that a proportion of the metering stock has remained in service beyond 20 years gives weight to the 2009 Wilson Cook report's view that a life of 20–25 years is reasonable for residential meters.<sup>89</sup>

In light of further information provided in the revised access arrangement proposal, the 2010 Wilson Cook report updates its original view<sup>90</sup> for industrial and commercial meter replacement and motor vehicle capital expenditure. The 2010 Wilson Cook report considers the additional information supplied in the revised access arrangement proposal is now sufficient so that no adjustment to the capital expenditure is recommended.<sup>91</sup>

The 2010 Wilson Cook report maintains its view in the 2009 Wilson Cook report<sup>92</sup> that expenditure associated with mine subsidence, pigging and integrity digs, and ad hoc mains and services renewals should be classified as operating expenditure not capital expenditure as noted in chapter 9 of the final decision. The 2010 Wilson Cook report's reasons for this position are discussed later in this chapter.<sup>93</sup>

### **3.3.6 Summary**

Based on the further information contained in the revised access arrangement proposal, the 2010 Wilson Cook report considers that the revised forecast capital expenditure for the access arrangement period sufficiently demonstrates efficiency,

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86 Wilson Cook report 2010, p. 29.

87 Wilson Cook report 2010, pp. 29–30.

88 Wilson Cook report 2009, pp. 59–60.

89 Wilson Cook report 2010, pp. 45–46.

90 Wilson Cook report 2009, pp. 61–62, 69.

91 Wilson Cook report 2010, p. 47.

92 Wilson Cook report 2009, pp. 45, 58, 63, 70–71.

93 Wilson Cook report 2010, pp. 30–42.

subject to certain amendments.<sup>94</sup> These amendments include the reclassification of mine subsidence, pigging and integrity, and ad hoc mains and services renewal as operating expenditure (refer to section 3.5.2.1 for further details) and the adjustment of the approved level of expenditure for aged residential meter replacements.<sup>95</sup> The 2010 Wilson Cook report notes that this consideration of efficiency for the proposed capital expenditure does not extend to the application of margins and overhead costs for capital expenditure.<sup>96</sup>

## **3.4 Submissions**

This section outlines submissions about the capital base from interested parties in response to the draft decision and the revised access arrangement proposal.

### **3.4.1 Energy Markets Reform Forum**

The Energy Markets Reform Forum (EMRF) makes a submission about various components of the proposed capital expenditure program, the cost escalators, incentives, overheads and profit margins.

#### **3.4.1.1 Past capital expenditure**

The EMRF submits:

- mine subsidence costs must not be capitalised and must be removed from past capital expenditure
- the access arrangement costs approved in the opening capital base should not be capitalised
- the actual incurred capital expenditure is not demonstrated as efficient and so this capital expenditure should not be added to the capital base and there is a general lack of supporting data provided by JGN
- the draft decision does not take into consideration the large variances among the different classifications of the capital expenditure approved by the IPART and what JGN incurred.<sup>97</sup>

#### **3.4.1.2 Forecast capital expenditure**

The EMRF submits:

- the amount approved in the draft decision for market expansion capital expenditure was probably too high and the revised access arrangement proposal for market capital expansion is excessive and should be rejected<sup>98</sup>

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94 Wilson Cook report 2010, p. 29.

95 Wilson Cook report 2010, p. 48.

96 Wilson Cook report 2010, pp. 26, 29–30.

97 EMRF, *Submission to the AER*, April 2010, pp. 3, 11, 12.

98 EMRF, *Submission to the AER*, April 2010, pp. 3, 16.

- the draft decision correctly rejects the system reinforcement, renewal and replacement capital expenditure because there was insufficient information to attest to the efficiency of the expenditure<sup>99</sup>
- despite the approval of much of the non-system capital expenditure in the draft decision, there is not enough information to attest to the efficiency this capital expenditure<sup>100</sup>
- with no growth in consumption projected, there is no market imperative for investment for expansion to occur immediately, and if the investment can be deferred this deferment would lead to lower (and therefore more efficient) overall costs<sup>101</sup>
- the approach taken in the draft decision to approve a level of capital expenditure based on a baseline level or where certain projects have sufficient information is appropriate and reasonable<sup>102</sup>
- the draft decision does not put sufficient pressure on JGN for all mine subsidence related damages to be paid for by the party that causes the damage. There is potential for double dipping where JGN receives a claim for damages and then passes this cost on to the consumer.<sup>103</sup>

#### **3.4.1.3 Cost escalators**

The EMRF submits:

- the AER's approach to cost escalators is not consistent with other regulators. If cost escalation is allowed, the AER should also allow for improved efficiencies to offset external price pressures as would be observed in a competitive industry<sup>104</sup>

##### ***Material cost escalators***

- forecast material cost escalators should be based on the CPI, because other approaches are compounded by errors, inaccuracies and there is a high volatility of the forecasts within a short period of time. In the long term, the CPI will capture the effects of increases in the costs of materials
- conservative estimates associated with the exchange rate forecasts lead to material cost escalators that may be too high and so the approach approved by the AER is unacceptable
- as an alternative approach to using the CPI to forecast cost escalators, the AER should introduce a method for accommodating the cost movements which builds

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99 EMRF, *Submission to the AER*, April 2010, pp. 3, 17–18.

100 EMRF, *Submission to the AER*, April 2010, pp. 3, 18.

101 EMRF, *Submission to the AER*, April 2010, p. 7.

102 EMRF, *Submission to the AER*, April 2010, pp. 14–15.

103 EMRF, *Submission to the AER*, April 2010, p. 19.

104 EMRF, *Submission to the AER*, April 2010, pp. 29–31.

in an estimate for the capital expenditure and operating expenditure forecasts. This is then adjusted on an ex post basis once the actual values are known<sup>105</sup>

#### ***Wages cost escalators***

- the AER's expectation for real wages to grow in the utilities sector above CPI is a self fulfilling decision because it will likely encourage the union to seek a wage increase consistent with this expectation
- if the CPI is not used to reflect changes to wages, the AER should use real wage growth movements adjusted for productivity, not the unadjusted real wage growth movements as is currently the AER's approach<sup>106</sup>
- in light of the above reasons, the AER's approach to cost escalators is fundamentally flawed. The AER's approach will introduce a major regulatory risk for which consumers will pay unjustifiable increased prices into the future.<sup>107</sup>

#### **3.4.1.5 Overhead and profit margin**

The EMRF submits:

- non-transparent outsourcing costs between JGN and JAM may allow the embedding in the contract of unjustifiable contract costs. The outsourcing to JAM allows the perception (rightly or wrongly) that there may be double counting, transference of hidden management fees and profit shifting<sup>108</sup>
- outsourcing must be competitively tendered and achieve a reduction in costs. Using an assessed base rate or basic costs to JAM and adding an overhead and margin is not in the long term interests of consumers as required in the National Gas Objective (NGO). The proposed approach to use an assessed base rate is more in the interests of the owner of both JGN and JAM.<sup>109</sup>

#### **3.4.2 Energy Networks Association Ltd**

The Energy Networks Association Ltd (ENA) submits that the draft decision demonstrates a strong tension between the limited discretion of the AER under the NGR with the determination of an efficient forward capital expenditure and setting to zero proposed cost escalation factors impacting capital expenditure forecasts.<sup>110</sup>

The ENA submits that the approach used in the draft decision to rely on historical capital expenditure levels to estimate forecast capital expenditure has no clear basis in the NGR. In addition, historical information about the scale of projects delivered in the past is not a factor that should be balanced against projects that are reasonably

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105 EMRF, *Submission to the AER*, April 2010, pp. 32–36.

106 EMRF, *Submission to the AER*, April 2010, pp. 37–40.

107 EMRF, *Submission to the AER*, April 2010, pp. 40–42.

108 EMRF, *Submission to the AER*, April 2010, p. 24.

109 EMRF, *Submission to the AER*, April 2010, p. 24.

110 ENA, *Response to Australian Energy Regulator draft decision: Jemena Gas Networks access arrangement proposal 2010–2015*, April 2010, p. 5 (ENA, *Submission to the AER*, April 2010).

required. The ENA submits this approach in the draft decision gives undue weight to one of many factors relevant to assessing forward expenditure estimates.<sup>111</sup>

Concerning the applicability of the capital expenditure criteria in r. 79 of the NGR, the ENA submits that an assessment of the deliverability of the future capital expenditure program should take into account the likely capacity of the service provider over the regulatory period. This should include an initial presumption that the business can operationally manage variations to the proposed program in a manner consistent with firms operating in a competitive environment. This presumption avoids placing the AER in a position of making operational and commercial decisions for which it lacks sufficient information.<sup>112</sup>

Concerning the zero values that the AER uses to substitute as forecasts for certain cost escalators, the ENA submits that:

- the AER has limited discretion on this matter
- the AER has an obligation to provide clear and detailed reasoning as to how the substituted value complies with the relevant rules. In this way the draft decision demonstrates the basis for the decision, the service provider and stakeholders are given capacity to provide empirical and theoretical information to feed into the final decision, and that reasoning provides transparency for the service provider and users.<sup>113</sup>

### **3.4.3 Energy Users Association of Australia**

The Energy Users Association of Australia (EUAA) submits that the approved capital expenditure in the draft decision was not thoroughly justified as it relied only on historical expenditure.<sup>114</sup> The EUAA submits this approach is no indicator of efficiency and is not consistent with the NGR. Further, the draft decision did not justify the historical period used. For instance, if an earlier period was used such as 1999–2004, the EUAA submits that the approved capital expenditure would have been much lower.<sup>115</sup>

The EUAA considers a more robust approach such as the application of benchmarking should be used. The EUAA submits that the access arrangement proposal provides sufficient information to use benchmarking to further reduce the proposed capital expenditure.<sup>116</sup>

The EUAA submits the benchmarking in the Parsons Brinckerhoff Australia Pty Ltd (PB) report (the PB report)<sup>117</sup> was not applied correctly as it interprets the line of best fit as indicating efficiency. The EUAA submits that the UK regulator, Office of Gas

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111 ENA, *Submission to the AER*, April 2010, pp. 5–6.

112 ENA, *Submission to the AER*, April 2010, pp. 5–6.

113 ENA, *Submission to the AER*, April 2010, p. 6.

114 EUAA, *Submission to the AER*, April 2010, p. iii.

115 EUAA, *Submission to the AER*, April 2010, p. 11.

116 EUAA, *Submission to the AER*, April 2010, pp. i, 11.

117 JGN, *Access arrangement information*, August 2009, appendix 7.4.

and Electricity Markets (Ofgem), used benchmarking which had a significant impact on the setting of efficient costs. The EUAA submits a chart based on the PB report benchmarking data which indicates that the capital expenditure in the access arrangement proposal is inefficient because it sits above the upper quartile used by Ofgem. The EUAA submits that a proper benchmarking analysis of capital expenditure and operating expenditure should be carried out for JGN.<sup>118</sup>

#### **3.4.5 Origin Energy Retail Ltd**

Origin Energy Retail Ltd (Origin) supports the draft decision to reduce the forecast capital expenditure in the access arrangement period because the significant increases to capital expenditure are not justified when consumption is falling.<sup>119</sup>

#### **3.4.6 Public Interest Advocacy Centre Ltd**

The Public Interest Advocacy Centre Ltd (PIAC) submits that the revised capital expenditure forecasts are higher than what was originally proposed and this will result in a substantial increase in gas bills for retail customers. The PIAC submits that the revised forecast capital expenditure needs to be rigorously assessed to ensure that it is efficient and absolutely necessary. Further the impact on retail customers due to changes to the capital expenditure should be clearly outlined in the final decision.<sup>120</sup>

#### **3.4.7 Other interested parties**

Madeleine Kingston (Ms Kingston) makes a submission about the inclusion of costs relating to water meters for multi-tenanted dwellings in the proposed capital expenditure program.<sup>121</sup> Ms Kingston's submission is about the upgrade and replacement of water meters used for calculating gas consumed in centralised gas hot water systems, and whether these water meters form part of the JGN NSW gas distribution network.<sup>122</sup>

### **3.5 AER's analysis and considerations**

The AER's analysis and consideration of the revised access arrangement proposal in relation to the capital base is set out below.

#### **3.5.1 Opening capital base**

##### **3.5.1.1 Adjustment to the opening capital base for the earlier access arrangement period**

The draft decision accepted the access arrangement proposal that the value of the opening capital base is the same as that determined in the IPART final decision as at 30 June 2005 and that no adjustments were required for the difference between

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118 EUAA, *Submission to the AER*, April 2010 pp. 12–13.

119 Origin, *Access arrangement draft decision: Jemena's NSW gas network*, April 2010, p. 1, (Origin, *Submission to the AER*, April 2010).

120 PIAC, *Response to the Australian Energy Regulator draft decision, Jemena Gas Networks Ltd's access arrangement proposal for the period 1 July 2010 to 30 June 2015*, April 2010, pp. 3, 4, (PIAC, *Submission to the AER*, April 2010).

121 Kingston, *Submission to the AER*, April 2010, p. 12.

122 Kingston, *Submission to the AER*, April 2010, pp. 14–15.



estimated and actual capital expenditure included in the opening capital base.<sup>123</sup> The AER interpreted the access arrangement proposal statements to mean that the actual capital expenditure incurred in the earlier access arrangement period (2004–05) was at least the same as the conforming capital expenditure approved by IPART. However, this is not the case as the following discussion outlines.

Rule 77(2)(a) of the NGR requires an adjustment to the opening capital base of the earlier access arrangement period for any difference between estimated and actual capital expenditure. In this case this requires an adjustment for any difference between estimated and actual capital expenditure in 2004–05.

The access arrangement proposal proposes that no adjustment is required for any difference between estimated and actual capital expenditure. The access arrangement proposal submits that this is because amendments in the IPART's 2005 final decision<sup>124</sup> required JGN to include \$88.6 million (\$nominal) for capital expenditure in 2004–05 when estimating the opening capital base for 2005–06.<sup>125</sup> JGN reiterates that the IPART decision required JGN to maintain an asset register using estimated values for capital expenditure.<sup>126</sup>

The AER provided JGN with an opportunity to provide further information regarding the actual 2004–05 capital expenditure for each asset class and any differences between estimated and actual capital expenditure for that period.<sup>127</sup> JGN responded to the information requests by providing the requested information and confirming the adjustment for any difference between estimated and actual capital expenditure is nil.<sup>128</sup> JGN also provided further correspondence in relation to this matter.<sup>129</sup> The AER has considered JGN's response and does not agree that the adjustment required is nil under the NGR. Further, the reference to the IPART's decision as outlined above, is not a relevant consideration for the adjustment required under the NGR. In

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123 JGN, *Access arrangement proposal*, August 2009, pp. 123–124 and AER, *Draft decision*, February 2010, p. 41.

124 IPART, *Final decision: Revised access arrangement for AGL gas network*, April 2005, pp. 62, 69.

125 JGN, *Access arrangement information*, 25 August 2009, p. 123 and JGN, *Initial response to the draft decision*, March 2010, appendix 3a.3: IPART final determination 2005.

126 JGN, email to the AER, *JGN response to AER 03 May 10 questions – tranche 1 (questions 4 to 7)*, 6 May 2010, attachment, JGN, *Response to AER questions received on 03 May 2010 – Tranche 1*, 6 May 2010, pp. 6–7 (confidential). The AER notes that in the most recent IPART review AGLGN proposed to update the capital base for actual capital expenditure once available. See AGLGN, *Access arrangement for NSW Network–Response to draft decision*, February 2005, p. 30.

127 AER, email to JGN, *additional questions re opening capital base, 21 April 2010 and AER, email to JGN, additional questions*, 3 May 2010.

128 JGN, email to the AER, *JGN response to AER 03 May 10 questions – tranche 1 (questions 4 to 7)*, 6 May 2010, attachment, JGN, *Response to AER questions received on 03 May 2010 – Tranche 1*, 6 May 2010, pp. 6–7 (confidential).

129 JGN, email to the AER, *Additional clarifications on modelling updates for JGN embargo final decision*, 4 June 2010 and JGN, email to the AER, *JGN access arrangement revision proposal: Confidentiality review of draft extracts from the final decision and draft consultant reports*, 4 June 2010, pp. 3–4. (confidential)

addition, the AER does not consider that the nil adjustment proposed<sup>130</sup> is consistent with other information provided by JGN about the opening capital base.<sup>131</sup>

The actual capital expenditure in 2004–05 was \$68.3 million (\$nominal)<sup>132</sup> or \$20.3 million (\$nominal) lower than the estimated capital expenditure in the opening capital base in 2005–06 approved by the IPART. As a consequence, the opening capital base for the earlier access arrangement period needs to be adjusted down by \$20.3 million (\$nominal)<sup>133</sup> under r. 77(2)(a) of the NGR. Given that estimated capital expenditure was overstated by \$20.3 million (\$nominal), the AER also adjusts the opening capital base to remove the effect of the rate of return and inflation for the difference between the estimated and actual capital expenditure. These adjustments are made in order to remove the benefit JGN received by applying the rate of return to the estimated capital expenditure instead of the lower actual capital expenditure which JGN incurred.<sup>134</sup> The AER considers that this adjustment is justified; to not do so would allow JGN to accrue a benefit on expenditure which it did not incur. Further, these adjustments<sup>135</sup> are consistent with the national gas objective set out in section 23 of the NGL. The AER revises the opening capital base for the earlier access arrangement period as outlined in revisions 3.2 to 3.6.

### **3.5.1.2 Capital expenditure in the earlier access arrangement period**

For the earlier access arrangement period, the revised access arrangement proposal proposes a total capital expenditure of \$535.0 million (\$nominal)<sup>136</sup> to be added to the opening capital base. This amount is \$21.6 million (\$nominal)<sup>137</sup> less than the amount proposed in the access arrangement proposal because of updates for actual and estimated capital expenditure in the last 2 years of the earlier access arrangement period.

The AER notes the EMRF submission that JGN does not demonstrate<sup>138</sup> that capital expenditure incurred in the earlier access arrangement is efficient. As outlined in the draft decision the AER considers that overall, with the exception of the inclusion of expenditure associated with mine subsidence and taking account of inflation, the incurred capital expenditure in the earlier access arrangement complies with the

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- 130 JGN, email to the AER, *JGN response to AER 03 May 10 questions – tranche 1 (questions 4 to 7)*, 6 May 2010, attachment, JGN, *Response to AER questions received on 03 May 2010 – Tranche 1*, 6 May 2010, pp. 6–7 (confidential).
- 131 JGN, email to the AER, *JGN AA – JGN response to AER 21 April 10 questions*, 27 April 2010, attachment, JGN, email to the AER, *Response to AER questions received on 21 April 2010*, 27 April 2010, pp. 8–9 (confidential)
- 132 JGN, *Response to AER questions received on 21 April 2010*, 27 April 2010, pp. 8–9.
- 133 This amount is based on the difference between actual and estimated capital expenditure. Accounting for the assumed timing in the JGN RAB Roll Forward Model, the difference is \$19.3 million (\$2004–05).
- 134 The removal of any benefit or penalty associated with differences between actual and estimated values is intended to provide a neutral incentive in relation to the estimation process.
- 135 The total amount to be removed from the opening capital base is \$32.4 million (\$2009–10), which includes \$13.1 million (\$2009–10) for the adjustment to the rate of return and inflation for the difference between the estimated and actual capital expenditure.
- 136 JGN, *Revised access arrangement information*, March 2010, p. 11.
- 137 JGN, *Access arrangement information*, August 2009, p. 49.
- 138 EMRF, *Submission to the AER*, April 2010, pp. 3, 11, 12.

NGR.<sup>139</sup> The AER maintains this position in the final decision. That is, the capital expenditure is that which would be incurred by a prudent service provider acting efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of delivering reference services.<sup>140</sup> The capital expenditure is also justifiable under r. 79(2) of the NGR. With regard to the EMRF submission, the AER considers that costs related to access arrangements should not be capitalised. In the draft decision, the AER notes that certain costs that are not properly explained but labelled as ‘AER – market changes and access arrangements’<sup>141</sup> are associated with information technology (IT) software. In the final decision, the AER considers that these IT software costs are capital expenditure and can be added to the capital base. However, the AER agrees with the EMRF submission that costs that relate to the preparation of an access arrangement proposal are not capital in nature and should not be added to the capital base. This is consistent with the position outlined in the ActewAGL distribution (ActewAGL) final decision. In that case the regulatory costs were approved as a one-off transitional measure specific to ActewAGL's circumstances, consistent with the regulatory practice of the ICRC. As outlined in that decision the AER maintains that in general costs associated with the preparation of a regulatory proposal are operating expenditure and will not be accepted as capitalised regulatory costs in future access arrangement proposals.<sup>142</sup>

#### ***Mine subsidence expenditure***

The revised access arrangement proposal proposes to retain mine subsidence as capital expenditure in the opening capital base.<sup>143</sup>

The revised access arrangement proposal submits that the capitalisation of mine subsidence is consistent with its capitalisation policy and is part of statutory accounts.<sup>144</sup> The revised access arrangement proposal considers that expenditure on mine subsidence is capital in nature and therefore should be included in the opening capital base. The revised access arrangement proposal submits a report from Ernst & Young (Ernst & Young report),<sup>145</sup> a second report from Ernst & Young,<sup>146</sup> and a report by PB (2010 PB report).<sup>147</sup>

The 2010 PB report submits that the level of mine subsidence is established by a mine subsidence board. This board provides estimates of the level of subsidence which

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139 EMRF, *Submission to the AER*, April 2010, pp. 3, 11, 12.

140 NGR, r. 79(1)(a).

141 AER, *Draft decision*, February 2010, p. 56.

142 AER, *Final decision: Access arrangement proposal ACT, Queanbeyan, and Palerang gas distribution network 1 July 2010–30 June 2015*, March 2010, pp. 19–20 (AER, *Final decision: ActewAGL distribution access arrangement proposal*, March 2010).

143 JGN, *Initial response to the draft decision*, March 2010, p. 35.

144 JGN, *Initial response to the draft decision*, March 2010, p. 35.

145 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.4: Ernst & Young review of capitalisation policy (Ernst & Young report).

146 JGN, email to the AER, *JGN AA –Additional expert report on JGN's capitalisation policy*, 19 April 2010, attachment, Ernst & Young, Jemena Gas Networks Ltd, *Expert report in relation to accounting standards applicable to the capitalisation of costs*, 15 April 2010 (confidential).

147 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.1: PB –Supplementary report in response to AER's draft decision (PB report 2010).

must be allowed in the design of infrastructure for a given area. The 2010 PB report submits that the capital expenditure associated with the design and construction of assets in a mine subsidence area results in higher than normal capital expenditure to ensure the assets are fit for purpose. Irrespective of the standards applied during the design and construction phase, some damage due to mine subsidence often occurs, meaning that mine subsidence expenditure is necessary to ensure the actual service life of an asset meets the design service life. This however does not necessarily result in an extension of the design life beyond that originally intended.<sup>148</sup>

The 2010 Wilson Cook report does not consider that expenditure associated with mine subsidence is capital expenditure. The 2010 Wilson Cook report outlines that:

- the Ernst & Young report<sup>149</sup> is not an unqualified endorsement of capitalisation for mine subsidence
- no evidence has been provided to demonstrate that the remaining life or capacity of the pipeline as a whole is extended by the repair of a damaged portion of the pipe. If specific work did extend the life or capacity of the pipeline as a whole, then that element of cost ought to be separated from the cost of the repairs to the damaged portion alone and treated separately.

The 2010 Wilson Cook report outlines that the 2010 PB report:

- identifies mine subsidence expenditure as necessary repairs but does not address how the mine subsidence expenditure should be treated
- appears to support the contention that a repair may not lead to an extension in the remaining life of the pipeline
- suggests that if repairs raise the standard of installation of the pipeline as a whole then an increase in the value of the pipeline could be recognised. However as only a portion of the asset is repaired, the value of the pipeline as a whole cannot increase.

The 2010 Wilson Cook report outlines that without details of the nature and costs relating to mine subsidence repairs the view that mine subsidence should be removed from the forecast capital expenditure is unchanged from the 2009 Wilson Cook report.<sup>150</sup>

The AER notes the EMRF submission that mine subsidence costs should not be capitalised.<sup>151</sup> The AER further notes the 2010 PB report that certain capital expenditure may be higher during the design and construction of assets in a mine

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148 PB report 2010, pp. 26–27.

149 Ernst & Young report.

150 Wilson Cook report 2010, pp. 37–39.

151 EMRF, *Submission to the AER*, April 2010, pp. 3, 11, 12.

subsidence affected area.<sup>152</sup> The AER considers that this cost is captured at the programme level for that capital expenditure item.

In light of the above and maintaining the view in the draft decision,<sup>153</sup> the AER considers that mine subsidence expenditure is not conforming capital expenditure under r. 77(2)(b) of the NGR and so does not approve the inclusion of \$4.6 million (\$2004–05) in the opening capital base.

The AER considers that mine subsidence expenditure (that cannot be recouped by capital contributions) is necessary to repair a damaged portion of pipeline. As such the AER considers that mine subsidence expenditure would normally be treated as operating expenditure.

The AER requires the removal of this item from the proposed opening capital base as outlined in revisions 3.3 to 3.6. The AER's consideration and analysis for the forecast mine subsidence in the access arrangement period is considered in the projected capital base section set out below.

### **3.5.1.3 Re-use of redundant assets**

The revised access arrangement proposal proposes to increase the 2010–11 opening capital base value by \$3.5 million (\$nominal) to include a re-used redundant asset on the Wilton to Wollongong pipeline.<sup>154</sup>

The revised access arrangement proposal submits that the JGN network should be treated as a single hub given the design of the short term trading market (STTM) and the Wilton to Wollongong trunk is within this hub.<sup>155</sup> The revised access arrangement proposal submits that exclusion of the value of the redundant asset from the asset base will impose an artificial (economic) constraint on the capacity of the Wilton to Wollongong trunk which will mean that its operating capacity is less than its physical capacity.<sup>156</sup>

The AER does not agree with the assessment that an artificial (economic) constraint on the Wilton to Wollongong trunk will mean that its operating capacity is less than its physical capacity. The AER notes that the operation of STTM does not have a bearing on whether asset delivery services are included in the capital base. The relevant section of pipeline is a physical asset capable of flowing gas at a rate consistent with its design constraints. The AER does not consider that excluding the value of the redundant asset from the capital base will create a capacity constraint that will affect the operating capacity of the pipeline in the manner suggested in the revised access arrangement proposal. The revised access arrangement proposal has not provided evidence of why this section of pipeline is constrained in a physical sense.

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152 PB report 2010, pp. 26–27.

153 AER, *Draft decision*, February 2010, p. 37.

154 JGN, *Initial response to the draft decision*, March 2010, p. 40.

155 JGN, *Initial response to the draft decision*, March 2010, p. 40.

156 JGN, *Initial response to the draft decision*, March 2010, p. 41.

Consistent with the reasons why the IPART considered this part of the pipeline redundant,<sup>157</sup> the draft decision outlines that the access arrangement proposal does not provide support that the demand for services using the redundant asset has increased during the earlier access arrangement period. In coming to this view, the IPART took into account the reduced throughput on the Wilton to Wollongong trunk line which was understood to be due to the commencement of operation of the Eastern Gas Pipeline which bypasses this pipeline section.<sup>158</sup> The revised access arrangement proposal does not provide any additional information to address this issue. The revised access arrangement proposal has not provided evidence that there is an increase in the use of the Wilton to Wollongong trunk line during the access arrangement period.

For the purposes of r. 86(1) of the NGR, JGN does not demonstrate that this redundant asset contributes to the delivery of pipeline services. If the redundant asset contributes to the delivery of pipeline services following the introduction of the STTM, the asset may be rolled into the capital base at the commencement of the next access arrangement period, subject to meeting the requirements of r. 79 of the NGR. The AER considers that any proposal to roll in the redundant assets would need to be supported by information which provides evidence about the volume of pipeline services and location of end user customers for this part of the network.

Consistent with the draft decision,<sup>159</sup> the AER requires the removal of the redundant capital on the Wilton to Wollongong pipeline from the proposed opening capital base as outlined in revisions 3.3 and 3.4.

#### **3.5.1.4 Adjustment to the capital base for inflation**

The revised access arrangement proposal covers a number of issues relating to adjustments to the capital base for inflation. These are, briefly:

- consistency between the inflation rate used for the capital base and the inflation rate used for tariff variation<sup>160</sup>
- converting forecast capital expenditure and capital contributions to real dollars<sup>161</sup>
- allowing for the fact that capital is spent throughout the year.<sup>162</sup>

These issues are considered below.

The revised access arrangement proposal submits that there is no reason to index the capital base and tariffs in the same way.<sup>163</sup> The AER considers that there are reasons

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157 IPART, *Final decision: Revised access arrangement for AGL gas network*, April 2005, pp. 80–86.

158 IPART, *Final decision: Revised access arrangement for AGL gas network*, April 2005, pp. 82–83.

159 AER, *Draft decision*, February 2010, pp. 43–44.

160 JGN, *Initial response to the draft decision*, March 2010, pp. 33–35.

161 JGN, *Initial response to the draft decision*, March 2010, p. 37.

162 JGN, *Initial response to the draft decision*, March 2010, p. 39.

163 JGN, *Initial response to the draft decision*, March 2010, pp. 33–35.

for inflation estimates for tariffs and the capital base to be estimated in the same manner.

The AER considers that using a consistent approach between the capital base and the tariff variation mechanism is justified. The tariff variation mechanism is intended to put into effect a nominal increase in tariffs. These tariffs are based on total revenue and are ultimately estimated with respect to the capital base. The AER therefore considers that there is justification to use inflation estimates for the capital base which are determined consistently with the method used to vary tariffs.

The AER also considers that r. 73 of the NGR requires that all financial information must be provided, and all calculations made, consistently on the same basis. This applies to both the estimates for the projected capital base and the operation of the tariff variation mechanism. The AER therefore considers that the adjustment for actual inflation should be calculated based on December quarter CPI for both the tariff variation mechanism and the estimation of the opening capital base.

The revised access arrangement proposal submits that capital expenditure and capital contributions should not be adjusted for inflation as these are incurred amounts.<sup>164</sup> This means that nominal capital expenditure, as incurred, should be added to the capital base. The AER considers that there are both advantages and disadvantages to adjusting capital expenditure and capital contributions for differences in the inflation estimates proposed in the revised access arrangement proposal and those approved in the final decision. The AER considers that the approach proposed in the revised access arrangement proposal, which is to use nominal capital expenditure without adjusting for differences in the inflation estimates is reasonable.

On the issue of timing of capital expenditure, the revised access arrangement proposal submits that the estimate of the opening capital base and the estimate of total revenue for the access arrangement period should be made using consistent assumptions about the timing of capital expenditure.<sup>165</sup> The AER agrees that consistency between the two values is required by r. 73 of the NGR. However, the AER considers that the revised access arrangement proposal does not correctly implement the assumptions that it proposes.

The revised access arrangement proposal proposes to use a mid-year assumption for capital expenditure and to implement this by assuming that half of the capital expenditure occurs at the start of the year while half occurs at the end of the year.<sup>166</sup> The AER considers that as capital expenditure is incurred throughout the year, incurred capital expenditure is essentially in mid-year dollar terms. This means that to correctly implement the approach proposed in the revised access arrangement proposal, incurred capital expenditure must first be halved. One half should then be deflated by six months inflation, to bring it to start of the year dollar terms, and the

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164 JGN, *Initial response to the draft decision*, March 2010, p. 37.

165 JGN, *Initial response to the draft decision*, March 2010, p. 39.

166 JGN, email to the AER, *Response to the AER, JGN, JGN AA –Response to AER 21 April 10 questions*, 27 April 2010, attachment, JGN, *Response to AER questions received on 21 April 2010*, 27 April 2010, pp. 3–7.

other half inflated by six months inflation, to bring it to end of the year dollar terms. The AER has consistently applied this implementation of the mid-year assumption.

In summary, the AER considers that a consistent approach to the indexation for the opening capital base and tariff variation is required under r. 73 of the NGR. The AER also considers that it is reasonable to roll nominal capital expenditure into the opening capital base. Finally, the AER considers that consistency between capital expenditure timing assumptions when estimating the opening capital base and total revenue in the access arrangement period are desirable but that some adjustments must be made to the revised access arrangement proposal to ensure that the proposed assumptions are correctly implemented. The AER proposes to revise the opening capital base as outlined in revision 3.1.

### 3.5.1.5 Depreciation

#### *Depreciation in the earlier access arrangement period*

The consideration of key issues in relation to the depreciation schedule is set out in chapter 4 of the final decision.

Further, the AER requires depreciation to be revised under r. 77 of the NGR. This is due to adjustments to the capital base which include:

- the removal of the costs of mine subsidence and a redundant asset from the opening capital base
- an adjustment for the difference between estimated and actual capital expenditure
- an adjustment to inflation.

The depreciation estimated by the AER for the earlier access arrangement period compared with the proposed depreciation is shown in table 3.4. The AER proposes to revise forecast depreciation as outlined in revisions 3.3 to 3.6.

**Table 3.4: Depreciation for the earlier access arrangement (\$m, nominal)**

|                                     | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 | Total |
|-------------------------------------|---------|---------|---------|---------|---------|-------|
| Revised access arrangement proposal | 67.9    | 73.7    | 81.4    | 82.9    | 83.9    | 389.8 |
| Final decision                      | 67.2    | 73.8    | 80.3    | 83.6    | 85.1    | 390.1 |

Source: JGN, *Revised access arrangement information*, March 2010, p. 26 and AER analysis.

### 3.5.1.6 Summary on the opening capital base

In light of the consideration of the opening capital base in the revised access arrangement proposal the AER does not consider that the proposed opening capital base is consistent with r. 77 or r. 74(2) of the NGR. The AER proposes to revise the opening capital base as set out in revisions 3.1 to 3.6.



### 3.5.2 Projected capital base

#### 3.5.2.1 Forecast capital expenditure

The following section sets out the AER's analysis and consideration of the components of the revised forecast capital expenditure.

##### *JAM contract*

JGN outsources its asset planning activities, network O&M activities, all of its capital program delivery and certain other functions to JAM.<sup>167</sup> Both JAM and JGN are wholly owned subsidiaries of the Jemena Group.<sup>168</sup>

JAM provides these services under the asset management agreement (AMA).<sup>169</sup> The AMA sets out the contractual arrangement for delivery of all JGN's capital expenditure program and the O&M component of its operating expenditure. JGN has agreed to pay JAM's costs plus a margin on these costs for the services provided under the AMA. This margin is comprised of a base margin and a smaller performance margin.<sup>170</sup> Aspects of the AMA relevant to O&M are considered in further detail in chapter 9.

##### *Capital programs provided under the AMA*

As outlined above, JAM is contracted to deliver the capital program in the access arrangement period for JGN's NSW gas networks. The capital program includes both the routine and non routine works.<sup>171</sup>

The forecast capital expenditure is a fee paid by JGN to JAM under the AMA. The forecast capital expenditure (JAM fee) is comprised of the direct costs of undertaking the capital programme, indirect or overhead costs and a margin.<sup>172</sup>

These components of the forecast capital expenditure (or the JAM fee for routine and non routine capital expenditure) are outlined below in further detail.

##### *Direct costs*

While JAM is contracted to deliver the forecast capital program, [c-i-c]<sup>173</sup> of the capital expenditure program it provides to JGN under the AMA to third parties. The composition of the total capital expenditure program is that [c-i-c]<sup>174</sup>

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167 JGN, *Access arrangement proposal*, August 2009, p. 29 (confidential).

168 JGN, *Access arrangement proposal*, August 2009, p. 15.

169 JGN, *Access arrangement information*, August 2009, appendix 3.1.

170 JGN, *Access arrangement information*, August 2009, p. 38 (confidential).

171 JGN, *Initial response to the draft decision*, March 2010, p. 50.

172 JGN, *Access arrangement information*, August 2009, pp. 35–39 (confidential) and JGN, *Initial response to the draft decision*, March 2010, pp. 85–86.

173 [c-i-c]

174 [c-i-c]

<sup>176</sup> Capital works that are competitively tendered are typically of a recurrent, high volume or regular nature whereas works that are selectively outsourced are typically council provided restorations and other services.<sup>177</sup>

In this way direct costs of the forecast capital expenditure (or JAM fee for routine and non-routine capital expenditure) are comprised of the JAM and third party costs for undertaking the capital works.

#### *Overhead costs*

Under the AMA, a 6 per cent overhead rate is applied to the direct costs. The 6 per cent capital overhead costs comprise three types of costs:

- JAM's capitalised unallocated direct costs: these costs are incurred within the capital project managers' and the asset management sections of the JAM business. These costs relate to internal resource time for engineering assessments, project planning and cost estimating
- JAM's capitalised indirect costs: these costs are primarily JAM corporate functions that support the delivery of capital works
- capitalised costs charged to JAM from the Jemena Group: these costs relate to enterprise support functions (ESFs) or corporate services undertaken at the Jemena Group level.<sup>178</sup>

The draft decision removes the 6 per cent JAM overhead.<sup>179</sup> While the AER accepts that overhead costs are appropriate in some circumstances, the removal of the 6 per cent overhead was done on the basis that the capital expenditure program is expected to be largely outsourced to third parties. Under such circumstances, the AER considers that the lowest sustainable cost of the outsourced capital works is the third party contract price. This is because those third party contract prices would already include an overhead amount. The draft decision also outlined that it was unclear whether the capitalised overhead costs were already included in the O&M costs charged under the JAM contract.<sup>180</sup>

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175 [c-i-c]

176 [c-i-c]

177 JGN, email to the AER, *AER 02 Dec 09 Questions –JGN Tranche 2 response*, 11 December 2009, attachment, JGN, *JGN Response to AER 02 Dec 09 Questions Tranche 2*, 11 December 2009, pp. 1–2 (confidential).

178 JGN, *Initial response to the draft decision*, March 2010, p. 86; JGN, *Initial response to the draft decision*, March 2010, appendix 9.2, p. 20; JGN, email to the AER, *JGN AA –Response to AER 12 Apr 10 questions*, 19 April 10, attachment, JGN, *Response to AER 12 April questions*, 19 April 2010, pp. 8-9.

179 AER, *Draft decision*, February 2010, pp. 46–47.

180 AER, *Draft decision*, February 2010, pp. 46–47.

The revised access arrangement proposal provides information that the capitalised overhead costs are explicitly removed from the base year O&M expenditure costs.<sup>181</sup> The revised access arrangement proposal outlines that JAM undertakes certain activities with respect to that outsourced capital expenditure and so part of the overhead costs approved covers those costs.<sup>182</sup>

Further, the revised access arrangement proposal includes the Napier & Blakeley report<sup>183</sup> which outlines that it is standard industry practice to include an overhead rate and profit margins in the form of a percentage applied to direct costs.<sup>184</sup>

The revised access arrangement proposal also submits that the flat 6 per cent overhead rate is lower than the average rate of 15.3 per cent approved by regulators such as the AER,<sup>185</sup> the Australian Competition and Consumer Commission (ACCC), the IPART, the Essential Services Commission of Victoria (ESCV) and the South Australian Independent Pricing and Access Regulator (SAIPAR).<sup>186</sup>

The revised access arrangement proposal does not accept the draft decision and maintains its position of a 6 per cent overhead.<sup>187</sup> JGN submits that this overhead rate is representative of incurred costs that are capital in nature, reasonable and efficient.

The AER considers that the revised access arrangement proposal provides additional information that addresses the issue in the draft decision concerning whether the overheads are included in the O&M costs charged under the JAM contract.

In relation to the Napier & Blakeley report, as outlined in the draft decision, the AER does not state that an overhead is inappropriate.<sup>188</sup> However, the AER did not accept the overhead rate of 6 per cent because information was not provided to support the underlying incurred costs to support this proposal. Further the draft decision outlined that the AER did not consider that overheads should apply to the outsourced part of the capital program. The entire overhead was removed in the draft decision because the AER could not discern from the information provided which part of the capital

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181 JGN, *Initial response to the draft decision*, March 2010, appendix 9.8.

182 JGN, email to the AER, *AER 02 Dec 09 Questions –JGN Tranche 2 response*, 11 December 2009, attachment, JGN, *JGN Response to AER 02 Dec 09 Questions Tranche 2*, 11 December 2009, pp. 1–2 (confidential).

183 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.2.

184 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.2, p. 14.

185 As contained in other decisions, the AER accepted that some quantum of general overhead was appropriate to reflect general support activities such as corporate finance and human resources. For Country Energy, the AER considered that a premium of 10 per cent more reasonably reflected the costs associated with operating in its environment. The AER considered a plant overhead rate of 30 per cent and materials overhead rate of 30 per cent for Country Energy was reasonable. Source: AER, *Draft decision: New South Wales draft distribution determination 2009–10 to 2013–14: Alternative control (public lighting) services*, 6 March, p. 27 and AER, *Final decision: New South Wales distribution determination 2009–10 and 2013–14*, 28 April 2009, p. 375.

186 JGN, *Initial response to the draft decision*, March 2010, p. 86 and JGN, *Initial response to the draft decision*, March 2010, appendix 3b.10.

187 JGN, *Initial response to the draft decision*, March 2010, p. 85.

188 AER, *Draft decision*, February 2010, pp. 46–47.

program was delivered by JAM to which an overhead rate of 6 per cent should apply.<sup>189</sup>

The AER reiterates this position and considers that where there is a direct cost incurred for work undertaken by JAM, an overhead (allocation of costs) is appropriate if it is not also recovered elsewhere or in some other form.<sup>190</sup>

In relation to the benchmark overhead rate approved by regulators which is on average 15.3 per cent, the AER considers that care needs to be taken in interpreting this outcome as the percentage overhead is likely to vary widely depending upon the proportion of costs that can be directly accounted for. JGN outlines that the 6 per cent rate is a much lower overhead rate than approved by other regulators. However, the issue is whether the two overhead rates are comparable. The AER considers that the overheads incurred may vary significantly based on the nature of the capital works being undertaken and the mode of delivery i.e. largely outsourced or largely provided in house. If a capital works program is largely outsourced, the incurred overhead costs of an entity like JAM may be very different in nature, scale and scope than a program largely delivered in-house. Such factors are not considered in the revised access arrangement proposal.<sup>191</sup> If the capital works program is largely recurrent, high volume or of a regular nature, the expected overhead incurred will be lower than more irregular and non-recurrent works. Therefore, the AER does not consider that this comparison is helpful unless the circumstances of the capital works being delivered by JAM are comparable.

As outlined, the draft decision removes the flat 6 per cent overhead rate. The revised access arrangement proposal provides support for this overhead rate and includes additional information that the 6 per cent overhead rate is a proxy for certain incurred overhead costs.<sup>192</sup> These costs as outlined previously include JAM direct and indirect overhead and capitalised ESF costs.

The AER reiterates that it does not consider a flat overhead cost that is not supported by incurred costs is appropriate to charge across a largely outsourced capital program. Further, the AER does not expect the actual overhead costs to move in line with the volume of work undertaken by JAM consistent with a flat percentage proxy forecast and that there are likely to be efficiencies of scale that are not reflected in a flat percentage proxy. Further, the AER considers that a flat percentage rate does not provide sufficient transparency about the nature of the underlying costs that comprise capital overheads or the ability to assess (and review over time) whether the costs should be included in a capitalised overhead or not.

That said, the AER agrees with the Napier & Blakeley report,<sup>193</sup> which also reflects the position in the 2009 Wilson Cook report<sup>194</sup> that overhead costs may be included in

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189 AER, *Draft decision*, February 2010, pp. 46–47.

190 AER, *Draft decision*, February 2010, pp. 46–47.

191 JGN, *Initial response to the draft decision*, March 2010, pp. 85–86 and JGN, *Initial response to the draft decision*, March 2010, appendix 3b.10.

192 JGN, *Initial response to the draft decision*, March 2010, p. 85.

193 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.2.

194 Wilson Cook report 2009, p. 72.

the capital costs as a component of the forecast capital expenditure. Further, the AER recognises that JAM does incur overhead costs in the delivery and management of the capital works program for JGN; and that the revised access arrangement proposal provides information to support the nature and quantum of the overhead costs that JAM incurs.

The revised access arrangement proposal submits the 2008–09 base year actual capitalised overhead costs of \$10.34 million (\$2008–09) are comprised of:

- unallocated directs: \$4.03 million (\$2008–09)
- indirect costs: \$1.38 million (\$2008–09)
- secondary ESFs: \$4.93 million (\$2008–09).<sup>195</sup>

Based on these figures, 52.3 per cent of the overhead cost pool in the year 2008–09 are comprised of JAM direct and JAM indirect overhead costs.<sup>196</sup>

The AER considers that as JAM is directly providing services under the capital program and managing the capital program outsourced to third parties, JAM's indirect and direct costs are appropriate costs to be classified as overhead costs. This is because the overhead costs are directly referable to the capital program and works.

The other 47.7 per cent<sup>197</sup> of the overhead costs relate to the capitalised ESFs. As outlined above the ESF costs are related to corporate head office activities provided to entities such as service entities like JAM and asset owners like JGN within the Jemena Group under the whole of business cost allocation (WOBCA). These ESF costs relate to the activities not undertaken by JAM, which is contracted to deliver the capital program. The AER considers there is not sufficient referability of the ESFs costs to the delivery of the capital program by JAM under the AMA to justify that these costs are overhead costs to be capitalised. That said, the AER recognises that these costs are supporting the overall operations of JAM and it is appropriate that these costs are allocated to JAM and to JGN. However, the AER considers that these costs are best considered as part of the O&M allocation, because of the lack of referability to the capital works being undertaken and direct benefits associated with the underlying assets.

The Ernst & Young report refers to the accounting standard AASB 116 criteria for the recognition and measurement of capital costs. The Ernst & Young report outlines that the criteria is whether expenditure relates to an asset, namely that to be considered an asset the resource should be controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity.<sup>198</sup> The AER notes that JAM does not control the resources that relate to the ESF costs as these costs are cost allocations from the Jemena Group and relate to resources owned by the Jemena Group. Further, the accounting standard provides examples of costs that should not be

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195 JGN, *Initial response to the draft decision*, March 2010, pp. 85–86.

196 JGN, *Initial response to the draft decision*, March 2010, p. 86 and AER analysis.

197 JGN, *Initial response to the draft decision*, March 2010, p. 86 and AER analysis.

198 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.4, p. 4.

included in capital costs for property, plant and equipment. The accounting standard specifically excludes costs that are administration in nature and other general overhead costs, such as the ESF costs.<sup>199</sup> In light of this, the AER considers that the ESF costs can be charged and recovered but that it is more appropriate that these costs are reclassified as operating expenditure rather than included as capitalised overhead costs to be consistent with the accounting standard.

Thus, the AER removes the ESF amount from the proposed JAM capitalised overhead but recognises these costs are services provided by the Jemena Group to JAM to support its operations. As these costs are incurred by JAM, the AER approves the capitalised ESF component to be included in the operating expenditure base year and appropriately escalated using the labour escalator and relevant materials escalators as outlined in chapter 9 of the final decision.

In summary, the AER considers that:

- overhead costs need to be directly referable to the delivery of the capital program to be added to the capital costs that comprise the proposed forecast capital expenditure
- rather than applying a flat percentage rate the AER considers that overheads should reflect overhead costs that are forecast to be incurred. This is because:
  - actual overhead costs are not expected to move in line with the volume of work undertaken by JAM and there are likely efficiencies of scale of operation not reflected in a flat percentage proxy for the forecast incurred overhead costs
  - the nature of overhead costs to be added to the capital costs can be assessed and traced over time
- the JAM direct and indirect overhead costs are directly referable to the capital works programme delivered or undertaken by JAM and are therefore included in the capital costs as overhead costs
- the ESF costs are not directly referable to the capital works programme delivered or undertaken by JAM but are considered associated with the delivery of pipeline services and are therefore reclassified as operating expenditure. (Refer to section 9.5.4.6 in chapter 9 of the final decision for details of the treatment of these ESF costs as operating expenditure.)

The AER does not consider the proxy 6 per cent is consistent with r. 79(1)(a) of the NGR and instead revises this flat 6 per cent overhead rate in line with the incurred overhead costs that reflect the JAM direct and indirect costs. The AER considers the JAM capitalised unallocated direct and JAM capitalised indirect costs reported in the revised access arrangement proposal adjusted for inflation<sup>200</sup> are directly referable to

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199 AASB, *Australian Accounting Standard AASB 116 Property, Plant and Equipment (as amended)*, 30 October 2009, paragraph 19(d).

200 JGN, *Initial response to the draft decision*, March 2010, p. 86.

the proposed capital programme. Based on those costs and adjusting for inflation, the AER approves a base level of \$5.41 million (\$2008–09) to be included as the overhead component of the capital expenditure forecasts and this amount will be escalated using the relevant cost escalators. The AER considers this is capital expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services.<sup>201</sup> The AER also considers that these overhead costs are directly referable to the provision of the capital programme approved in the final decision such that the requirements of r. 79(2) of the NGR are met.

### *Margins*

As outlined in chapter 9 of the final decision, a margin (comprised of a base margin and a performance margin) is payable to JAM for the services provided under the AMA.

The margin is based on a flat percentage applied to direct costs (for JAM and third parties undertaking capital works) and overheads.<sup>202</sup>

The revised access arrangement proposal does not accept the draft decision to remove JAM's margin on all capital expenditure and maintains its position to keep the margin.<sup>203</sup> The revised access arrangement proposal outlines that the margin compensates JAM for the opportunity cost and risk of servicing JGN rather than other possible clients.<sup>204</sup>

As outlined in the draft decision, the AER does not consider that margins on services provided by external providers are incompatible with r. 79(1) of the NGR.<sup>205</sup> However, in order for the requirements of r. 79(1) of the NGR to be met, the AER must be able to verify that the total cost proposed, including any margin applied to a cost base, represents the lowest sustainable cost of providing the service.<sup>206</sup>

The draft decision also outlined that providing a margin to a service provider that does not undertake the activity is inconsistent with the lowest sustainable cost.<sup>207</sup>

As further outlined in chapter 9 of the final decision, the AER considers that the application of JAM's margin on a third party's margin (implicit as part of the total contract costs) amounts to double counting. The AER considers therefore that in circumstances where JAM outsources an activity to another party and that party applies a margin on outsourced costs, the lowest sustainable cost for the activity is the outsourced cost incurred without the addition of the JAM margin, consistent with r. 79(1)(a) of the NGR. The AER considers that the margin for work not undertaken

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201 NGR, r. 79(1)(a).

202 JGN, email to the AER, 23 April 2010, attachment, *JGN, Business case cost estimates*, 23 April 2010, (confidential) and AER analysis.

203 JGN, *Initial response to the draft decision*, March 2010, p. 83.

204 JGN, *Initial response to the draft decision*, March 2010, p. 49.

205 AER, *Draft decision*, February 2010, pp. 46, 185.

206 AER, *Draft decision*, February 2010, pp. 184–185.

207 AER, *Draft decision*, February 2010, p. 185.

by JAM, [c-i-c]<sup>208</sup>, should be removed as it is inconsistent with r. 79(1)(a) of the NGR as set out above and in the draft decision.

The AER considers that the capital programme undertaken by JAM directly may include a margin, provided the overall cost of the service is efficient. For the access arrangement period, [c-i-c]<sup>209</sup> of the capital programme is forecast to be undertaken by JAM.

As outlined in section 9.5.3.2 of chapter 9, the AER considers that it is appropriate for the margin to be consistent with the implicit margin arising from JAM's revealed costs in the 2008–09 base year. While acknowledging the limitations of benchmarking studies on margins, the AER also notes that this implicit margin, [c-i-c], is consistent with relevant benchmarking studies.

The AER considers that it is appropriate for the margin on both capital and operating expenditure to be equivalent in this instance as both expenditure programs are delivered by the same party and under the same agreement. The AER notes that this is consistent with the revised access arrangement proposal to the extent that the proposed capital and operating expenditure margins are identical.

The AER notes that unlike operating expenditure, the AER will undertake a review of capital expenditure to verify the level of conforming expenditure under r. 77(2)(b). The dollar value of margins to be added to the capital base at the commencement of the next access arrangement period will therefore be subject to the lowest sustainable cost requirement of r. 79(1)(a) of the NGR.

#### ***Conclusion on margins***

The AER considers that the proposed margin is not consistent with the lowest sustainable cost under r. 79(1)(a) of the NGR. As set out above and in chapter 9, the AER considers:

- the proposed margin is applied to the entire capital expenditure programme which inappropriately includes a margin on activities that are not undertaken by JAM
- the proposed [c-i-c] exceeds the revealed cost from base year operating expenditure and the AER considers it appropriate for the margins on both capital and operating expenditure to align in this instance. [c-i-c]
- as discussed in chapter 9, relevant benchmarking studies do not justify a margin higher than [c-i-c] in the circumstances.

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208 [c-i-c]

209 [c-i-c]



In order for the margin to be consistent with the requirements of the NGR, the AER requires JGN to adjust the forecast dollar value of the margin included in forecast capital expenditure so that it is:

- applied only to the activity undertaken directly by JAM, ([c-i-c] of the capital expenditure programme)
- calculated using a rate of [c-i-c]

The AER incorporates these revisions in the sections below that relate to each element of the proposed capital expenditure programme. The AER also considers the margin is directly referable to the provision of the capital programme approved in the final decision such that the requirements of r. 79(2) of the NGR are met.

### ***Market expansion***

The draft decision approves a level of market expansion capital expenditure based on the forecast level of new connections, the market expansion unit rates and the average rate of gas consumption per new connection as contained in the access arrangement proposal.<sup>210</sup> The draft decision adjusts the proposed market expansion capital expenditure as it was not demonstrated to represent the lowest sustainable cost to remove the margin and overheads.<sup>211</sup>

In updating its forecast capital expenditure, JGN updates its market expansion capital expenditure to reflect the revised forecast of new customer connections.<sup>212</sup> JGN submits that while it uses the same unit rates that were included in the access arrangement proposal,<sup>213</sup> it amends the unit rates to account for revised inflation estimates and updated escalators.<sup>214</sup> The impact of these adjustments is to increase the market expansion unit rates. Over the access arrangement period, the revised market expansion capital expenditure of \$394.5 million (\$2009–10) is 6.3 per cent higher than the \$371.0 million (\$2009–10) proposed in the access arrangement proposal.<sup>215</sup> Over the access arrangement period, the revised 187 933 total new connections is 1.3 per cent higher than the 185 595 total new connections proposed in the access arrangement proposal.<sup>216</sup>

The AER notes the EMRF submission that with no growth in gas consumption projected, there is no market imperative for expansion investment to be incurred immediately. The AER notes a lack of correlation between the variance associated with the total volume load forecasts (varying from -1.0 per cent to 1.0 per cent annual growth over the access arrangement period) with the variance for the new residential

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210 AER, *Draft decision*, February 2010, p. 48.

211 AER, *Draft decision*, February 2010, p. 48.

212 JGN, *Initial response to the draft decision*, March 2010, p. 63.

213 JGN, *Initial response to the draft decision*, March 2010, p. 63.

214 JGN, email to the AER, *JGN AA –response to AER Mar 10 Questions*, 9 April 2010, attachment, JGN, *Response to AER questions received on 31 March 2010*, 9 April 2010, p. 26.

215 JGN, *Access arrangement information*, August 2009, p. 116; JGN, *Revised access arrangement information*, March 2010, p. 19; AER analysis.

216 JGN, *Access arrangement information*, August 2009, pp. 69–70; JGN, *Revised access arrangement information*, March 2010, pp. 14–15; AER analysis.

connections forecasts (varies from –0.8 to 22.2 per cent annual growth).<sup>217</sup> The higher rates of annual change of the forecast new residential connections are in the last two years of the access arrangement period.<sup>218</sup>

The revised access arrangement proposal outlines that once employment begins to grow strongly again (over 2012) housing can be expected to grow sharply given the underlying stock shortage and despite a return to more normal interest rates.<sup>219</sup> In light of this, the AER considers that trends in the NSW housing sector are the primary determinant of the forecast new connections, rather than the volume demand forecasts.

The revised access arrangement proposal submits that market expansion capital cost per new connection can vary as a result of the changing mix of medium and high density connections.<sup>220</sup> The majority of the increase to the new connections forecasts can be attributed to the uplift to the new estates and high rise new connections forecasts in 2013–14 and 2014–15, of which connections around 54 per cent are medium density / high rise connections.<sup>221</sup> The unit rates for medium density / high rise connections are higher than the unit rates for customers converting from electricity to gas (E to G) and new estates connections for the two market expansion categories of meter volumes and connections.<sup>222</sup> In addition to the revised inflation and adjusted escalators, this may explain the skew towards a higher market capital expansion amount relative to the smaller percentage increase in new connections.

JGN submits further information that market expansion capital expenditure is justified under r. 79(2)(a) of the NGR,<sup>223</sup> namely the overall economic value of the expenditure is positive. JGN submits that all network extension proposals (including residential estates) are assessed on a case-by-case basis. If this economic evaluation finds the economic value to be negative, JGN calculates the capital contribution it needs to levy on the party requesting network connection to achieve a positive economic value for the project. If the user declines to pay the levy, the work will not proceed.<sup>224</sup> Further, the users' capital contribution is not added to the capital base.<sup>225</sup>

For standard residential connections, JGN uses a standard connection or average assumption to test whether a positive economic value is achieved. This average assumption is updated periodically using up-to-date unit rates for connections and

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217 JGN, *Revised access arrangement information*, March 2010, pp. 13–15 and AER analysis.

218 JGN, *Revised access arrangement information*, March 2010, pp. 14–15 and AER analysis.

219 JGN, *Initial response to the draft decision*, March 2010, appendix 11.1, p. 6.

220 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 Questions*, 9 April 2010, attachment, JGN, *Response to AER questions received on 31 March 2010*, 9 April 2010, p. 23 (confidential).

221 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 Questions*, 9 April 2010, attachment, JGN, *amended market expansion unit rates volumes & capex*, 9 April 2010 (confidential).

222 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 Questions*, attachment, 9 April 2010, JGN, *amended market expansion unit rates volumes & capex*, 9 April 2010 (confidential).

223 JGN, email to the AER, *JGN response to AER 03 May 10 questions – tranche 1 (questions 4 to 7)*, 6 May 2010, attachment, JGN, *Response to AER questions received on 03 May 2010 – Tranche 1*, 6 May 2010, pp. 4, 5 (confidential).

224 JGN, *Access arrangement information*, August 2009, p. 129.

225 JGN, *Access arrangement information*, August 2009, p. 130.

network prices. JGN submits that the economic viability is assessed on an individual basis for residential connections for non-standard site connections and for industrial and commercial new connections. Non-standard residential connections may arise where there is an excessive length of connection, difficult site conditions or significant traffic control requirements. JGN submits a confidential table demonstrating that individual new connections have a positive economic value.<sup>226</sup> For instance, the revised access arrangement proposal submits that in order to meet the requirements of r. 79(2)(a) of the NGR, the rate of return for individual connections should achieve as a minimum, the post taxation nominal rate of return of 8.78 per cent.<sup>227</sup> The AER notes that the proposed nominal vanilla weighted average cost of capital (WACC) is 10.86 per cent.<sup>228</sup> For each year in the access arrangement period, a sample economic evaluation for residential connections with a standard connection condition achieves a post taxation nominal rate of return of between 12.6 to 17.5 per cent. The revised access arrangement proposal submits that this demonstrates that the proposed market expansion capital expenditure satisfies the requirement that the overall economic value of the expenditure is positive.<sup>229</sup>

The AER considers that the nominal vanilla WACC of 9.69 per cent approved in the final decision is a more appropriate measure to compare the rate of return for market expansion capital expenditure in order to meet the requirement of r. 79(2)(a). In this case, the proposed market expansion capital expenditure appears to meet the requirement of r. 79(2)(a) of the NGR.

The AER considers that at the next review of the access arrangement, the market capital expansion capital expenditure that is undertaken in this access arrangement period will need to be demonstrated to have met the r. 79(2)(a) of the NGR requirements before it is added to the opening capital base for the next access arrangement period.

In light of this further information, the AER considers that the proposed market expansion works is justifiable because the overall economic value of the expenditure is positive.<sup>230</sup> Additionally, the AER considers that the revised level of new network connections is arrived at on a reasonable basis and represents the best forecast possible in the circumstances.<sup>231</sup>

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226 JGN, email to the AER, JGN response to AER 03 May 10 questions – tranche 1 (questions 4 to 7), 6 May 2010, attachment, JGN, *Response to AER questions received on 03 May 2010 – Tranche 1*, 6 May 2010, pp. 4, 5 (confidential).

227 JGN, email to the AER, JGN response to AER 03 May 10 questions – tranche 1 (questions 4 to 7), 6 May 2010, attachment, JGN, *Response to AER questions received on 03 May 2010 – Tranche 1*, 6 May 2010, pp. 4 (confidential).

228 JGN, *Revised access arrangement information*, March 2010, p. 35.

229 JGN, email to the AER, JGN response to AER 03 May 10 questions – tranche 1 (questions 4 to 7), 6 May 2010, attachment, JGN, *Response to AER questions received on 03 May 2010 – Tranche 1*, 6 May 2010, pp. 4, 5 (confidential) and NGR, r. 79(2)(a).

230 NGR, r. 79(2)(a)

231 NGR, r. 74(2).

After marking the adjustments for the overheads and margins, noting that [c-i-c] of this work is forecast to be undertaken internally<sup>232</sup>, the AER approves a level of market expansion capital expenditure of \$360.1 million (\$2009–10) over the access arrangement period. The AER considers that the revised market expansion capital expansion is 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 providing services.<sup>233</sup>

### ***Conclusion on market expansion capital expenditure***

After making adjustments for the overheads and margins, the AER approves a level of market expansion capital expenditure of \$360.1 million (\$2009–10) consistent with the approved new network connections forecast (as outlined in chapter 11 of the final decision).

### ***System reinforcement, renewal and replacement***

The EUAA and the ENA disagree<sup>234</sup> with the approach adopted in the draft decision to approve a baseline level of expenditure based on historical levels of system reinforcement, renewal and replacement for the majority of the works proposed in this category.<sup>235</sup> On the other hand the EMRF considers this approach is appropriate.<sup>236</sup> The AER adopted this approach in the draft decision because of an absence of information to support the higher level of expenditure compared to the earlier access arrangement period and a concern by the AER whether the proposed scope of work can be delivered without detailed business plans and capital programming within the proposed timeframes.<sup>237</sup> The AER considers the historical levels in the earlier access arrangement period to be a good indication of the level that JGN is capable of delivering in the access arrangement period.<sup>238</sup> Additionally in the draft decision, the AER approves four projects that JGN provided more detailed information. The AER considers this detailed information contains supporting business cases.<sup>239</sup> The AER removes certain items from the capital base such as mine subsidence, ad hoc mains and services renewals and pigging and integrity digs.<sup>240</sup>

The AER's analysis and consideration in relation to the revised access arrangement proposal is set out below.

### ***Lack of supporting information for the capital expenditure projects***

In response to the access arrangement proposal, the 2009 Wilson Cook report concludes that no business cases or detailed project related papers were provided other than in respect of two particular projects. The 2009 Wilson Cook report notes

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232 JGN, email to the AER, JGN AA –Response to AER 31 Mar 10 Questions, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

233 NGR, r. 79(1)(a).

234 EUAA, *Submission to the AER*, April 2010, pp. i, 11 and ENA, *Submission to the AER*, April 2010, pp. 5–6.

235 AER, *Draft decision*, February 2010, p. 52.

236 EMRF, *Submission to the AER*, April 2010, pp. 14–15.

237 AER, *Draft decision*, February 2010, p. 52.

238 AER, *Draft decision*, February 2010, pp. 52–53.

239 AER, *Draft decision*, February 2010, pp. 53–54.

240 AER, *Draft decision*, February 2010, p. 53.

accepted good industry practice would normally require the completion of a business case before commencement of work.<sup>241</sup> Consistent with the draft decision, the AER maintains that JGN should have at least a business case established for those projects planned within one year of commencement of the access arrangement period.<sup>242</sup> As a consequence of this lack of information, the 2009 Wilson Cook report and the AER were not able to conclude on the efficiency of individual projects that make up the forecast capital expenditure.<sup>243</sup>

In response to the draft decision JGN provides a confidential sample of 10 business cases.<sup>244</sup> Additionally, JGN submits further information concerning the nature of the capital program<sup>245</sup> including supporting consultant's reports<sup>246</sup> and various other supporting appendices and responses to the AER's follow-up questions.

The AER considers that JGN provides further clarifying information concerning the processes, nature of the capital expenditure program than what was provided in the access arrangement proposal. The AER notes the inherent difficulty in providing fully costed business cases for projects scheduled to take place in the later part of the access arrangement period.

The revised access arrangement proposal includes 10 business cases.<sup>247</sup> The AER has reviewed this sample of business cases and considers that those projects are representative costs and business cases resultant from the procurement gating and project approval processes.<sup>248</sup>

The AER considers that the JGN addresses the issue in the draft decision about a lack of information supporting the individual projects making up the capital program.

*JAM's capacity to deliver an increased capital expenditure program*

In order to address the concern in the draft decision that JGN has not demonstrated it has the capacity to deliver an increased capital expenditure program and in light of the outsourcing arrangement JGN has with JAM, JGN submits:

- the increase to the capital programme represents less than a 10 per cent increase to JAM's annual program of works<sup>249</sup>
- JAM outsources a large proportion of the capital program<sup>250</sup>

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241 Wilson Cook report 2010, p.55.

242 AER, *Draft decision*, February 2010, p. 52.

243 AER, *Draft decision*, February 2010, pp. 51–52.

244 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.12.

245 JGN, *Initial response to the draft decision*, March 2010, pp. 44–99.

246 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.1; JGN, *Initial response to the draft decision*, March 2010, appendix 3b.2; JGN, *Initial response to the draft decision*, March 2010, appendix 3b.4.

247 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.12.

248 JGN, *Initial response to the draft decision*, March 2010, pp. 53–59.

249 JGN, *Initial response to the draft decision*, March 2010, p. 97.

250 JGN, *Initial response to the draft decision*, March 2010, p. 98.

- JAM has employed one more contract manager to deliver the 2010–11 capital and operating expenditure program<sup>251</sup>
- there is no impact on JAM's ability to deliver as a result of increased demands from the electricity industry as resources required to build the projects are gas specific.<sup>252</sup>

The AER notes the ENA submission that an assessment of the deliverability of the future capital expenditure program should take into account the likely capacity of the service provider over the access arrangement period.<sup>253</sup> The 2010 Wilson Cook report concurs with the revised access arrangement proposal that JAM is capable of economies of scale not available to JGN and that JAM has the capacity to meet an increased capital expenditure program compared with what was undertaken in the past.<sup>254</sup>

In light of the further information JGN provides and the view expressed in the 2010 Wilson Cook report, the AER considers that JGN has the capacity to deliver the proposed capital expenditure program within the proposed time frames and has the resources to do so.

#### *Growth capacity development*

The revised access arrangement proposal outlines that the cost estimates for this type of capital expenditure are derived from a desktop assessment using unit rates from comparable recent projects, a JAM pricing model which includes estimates from external quantity surveyors, and project estimates from contractors and tenders.<sup>255</sup>

JGN submits the implementation of certain capacity development projects were deferred during the earlier access arrangement period due to the lower than forecast demand. Instead, short term capacity extensions were implemented. However JGN submits these extensions are now exhausted and it is not possible to defer these projects further. JGN submits a number of critical system reinforcement projects are now necessary to manage system peak demand.<sup>256</sup>

In addition, JGN submits that changing gas appliance technologies, such as high capacity instantaneous water hot water systems, generally have peak load requirements up to 10 times greater than older appliances, yet consume up to 40 per cent less on an annual basis.<sup>257</sup> In light of the information above, the AER considers this supports an increase in capital expenditure for growth capacity development.

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251 JGN, *Initial response to the draft decision*, March 2010, p. 98.

252 JGN, *Initial response to the draft decision*, March 2010, p. 98.

253 ENA, *Submission to the AER*, April 2010, pp. 5–6.

254 Wilson Cook report 2010, p. 45.

255 JGN, *Revised access arrangement information*, March 2010, p. 20.

256 JGN, *Initial response to the draft decision*, March 2010, p. 50.

257 JGN, *Initial response to the draft decision*, March 2010, p. 51.

A confidential appendix, submitted by JGN, containing business cases for eight capacity development projects<sup>258</sup> supports the submission that certain capacity constraints need to be actioned during the access arrangement period.<sup>259</sup> For these projects, modelling shows that for a 1 in 10 winter event, a certain number of customers are at risk of having supply curtailed during the access arrangement period. In coming to a preferred option, the business cases contemplate a number of alternative options, including a 'do nothing' approach as well as alternative approaches by considering the costs, the benefits and risks.<sup>260</sup> In relation to the proposed Wakehurst Parkway project, the revised access arrangement proposal submits modelling that indicates a 1 in 2 winter event could result in the loss of supply for up to 3000 customers.<sup>261</sup> More generally, JGN submits that to defer or not undertake the proposed capacity development projects could result in loss of supply resulting from a 1 in 20 cold winter event. JGN submits that allowing a supply reliability risk is inconsistent with the NGO.<sup>262</sup> The AER considers the further information outlined above supports the capacity development capital expenditure program proposed in the revised access arrangement proposal.

In light of the further information JGN provides concerning the identification of peak capacity constraints and short term capacity extensions being exhausted, the AER considers that capacity development projects proposed by JGN are necessary in order to maintain the reliability of supply to the network and to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred.<sup>263</sup>

After making the adjustments for the overhead costs and margins, noting that [c-i-c] of the work is forecast to be undertaken internally<sup>264</sup>, the AER approves a level of capacity development capital expenditure of \$68.3 million (\$2009–10) over the access arrangement period. The AER considers that this level of capacity development capital expansion is 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 providing services.<sup>265</sup>

#### *Mains and services renewal*

The revised access arrangement proposal outlines that a significant proportion of the original high pressure natural gas supply systems are now reaching, and in some cases have exceeded, the end of their useful economic lives. Many of these assets were constructed 40 years ago utilising historical standards of the day. Any works to replace failed key components will generally require the upgrade of significant elements to meet today's standards. JGN submits that an assessment of these facilities

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258 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.12.

259 JGN, *Initial response to the draft decision*, March 2010, pp. 50–51.

260 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.12.

261 JGN, *Initial response to the draft decision*, March 2010, p. 51.

262 JGN, *Initial response to the draft decision*, March 2010, p. 51.

263 NGR, r. 79(2)(c)(iv).

264 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 Questions*, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

265 NGR, r. 79(1)(a).

found that to maintain integrity and meet prudent engineering practice, it is more effective to replace the facilities altogether rather than on a piecemeal basis.<sup>266</sup> Additionally, the APA Group has informed JGN that pressures will be increased on the Southern NSW high pressure pipeline system which JGN submits will necessitate the upgrade of 13 off take stations in rural parts of its network to ensure the safety, integrity and functionality of the network.<sup>267</sup>

JGN submits that ad hoc renewal of mains and services accounts for sections of main and associated services that have reached the end of their economic life or pose unacceptable risk.<sup>268</sup> Forecast capital expenditure is based on historical renewal activity, historical unit rates and current policies and procedures which reflect an increase in future renewal activities.<sup>269</sup>

In light of the JGN forecasts that are based on historical unit rates and historical renewal rates,<sup>270</sup> the AER considers that the mains and services renewal capital expenditure is capital expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services.<sup>271</sup> The AER also considers that the meter replacement and renewal program is necessary to maintain the integrity of services.<sup>272</sup> Taking into account adjustments for the margins and overheads and noting that [c-i-c] of the work is forecast to be undertaken internally by JAM,<sup>273</sup> the AER approves a total amount of \$19.0 million (\$2009–10) for mains and services renewal capital expenditure for the access arrangement period.

*Stay in business facilities and supervisory control and data acquisition*

JGN submits that cost estimates for this type of capital expenditure are derived from a desktop assessment using unit rates from comparable recent projects, a JAM pricing model which includes estimates from external quantity surveyors, and project estimates from contractors and tenders.<sup>274</sup> The AER considers that stay in business facility and supervisory control and data acquisition (SCADA) is capital expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services.<sup>275</sup> The AER also considers that the stay in business facility and SCADA capital expenditure is necessary to maintain the integrity of services.<sup>276</sup>

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266 JGN, *Initial response to the draft decision*, March 2010, p. 51.

267 JGN, *Initial response to the draft decision*, March 2010, pp. 51–52.

268 JGN, *Revised access arrangement information*, March 2010, p. 21.

269 JGN, *Revised access arrangement information*, March 2010, p. 21.

270 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.9.

271 NGR, r. 79(1)(a).

272 NGR, r. 79(2)(c)(ii).

273 JGN, email to the AER, JGN AA –Response to AER 31 Mar 10 Questions, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

274 JGN, *Revised access arrangement information*, March 2010, p. 22.

275 NGR, r. 79(1)(a).

276 NGR, r. 79(2)(c)(ii).



After making the adjustments for the overhead costs and margins, noting that [c-i-c] of this work is forecast to be undertaken internally by JAM,<sup>277</sup> the AER approves a total amount of \$72.9 million (\$2009–10) for stay in business capital expenditure for the access arrangement period.

*Meter renewal and upgrade*

JGN submits that forecast metering asset replacement is to meet new regulatory and metering standard requirements and this almost eliminates the likelihood that residential meter life extensions will occur for those meters older than 20 years of age.<sup>278</sup> JGN submits a confidential appendix in support of the meter renewal and upgrade capital expenditure forecasts.<sup>279</sup>

JGN submits that JAM subcontracts the provision of metering services to a third party and the purchase of all meter and regulators is competitively tendered.<sup>280</sup> Forecast purchase costs are based on either historical purchase prices or the known cost of new meters.<sup>281</sup> The forecast replacement rates are based on 15 year old meters with a proven operating history that will be sampled to seek an in-service life extension, 15 year old meters with a history of problems that will be replaced without sampling and 20 to 25 year old meters that are unlikely to pass sampling and will be replaced.<sup>282</sup>

JGN submits that forecast volumes are based on the life expectancy of various meter types and forecast unit rates are based on historical actual rates from the earlier access arrangement period.<sup>283</sup>

The 2009 Wilson Cook report did not agree with the reasons put forward in the access arrangement proposal for an accelerated replacement policy for residential meters. One issue was that no reason was provided in the access arrangement proposal as to why a further life extension should not be allowed if the sampling tests are passed. Further, the access arrangement proposal anticipates a large number of new meters may be manufactured to lower standards or installed to lower standards. However, the 2009 Wilson Cook report outlines meters of inferior quality should not be bought or installation work of inferior quality should be rejected. The 2009 Wilson Cook report further notes a lack of a business case outlining the costs and benefits of the proposed change in replacement policy. In the absence of information provided in the access arrangement proposal, the 2009 Wilson Cook report estimates an adjustment to this item by assuming a level of expenditure equal to the average of the upper and lower bounds, recommending that the amount proposed in the access arrangement proposal (\$39.4 million (\$2009–10)) be halved.<sup>284</sup>

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277 JGN, email to the AER, JGN AA –Response to AER 31 Mar 10 Questions, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

278 JGN, *Initial response to the draft decision*, March 2010, pp. 51–52.

279 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.9.

280 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.9, p. 2.

281 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.9, p. 2.

282 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.9, p. 3.

283 JGN, *Revised access arrangement information*, March 2010, p. 22.

284 Wilson Cook report 2009, pp. 59–60.

The 2010 Wilson Cook report outlines:

- the revised access arrangement proposal (or any other relevant submission by JGN) should provide evidence to support that the meter lives cannot be extended to the extent previously assumed (that is to the extent achieved before the regulatory change)
- the revised access arrangement proposal appears to rely on JGN's stated experience in this matter and does not provide evidence in support of its submission that a second extension of residential meters is impractical
- the fact that a proportion of JGN's metering stock has remained in service beyond 20 years gives weight to the 2009 Wilson Cook report's view that a life of 20–25 years is reasonable for residential meters.<sup>285</sup>

On this basis, the 2010 Wilson Cook report maintains the view taken in the 2009 Wilson Cook report and considers that the proposed capital expenditure for this item should be halved in relation to volume and therefore the dollar amount.<sup>286</sup>

The AER agrees with the 2010 Wilson Cook report and considers that only half of the forecast residential meter and renewal capital expenditure is capital expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services.<sup>287</sup>

The AER notes that the metering renewal and upgrade capital expenditure forecast also includes costs relating to a water meter replacement program.<sup>288</sup> JGN submits that this program is a means of ensuring that the accuracy of these water meters is maintained and also ensuring a cost efficient means of replacing meters, rather than waiting until the meters fail in the field.<sup>289</sup> JGN further submits that due to the ageing process and to rodent activity, it is expected that many of the cables used to link currently installed water meters to data loggers would be broken. JGN submits that cable replacement would be impossible in existing buildings due to construction and fire protection, and therefore JGN's metering renewal and upgrade capital expenditure forecast includes additional costs for the installation of a wireless system using radio frequency (RF) heads to replace cable data logging systems in such locations.<sup>290</sup>

The AER notes Ms Kingston's submission regarding water meters.<sup>291</sup> Ms Kingston's submission is about the upgrade and replacement of the water meters used in centralised gas hot water systems, and whether the water meters form part of the JGN NSW gas distribution network.<sup>292</sup> JGN responds to Ms Kingston's submission by

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285 Wilson Cook report 2010, pp. 45–46.

286 Wilson Cook report 2010, pp. 42–46, 48.

287 NGR, r. 79(1)(a).

288 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.9, pp. 5–7

289 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.9, p. 6

290 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.9, p. 6

291 Kingston, *Submission to the AER*, April 2010.

292 Kingston, *Submission to the AER*, April 2010, pp. 14–15.

noting that in NSW, each individual consumer in an apartment block has the opportunity to choose its gas retailer, as opposed to Victoria and Queensland where a single energy retailer supplies an entire apartment block. Consequently JGN states that Ms Kingston's comments are not directly relevant to JGN.<sup>293</sup>

The AER notes that the submission by Ms Kingston is referring to metering services used for calculating centralised (bulk) hot water billing in apartment blocks.<sup>294</sup> As outlined in chapter 2, the AER considers that the provision of these metering services are reference services as defined in s. 2 of the NGL. As a consequence metering assets are relevant to the provision of metering services which are considered pipeline services under the NGL. The AER has taken hot water meter assets and capital expenditure into account when determining the forecast capital expenditure for meter renewal and upgrades as they form part of the capital base of providing meter reference services.

Concerning the remaining components of the meter renewal and upgrade programme, the AER considers that this is capital expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services.<sup>295</sup> The AER also considers that the meter and renewal program is necessary to maintain the integrity of services.<sup>296</sup>

After making the adjustments for the overhead costs and margins, noting that [c-i-c] of the meter renewal and replacement program is forecast to be undertaken internally by JAM,<sup>297</sup> and reducing the residential aged gas meter replacement capital expenditure by half, the AER approves a total amount of \$117.5 million (\$2009–10) for meter renewal and replacement capital expenditure for the access arrangement period.

#### *Government authority work*

JGN submits that the forecast expenditure for government authority work is based on historical trends.<sup>298</sup> In light of this, the AER considers that the government authority expenditure is capital expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services.<sup>299</sup> The AER also considers that the government authority work is necessary to comply with a regulatory obligation or requirement.<sup>300</sup>

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293 JGN, *Response to public submissions*, 18 May 2010, p. 5.

294 Kingston, *Submission to the AER*, April 2010.

295 NGR, r. 79(1)(a).

296 NGR, r. 79(2)(c)(ii).

297 JGN, email to the AER, JGN AA –Response to AER 31 Mar 10 Questions, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

298 JGN, *Revised access arrangement information*, March 2010, p. 22.

299 NGR, r. 79(1)(a).

300 NGR, r. 79(2)(c)(iii).

After making the adjustments for the overhead costs and margins, noting that [c-i-c] of this work is forecast to be undertaken internally by JAM,<sup>301</sup> the AER approves a total amount of \$2.9 million (\$2009–10) for government authority capital expenditure for the access arrangement period.

*Certain items identified as operating expenditure in the draft decision*

JGN does not accept the draft decision amendments to remove expenditure associated with mine subsidence, integrity digs, pigging and ad hoc mains and service renewals from the capital base.<sup>302</sup> The draft decision requires their removal on the grounds that they were not considered conforming capital expenditure under r. 79(1) of the NGR.<sup>303</sup>

JGN submits that these items are capital in nature according to the capitalisation policy which is compliant with the relevant accounting and financial standards.<sup>304</sup> JGN submits that new assets are created and asset lives are extended for these activities.<sup>305</sup> With respect to the capitalisation of these items, JGN submits two reports from Ernst & Young<sup>306</sup> and the 2010 PB report. Consistent with the 2010 Wilson Cook report,<sup>307</sup> the AER considers that while these items are capitalised under the capitalisation policy which accords to the relevant accounting standards, an accounting standard may but does not necessarily establish that these items are capital for the purposes of r. 69 and r. 79 of the NGR. This is because the framework for accounting purposes and the NGL framework have different objectives. For instance the purpose of the NGL relates to the long term interests of consumers of natural gas.<sup>308</sup> Rule 69 of the NGR states that capital expenditure means costs and expenditure of a capital nature incurred to provide, or in providing, pipeline services. Whereas the objective of the accounting standards referred to in the Ernst & Young report relates to users of the financial statements so that they can discern information about an entity's investment in its property, plant and equipment and the changes in such investment.<sup>309</sup>

While JGN submits that the Ernst & Young report supports the capitalisation policy in all instances,<sup>310</sup> the AER notes certain reservations contained in the Ernst & Young report concerning the capitalisation of these items, including:

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301 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 Questions*, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

302 JGN, *Initial response to the draft decision*, March 2010, pp. 87–89.

303 AER, *Draft decision*, February 2010, p. 53.

304 JGN, *Initial response to the draft decision*, March 2010, p. 49.

305 JGN, *Initial response to the draft decision*, March 2010, p. 88.

306 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.4 (confidential) and JGN, email to the AER, 19 April 2010, attachment, Ernst & Young, *Jemena Gas networks Ltd, Expert report in relation to accounting standards applicable to the capitalisation of costs*, 15 April 2010 (confidential),

307 Wilson Cook report 2010, p. 32.

308 NGL, s. 23.

309 AASB, *Australian Accounting Standard AASB 116 Property, Plant and Equipment* (as amended), 30 October 2009, paragraph 1.

310 JGN, *Initial response to the draft decision*, March 2010, p. 88.

- the conclusions for mine subsidence are based upon a high level assessment of the major components of the Appin mine subsidence and explanations, submissions and representation from JAM personnel, and so no submission is made that all of the costs meet the criteria for capitalisation<sup>311</sup>
- recognition that some mine subsidence costs may not enhance future economic benefits of the asset, being more repairs and maintenance in nature, and so these items should be expensed<sup>312</sup>
- in relation to costs associated with ad hoc mains and service renewals, JGN should present evidence to the AER that the costs are in fact capital in nature.<sup>313</sup>

The 2010 Wilson Cook report outlines that as a general comment, the capitalisation of repairs, if carried to an illogical extreme, would lead to all expenditure on repairs being added to the capital base and to the capital base being inflated as result. The 2010 Wilson Cook report outlines that the cost of repairs without creating a new asset or extending the life of an existing asset would inflate the value of the network fixed assets improperly. It is a matter of fact whether the repair of a portion of an asset extends the life of the asset as a whole.<sup>314</sup>

The following sets out the AER's analysis and consideration for each component identified in the draft decision<sup>315</sup> as items that are not conforming capital expenditure under r. 79(1) of the NGR.

#### *1. Mine subsidence*

The revised capital expenditure forecast for mine subsidence is \$[c-i-c] million (\$2009–10).<sup>316</sup> [c-i-c]

<sup>317</sup> This compares to \$5.5 million (\$2009–10) forecast in the access arrangement proposal.<sup>318</sup>

The access arrangement proposal proposes to add the value of mine subsidence expenditure to the value of the asset as capital expenditure. While the expense is necessary to ensure the asset continues to perform its intended function, the AER notes the asset continues to perform the same function that it performed before the repairs became necessary. Further, the repair does not add to the expected remaining asset life beyond what was expected previous to the repair becoming necessary. The AER considers that no evidence is being provided that an asset is being replaced as a

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311 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.4, p. 10.

312 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.4, p. 11.

313 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.4, p. 13.

314 Wilson Cook report 2010, p. 37.

315 AER, *Draft decision*, February 2010, p. 53.

316 [c-i-c]

317 [c-i-c]

318 JGN, *Access arrangement information*, August 2009, appendix 7.6, p. 14 (confidential) and AER analysis.

result of this capital expenditure. If this was the case then the access arrangement proposal should provide information to support how the capital base is affected. The revised access arrangement proposal does not provide this information.

Based on the AER's analysis and considerations set out in the mine subsidence section for the earlier access arrangement period, the AER agrees with the 2010 Wilson Cook report and considers that the forecast mine subsidence is a repair or improvement of a portion of the pipeline in nature and that it is necessary.<sup>319</sup> The AER does not consider that the proposed mine subsidence work is capital in nature because the work is not demonstrated to increase the life or capacity of the pipeline asset as a whole. The AER maintains the view in the draft decision<sup>320</sup> and consistent with the 2010 Wilson Cook report considers mine subsidence is not conforming capital expenditure under r. 79(1) of the NGR.

Consistent with the 2010 Wilson Cook report, the AER considers the mine subsidence expenditure is necessary. After making the adjustments for the overhead costs and margins, noting that [c-i-c] of this work is forecast to be undertaken internally by JAM<sup>321</sup> the AER approves an amount of \$3.1 million (\$2009–10) as operating expenditure that 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>322</sup> as noted in section 9.5.4.6 of chapter 9 of the final decision.

## 2. Integrity digs

The 2010 PB report submits that while no new asset is created, integrity digs are an important part of the condition monitoring component of the lifecycle management process and contributes to the extension of the asset life. JAM identifies that a component of the integrity digs expenditure results in the repair of areas of the trunk mains thereby extending the asset life and postponing the later need for renewal.<sup>323</sup> The 2010 PB report does not quantify the amount of the integrity digs expenditure that related to the extension of asset life.<sup>324</sup>

The 2009 Wilson Cook report outlines that certain projects involving integrity digs in the access arrangement proposal do not appear to relate to the addition of a new asset or to remedial work that would extend the life of the existing asset.<sup>325</sup> The capital expenditure associated with those projects should be removed from the capital base.<sup>326</sup>

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319 Wilson Cook report 2010, p. 38.

320 AER, *Draft decision*, February 2010, p. 53.

321 JGN, email to the AER, JGN AA –Response to AER 31 Mar 10 Questions, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

322 NGR, r. 91(1).

323 PB report 2010, p. 26.

324 PB report 2010, p. 25.

325 Wilson Cook report 2009, p. 58.

326 The 2009 Wilson Cook report excludes the item Koorigang Island to Walsh Point integrity digs as part of the total amount to be removed from the capital base. Source: Wilson Cook, email to the AER, *15 January 2010, attachment*, Wilson Cook, *Jemena - integrity digs and pigging revA.xls*, 15 January 2010.

The 2010 Wilson Cook report outlines that no significant new technical information about integrity digs was provided in support of the capitalisation of this item. The 2010 Wilson Cook report outlines that integrity digs are not related to the addition of a new asset or extension of the life of an asset in nature and as a consequence should be removed from the forecast capital expenditure.<sup>327</sup>

Without the identification of the amount of work attributable to the extension of life for the network assets, and considering this work is digging and inspecting in nature, and maintaining the view in the draft decision,<sup>328</sup> the AER considers that this item is on balance more repair or inspection work in nature.

Consistent with the 2009 and 2010 Wilson Cook reports, the AER considers the expenditure associated with this work is necessary. After making adjustments for the margins and overheads and noting that [c-i-c] of this type of work is forecast to be undertaken internally by JAM,<sup>329</sup> the AER approves an amount of \$15.0 million (\$2009–10) as operating expenditure that 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>330</sup> as noted in section 9.5.4.6 of chapter 9 of the final decision.

In addition, the 2009 Wilson Cook report considers a proportion of this work appears to relate to the addition of a new asset or to remedial work that would extend the life of the asset.<sup>331</sup> The AER agrees with this assessment. After making the adjustments for the overhead costs and margins, noting that [c-i-c] of work of this type is forecast to be undertaken internally by JAM,<sup>332</sup> the AER approves \$0.3 million (\$2009–10) for inclusion in the capital base as this amount is consistent with the requirements set out in r. 79(1)(a), r. 79(2)(c)(i) and r. 79(2)(c)(ii) of the NGR.

### 3. *Pigging*

The 2010 PB report submits that the pigging works contained in JGN's capital expenditure forecasts relate to physical assets in order to allow integrity assessments of the assets to be undertaken.<sup>333</sup>

The 2009 Wilson Cook report outlines that certain pigging related projects in the access arrangement proposal, do not appear to relate to the addition of a new asset or to remedial work that would extend the life of the existing asset.<sup>334</sup> The capital expenditure associated with those projects should be removed from the capital base.<sup>335</sup>

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327 Wilson Cook report 2009, p. 58 and Wilson Cook report 2010, pp. 34–35.

328 AER, *Draft decision*, February 2010, p. 53.

329 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 Questions*, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

330 NGR, r. 91(1).

331 Wilson Cook report, 2009, p. 58.

332 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 Questions*, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

333 PB report 2010, pp. 25–26.

334 Wilson Cook report 2009, p. 58.

335 The 2009 Wilson Cook report excludes the items Licence 1 pigging activities, Licence 8b pipeline pigging, DN200 Penrith primary main pigging facilities (temporary fac option) and DN200 Penrith primary main

The 2010 Wilson Cook report outlines that the conclusion for pigging is the same as that described for integrity digs. The view is retained that pigging related capital expenditure projects identified as not relating to the addition of a new asset or extending the life of an asset in nature should be removed from the forecast capital expenditure.<sup>336</sup>

Similar to the integrity digs expenditure, without the identification of the amount of work attributable to the extension of life for assets in the JGN network and maintaining the view in the draft decision,<sup>337</sup> the AER considers that this item is on balance more inspection and repair work in nature.

Consistent with the 2009 Wilson Cook report and 2010 Wilson Cook report, the AER considers the expenditure associated with this work is necessary. After accounting for the adjustments made for the margins and overheads and noting that [c-i-c] of this type of work is forecast to be undertaken internally by JAM,<sup>338</sup> the AER approves an amount of \$1.9 million (\$2009–10) as operating expenditure that 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>339</sup> as noted in section 9.5.4.6 chapter 9 of the final decision.

In addition, the 2009 Wilson Cook report considers a proportion of this work appears to relate to the addition of a new asset or to remedial work that would extend the life of the asset.<sup>340</sup> The AER agrees with this assessment. After accounting for the adjustments made for the margins and overheads and noting that [c-i-c] of work of this type is forecast to be undertaken internally by JAM,<sup>341</sup> the AER approves \$2.7 million (\$2009–10) for inclusion in the capital base as this amount is consistent with the requirements set out in r. 79(1)(a), r. 79(2)(c)(i) and r. 79(2)(c)(ii) of the NGR.

#### 4. *Ad hoc mains and services renewals*

The 2010 PB report submits that works are expensed for those works carried out for pipelines of a standard length of 12 metres and no design work is required and those sections are replaced when the mains are renewed.<sup>342</sup> However, where longer lengths of the main are renewed and design work is required and these lengths are retained when the mains in the surrounding areas are replaced, these sections extend the service life of the mains in an ad hoc manner.<sup>343</sup>

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pipeline pigging as part of the total amount to be removed from the capital base. Source: Wilson Cook, email to the AER, 15 January 2010, attachment, *Wilson Cook, Jemena - integrity digs and pigging revA.xls*, 15 January 2010.

336 Wilson Cook report 2009, p. 58 and Wilson Cook report 2010, pp. 34–35.

337 AER, *Draft decision*, February 2010, p. 53.

338 JGN, email to the AER, JGN AA –Response to AER 31 Mar 10 Questions, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

339 NGR, r. 91(1).

340 Wilson Cook report 2009, p. 58.

341 JGN, email to the AER, JGN AA –Response to the AER 31 March 10 Questions, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential).

342 PB report 2010, p. 26.

343 PB report 2010, pp. 26–27.



The 2010 Wilson Cook report maintains its view that on balance this item should be expensed. The 2010 Wilson Cook report outlines that one of the main reasons for this view is that ad hoc work tends to be piecemeal and does not constitute widespread upgrading of the network or of contiguous sections of the network. The 2010 Wilson Cook report outlines that the expensing of ad hoc work allows a proper balance to be struck between 'patching up' (that is, repairing) old sections of a network or replacing those sections with new sections.<sup>344</sup>

Consistent with the 2009 Wilson Cook report and 2010 Wilson Cook report, the AER considers the expenditure associated with this work is necessary. After making the adjustments for the overhead costs and margins, noting that [c-i-c] of this type of work is forecast to be undertaken internally by JAM,<sup>345</sup> the AER approves an amount of \$8.3 million (\$2009–10) as operating expenditure that 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>346</sup> as noted in section 9.5.4.6 of chapter 9 of the final decision.

***Conclusion on system reinforcement, renewal and replacement capital expenditure***

After making the adjustments for the overhead costs and margins and the removal of expenditure that the AER considers is not capital in nature, the AER approves a total amount of \$283.7 million (\$2009–10) for total system reinforcement, renewal and replacement capital expenditure for the access arrangement period.

***Non-system assets***

The draft decision approves a baseline level of expenditure based on historical levels for motor vehicles capital expenditure category.<sup>347</sup> This baseline approach was taken due to a lack of supporting information.<sup>348</sup> For IT capital expenditure, the AER approves an amount consistent with that proposed in the access arrangement proposal, but removes three items that were not sufficiently justified.<sup>349</sup>

***Motor vehicles***

The revised access arrangement proposal forecasts motor vehicles program capital expenditure of \$15.6 million (\$2009–10) over the access arrangement period<sup>350</sup> which compares to \$22.8 million (\$2009–10) proposed in the access arrangement proposal.<sup>351</sup>

JGN submits that motor vehicles are replaced under a process which ensures all motor vehicles are purchased through competitive tender and the revised forecast is based on the cost of recent vehicles.<sup>352</sup> JGN submits a confidential appendix to the AER in

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344 Wilson Cook report 2010, p. 42.

345 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 Questions*, 9 April 2010, attachment, JGN, *AER spreadsheet requesting split of JGN capex*, 9 April 2010 (confidential) and AER analysis.

346 NGR, r. 91(1).

347 AER, *Draft decision*, February 2010, p. 55.

348 AER, *Draft decision*, February 2010, pp. 25, 55.

349 AER, *Draft decision*, February 2010, p. 58.

350 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.8, p. 7 (confidential).

351 JGN, *Access arrangement information*, August 2009, appendix 7.6 (confidential).

352 JGN, *Initial response to the draft decision*, March 2010, pp. 63–64.

support of the motor vehicle replacement program.<sup>353</sup> JGN submits that the replacement of vehicles is based on a forecast number of kilometres travelled each year, and the age and condition of the vehicles. To forecast the capital expenditure, the revised access arrangement proposal uses unit rates based on either historical prices or recent market prices.<sup>354</sup>

The AER considers that the revised access arrangement proposal addresses the issue of a lack of information concerning the motor vehicles capital expenditure forecast. In light of the unit costs being based on historical rates, which were determined as a result of a competitive tender process, and the replacement of the vehicles being based on condition, hours of operation and age, the AER considers that the forecast motor vehicle expenditure is capital expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services<sup>355</sup> and that the expenditure is necessary to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred.<sup>356</sup>

After making the adjustments for the overhead costs and margins, the AER approves a total amount of \$14.0 million (\$2009–10) for motor vehicle capital expenditure for the access arrangement period.

#### *Information technology*

The draft decision accepts that JGN needs to improve its IT system and approves the proposed IT capital expenditure but does not approve certain items that were not justified or explained.<sup>357</sup> The revised access arrangement proposal provides further information about these three items as outlined below.<sup>358</sup>

The draft decision considers that the purpose of the capital expenditure item 'contingency amount for customer services, metering and billing application software' was not identified in the access arrangement proposal and so it did not meet the requirements of r. 79 of the NGR.<sup>359</sup> The revised access arrangement proposal submits that this item is:

- a provisional cost which represents a 10 per cent contingency of the total project costs and is an amount which is prudent representing common practice within the IT industry and larger projects generally<sup>360</sup>
- an amount that represents prudent risk management because there is 3 years between the forecast and planned commencement of the project and this amount may be required to support the addition of unspecified functional initiatives.<sup>361</sup>

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353 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.8 (confidential).

354 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.8, p. 7 (confidential).

355 NGR, r. 79(1)(a).

356 NGR, r. 79(2)(c)(iv).

357 AER, *Draft decision*, February 2010, p. 58.

358 JGN, *Initial response to the draft decision*, March 2010, pp. 89–93.

359 AER, *Draft decision*, February 2010, p. 56–57.

360 JGN, *Initial response to the draft decision*, March 2010, pp. 89–90.

The AER considers that the revised access arrangement proposal addresses the issue raised in the draft decision as to the purpose of this fund. The AER accepts that this contingency amount is unique in view of a 3 year out forecast for an IT programme that is likely to deliver greater functionality than is currently envisaged in the current specification. The AER approves the cost of this contingency amount for customer services as it meets the requirements of r. 79(1) of the NGR.

The draft decision considers that the capital expenditure item 'organic growth infrastructure' was not explained in the access arrangement proposal and so it did not meet the requirements of r. 79 of the NGR.<sup>362</sup> The revised access arrangement proposal submits that this item allows for growth of IT infrastructure technologies, sufficient capacity for IT needs and is distinct from the organic growth per software licences as it does not include technical software licences.<sup>363</sup> The AER considers that the revised access arrangement proposal addresses the issue raised in the draft decision, namely whether this is accounted for in the organic growth for software licences and is of a capital nature. The AER notes that JGN submits that this item is not counted in another similar titled category<sup>364</sup> and so the AER considers this item is capital in nature. The AER approves the costs of the organic growth infrastructure as it meets the requirements of r. 79(1) of the NGR.

The draft decision considers the capital expenditure item 'AER – market changes and access arrangements' was not explained in the access arrangement proposal and so it did not meet the requirements of r. 79 of the NGR.<sup>365</sup> The revised access arrangement proposal submits that this item is for the provision of revised reference services that require supporting application software asset development to facilitate billing and administration under the new access arrangement.<sup>366</sup> This includes new system functionality which includes the migration of customers to new tariffs and tariff classes such as the demand first response tariff class, capturing and storing additional contract data to support new charging approaches and implementing chargeable demand calculation capabilities.<sup>367</sup> The AER considers that the revised access arrangement proposal addresses the issue raised in the draft decision, namely what this item relates to and why it should be capitalised. The AER considers that this item is capital in nature and so approves the proposed cost of the AER – market changes and access arrangements as it meets the requirements of r. 79(1) of the NGR.

For similar reasons as contained in the draft decision<sup>368</sup> and so that **[c-i-c]**<sup>369</sup> after making the adjustments for the overhead costs and margins, the AER approves a total

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361 JGN, *Initial response to the draft decision*, March 2010, pp. 89–90.

362 AER, *Draft decision*, February 2010, pp. 56–57.

363 JGN, *Initial response to the draft decision*, March 2010, pp. 90–91.

364 JGN, *Initial response to the draft decision*, March 2010, pp. 90–91.

365 AER, *Draft decision*, February 2010, pp. 56–57.

366 JGN, *Initial response to the draft decision*, March 2010, pp. 90–91.

367 JGN, *Initial response to the draft decision*, March 2010, pp. 90–91.

368 AER, *Draft decision*, February 2010, pp. 57–58.

369 **[c-i-c]**

amount of \$97.5 million (\$2009–10) for IT capital expenditure for the access arrangement period. This amount accounts for adjustments made for the margins and overheads as discussed above.

#### *Land, buildings and leaseholds*

The draft decision removes an amount of \$0.5 million (\$2009–10) attributable to the provision of workstations because this amount was not justified and approves the remaining level of capital expenditure proposed in the access arrangement proposal as it appeared reasonable.<sup>370</sup>

In the revised access arrangement proposal, the land, buildings and leaseholds capital expenditure forecast is revised down substantially.<sup>371</sup> This revision is based on a different approach to providing workstations and office space than what was proposed in the access arrangement proposal and the inclusion of a step change in operating expenditure.<sup>372</sup> The capital expenditure for this item is now \$30 000 (\$2009–10) per year compared with a once off amount of \$0.5 million (\$2009–10).<sup>373</sup> JGN submits to the AER a confidential appendix to support the step changes in support of this item.<sup>374</sup>

The AER considers that JGN addresses the issue identified in the draft decision concerning the lack of information and justification for this item.<sup>375</sup> After making the adjustments for the overhead costs and margins in this chapter and noting that [c-i-c]<sup>376</sup>, the AER approves a total amount of \$0.4 million (\$2009–10) for land, buildings and leaseholds capital expenditure for the access arrangement period.

#### ***Conclusion on non-system assets capital expenditure***

After making the adjustments for the overhead costs and margins, the AER approves a total amount of \$116.1 million (\$2009–10) for total non-system capital expenditure for the access arrangement period.

#### ***Cost escalators***

The revised access arrangement proposal states that if the AER accepts a service provider's methodology then only estimates using that methodology should be allowed.<sup>377</sup> The revised access arrangement proposal submits an interpretation of the term 'in the circumstances'<sup>378</sup> as at the time of the access arrangement revision process.<sup>379</sup> Rule 74 of the NGR states that a forecast or estimate must represent the best forecast or estimate possible in the circumstances.

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370 AER, *Draft decision*, February 2010, p. 55 and Wilson Cook report 2009, p. 70.

371 JGN, *Initial response to the draft decision*, March 2010, p. 89.

372 JGN, *Initial response to the draft decision*, March 2010, p. 89.

373 JGN, *Initial response to the draft decision*, March 2010, p. 89 and Wilson Cook report 2009, p. 70.

374 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5.

375 AER, *Draft decision*, February 2010, p. 55.

376 [c-i-c]

377 JGN, *Initial response to the draft decision*, March 2010, p. 79.

378 NGR, r. 74(2)(b).

379 JGN, *Initial response to the draft decision*, March 2010, p. 78.

The AER considers that with respect to r. 74(2)(b) of the NGR a methodology proposed by a service provider should contain a mechanism that would allow for estimates or forecasts to be revised in accordance with the most up-to-date information to be consistent. Given the time between the submission of a service provider's proposal and the date of commencement of an access arrangement (about 12 months), it is conceivable that without such a mechanism a forecast or estimate may become so out-of-date that it could not represent the best forecast or estimate possible in the circumstances. This is consistent with the position on cost escalators outlined in the ActewAGL final decision.<sup>380</sup>

The EMRF submission makes some general proposals on cost escalators. These are, briefly:

- a CPI adjustment provides adequately for the change in the cost of materials and labour<sup>381</sup>
- the AER's approach to forecasting exchange rates is too conservative<sup>382</sup>
- the AER could adjust for differences between forecast and actual real cost changes.<sup>383</sup>

The AER notes the EMRF submission that a CPI adjustment provides adequately for the change in the cost of materials and labour. The revenue and pricing principles in the NGL set out that a service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in providing reference services.<sup>384</sup> The AER considers that these principles imply that in circumstances where there is a reason to believe that underlying real costs are likely to change at a rate that is different to inflation then another escalation rate should apply. The AER considers that this applies to circumstances where underlying real costs are expected to increase and to circumstances where they are expected to decrease.

The AER recognises that real cost escalators are forecasts and so will necessarily differ from actual real price changes. The AER also considers that inflation during the access arrangement period is a forecast and so is likely to differ from actual inflation. The NGR sets out that an estimate or forecast must be arrived at on a reasonable basis and reflect the best estimate or forecast possible in the circumstances. The AER uses this as the basis for assessing proposed real cost escalators.<sup>385</sup>

The AER therefore considers that in some circumstances it may be appropriate to apply real cost escalators in order to ensure that forecasts are the best possible in the

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380 AER, *Final decision, Access arrangement proposal ACT, Queanbeyan, and Palerang gas distribution network 1 July 2010-30 June 2015*, March 2010, p. 25.

381 EMRF, *Submission to the AER*, April 2010, pp. 32, 42.

382 EMRF, *Submission to the AER*, April 2010, pp. 33–35.

383 EMRF, *Submission to the AER*, April 2010, pp. 35–36.

384 NGL, s. 24.

385 NGR, r. 74(2).

circumstances and allow the service provider to recover at least the efficient cost of providing reference services.<sup>386</sup>

The AER notes the EMRF submission on the draft decision's approach to forecasting the exchange rate.<sup>387</sup> The AER does not accept the EMRF submission that it lightly dismissed the earlier EMRF submission<sup>388</sup> on the inflation rate.<sup>389</sup> The AER considered the EMRF submission and the method used to forecast the foreign exchange rate. At the time the AER was unable to identify an improved approach for forecasting the foreign exchange rate. The AER considers that the difficulty of forecasting foreign exchange rates is generally acknowledged.<sup>390</sup>

In regard to the EMRF submission concerning the adjustment for differences between forecast and actual real cost changes,<sup>391</sup> the AER considers that the method used to estimate the opening capital base for an access arrangement period uses actual capital expenditure. This means that there is, in effect, an adjustment for the difference between actual and forecast capital expenditure, including any difference between actual and forecast real cost increases. For operating expenditure, the AER considers that such an adjustment would be unworkable given differences between forecast and actual operating expenditure programmes which lead to differences in the mix of material inputs used. The AER does however, consider that differences between forecast and actual real cost changes for operating expenditure will be apparent, on an aggregate basis, in actual total operating expenditure. This means to the extent that operating expenditure forecasts are based on actual operating expenditure, differences between forecast and actual real cost changes will be accounted for in further forecasts.

#### *Labour, aluminium and steel*

The revised access arrangement proposal outlines that the cost escalators for labour, aluminium and steel take into account changing economic conditions.<sup>392</sup>

The AER has examined the cost escalators for labour and considers they incorporate relevant data on actual wages as well as relying on a number of independent forecasts from professional economic forecasters.

The EMRF submission proposes that if labour costs are to be escalated on a basis other than CPI they should be escalated based on a productivity adjusted labour cost. According to the JGN response to public submission, the revised Competition Economists Group (CEG) cost escalator report is based on labour cost forecasts from

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386 NGL, s. 24, NGR, r. 74(2).

387 EMRF, *Submission to the AER*, April 2010, pp. 33–35.

388 EMRF, *Submission to the AER*, November 2009, pp. 29–30.

389 EMRF, *Submission to the AER*, April 2010, p. 35.

390 Kilian, L. and Taylor, M., Why is it so difficult to beat the random walk forecast of exchange rates, *European central bank*, working paper no. 88, November 2001.

391 EMRF, *Submission to the AER*, April 2010, pp. 35–36.

392 JGN, *Initial response to the draft decision*, March 2010, p. 176.

BIS Shrapnel and Macromonitor which do not incorporate a specific adjustment for productivity.<sup>393</sup>

The AER does not explicitly adjust labour cost forecasts for changes in productivity. However, the AER does apply labour cost forecasts which implicitly include labour productivity measures.<sup>394</sup> A similar approach is used by the revised BIS Shrapnel labour cost report as it acknowledges that average weekly ordinary time earnings, its preferred measure of labour costs, reflect unit labour costs net of productivity increases.<sup>395</sup>

In the response to public submissions, JGN states that in the ETSA final decision the AER used labour cost forecasts which included an explicit adjustment for productivity.<sup>396</sup> However, the AER did not explicitly adjust for changes to labour productivity in the ETSA final decision.<sup>397</sup> The difference in real cost escalators between the ETSA draft<sup>398</sup> and final<sup>399</sup> decisions is largely due to changes in the underlying assumptions about Australian economic conditions.

The AER has examined the cost escalators for aluminium and steel and considers they rely on market data where available and then use an average of a range of market forecasts when market data is not available.

The AER considers that the revised access arrangement proposal addresses the matters raised in the draft decision and so complies with r. 60(1) of the NGR. The AER also considers that the cost escalators for aluminium and steel in the revised access arrangement proposal have been arrived at on a reasonable basis as required by r. 74(2)(a) of the NGR and represent the best forecast possible in the circumstances as required by r. 74(2)(b) of the NGR. This is consistent with the position for the cost escalators outlined in the ActewAGL and Country Energy final decisions.

#### *Concrete*

The draft decision raises a number of issues with the derivation of the proposed cost escalator for concrete including:

- it is unclear which concrete price index was being forecast
- there is a divergence in concrete price indexes

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393 JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 20.

394 AER, *Final decision: New South Wales distribution determination 2009–10 to 2013–14*, 28 April 2009, p. 492.

395 BIS Shrapnel, *Update of wages outlook for the electricity, gas and water sector in New South Wales*, December 2009, p. 9.

396 JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 22.

397 AER, *Final decision: South Australia distribution determination 2010–11 to 2014–15*, May 2010, p. 333.

398 AER, *Draft decision: South Australia distribution determination 2010–11 to 2014–15*, November 2009, p. 478.

399 AER, *Final decision: South Australia distribution determination 2010–11 to 2014–15*, May 2010, p. 333.

- the statistical validity of the relationship between the concrete price index and total construction work done is not demonstrated
- the forecasting methodology is not transparent or reproducible.<sup>400</sup>

The AER considers that the revised access arrangement proposal addresses these issues as outlined in the bullet list above. A revised report from Macromonitor clarifies the treatment of the different price indexes, demonstrates that the divergence in the price indexes is a result of minor changes over time and provides further details on the forecasting methodology it applies.<sup>401</sup> A revised report from CEG (the CEG concrete report) demonstrates the statistical validity of the relationship between the concrete price index and total construction work done.<sup>402</sup>

The AER notes, however, that the real cost escalator for concrete relies on the forecast from a single consultant, Macromonitor, and is made primarily on the basis of expert opinion rather than a clearly outlined, reproducible and transparent process. For example, the forecast real cost escalators for concrete in 2009–10 and 2010–11 have both decreased significantly between the access arrangement proposal and the revised access arrangement proposal. The forecast is based primarily on the expert opinion of Macromonitor rather than being supported by a model, derived from a wide range of forecasts or based on futures market data. The AER is therefore unable to determine or analyse the relationship between the underlying reasons for these decreases and the forecasts presented in the CEG concrete report.

The AER notes that, over the long run, the price index for ready mixed concrete materials used in house building has increased at a rate lower than CPI. This is shown in figure 3.1.

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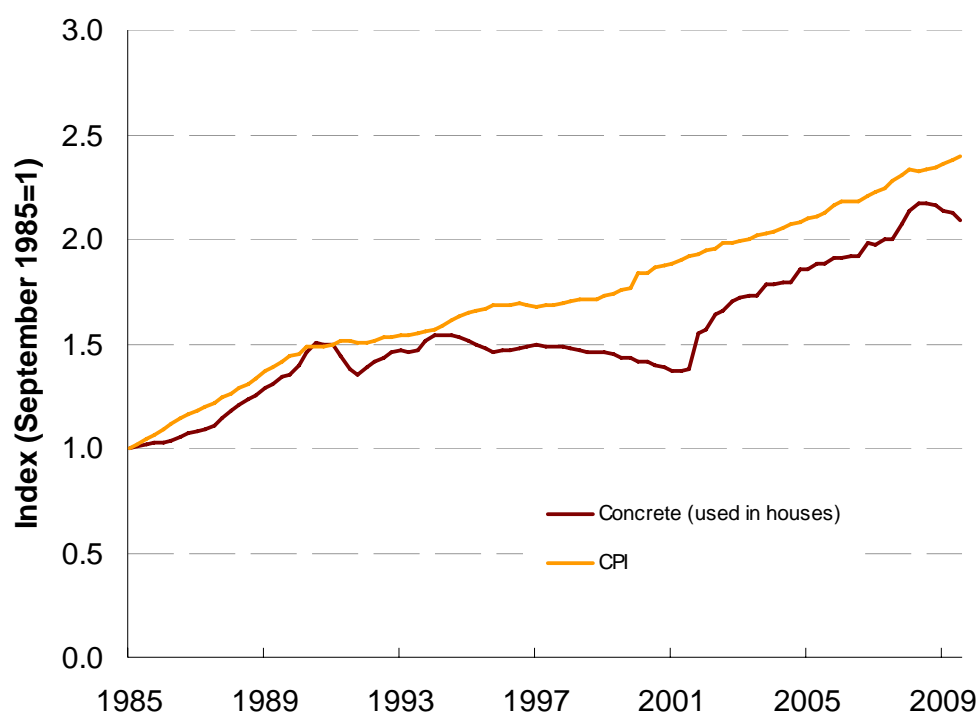
400 AER, *Draft decision*, February 2010, p. 65.

401 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.7.

402 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.6.



**Figure 3.1 Increases in CPI and a price index for ready mixed concrete since 1985**



Source: ABS, 6427.0 produce price indexes, Australia, March 2010, ABS, Consumer price index, Australia, March 2010, AER Analysis.

The AER considers that, over the period from September 1985 to March 2010, the price index for ready mixed concrete used in houses has increased at around 3.05 per cent a year while the CPI has increased at around 3.63 per cent a year. To analyse the possible influence of outliers on the average the AER has applied a number of statistical tests to identify and remove outliers. These statistical tests are discussed in more detail in the debt risk premium section of the rate of return chapter of the final decision. The results of removing potential outliers from the data are presented in table 3.5.

**Table 3.5: Average annual increase in CPI and a price index for ready mixed concrete since 1985 after removing potential outliers**

| Statistical Test     | Ready mixed concrete used in houses |                             | CPI                  |                             |
|----------------------|-------------------------------------|-----------------------------|----------------------|-----------------------------|
|                      | Observations removed                | Average annual increase (%) | Observations removed | Average annual increase (%) |
| None                 | 0                                   | 3.05                        | 0                    | 3.63                        |
| Classic outlier test | 3                                   | 3.00                        | 5                    | 3.21                        |
| Chauvenet's test     | 1                                   | 2.59                        | 1                    | 3.52                        |
| Box plot test        | 4                                   | 2.83                        | 3                    | 3.36                        |

Source: ABS, 6427.0 produce price indexes, Australia, March 2010, ABS, Consumer price index, Australia, Mar 2010, AER Analysis.

The AER considers that the annual average increase in the price indexes for ready mixed concrete used in houses is generally below the annual average increase in the CPI. This shows that there has been no long run increase in the real price of concrete. This indicates that real cost escalation may be inappropriate for concrete.

The AER therefore considers that the proposed cost escalator for concrete is not arrived at on a reasonable basis as required by r. 74(2)(a) of the NGR and does not represent the best forecast possible in the circumstances as required by r. 74(2)(b) of the NGR. The AER considers that no real cost escalator should be applied for concrete. That is, costs relating to concrete should increase at the rate of inflation.

#### *Polyethylene*

The draft decision raises two issues with the derivation of the proposed cost escalator for polyethylene including:

- insufficient evidence is presented of the relationship between nylon-11 and polyethylene prices
- parameters used in the econometric model are estimated using one set of data, based on nominal prices, while forecasts from the model were made using a different set of data based on real prices, resulting in double counting of inflation.<sup>403</sup>

The AER considers that the revised CEG cost escalator report has addressed the second issue raised by the AER but has not addressed the first.

In a response to the draft decision, the submission on plastic escalators clarifies the use of plastics in its network and provides other additional information and proposals relating to the real cost escalator for polyethylene. Briefly, JGN submits that:

- it uses polyethylene, nylon-11 and nylon-12 in its network
- polyethylene was used as a proxy for all three plastics in its access arrangement revision proposal
- plastic pipes should be considered as a single class of product for the purpose of assessing an appropriate plastic price escalator
- the price of imported plastic raw materials has grown at a rate faster than inflation over the long term
- the price of plastic pipes from JGN's suppliers has grown at a rate faster than inflation.<sup>404</sup>

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403 AER, *Draft decision*, February 2010, pp. 63–64.

404 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN further response to the draft decision*, 28 April 2010, attachment 2, JGN, *Plastics cost escalators*, 28 April 2010, pp. 2–3 (public version).

JGN's submission on plastic escalators outlines that the AER has determined that any plastics real cost escalator which is greater than zero would be non-compliant with the NGR.<sup>405</sup> The AER does not consider this to be an accurate representation of the draft decision. The draft decision considers that the cost escalator for polyethylene does not meet the requirements set out in r. 74(2) of the NGR, not that any plastics real cost escalator which is greater than zero does not comply with the NGR.<sup>406</sup>

JGN's submission on plastic escalators clarifies that around 78 per cent of plastic pipe laid by JGN is polyethylene while around 22 per cent is nylon. Of the nylon pipe around half is a variety of nylon called nylon-11 while half is a variety called nylon-12. Polyethylene and nylon-12 are petroleum based while nylon-11 is castor oil based.<sup>407</sup> The AER considers that the distinction between petroleum based and other plastics may be important in determining an appropriate cost escalator. JGN's submission on plastic escalators that polyethylene is the main material used by JGN for its plastic pipes is in contrast to the revised CEG cost escalators report which submits that nylon-11 is a particularly important input in capital expenditure programmes.<sup>408</sup>

JGN's submission on plastic escalators identifies a relevant data series from the Australian Bureau of Statistics (ABS). The data series gives a price index for plastics in primary form imported into Australia.<sup>409</sup> This price index is based on SITC code 57 and so includes polyethylene (SITC code 5711) and nylon-11 and nylon-12 (SITC code 57531).<sup>410</sup> The AER considers that, as this price index is based on prices of plastics in Australia, it is likely to provide more reliable information on price changes faced by JGN than the price index used in the revised CEG cost escalator report, which relies on prices of plastics in the United States of America.<sup>411</sup> JGN's submission on plastic escalators outlines that the price index for plastics in primary form has increased by 89.3 per cent over the period from June 1991 to December 2009 while the CPI has increased by only 54.7 per cent.<sup>412</sup> JGN's submission on plastic escalators concludes that plastic prices have, on average, increased at a rate

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405 JGN, letter to the AER, JGN access arrangement revision proposal: JGN further response to the draft decision, 28 April 2010, attachment 2, JGN, *Plastics cost escalators*, 28 April 2010, pp. 2–3 (public version).

406 AER, *Draft decision*, February 2010, pp. 63–64.

407 JGN, letter to the AER, JGN access arrangement revision proposal: JGN further response to the draft decision, 28 April 2010, attachment 2, JGN, *Plastics cost escalators*, 28 April 2010, pp. 2–3 (public version).

408 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.5 CEG: Escalation factors affecting expenditure, 28 April 2010.

409 JGN, letter to the AER, JGN access arrangement revision proposal: JGN further response to the draft decision, 28 April 2010, attachment 2, JGN, *Plastics cost escalators*, 28 April 2010, pp. 2–3 (public version).

410 United Nations, *Detailed structure and explanatory notes*, SITC rev. 4, viewed 6 May 2010 <<http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=28>>

411 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.5 CEG: Escalation factors affecting expenditure forecasts – a report for ActewAGL – January 2010, pp. 16–17.

412 JGN, letter to the AER, JGN access arrangement revision proposal: JGN further response to the draft decision, 28 April 2010, attachment 2, JGN, *Plastics cost escalators*, 28 April 2010, pp. 2–3 (public version).

greater than CPI.<sup>413</sup> The AER's analysis indicates that the CPI has actually increased by around 60 per cent over the period.<sup>414</sup>

The AER considers that looking at total increases over the period may mask a similarity in the average annual rate of change of both price indexes. Over the period from June 1991 to December 2009, the price index for plastics in primary form has increased at around 3.33 per cent a year while the CPI has increased at around 2.58 per cent a year.<sup>415</sup> The AER considers that the main reason for the difference between these averages is an abnormally high increase of around 39 per cent in the price of plastics in primary form in the December quarter of 2008. The AER considers that this abnormally high increase may represent an outlier in the data. To analyse the possible influence of outliers on the average, the AER has applied a number of statistical tests to identify and remove outliers. These statistical tests are discussed in more detail in the debt risk premium section of the rate of return chapter. The results of removing potential outliers from the data are presented in table 3.6.

**Table 3.6: Average annual increase in plastics in primary form and consumer price index after removing potential outliers**

| Statistical Test     | Plastics in primary form |                             | CPI                  |                             |
|----------------------|--------------------------|-----------------------------|----------------------|-----------------------------|
|                      | Observations removed     | Average annual increase (%) | Observations removed | Average annual increase (%) |
| Classic outlier test | 2                        | 2.4                         | 1                    | 2.4                         |
| Chauvenet's test     | 1                        | 1.6                         | 1                    | 2.4                         |
| Box plot test        | 4                        | 1.1                         | 1                    | 2.4                         |

Source: ABS, 6457.0 international trade price indexes, Australia, March 2010, ABS, Consumer price index, Australia, Mar 2010, AER Analysis.

The AER considers that, after removing the influence of outliers, the annual average increase in price indexes for plastics in primary form is either equal to or below the annual average increase in the CPI. That is, on average, over the long run and after controlling for the influence of outliers, the price of plastics in primary form has not increased more than CPI and may have increased at a rate lower than CPI. The AER therefore does not accept the submission on plastic escalators proposal that the price of imported plastic raw materials has grown at a rate faster than inflation over the long term.<sup>416</sup>

413 JGN, letter to the AER, JGN access arrangement revision proposal: JGN further response to the draft decision, 28 April 2010, attachment 2, JGN, *Plastics cost escalators*, 28 April 2010, pp. 2–3 (public version).

414 ABS, 6457.0 international trade price indexes, Australia, March 2010, ABS, consumer price index, Australia, March 2010 and AER analysis.

415 ABS, 6457.0 international trade price indexes, Australia, March 2010, ABS, consumer price index, Australia, March 2010 and AER analysis.

416 JGN, letter to the AER, JGN access arrangement revision proposal: JGN further response to the draft decision, 28 April 2010, attachment 2, JGN, *Plastics cost escalators*, 28 April 2010, pp. 2–3 (public version).

The AER also notes that its recent final decisions for ETSA, Ergon and Energex indicate a negative annual average real cost escalator for crude oil.<sup>417</sup> That is, the real price of crude oil is forecast to decline. Given the positive correlation which the revised CEG cost escalator report proposes between plastics and crude oil the AER considers that it is reasonable to consider that plastics prices will continue to increase in line with CPI.<sup>418</sup>

JGN's submission on plastic escalators also provides some information on the price of plastic pipes from JGN's suppliers. JGN's submission on plastic escalators outlines that prices have grown at a rate faster than inflation.<sup>419</sup> The AER considers that for polyethylene, price increases are only shown for a single pipe supplier and do not support a general conclusion on whether these costs reflect the lowest sustainable cost of polyethylene piping.<sup>420</sup> The AER also considers that the price increases shown over the period 2008–09 may reflect a one off or abnormal increase in plastics prices in late 2008 and do not necessarily reflect a sustained trend. For nylon–11 and nylon–12 pipes only a single price increase of 4 per cent in 2007–08 is identified. The AER considers that this price increase is approximately equal to the cumulative affect of inflation in the four quarters of 2007–08 which confirms the AER's earlier analysis that there is no long run trend of real price increases in plastics in primary form.

In light of the above, the AER considers that the proposed cost escalator for polyethylene is not arrived at on a reasonable basis as required by r. 74(2)(a) of the NGR, and does not represent the best forecast possible in the circumstances as required by r. 74(2)(b) of the NGR. The AER considers that no real cost escalator should be applied for polyethylene. That is, costs relating to polyethylene should increase at the rate of inflation. This is consistent with the position for the cost escalator for polyethylene outlined in the ActewAGL final decision.<sup>421</sup>

#### *Carbon pollution reduction scheme*

The draft decision raises two issues with the access arrangement proposal to incorporate the effects of the carbon pollution reduction scheme (CPRS) in its proposed escalators, including:

- there is uncertainty regarding the timing and final form of the CPRS<sup>422</sup>
- the use of data from futures markets already includes the estimated cost of the CPRS.<sup>423</sup>

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417 AER, *Final decision: Queensland Distribution Determination 2010-11 to 2014-15*, May 2010, p. 413 and AER, *Final decision: South Australia Distribution Determination 2010-11 to 2014-15*, May 2010, p. 333.

418 JGN, *Initial response to the draft decision*, March 2010, appendix 3b.5 CEG: Escalation factors affecting expenditure forecasts – a report for ActewAGL – January 2010, pp. 16–17.

419 JGN, letter to the AER, JGN access arrangement revision proposal: JGN further response to the draft decision, 28 April 2010, attachment 2, JGN, *Plastics cost escalators*, 28 April 2010, pp. 2–3 (public version).

420 NGR, r. 79(1)(a).

421 AER, *Final decision, Access arrangement proposal ACT, Queanbeyan, and Palerang gas distribution network 1 July 2010-30 June 2015*, March 2010, pp. 25-26, 28.

422 Department of Climate Change and Energy Efficiency, *Carbon Pollution Reduction Scheme*, 05 May 2010, viewed 10 May 2010, <<http://www.climatechange.gov.au/en/media/whats-new/cprs-delayed.aspx>>.

The revised CEG cost escalator report acknowledges the uncertainty surrounding the introduction of the CPRS.<sup>424</sup> Nevertheless, the revised access arrangement proposal proposes that the estimates of the impact of the CPRS on capital expenditure in the revised CEG cost escalator report represent the best estimates possible in accordance with r. 74(2)(b) of the NGR.<sup>425</sup>

Regarding the second point noted above, the revised CEG cost escalator report gives reasons why the futures costs used do not incorporate costs relating to the CPRS. The revised CEG cost escalator report states that the future prices and professional forecasts used to develop escalators are based on United States (US) dollar prices in world markets for the relevant basic commodities (aluminium, steel and crude oil). The revised CEG cost escalator report further states that even if investors in these markets fully factored in the expected impact of the CPRS on world prices it would not have a substantive impact on those commodity prices. The revised CEG cost escalator report clarifies that the impact of the CPRS was factored into prices of the finished products purchased by JGN.<sup>426</sup>

The AER notes that on 27 April 2010 the Australian Government announced the deferral of the CRPS.<sup>427</sup> The CPRS was originally scheduled to commence in July 2011, but it is now expected that the CPRS will not be introduced until after 2012.<sup>428</sup>

Notwithstanding these issues, the AER maintains its view that, given the uncertainty over the timing and the final form of the CPRS, and the effect on costs, the effects of the CPRS on the proposed cost escalators are not arrived at on a reasonable basis.<sup>429</sup> Instead, the AER considers that the appropriate approach for dealing with the effects on costs of the CPRS is by means of the cost pass through mechanism. This is consistent with the position for the cost escalator for CPRS outlined in the ActewAGL final decision.<sup>430</sup>

#### *Conclusion on cost escalators*

The AER considers that the revised real cost escalators for labour, aluminium and steel are arrived at on a reasonable basis and represent the best forecasts possible in

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423 AER, *Draft decision*, February 2010, pp. 65–66.

424 JGN, *Initial response to the draft decision, March 2010*, appendix 3b.5 CEG: Escalation factors affecting expenditure forecasts – a report for ActewAGL – January 2010, p. 14.

425 JGN, *Initial response to the draft decision, March 2010*, appendix 3b.5 CEG: Escalation factors affecting expenditure forecasts – a report for ActewAGL – January 2010, p. 15.

426 JGN, *Initial response to the draft decision, March 2010*, appendix 3b.5 CEG: Escalation factors affecting expenditure forecasts – a report for ActewAGL – January 2010, pp. 14–15.

427 Department of Climate Change and Energy Efficiency, *Carbon Pollution Reduction Scheme, 05 May 2010*, viewed 10 May 2010, <<http://www.climatechange.gov.au/en/media/whats-new/cprs-delayed.aspx>>.

428 Department of Climate Change and Energy Efficiency, *Carbon Pollution Reduction Scheme, 05 May 2010*, viewed 10 May 2010, <<http://www.climatechange.gov.au/en/media/whats-new/cprs-delayed.aspx>>.

The Australian government notes that it will not introduce the CRPS until after 2012. The Australian Government notes that this is when the current commitment period of the Kyoto protocol is scheduled to end.

429 NGR, r. 74(2)(a).

430 AER, *Final decision, Access arrangement proposal ACT, Queanbeyan, and Palerang gas distribution network 1 July 2010–30 June 2015*, March 2010, pp. 27, 28.

the circumstances as required by r. 74(2) of the NGR. This is consistent with the position outlined in the ActewAGL and Country Energy final decisions.<sup>431</sup>

For the cost escalator for polyethylene and concrete, the AER considers that the revised real cost escalator is not arrived at on a reasonable basis and does not represent the best forecasts possible in the circumstances as required by r. 74(2) of the NGR. The AER does not consider that the cost escalator for the CPRS is arrived at on a reasonable basis as required by r. 74(2)(a) of the NGR, given the uncertainty of the timing and final form of the CPRS. The AER considers that no real cost escalators should be applied for polyethylene, concrete and the CPRS. This is consistent with the position for the cost escalators for polyethylene and CPRS outlined in the ActewAGL final decision.<sup>432</sup>

The AER proposes to revise the cost escalators as relevant to forecast capital expansion as set out in revisions 3.7 to 3.14.

### **3.5.2.2 Benchmarking approach**

The revised access arrangement proposal outlines that benchmarking has its limitations and cannot alone be used to assess whether operating expenditure or capital expenditure complies with the NGR. However, JGN does not agree with the draft decision and the 2009 Wilson Cook report that benchmarking should not be taken into account when assessing forecast expenditure.<sup>433</sup>

The AER notes the EUAA submission that a proper benchmarking analysis of capital expenditure and operating expenditure should be carried out for JGN.<sup>434</sup> JGN submits a response to the EUAA submission concerning benchmarking.<sup>435</sup> According to the JGN response to public submissions, the upper quartile (as referred to in the EUAA submission<sup>436</sup>) lies within a 90 per cent confidence band and so is not significantly different from the results of the benchmarking study contained in the 2010 PB report. The JGN response to public submissions also observes that there is a significant degree of uncertainty around this benchmarking approach in the 2010 PB report given the small sample size, the diversity of data sources and other factors that can affect the level of capital expenditure which are not accounted for.<sup>437</sup>

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431 AER, *Final decision, Access arrangement proposal ACT, Queanbeyan, and Palerang gas distribution network 1 July 2010-30 June 2015*, March 2010, p. 28 and AER, *Final decision: Country Energy access arrangement proposal 1 July 2010 – 30 June 2015*, March 2010, p. 18.

432 AER, *Final decision, Access arrangement proposal ACT, Queanbeyan, and Palerang gas distribution network 1 July 2010-30 June 2015*, March 2010, p. 28.

433 JGN, *Initial response to the draft decision*, March 2010, pp. 170–171.

434 EUAA, *Submission to the AER*, April 2010, pp. 12–13.

435 JGN, email to the AER, JGN response to public submissions on the JGN revised access arrangement revision proposal, attachment 1, 18 May 2010.

436 EUAA, *Submission to the AER*, April 2010, pp. 12–13.

437 JGN, email to the AER, *JGN response to public submissions on the JGN revised access arrangement revision proposal*, attachment 1, 18 May 2010, p. 7.

Concerning the use of the benchmarking approach, the AER maintains the draft decision view<sup>438</sup> that benchmarking has its limitations and cannot alone be used to assess whether expenditure complies with r. 79 or r. 91 of the NGR.

### 3.5.2.3 Equity raising costs

Equity raising costs—such as legal fees, marketing costs and other transaction costs—are incurred in raising new equity capital. The AER has accepted that equity raising costs are a legitimate cost for a benchmark efficient firm only where cheaper sources of funding—for example, retained earnings—are insufficient, subject to the gearing ratio and other assumptions about financing decisions being consistent with regulatory benchmarks.<sup>439</sup> The nature of expenditure on equity raising costs requires the amortisation of these costs and as a result they are presented in this chapter.<sup>440</sup>

The access arrangement proposal does not include equity raising costs because—based on an analysis using benchmark assumptions—they are immaterial, but notes that this matter may be revisited if the underlying assumptions change.<sup>441</sup>

The draft decision accepts the access arrangement proposal that benchmark equity raising costs will be immaterial and that the required capital program can be funded through retained earnings.<sup>442</sup>

The revised access arrangement proposal updates the analysis from the access arrangement proposal to include changes to the cost of service, capital plan and other assumptions.<sup>443</sup> The revised access arrangement proposal uses the benchmark costs from the draft decision (1 per cent of equity raised through dividend reinvestment plans, 3 per cent of equity raised through seasoned equity offerings) to estimate that \$3.31 million (\$nominal)(\$2009–10) in equity raising costs will be incurred across the access arrangement period.<sup>444</sup>

The revised access arrangement proposal amortises the \$3.31 million (\$2009–10) by including it in the 2011 opening capital base, with an estimated asset life equal to the weighted average across all JGN assets—53.6 years for regulatory depreciation purposes, 19.8 years for tax depreciation purposes.<sup>445</sup>

The AER considers that two aspects of the equity raising cost calculation presented in the revised access arrangement proposal do not reflect the costs incurred by a prudent

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438 AER, *Draft decision*, February 2010, pp. 70, 189–90.

439 AER, *Final Decision: Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12*, 14 June 2007, p. 100; AER, *Final decision: SP AusNet transmission determination 2008–09 to 2013–14*, January 2008, p. 144 and AER, *Final decision: ElectraNet transmission determination 2008–09 to 2013–14*, 11 April 2008, p. 88.

440 See AER, *Draft decision: New South Wales draft distribution determination 2009–10 to 2013–14*, 21 November 2008, p. 197.

441 JGN, *Access arrangement information*, August 2009, pp. 92–93.

442 AER, *Draft decision*, February 2010, pp. 215–216.

443 JGN, *Initial Response to the draft decision*, March 2010, p. 98.

444 JGN, *Initial Response to the draft decision*, March 2010, pp. 98–99, and AER, *Draft decision*, February 2010, p. 216.

445 JGN, *Revised access arrangement information*, March 2010, Appendix 10 (Confidential).



service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipelines services.<sup>446</sup> Further, the AER considers that the estimates or forecasts relating to equity raising costs are not the best estimates or forecasts possible in the circumstances as required by r. 74(2) of the NGR.

The imputation credit payout ratio affects the amount of funds available internally to fund capital requirements, and also the amount that will be raised via dividend reinvestment plans. The revised access arrangement proposal continues to set the proportion of imputation credits distributed each year at 70 per cent.<sup>447</sup> As noted in the draft decision, the AER considers that 100 per cent of imputation credits should be paid out in each year, consistent with the gamma value of 0.65 adopted in this decision.<sup>448</sup>

The AER has updated the cash flow analysis to accommodate the revised capital expenditure approved in this decision, as well as other consequent changes approved by the AER. The AER notes that this cash flow analysis excludes the effects of capital contributions, which will not require JGN to raise equity. The updated cash flow analysis is shown in table 3.7.

**Table 3.7: AER cash flow analysis for benchmark equity raising costs for JGN (\$m, nominal unless otherwise stated)**

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446 NGR, r. 79.

447 JGN, *Revised access arrangement information*, Appendix 10 (Confidential).

448 AER, *Draft decision: Jemena access arrangement proposal*, February 2010, p. 216.

| <b>Cash flow analysis</b>                      | <b>AER final decision (total)<br/>(\$m, nominal, unless<br/>otherwise stated) (\$m)</b> | <b>Notes</b>   |
|--|---|--|
| Dividends                                      | 427.1   | Set to distribute imputation credits assumed in the PTRM   |
| Dividends reinvested                           | 128.1   | 30 per cent of dividends paid  |
| Cost of dividend reinvestment plans            | 1.3   | Dividends reinvested multiplied by benchmark cost (1 per cent)   |
| Capital expenditure funding requirement        | 888.7   | This is the forecast capital expenditure funding requirement (not the capital expenditure value that includes a half year WACC adjustment) |
| Debt component                                 | 378.4   | Set to equal 60 per cent of capital base increase (not capital expenditure)  |
| Equity component                               | 510.3   | Residual of capital expenditure funding requirement and debt component   |
| Retained cash flows available for reinvestment | 319.9   | Includes dividends reinvested  |
| External equity requirement                    | 190.4   | Equal to equity component less retained cash flows   |
| External equity raising cost                   | 5.71  | External equity requirement multiplied by benchmark direct cost (3 per cent)   |
| Total equity raising cost                      | 6.99  | Sum of dividend reinvestment plan cost and external equity raising cost  |
| Total equity raising cost (\$m, 2009–10)       | 6.15  | To be added to the capital base at the start of the access arrangement period  |

Source: AER analysis.

The updated capital base also affects the calculation of asset lives proposed in the revised access arrangement proposal. After updating, the standard asset life for regulatory depreciation purposes is now estimated at 53.6 years, based on the weighted average standard asset life across all JGN assets in the capital base.<sup>449</sup>

The AER does not consider that a weighted average should be used to estimate the asset life for tax depreciation purposes, since this does not reflect the costs incurred by a prudent service provider acting efficiently.<sup>450</sup> The standard asset life for taxation depreciation purposes is estimated at five years, based on the Australian Taxation

449 AER, *Final decision: South Australia distribution determination 2010–11 to 2014–15*, May 2010, pp. 167–168.

450 NGR, r. 79.

Office (ATO) determination that equity raising costs have a standard tax asset life of five years.<sup>451</sup>

#### *Conclusion on equity raising costs*

As a result of the AER's consideration of the revised access arrangement proposal, the AER is not satisfied that the proposed equity raising costs of \$3.3 million (\$2009–10) meet the requirements of the NGR and NGL. The AER considers the revised benchmark equity raising operating expenditure associated with the forecast capital expenditure, as set out in table 3.7, represents the costs incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipelines services.<sup>452</sup> Further, the AER considers that this estimate of equity raising costs is the best estimate possible in the circumstances as required by r. 74(2) of the NGR.

The AER requires the estimated equity raising cost to be set at \$4.4 million (\$2009–10), which is to be amortised by adding this amount to the 2011 capital base with an asset life (for regulatory purposes) of 53.6 years and an asset life (for taxation purposes) of five years.

#### *Summary of forecast capital expenditure*

For total forecast capital expenditure the AER approves a total amount of \$759.9 million (\$2009–10) for the access arrangement period, compared with \$891.0 million (\$2009–10) in the revised access arrangement proposal. In addition the AER approves \$4.4 million (\$2009–10) for equity raising costs compared to \$3.3 million (\$2009–10) in the revised access arrangement proposal. This means that the total capital expenditure approved by the AER is \$764.3 million (\$real 2009–10).

#### **3.5.2.4 Depreciation**

The AER's consideration of key issues in relation to the depreciation schedule in the revised access arrangement proposal is set out in chapter 4 of the final decision.

In addition to the matters outlined in chapter 4 as a consequence of the revisions required to the forecast capital expenditure, adjustments to the capital base for inflation and the removal of a redundant asset, the AER requires a revision to forecast depreciation under r. 78 of the NGR. Table 3.8 outlines the forecast depreciation in the revised access arrangement proposal and that are approved by the AER.

**Table 3.8: Forecast depreciation (\$m, nominal)**

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451 ATO, Guide to depreciating assets 2001-02: Business» related costs - section 40-880 deductions, ATO reference; NO NAT7170.

452 NGR, r. 79.

|                                     | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|-------------------------------------|---------|---------|---------|---------|---------|-------|
| Revised access arrangement proposal | 88.1    | 98.8    | 109.3   | 121.7   | 136.2   | 554.1 |
| Final decision                      | 73.9    | 91.8    | 101.2   | 112.3   | 124.7   | 504.0 |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 28–29 and AER analysis.

### 3.5.2.5 Adjustment to the capital base for inflation

The AER's consideration of the approach to forecast inflation is discussed in chapter 5 of the final decision.

The AER approves the methodology in the revised access arrangement proposal for adjusting the capital base for inflation. However, the AER considers that the forecast inflation rate of 2.52 per cent<sup>453</sup> does not represent the best forecast or estimate possible in the circumstances.<sup>454</sup> The AER estimates an inflation rate of 2.60 per cent using the most up-to-date Reserve Bank of Australia (RBA) forecasts.

The AER has also consistently applied the assumption about timing of capital expenditure as outlined in section 3.5.1.1, above.

### 3.5.2.6 Summary of the projected capital base

The AER has considered the components of the proposed projected capital base. Given the revisions required to the proposed capital expenditure, forecast depreciation, adjustment of the capital base for inflation and adjustment to the proposed opening capital base, the AER considers that the proposed projected capital base does not comply with r. 74(2) and r. 78 of the NGR. The AER proposes to revise the projected capital base as set out in revisions 3.7 to 3.14.

### 3.5.3 Opening capital base for the next access arrangement period

The revised access arrangement proposal proposes to use forecast depreciation (which is based on forecast capital expenditure) in establishing the opening capital base for the access arrangement period commencing 1 July 2015.<sup>455</sup> The AER notes that this position is unchanged from the access arrangement proposal.<sup>456</sup>

As outlined in the draft decision,<sup>457</sup> the AER considers this approach is consistent with r. 90 of the NGR.

<sup>453</sup> JGN, *Initial response to the draft decision*, March 2010, p. 125.

<sup>454</sup> NGR, r. 74(2)(b).

<sup>455</sup> JGN, *Revised access arrangement information*, March 2010, p. 40.

<sup>456</sup> JGN, *Access arrangement information*, August 2009, p. 158.

<sup>457</sup> AER, *Draft decision*, February 2010, p. 71.

### **3.5.4 Other access arrangement proposal provisions relevant to the capital base**

#### **3.5.4.1 Non-conforming capital expenditure**

Under clause 4.2 of its access arrangement proposal, JGN proposes an incentive mechanism for market expansion capital expenditure works in unreticulated areas. This capital expenditure is added to an account called the market expansion mechanism (MEM) expenditure account. Under the revised access arrangement proposal, market expansion, capital expenditure assessed as conforming is only rolled into the capital base five years after the specific project commences. The AER considers that this aspect of the revised access arrangement proposal is inconsistent with r. 98 of the NGR. The AER's assessment of the proposed incentive mechanism is contained in chapter 7 of the draft decision.

#### **3.5.4.2 Capital redundancy policy**

The revised access arrangement proposal proposes modifications to the capital redundancy policy, which the AER considers reflect the requirements of r. 77(2)(e) and r. 77(2)(f) of the NGR. Those rules require the opening capital base to be adjusted for assets identified as redundant,<sup>458</sup> and assets disposed of<sup>459</sup> during the earlier access arrangement period.

The AER considers that the capital redundancy policy in the revised access arrangement proposal is consistent with r. 85 of the NGR.

## **3.6 Conclusion**

### ***Opening capital base***

The AER does not approve the proposed opening capital base as it does not comply with r. 77(2) of the NGR. The AER's proposed revisions 3.1, 3.2, 3.3, 3.4, 3.5 and 3.6 are set out below.

### ***Projected capital base***

The AER does not approve the proposed projected capital base proposed by JGN as it does not comply with r. 78 of the NGR. The AER's proposed revisions 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13 and 3.14 are set out below.

### ***Opening capital base for the next access arrangement period***

The AER approves the proposed estimation of depreciation on the basis of forecast capital expenditure for establishing the opening capital base for the next access arrangement period as this complies with r. 90 of the NGR.

## **3.7 Revisions**

The AER proposes the following revisions:

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458 NGR, r. 77(2)(e).

459 NGR, r. 77(2)(f).

**Revision 3.1:** amend the revised access arrangement information to delete Table 7.3 and replace it with the following:

**Table 3.9: Increase in consumer price index (%)**

| Financial Year | Annual increase in the consumer price index |
|----------------|---|
| 2006 actual    | 2.80  |
| 2007 actual    | 3.25  |
| 2008 actual    | 2.96  |
| 2009 actual    | 3.69  |
| 2010 forecast  | 2.11  |

**Revision 3.2:** amend the revised access arrangement information to delete Table 7.2 and replace it with the following:

**Table 3.10: Estimated capital base as at 30 June 2005 (\$m, nominal)**

| Asset class              | Closing capital base 30 June 2005 |
|--------------------------|-----------------------------------|
| Wilton–Wollongong trunk  | 10.6                              |
| Wilton–Newcastle trunk   | 124.2                             |
| NSW distribution network | 1828.2                            |
| Combined total           | 1963.0                            |

**Revision 3.3:** amend the revised access arrangement information to delete Table 7.4 and replace it with the following:

**Table 3.11: Capital base for the earlier access arrangement period (\$m, nominal)**

|   | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 |
|---|---------|---------|---------|---------|---------|
| Opening capital base  | 1956.9  | 2019.8  | 2124.0  | 2198.0  | 2281.6  |
| Net capital expenditure   | 74.4    | 110.5   | 90.2    | 84.7    | 94.2    |
| Depreciation  | 67.2    | 73.8    | 80.3    | 83.6    | 85.1    |
| Reused redundant assets (end year)  | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Adjustment for inflation  | 55.8    | 67.5    | 64.1    | 82.5    | 49.1    |
| Closing capital base  | 2019.8  | 2124.0  | 2198.0  | 2281.6  | 2339.8  |
| Adjustment for difference between estimated and actual capital expenditure in 2004–05 |         |         |         |         | -32.4   |

**Revision 3.4:** amend the revised access arrangement information to delete Table 7.5 and replace it with the following:

**Table 3.12: Capital base for the Wilton to Wollongong trunk pipeline for the earlier access arrangement period (\$m, nominal)**

|   | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 |
|---|---------|---------|---------|---------|---------|
| Opening capital base  | 10.6    | 10.7    | 10.9    | 11.0    | 11.3    |
| Net capital expenditure   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Depreciation  | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     |
| Reused redundant assets (end year)  | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Adjustment for inflation  | 0.3     | 0.3     | 0.3     | 0.4     | 0.2     |
| Closing capital base  | 10.7    | 10.9    | 11.0    | 11.3    | 11.3    |
| Adjustment for difference between estimated and actual capital expenditure in 2004–05 |         |         |         |         | -0.4    |

**Revision 3.5:** amend the revised access arrangement information to delete Table 7.6 and replace it with the following:

**Table 3.13: Capital base for the Wilton to Newcastle trunk pipeline for the earlier access arrangement period (\$m, nominal)**

|   | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 |
|---|---------|---------|---------|---------|---------|
| Opening capital base  | 121.8   | 122.8   | 124.4   | 125.5   | 127.5   |
| Net capital expenditure   | 0.0     | 0.0     | 0.0     | 0.0     | 2.2     |
| Depreciation  | 2.4     | 2.5     | 2.5     | 2.6     | 2.7     |
| Reused redundant assets (end year)  | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Adjustment for inflation  | 3.4     | 4.0     | 3.7     | 4.6     | 2.7     |
| Closing capital base  | 122.8   | 124.4   | 125.5   | 127.5   | 129.7   |
| Adjustment for difference between estimated and actual capital expenditure in 2004–05 |         |         |         |         | -2.7    |

**Revision 3.6:** amend the revised access arrangement information to delete Table 7.7 and replace it with the following:

**Table 3.14: Capital base for the NSW distribution system for the earlier access arrangement period (\$m, nominal)**

|   | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 |
|---|---------|---------|---------|---------|---------|
| Opening capital base  | 1824.5  | 1886.3  | 1988.7  | 2061.5  | 2142.9  |
| Net capital expenditure   | 74.4    | 110.5   | 90.2    | 84.7    | 92.0    |
| Depreciation  | 64.7    | 71.1    | 77.6    | 80.8    | 82.2    |
| Reused redundant assets (end year)  | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Adjustment for inflation  | 52.1    | 63.1    | 60.1    | 77.5    | 46.1    |
| Closing capital base  | 1886.3  | 1988.7  | 2061.5  | 2142.9  | 2198.8  |
| Adjustment for difference between estimated and actual capital expenditure in 2004–05 |         |         |         |         | -29.3   |



**Revision 3.7:** amend the revised access arrangement information to delete Table 9.1 and replace it with the following:

**Table 3.15: Forecast depreciation for the access arrangement period (\$m, nominal)**

|              | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|--------------|---------|---------|---------|---------|---------|-------|
| Depreciation | 73.9    | 91.8    | 101.2   | 112.3   | 124.7   | 504.0 |

**Revision 3.8:** amend the revised access arrangement information to delete Table 9.4 and replace it with the following:

**Table 3.16: Forecast depreciation for the access arrangement period (\$m, nominal)**

|                      | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|----------------------|---------|---------|---------|---------|---------|-------|
| Wilton–Wollongong    | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 1.3   |
| Wilton–Newcastle     | 2.7     | 2.8     | 2.9     | 2.9     | 3.0     | 14.3  |
| Distribution network | 71.0    | 88.8    | 98.1    | 109.1   | 121.4   | 488.3 |
| Total                | 73.9    | 91.8    | 101.2   | 112.3   | 124.7   | 504.0 |

**Revision 3.9:** amend the revised access arrangement information to delete Table 6.1 and replace it with the following:

**Table 3.17: Forecast capital expenditure for the access arrangement period (\$m, real, 2009–10)**

|  | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|--|---------|---------|---------|---------|---------|-------|
| Market expansion                           | 57.4    | 66.7    | 68.5    | 80.0    | 87.5    | 360.1 |
| System reinforcement, renewal, replacement | 67.9    | 61.4    | 51.4    | 48.8    | 54.2    | 283.7 |
| Non-system assets                          | 22.2    | 16.6    | 15.2    | 30.6    | 31.5    | 116.1 |
| Total                                      | 147.5   | 144.7   | 135.1   | 159.4   | 173.2   | 759.9 |

**Revision 3.10:** amend the revised access arrangement information to delete Table 7.1 and replace it with the following:

**Table 3.18: Forecast capital base as at 30 June 2015 (\$m, nominal)**

| Asset class              | Closing capital base at 30 June 2015 |
|--------------------------|--------------------------------------|
| Wilton–Wollongong trunk  | 11.0                                 |
| Wilton–Newcastle trunk   | 131.5                                |
| NSW distribution network | 2794.4                               |
| Combined total           | 2936.9                               |

**Revision 3.11:** amend the revised access arrangement information to delete Table 7.8 and replace it with the following:

**Table 3.19: Projected capital base for the access arrangement period (\$m, nominal)**

|                                    | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|------------------------------------|---------|---------|---------|---------|---------|
| Opening capital base               | 2307.4  | 2444.2  | 2563.4  | 2669.8  | 2797.9  |
| Net capital expenditure            | 148.8   | 145.7   | 139.2   | 168.9   | 188.4   |
| Depreciation                       | 73.9    | 91.8    | 101.2   | 112.3   | 124.7   |
| Reused redundant assets (end year) | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Adjustment for inflation           | 61.9    | 65.4    | 68.4    | 71.6    | 75.2    |
| Closing capital base               | 2444.2  | 2563.4  | 2669.8  | 2797.9  | 2936.9  |

**Revision 3.12:** amend the revised access arrangement information to delete Table 7.9 and replace it with the following:

**Table 3.20: Projected capital base for the Wilton to Wollongong trunk pipeline for the access arrangement period (\$m, nominal)**

|                                    | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|------------------------------------|---------|---------|---------|---------|---------|
| Opening capital base               | 10.9    | 10.9    | 10.9    | 11.0    | 11.0    |
| Net capital expenditure            | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Depreciation                       | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     |
| Reused redundant assets (end year) | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Adjustment for inflation           | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     |
| Closing capital base               | 10.9    | 10.9    | 11.0    | 11.0    | 11.0    |

**Revision 3.13:** amend the revised access arrangement information to delete Table 7.10 and replace it with the following:

**Table 3.21: Projected capital base for the Wilton to Newcastle trunk pipeline for the access arrangement period (\$m, nominal)**

|                                    | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|------------------------------------|---------|---------|---------|---------|---------|
| Opening capital base               | 127.0   | 128.1   | 128.7   | 129.1   | 130.0   |
| Net capital expenditure            | 0.5     | 0.0     | 0.0     | 0.4     | 1.2     |
| Depreciation                       | 2.7     | 2.8     | 2.9     | 2.9     | 3.0     |
| Reused redundant assets (end year) | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Adjustment for inflation           | 3.3     | 3.3     | 3.3     | 3.4     | 3.4     |
| Closing capital base               | 128.1   | 128.7   | 129.1   | 130.0   | 131.5   |

**Revision 3.14:** amend the revised access arrangement information to delete Table 7.11 and replace it with the following:

**Table 3.22: Projected capital base for the NSW distribution system for the access arrangement period (\$m, nominal)**

|                                    | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|------------------------------------|---------|---------|---------|---------|---------|
| Opening capital base               | 2169.5  | 2305.1  | 2423.8  | 2529.7  | 2657.0  |
| Net capital expenditure            | 148.3   | 145.7   | 139.2   | 168.5   | 187.3   |
| Depreciation                       | 71.0    | 88.8    | 98.1    | 109.1   | 121.4   |
| Reused redundant assets (end year) | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Adjustment for inflation           | 58.3    | 61.8    | 64.8    | 67.9    | 71.5    |
| Closing capital base               | 2305.1  | 2423.8  | 2529.7  | 2657.0  | 2794.4  |

**Revision 3.15:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revisions 3.1 to 3.14.

## 4 Depreciation

### 4.1 Introduction

This chapter sets out the AER's consideration and analysis of the revised access arrangement proposal in relation to depreciation schedules and asset lives.

Depreciation over the earlier access arrangement period is one of the determinants of the opening capital base.

Depreciation over the access arrangement period is a component of the projected capital base and one of the building blocks that determine total revenue.

The AER's analysis and consideration relevant for the access arrangement proposal for the depreciation schedule are detailed in chapter 4 of the draft decision.<sup>460</sup>

### 4.2 Revised access arrangement proposal

The revised access arrangement proposal<sup>461</sup> partially incorporates amendment 4.1 and amendment 4.2 of the draft decision.<sup>462</sup> The revised access arrangement proposal amends the remaining asset lives to avoid the situation where the remaining life for an asset class exceeds the economic life for that asset class.<sup>463</sup>

#### 4.2.1 Depreciation schedule

The value of depreciation is detailed in chapter 3 of the final decision. For information purposes, the revised depreciation for the earlier access arrangement period is shown in table 4.1.

**Table 4.1: Revised depreciation for the earlier access arrangement period (\$m, nominal)**

|              | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 | Total |
|--------------|---------|---------|---------|---------|---------|-------|
| Depreciation | 67.9    | 73.7    | 81.4    | 82.9    | 83.9    | 389.9 |

Source: JGN, *Revised access arrangement information*, March 2010, p. 26.

Table 4.2 outlines the forecast depreciation for the access arrangement period.

**Table 4.2: Revised depreciation for the access arrangement period (\$m, nominal)**

|              | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|--------------|---------|---------|---------|---------|---------|-------|
| Depreciation | 88.1    | 98.8    | 109.3   | 121.7   | 136.2   | 554.1 |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 28–29.

460 AER, *Draft decision*, February 2010, pp. 82–88.

461 JGN, *Revised access arrangement information*, March 2010, pp. 38–40.

462 JGN, *Initial response to the draft decision*, March 2010, pp. 100–101.

463 JGN, *Initial response to the draft decision*, March 2010, pp. 100–101.

### 4.2.2 Asset lives

The revised access arrangement proposal submits that the remaining asset lives are a function of the roll-forward estimates of the capital base. Therefore, the revised access arrangement proposal does not apply the remaining asset lives as required in the draft decision.<sup>464</sup> The revised access arrangement proposal revises the remaining asset lives contained in the access arrangement proposal.<sup>465</sup>

## 4.3 AER's analysis and considerations

### 4.3.1 Depreciation schedule

Consistent with the reasons outlined in the draft decision,<sup>466</sup> the AER approves the revised depreciation schedule for the access arrangement period as it meets the requirements of r. 88 and r. 89 of the NGR.

However, the relevant values to be included in the depreciation schedule need to be updated to reflect the AER's analysis and considerations set out in chapter 3 of the final decision. This update is required because the relevant depreciation values to be included in the depreciation schedule will change if the components of the opening capital base or the projected capital base for the access arrangement period change.

Chapter 3 considers the estimation of the opening capital base for the access arrangement period and components of the projected capital base. As the AER proposes revisions to both the opening capital base and the projected capital base the relevant values to be included in the depreciation schedule will change. For information purposes, the depreciation approved for the earlier access arrangement period is shown in table 4.3.

**Table 4.3: Final decision: depreciation for the earlier access arrangement period (\$m, nominal)**

|              | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 | Total |
|--------------|---------|---------|---------|---------|---------|-------|
| Depreciation | 67.2    | 73.8    | 80.3    | 83.6    | 85.1    | 390.1 |

Source: AER analysis.

The depreciation approved for the access arrangement period is shown in table 4.4.

**Table 4.4: Final decision: depreciation for the access arrangement period (\$m, nominal)**

|              | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|--------------|---------|---------|---------|---------|---------|-------|
| Depreciation | 73.9    | 91.8    | 101.2   | 112.3   | 124.7   | 504.0 |

Source: AER analysis.

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464 JGN, *Initial response to the draft decision*, March 2010, p. 101.

465 JGN, *Initial response to the draft decision*, March 2010, p. 101.

466 AER, *Draft decision*, February 2010, pp. 83–85.

### 4.3.2 Asset lives

The standard asset lives and differences in the remaining asset lives between the access arrangement proposal and the revised access arrangement proposal are set out in table 4.5.

**Table 4.5: Differences between the access arrangement proposal and the revised access arrangement proposal remaining asset lives (years)**

| Asset category                     | Standard life | Access arrangement proposal remaining life | Revised access arrangement proposal remaining life | Difference |
|------------------------------------|---------------|--|--|------------|
| Trunk pipeline (Wilton–Newcastle)  | 80            | 48.10                                      | 49.24  | 1.14       |
| Trunk Pipeline (Wilton–Wollongong) | 80            | 42.82                                      | 34.25  | –8.57      |
| Distribution system                |               |  |  |            |
| Country packaged off–take stations | 50            | 35.36                                      | 35.04  | –0.32      |
| Contract meters                    | 20            | 9.23                                       | 9.61   | 0.38       |
| Tariff meters                      | 20            | 10.60                                      | 10.14  | –0.46      |
| Meter reading devices              | 20            | 19.30                                      | 19.35  | 0.05       |
| Fixed plant                        | 50            | 37.47                                      | 37.30  | –0.17      |
| High pressure mains                | 80            | 58.74                                      | 58.51  | –0.23      |
| Medium pressure mains              | 50            | 28.98                                      | 28.97  | –0.01      |
| High pressure services             | 50            | 26.35                                      | 26.23  | –0.12      |
| Medium pressure services           | 50            | 36.00                                      | 35.86  | –0.14      |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 38–39; JGN, *Access arrangement information*, August 2009, p. 157; JGN, email to the AER, attachment, JGN, *Response to AER questions received on 12 April 2010*, 19 April 2010, p. 12.

The proposed asset standard lives in the revised access arrangement proposal are the same as those in the access arrangement proposal.<sup>467</sup> However, the revised access arrangement proposal is proposing changes to the remaining asset lives.

For the trunk pipelines, JGN submits that the changes in the remaining lives between the access arrangement proposal and the revised access arrangement proposal can be attributed to changes in forecast capital expenditure and actual depreciation in 2009–

<sup>467</sup> JGN, *Revised access arrangement information*, March 2010, p. 38 and JGN, *Access arrangement information*, August 2009, p. 156.

10.<sup>468</sup> However, the AER notes that adjustments to the capital base for inflation also affect the remaining asset lives.

The depreciation criteria<sup>469</sup> provide guidance on how the remaining lives of each asset or group of assets should be incorporated into the design of the depreciation schedule. For instance, the depreciation schedule should be designed so that each asset or group of assets is depreciated over the economic life of that asset or group of assets,<sup>470</sup> while the design should allow for adjustments reflecting changes in the expected economic lives.<sup>471</sup> It follows that depreciation is estimated after the economic life of an asset is determined. Additionally, the depreciation schedule should be designed so that the amount by which the asset is depreciated over its economic life does not exceed the value of the asset at the time it is added to the capital base (adjusted, if the accounting method approved by the AER permits, for inflation).<sup>472</sup> The AER does not consider that inflation has any bearing on the economic life of the asset. In an economic sense and referring to the life cycle management of an asset, exogenous factors such as inflation, should not affect the economic life, useful life or remaining life of an asset.

In light of the relevance of the depreciation criteria,<sup>473</sup> the AER considers there are a number of issues that arise from the proposed methodology to estimate the remaining lives. These are set out below.

#### **4.3.2.1 Remaining asset lives**

The AER notes that the depreciation criteria are not prescriptive concerning the method used to estimate remaining lives and that the AER's discretion under r. 89 is limited.<sup>474</sup>

The AER accepts that if the method to estimate remaining asset lives includes a revision to capital expenditure in the earlier access arrangement period (actuals in 2008–09 and estimates in 2009–10), then this may have an impact on remaining asset lives. The AER accepts that revisions to the proposed capital expenditure have affected the remaining asset lives as set out in table 4.5.

As noted above, however, the AER does not consider that factors such as differences between actual and forecast inflation should affect remaining asset lives.

The draft decision requires an amendment to the access arrangement proposal to address the circumstances whereby the remaining lives of certain classes of assets with short lives exceeded the standard economic asset lives for those classes of assets.<sup>475</sup> The revised access arrangement proposal addresses this issue.<sup>476</sup>

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468 JGN, email to the AER, *JGN AA –Response to AER 12 Apr 10 Questions*, 19 April 2010, attachment, *Response to AER questions received on 12 April 2010*, 19 April 2010, p. 16.

469 NGR, r. 89.

470 NGR, r. 89(1)(b).

471 NGR, r. 89(1)(c).

472 NGR, r. 89(1)(d).

473 NGR, r. 89(1).

474 NGR, r. 89(3).

475 AER, *Draft decision*, p. 83.



In light of the issues noted above regarding depreciation and inflation, the AER considers that further refinement is needed in the methodology used to estimate remaining asset lives.

In order to assess the issue that the changes to the remaining lives may affect the projected capital base (and its impact on total revenue and tariffs), the AER has undertaken internal modelling. This modelling demonstrates that the changes to the remaining lives are not significant and do not materially impact tariffs and forecast revenue.

Further, the approach taken by JGN to estimating remaining asset lives was approved by the IPART<sup>477</sup> under the National Third Party Access Code for National Gas Pipeline Systems (Code).

For these reasons, the AER considers that the revised remaining asset lives are consistent with the depreciation criteria set out in r. 89(1) of the NGR.

This is a transitional issue which is presently relevant to this access arrangement revision proposal because under the NGL it is a transitional access arrangement. Accordingly, the AER has taken into account the set of depreciation schedules that constitute the depreciation schedule for the transitional access arrangement under section 8.32 of the code.<sup>478</sup>

That said, the AER considers that in future access arrangement proposals JGN will need to propose a methodology where asset lives are not impacted by the effects of factors such as inflation.

#### **4.3.3 Summary**

In light of the above, the AER considers that the remaining asset lives are consistent with the depreciation criteria set out in r. 89(1) of the NGR.

### **4.4 Conclusion**

Subject to the revisions to the capital base outlined in chapter 3 of the final decision the AER approves the revised depreciation schedule as it meets the requirements of r. 88 and r. 89 of the NGR.

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476 JGN, *Initial response to the draft decision*, March 2010, p. 100.

477 IPART, *Final decision, Revised access arrangement for AGL gas networks*, April 2005, p. 75.

478 NGR, Clause 5(1)(d) of schedule 1.

## 5 Rate of Return

### 5.1 Introduction

The revised access arrangement proposal accepts the draft decision to use a post-taxation framework incorporating the nominal vanilla weighted average cost of capital (WACC) to estimate the rate of return on capital.<sup>479</sup> The revised access arrangement proposal does not accept the draft decision in relation to using the Sharpe–Lintner capital asset pricing model (CAPM) to estimate the return on equity and maintains its proposal to use the Fama–French three-factor model (FFM).<sup>480</sup> The revised access arrangement proposal also does not accept the draft decision in relation to the method used to establish the debt risk premium.<sup>481</sup> The debt risk premium is used to estimate the cost of debt in the WACC. The revised access arrangement proposal accepts the AER's methodologies to estimate the risk-free rate and the inflation forecast, and accepts the averaging period specified in the draft decision.<sup>482</sup>

This chapter sets out the AER's consideration of issues raised in the revised access arrangement proposal where JGN did not accept revisions required by the AER in the draft decision.

### 5.2 Revised access arrangement proposal

The revised access arrangement proposal does not accept the draft decision to use the CAPM to estimate the return on equity and maintains its proposal to use the FFM.<sup>483</sup> The revised access arrangement proposal does not update or change any parameter values used in the FFM (three risk premiums and three beta values) to estimate the return on equity. JGN submits with the revised access arrangement proposal a new report from its consultant, NERA Economic Consulting (NERA) that responds to the draft decision.<sup>484</sup>

The revised access arrangement proposal does not accept the draft decision on the debt risk premium.<sup>485</sup> The revised access arrangement proposal submits the use of the Bloomberg (not the CBASpectrum) fair value curve and linear extrapolation based on the difference between five and seven year BBB rated bonds to estimate the 10-year debt risk premium.<sup>486</sup> JGN submits a new report from PricewaterhouseCoopers (PwC) on the benchmark cost of debt for a gas distributor (the PwC gas report), which

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479 JGN, *Initial response to the draft decision*, March 2010, pp. 102, 105–106.

480 JGN, *Initial response to the draft decision*, March 2010, pp. 102, 105–112, 126–127.

481 JGN, *Initial response to the draft decision*, March 2010, pp. 102, 105–106, 113–127.

482 JGN, *Initial response to the draft decision*, March 2010, pp. 112, 125–126.

483 JGN, *Initial response to the draft decision*, March 2010, pp. 102, 105–112, 126–127.

484 JGN, *Initial response to the draft decision*, March 2010, attachment 5.1: NERA, *Fama–French report–Response to the draft decision*, March 2010 (NERA, *Fama–French report*, March 2010).

485 JGN, *Initial response to the draft decision*, March 2010, pp. 102, 105–106, 113–127.

486 JGN, *Initial response to the draft decision*, March 2010, pp. 113–127.

assesses the Bloomberg and CBASpectrum fair value curves and the AER's approach for selecting which data service to use to estimate a benchmark cost of debt.<sup>487</sup>

The revised access arrangement proposal maintains the view that a BBB credit rating is more appropriate for a benchmark efficient gas network than the BBB+ credit rating determined in the draft decision. The revised access arrangement proposal outlines that electricity and gas businesses are not sufficiently close comparators to estimate the credit rating of a benchmark efficient service provider.<sup>488</sup>

The revised access arrangement proposal accepts the dates of the averaging period specified in the draft decision to estimate the risk-free rate and debt risk premium.<sup>489</sup>

JGN submits a letter, with an accompanying consultant's report from Oxera Consulting<sup>490</sup> (Oxera), on the draft decision to support its proposal on the FFM.<sup>491</sup>

A summary of the revised access arrangement proposal on the WACC parameters is presented in table 5.1.

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487 JGN, *Initial response to the draft decision*, March 2010, attachment 5.5, PricewaterhouseCoopers, *The benchmark cost of debt for a gas distributor, A report for Jemena Gas Networks (NSW) Ltd*, March 2010 (PwC, *The benchmark cost of debt for a gas distributor*, March 2010).

488 JGN, *Initial response to the draft decision*, March 2010, pp. 113–125.

489 JGN, *Initial response to the draft decision*, March 2010, pp. 105, 112.

490 Oxera Consulting, *Estimating the cost of equity from the Fama–French model: Prepared for Jemena Gas Networks (NSW) Ltd*, April 2010 (Oxera, *Estimating the cost of equity from the FFM*, April 2010).

491 JGN, letter to the AER, JGN access arrangement revision proposal: *JGN further response to the draft decision*, attachment 1, *Cost of capital*, 28 April 2010 and JGN, letter to the AER, JGN access arrangement revision proposal: *JGN further response to the draft decision*, attachment 1a, Oxera, *Estimating the cost of equity from the Fama–French model*, 28 April 2010 (Oxera, *Estimating cost of equity from the FFM*, April 2010).

**Table 5.1: Revised WACC parameters**

| Parameter                             | Revised access arrangement proposal |
|---------------------------------------|-------------------------------------|
| Nominal risk-free rate (%)            | 5.58                                |
| Inflation rate (%)                    | 2.52                                |
| Real risk-free rate (%)               | 2.98                                |
| Equity beta <sup>a</sup>              | na                                  |
| Market beta <sup>b</sup>              | 0.59                                |
| Growth beta <sup>b</sup>              | 0.48                                |
| Size beta <sup>b</sup>                | 0.30                                |
| Market risk premium (%) <sup>c</sup>  | 6.50                                |
| Growth risk premium (%) <sup>c</sup>  | 6.24                                |
| Size risk premium (%) <sup>c</sup>    | -1.23                               |
| Debt risk premium (%)                 | 4.48                                |
| Debt to total assets (gearing) (%)    | 60                                  |
| Nominal return on equity (%)          | 12.04                               |
| Nominal pre-taxation cost of debt (%) | 10.06                               |
| Nominal vanilla WACC (%)              | 10.86                               |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 31–32.

a: Equity beta is used in the CAPM but not the FFM.

b: The FFM uses three beta values (market beta, growth beta and size beta) to predict equity returns.

c: The FFM uses a market risk premium (MRP), a growth risk premium for high book-to-market firms, and a size risk premium for small firms compared to large firms.

## 5.3 Cost of equity—Fama-French three-factor model

### 5.3.1 Revised Access Arrangement proposal

The revised access arrangement proposal does not accept the draft decision to use the CAPM to estimate the return on equity and maintains its proposal to use the FFM.<sup>492</sup>

The revised access arrangement proposal does not update or change any parameters' values used in the FFM (three risk premiums and three beta values) to estimate the return on equity. JGN submits with the revised access arrangement proposal a new

492 JGN, *Initial response to the draft decision*, March 2010, pp. 102, 105–112.

report from its consultant, NERA, that responds to the draft decision.<sup>493</sup> The second NERA report on the FFM states:

- problems with the CAPM led to the development of the FFM<sup>494</sup>
- the FFM is well accepted amongst academics and market practitioners<sup>495</sup>
- the FFM delivers a better estimate of the cost of capital in the Australian market, in the United States (US) market and with regard to US energy businesses<sup>496</sup>
- the specification of the FFM developed and implemented by NERA accords with conventional FFM implementation and previous AER statistical analysis.<sup>497</sup>

Full details of the statements made in the revised access arrangement proposal and the second NERA report on the FFM are included adjacent to the AER's analysis and consideration of those statements.

On 28 April 2010 JGN submits further information to support its revised access arrangement proposal, including an accompanying consultant's report from Oxera Consulting (Oxera report).<sup>498</sup> The Oxera report states:

- both the CAPM and the FFM are well accepted financial models, with mixed evidence on the support for each model
- the NERA implementation of the FFM accords with expectations and any statistical concerns are immaterial
- the CAPM and the FFM perform equally in explaining Australian stock returns.

On 18 May 2010 JGN submits further information to support its revised access arrangement proposal and endorses the contents of the Energy Networks Association Ltd (ENA) and W A Gas Networks Pty Ltd (WAGN) submissions.<sup>499</sup>

### 5.3.2 Submissions

The AER received submissions on the FFM from the Energy Markets Reform Forum (EMRF),<sup>500</sup> the ENA,<sup>501</sup> the Energy Users Association of Australia (EUAA),<sup>502</sup> and WAGN.<sup>503</sup>

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493 NERA, *Fama French report–Response to the draft decision*, 19 March 2010 (NERA, *Response to the draft decision*, March 2010), included as attachment 5.1 to JGN, *Initial response to the draft decision*, March 2010.

494 NERA, *Response to the draft decision*, March 2010, pp. 6–8

495 NERA, *Response to the draft decision*, March 2010, pp. 8–20.

496 NERA, *Response to the draft decision*, March 2010, pp. 21–35.

497 NERA, *Response to the draft decision*, March 2010, pp. 36–46.

498 Oxera, *Estimating cost of equity from the FFM*, April 2010.

499 JGN, letter to the AER, *JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 2.

500 EMRF, *submission to the AER*, April 2010.

The EMRF submission states that:

- a well accepted financial model must be used in practice rather than as a teaching tool, must be used by financial practitioners who are exposed to the financial outcomes of the tool, and must have inputs available that are based on long term data sets. The EMRF does not consider that the FFM meets any of these requirements<sup>504</sup>
- a comparison of share market indexes shows that, under CAPM–determined rates of return, Australian utilities have outperformed the overall market.<sup>505</sup> The EMRF submits there is no justification for adopting the FFM, since it would result in higher return to equity and therefore even greater outperformance of the market<sup>506</sup>
- no members of the EMRF use the FFM, corroborating the survey results mentioned in the WACC review.<sup>507</sup>

The ENA submission outlines several issues about the rate of return in the draft decision:

- the AER introduces irrelevant requirements into the well accepted test and places too much weight on the regulators cohort to determine whether the FFM is a well accepted financial model<sup>508</sup>
- tests of statistical robustness are not relevant to the application of r. 74(2) of the NGR to rate of return issues<sup>509</sup>
- the AER has not compared the CAPM and the FFM in a balanced manner. The ENA submission outlines that many of the criticisms made of the FFM are equally relevant to the CAPM. The ENA submission states that it is not sound for the AER to maintain that the FFM is not compliant with the NGR on the basis of factors which also apply to the CAPM.<sup>510</sup>

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501 ENA, *Submission to the AER*, April 2010.

502 EUAA, *Submission to the AER* on JGN, April 2010.

503 WAGN, *Submission on proposed revisions to the access arrangement for Jemena's NSW gas distribution networks*, April 2010 (WAGN, *Submission to the AER*, April 2010)

504 EMRF, *submission to the AER*, April 2010, p. 47.

505 Specifically, the EMRF compares the S&P ASX 200 to the S&P Utilities 200 index from June 2001 to the end of 2009.

506 EMRF, *Submission to the AER*, April 2010, pp. 48–49.

507 EMRF, *Submission to the AER*, April 2010, p. 50 and AER, *Final decision: Electricity transmission and distribution network service providers: Review of the weighted average cost of capital (WACC) parameters*, 1 May 2009, p. 335 (AER, *Final decision: WACC review*, May 2009).

508 ENA, *Submission to the AER*, April 2010, p. 3.

509 ENA, *Submission to the AER*, April 2010, p. 4.

510 ENA, *Submission to the AER*, April 2010, p. 4.

The EUAA submission states that the AER was correct to reject the use of the FFM, and that there is no merit in moving away from the CAPM which is accepted by regulators internationally.<sup>511</sup>

The WAGN submission raises several issues in relation to the draft decision:<sup>512</sup>

- if the AER uses its discretion for a preferred alternative under r. 40(3) of the NGR, the preferred alternative must comply with the requirements and criteria set down in the NGR and NGL. The WAGN submission states that the AER did not give consideration to these requirements in deciding to reject the FFM<sup>513</sup>
- the AER does not give consideration to the NGL and NGR requirements except for r. 87(2) of the NGR<sup>514</sup>
- rule 87(1) of the NGR sets out the primary criteria for the rate of return. The purpose of r. 87(1) of the NGR is to outline the prevailing market for funds but this imposes no limitation on the relevant market. The WAGN submission outlines that there is no indication that the draft decision has given consideration to r. 87(1) of the NGR. The WAGN submission outlines that the purpose of r. 87(2) of the NGR provides guidance on setting the rate of return but it does not eliminate the need to make an assessment required under r. 87(1) of the NGR. In making its draft decision the AER has only given consideration to the requirement under r. 87(2) of the NGR, which is the AER's foremost reason for rejection of the FFM, while the WAGN submission considers this is a secondary requirement<sup>515</sup>
- in exercising its discretion under r. 87 and r. 40(3) of the NGR, the AER must take into consideration s. 24 of the NGL, which requires among other things the commercial and regulatory risks to be taken into consideration. The WAGN submission outlines that the AER's consideration of the CAPM model does not take into consideration additional risk factors such as types of systematic risk that the FFM does. The WAGN submission states that the CAPM does not provide a complete view of the risks that affect the expected rate of return of financial assets as required by r. 87(1) of the NGR.<sup>516</sup>

### 5.3.3 AER's analysis and considerations

The AER's analysis and considerations of the FFM are set out under four key areas including:

- legislative framework
- acceptance of the FFM

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511 EUAA, *Submission to the AER on JGN*, April 2010, p. 16.

512 WAGN, *Submission to the AER*, April 2010, p. 2.

513 WAGN, *Submission to the AER*, April 2010, p. 2.

514 WAGN, *Submission to the AER*, April 2010, pp. 3–4.

515 WAGN, *Submission to the AER*, April 2010, pp. 5–6.

516 WAGN, *Submission to the AER*, April 2010, pp. 7–8.

- empirical analysis of the FFM
- evaluation and conclusion.

At the outset, it is helpful to distinguish between the three NERA reports submitted by JGN related to the FFM:<sup>517</sup>

- the first NERA report on the FFM—submitted on 26 August 2009 with the original access arrangement proposal<sup>518</sup>
- the NERA report on DGJ09—submitted on 22 December 2009 to the ActewAGL Distribution (ActewAGL) gas access arrangement review process<sup>519</sup>
- the second NERA report on the FFM—submitted on 19 March 2010 with the revised access arrangement proposal.<sup>520</sup>

#### 5.3.3.1 Legislative framework

Some submissions including those from the ENA and WAGN criticise the draft decision for its approach to assessing the access arrangement proposal under the legislative framework. This section considers the framework and relevant policy considerations in response to these submissions.

#### *Rule 87 of the NGR*

The relevant rule for the required rate of return on capital is r. 87 of the NGR, which has two broad requirements.

#### *First requirement*

The first requirement of r. 87 of the NGR is:<sup>521</sup>

- (1) The rate of return on capital is to be commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services.

In relation to this first requirement of the NGR, the WAGN submission outlines that the NGR do not limit the consideration of prevailing market conditions in the market for funds to the consideration of the Australian domestic equity market. As outlined in the draft decision, while the NGR do not expressly state what the market for funds is, the AER considers that the relevant market for funds for a benchmark service

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517 There are two other NERA reports relevant to the consideration of gamma in the tax chapter, labelled the 2010 NERA payout ratio report and the 2009 NERA payout ratio report.

518 NERA, *Cost of equity—Fama–French three-factor model, Jemena Gas Networks (NSW)*, 12 August 2009, (NERA, *Cost of equity: Fama–French model*, August 2009) (this is referred to as the first NERA report on the FFM in chapter 5 of this decision).

519 NERA, *Review of Da, Guo and Jagannathan empirical evidence on the CAPM, A report for Jemena Gas Networks*, 21 December 2009 (NERA, *Review of Da, Guo and Jagannathan*, December 2009) (this is referred to as the NERA report on DGJ09 in chapter 5 of this decision).

520 NERA, *Fama French report—Response to the draft decision*, 19 March 2010 (NERA, *Response to the draft decision*, March 2010) (this is referred to as the second NERA report on the FFM in chapter 5 of this decision), included as attachment 5.1 to JGN, *Initial response to the draft decision*, March 2010

521 NGR, r. 87(1).



provider needs to be relevant to the reference services.<sup>522</sup> The draft decision outlines that the relevant market for funds is the Australian market,<sup>523</sup> and that this position is based on consideration of the relevant market for funds identified in the WACC review.<sup>524</sup> The WACC review notes that a domestic (not international) market model best matches observed conditions and that all financial parameters must be estimated on a consistent basis.<sup>525</sup> As outlined in the draft decision the AER considers that the relevant market for funds for the purposes of r. 87(1) of the NGR is the Australian capital market.<sup>526</sup> The draft decision, consistent with the WACC review findings, outlines that the benchmark service provider being considered under r. 87 is a stand alone 'pure play' service provider, operating in Australia without parent ownership, and the relevant market for funds is Australia.<sup>527</sup>

Contrary to the WAGN submission that the AER did not consider r. 87(1) of the NGR in the draft decision, the AER did consider this rule. In applying the CAPM and other financial parameters used to determine a rate of return, the AER set a rate commensurate with the prevailing market conditions.<sup>528</sup> The draft decision also outlines that the FFM did not meet the requirements of r. 87(1) of the NGR.<sup>529</sup> Further sections 5.6 to 5.12 of the final decision update these parameters for prevailing market conditions.

#### *Second requirement*

The second requirement of r. 87 of the NGR is:

- (2) In determining a rate of return on capital:
  - (a) it will be assumed that the service provider:
    - (i) meets benchmark levels of efficiency; and
    - (ii) uses a financing structure that meets benchmark standards as to gearing and other financial parameters for a going concern and reflects in other respects best practice; and
  - (b) a well accepted approach that incorporates the cost of equity and debt, such as the Weighted Average Cost of Capital, is to be used; and a well accepted financial model, such as the Capital Asset Pricing Model, is to be used.

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522 AER, *Draft decision*, February 2010, p. 100

523 AER, *Draft decision*, February 2010, p. 100. and AER, *Final decision: WACC review*, May 2009, pp. 97–101.

524 AER, *Final decision: WACC review*, May 2009, p. 101.

525 AER, *Final decision: WACC review*, May 2009, pp. 100–101.

526 AER, *Draft decision*, February 2010, p. 100.

527 AER, *Draft decision*, February 2010, p. 101; and AER, *Final decision: WACC review*, pp. 97–101, 101–110.

528 See sections 5.6 to 5.14 of AER, *Draft decision*, February 2010, pp. 122–143.

529 For example, AER, *Draft decision*, February 2010, pp. 109, 110–111 and 114–117.

The AER agrees with the WAGN submission that the NGR recognises that alternative well accepted financial models may be used.<sup>530</sup> The NGR also describe the CAPM as a well accepted financial model.

The AER does not agree with the WAGN submission that r. 87(1) of the NGR and not r. 87(2) of the NGR sets the primary requirements of r. 87 of the NGR.<sup>531</sup> In order to comply with r. 87 of the NGR, to determine an appropriate rate of return of capital, the NGR require that r. 87(1) and r. 87(2) of the NGR are met. Rule 87 of the NGR does not provide any hierarchy of importance as suggested in the WAGN submission nor does r. 87 of the NGR indicate that r. 87(2) of the NGR is subordinate to r. 87(1) of the NGR.<sup>532</sup>

Further, the AER does not agree with the WAGN submission that it only gave consideration to r. 87(2) of the NGR.<sup>533</sup> Nor does the AER agree with the ENA submission that the AER did not compare the FFM and the CAPM in a balanced manner.<sup>534</sup>

However, putting this to one side the AER is required to establish whether the FFM is a well accepted financial model to meet the requirement in r. 87(2) of the NGR.

As outlined in section 5.3.3.2 the draft decision does not find that the FFM is well accepted by a cross-section of the finance profession.<sup>535</sup>

The AER notes the ENA submission that whether a model, such as the FFM, is well accepted by regulators is not a relevant requirement in determining whether a model is well accepted under the NGR and the AER attached considerable weight to this issue.<sup>536</sup>

The draft decision considers whether the FFM is well accepted by these three groups, based on the information provided in the access arrangement proposal and other relevant material. The ENA submission states that the AER, in assessing whether the FFM was well accepted, gave considerable weight to the regulators group.<sup>537</sup> However, the AER considers that it is appropriate for it to have regard to regulators as a group of the finance profession. The AER considers that it is a relevant matter whether the FFM is well accepted by each group of the finance profession i.e. academics, financial market practitioners and regulators. That said, the AER does not consider that whether the FFM is well accepted by a particular group of the finance profession is necessarily determinative. As discussed later in this chapter, the FFM is not well accepted by any of the groups that comprise the finance profession; therefore it is reasonable for the AER to conclude that the FFM is not well accepted as required by r. 87(2) of the NGR.

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530 WAGN, *Submission to the AER*, April 2010, p. 5.

531 WAGN, *Submission to the AER*, April 2010, p. 5

532 WAGN, *Submission to the AER*, April 2010, p. 6.

533 WAGN, *Submission to the AER*, April 2010, p. 6.

534 ENA, *Submission to the AER*, April 2010, p. 4.

535 AER, *Draft decision*, February 2010, pp. 101–109, 121.

536 ENA, *Submission to the AER*, April 2010, p. 4.

537 ENA, *Submission to the AER*, April 2010, p. 3.

Further, contrary to the WAGN submission that the AER only considered r. 87(2)(b) of the NGR, and did not consider the requirements under r. 87(1) and 87(2)(a) of the NGR, these issues are considered in sections 5.6 to 5.14 of the draft decision.

The term ‘well accepted’ is not defined in the NGR. In *Re East Australian Pipeline Limited* [2004] ACompT 8 (upheld by the High Court in *East Australian Pipeline Pty Limited v Australian Competition and Consumer Commission* (2007) 233 CLR 229), the methodology devised by the ACCC for establishing the initial asset base for a gas pipeline was considered ‘novel and idiosyncratic’ and not a ‘well recognised’ valuation methodology for the purposes of the Gas Code. However, that case does not have direct application for the consideration of the FFM.

#### **Rule 74 of the NGR**

ENA makes a submission about r. 74 of the NGR. This rule states:

##### 74 Forecasts and estimates

- (1) Information in the nature of a forecast or estimate must be supported by a statement of the basis of the forecast or estimate.
- (2) A forecast or estimate:
  - (a) must be arrived at on a reasonable basis; and
  - (b) must represent the best forecast or estimate possible in the circumstances.

The rate of return on capital is comprised of a number of parameters that are required to be estimated or forecast. Thus the AER considers that r. 74 of the NGR is relevant for consideration of those parameters along with other estimates and forecasts in an access arrangement proposal.

The AER does not agree with the ENA submission that the AER has imposed an additional threshold for a financial model to be well accepted—that is, the model must also be statistically robust.<sup>538</sup> As outlined in the draft decision, the proposed specification of the FFM relies on statistical robustness especially because of the lack of theoretical basis to support the relationships being explored by the FFM.<sup>539</sup> If a financial model has limitations and does not produce reliable, consistent observed relationships over time, this model may not be used widely and may not be well accepted on the basis of this inconsistency of outcomes.<sup>540</sup> That said, the draft decision did not find that the FFM was a well accepted financial model under r. 87(2) of the NGR.

While the reliability of the model is directly relevant to whether the estimates and forecasts derived meet r. 74 of the NGR, the ENA submission seems to suggest that r. 74 of the NGR may not be a relevant consideration for r. 87 of the NGR in the following phrase: 'The test for statistical robustness may well be relevant to the

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538 ENA, *Submission to the AER*, April 2010, p. 4.

539 AER, *Draft decision*, February 2010, pp. 110–117, 121.

540 AER, *Draft decision*, February 2010, pp. 119–120.

application of Rule 74 to other elements of the Access Arrangement proposal which are readily and unambiguously amenable to statistical analysis and quantification'.<sup>541</sup> It is not clear if this phrase relates to r. 87(1) of the NGR or r. 87 of the NGR in its entirety. In either case the AER does not accept this submission, as r. 87(1) of the NGR provides guidance about how to determine the rate of return considering prevailing market conditions and the risks involved in providing reference services.

#### ***Rule 40 of the NGR***

The WAGN submission states that the AER has not given consideration to the requirements of r. 40(3) of the NGR. The draft decision does not approve the proposal to use the FFM and instead used the CAPM to estimate a rate of return on equity. Rule 40(3) of the NGR allows the AER discretion to withhold its approval of an element of the access arrangement proposal if a preferable alternative exists that complies with the requirements of the NGL and is consistent with the criteria in the NGL. The AER did not expressly rely on r. 40(3) in deciding not to approve the use of the FFM but rather did not approve the use of the FFM because it did not meet the requirements of r. 87(2) of the NGR.

As outlined previously, sections 5.6 to 5.14 of the draft decision consider the parameters of the CAPM to meet the requirements of r. 87(1) and r. 87(2)(a) of the NGR.

#### **5.3.3.2 Assessing whether the FFM is well accepted**

This section sets out the AER's consideration of whether or not the FFM is a well accepted financial model as required by r. 87(2) of the NGR.

First, the AER examines the framework in the revised access arrangement proposal on how to assess whether or not a model is well accepted—in other words, how well accepted is defined. The AER notes that the proposed definition of well accepted has changed from that in the access arrangement proposal.

Second, the AER assesses the definition of the finance profession in the revised access arrangement proposal—which comprises the academic group and the financial market practitioners group.

Third, the AER considers whether, overall, the FFM is a well accepted financial model.

The AER assesses whether the FFM is well accepted by considering the academics and financial market practitioners groups in this decision. The draft decision also assesses whether the FFM is well accepted by considering the regulators, academic literature and financial market practitioner groups.

#### ***Proposed definition of well accepted***

The access arrangement proposal outlines that well accepted could be demonstrated by observing the weight of opinion within the finance profession. Specifically, the first NERA report on the FFM identifies three groups within the finance profession—

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541 ENA, *Submission to the AER*, April 2010, p. 4.

academic literature, financial market practitioners and regulators—to assess whether the FFM is well accepted among each of these groups. To do this, the first NERA report on the FFM observes the opinion or practice of each group to infer its opinion of the FFM, and concludes that the FFM is well accepted if a sufficient cross-section of participants is convinced of the merits of the FFM.<sup>542</sup>

The draft decision considers the definition of well accepted in the access arrangement proposal:

- considers the weight of opinion within the finance profession
  - the finance profession is comprised of three groups (also referred to as participant classes, cohorts or forums)—namely academic literature, financial market practitioners, and regulators
- requires that a sufficient cross-section of participants be convinced of the merits of the model
  - observes opinion or practice within each group to infer whether or not they are convinced of the merits of the model.

The draft decision outlines that the FFM is not a well accepted financial model.

*Changes in the proposed definition of well accepted*

The revised access arrangement proposal modifies the definition of well accepted in the access arrangement proposal:

- the definition of the 'finance profession' now excludes regulators as a relevant group as a check<sup>543</sup>
- the definition of academics in the finance profession has changed from 'academic literature' to 'academics'<sup>544</sup>
- the definition of what well accepted means has changed so that the FFM is required to be well accepted by only one of the two remaining finance profession groups.<sup>545</sup>

The AER's consideration of these changes is outlined below.

*Change in definition of the finance profession to remove regulators*

As outlined above, the access arrangement proposal includes regulators as a relevant group for the assessment under r. 87(2) of the NGR. The first NERA report on the FFM justifies the inclusion of this group as follows:

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542 NERA, *Fama–French model*, August 2009, p.28

543 JGN, *Initial response to the draft decision*, March 2010, pp. 108–109.

544 Noting that at one point the phrase used is 'academics or other experts', rather than just 'academics'. JGN, *Initial response to the draft decision*, March 2010, p. 108–109.

545 JGN, *Initial response to the draft decision*, March 2010, p. 108.

Regulators might be regarded as a further class of financial market ‘participants’ who need to make a conscious decision as how to estimate the cost of equity. In contrast to financial market participants, regulators do not have a financial interest in the outcome; however, they do have to defend their decisions, and often face the prospect of differing forms of review of their decisions. Accordingly, the decisions of regulators would also provide a check on the accuracy and practicability of a particular financial model.<sup>546</sup>

The draft decision accepts the inclusion of regulators as a relevant group in the cross section of participants in the finance profession. The draft decision outlines that the FFM was not well accepted by the regulators group.<sup>547</sup> As outlined, the revised access arrangement proposal seeks to exclude regulators from the definition of the finance profession. The AER considers that regulators are a relevant group for consideration in the assessment of the FFM as a well accepted model. The AER considers that it is a relevant matter whether the FFM is well accepted by each group. That said, the AER does not consider that whether the FFM is well accepted by a particular group is necessarily determinative.

The revised access arrangement proposal provides two reasons why regulators are not a relevant group for assessing whether a particular financial model is well accepted. The AER assesses these reasons below.

First, while the revised access arrangement proposal refers to the definition of the generally accepted accounting principles (GAAP) the relevant term in r. 87(2) of the NGR is ‘well accepted’.<sup>548</sup> The AER considers that the GAAP definition is not relevant in the context of interpreting the definition of what is well accepted under the NGR.

Second, the revised access arrangement proposal states that regulators should not be a relevant group because regulators are not mentioned in r. 87 of the NGR and if regulators cannot accept a model until it is accepted by other regulators, no model that is not already in use could ever be accepted by regulators.<sup>549</sup>

As outlined, r. 87 of the NGR do not define what well accepted is nor does it exclude regulators (or other groups of finance profession for that matter) from consideration as relevant group in determining what is a well accepted financial model.

The AER does not consider that this change to exclude regulators as a relevant group has been adequately explained or supported. Further the AER maintains that regulators are a relevant group for consideration of whether the FFM is a well accepted model.

#### *Change in definition of academic literature group*

The access arrangement proposal included academic literature as one of the three groups that comprised the finance profession and whose opinion was relevant to the

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546 NERA, *Fama–French model*, August 2009, p. 33.

547 AER, *Draft decision*, February 2010, pp. 108–109, 121.

548 JGN, *Initial response to the draft decision*, March 2010, pp. 108–109.

549 JGN, *Initial response to the draft decision*, March 2010, p. 109.

assessment of a well accepted financial model.<sup>550</sup> The revised access arrangement proposal modifies the definition of this group from academic literature to academics.<sup>551</sup>

*Change in the relevance of all groups to the definition of well accepted*

The draft decision notes the definition of what is well accepted in the access arrangement proposal that a cross-section of the three groups of the finance profession is required to consider the FFM is well accepted.

The revised access arrangement proposal amends the definition of what is well accepted from a cross-section across all the groups that form part of the finance profession to just one of the two groups that now comprise the finance profession.<sup>552</sup>

The AER does not consider that this change to the definition of well accepted has been adequately supported or explained in the revised access arrangement proposal.

The AER considers that it is a relevant matter whether the FFM is well accepted by each group of the finance profession, including regulators. That said, the AER does not consider that whether the FFM is well accepted by a particular group of the finance profession is necessarily determinative of whether the FFM is well accepted as required by r. 87 of the NGR.

*Conclusion on proposed definition of well accepted*

The AER does not consider that the changes to the definition of well accepted in the revised access arrangement proposal are adequately supported or explained or provide a better basis for establishing whether the FFM is a well accepted financial model as required by r. 87 of the NGR.

***Assessment of whether the FFM is well accepted***

In the following section, the AER assesses the information and material before it to determine whether the FFM is well accepted by:

- considering two of the relevant groups of the finance profession—academics and financial market practitioners
- observing opinion or practice within each group of the finance profession to establish if the FFM is well accepted by that group.

The section below considers a range of information and material submitted for the assessment of the FFM as a well accepted financial model under r. 87 of the NGR.

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550 JGN, *Access arrangement information*, August 2009, p. 143; and NERA, *Fama–French model*, August 2009, p. 28.

551 JGN, *Initial response to the draft decision*, March 2010, p. 109.

552 The AER notes that JGN refers to 'either regulators, practitioners, academics or other experts'. The AER considers that the surrounding text and accompanying NERA report exclude regulators, and notes that 'other experts' are not delineated as a separate group anywhere else in the revised access arrangement proposal. JGN, *Initial response to the draft decision*, March 2010, pp. 108–109.

### *Acceptance by academics*

The revised access arrangement proposal outlines that the FFM can be considered well accepted by academics by reference to the following issues:<sup>553</sup>

- the reputation of Eugene Fama and Kenneth French as academics
- citation statistics from academic literature
- inclusion of the FFM in the curricula of finance courses in major Australian universities
- favourable media reports.

The AER notes that the second NERA report on the FFM presents discussion on the theoretical basis of the FFM as relevant to this issue, and states that it may explain why the FFM is well accepted by academics.<sup>554</sup> Rather than examine the theoretical basis of the FFM here, since this matter is principally relevant to other requirements of the NGR, the AER discusses this matter later in this chapter.

### *Reputation of Fama and French*

The second NERA report on the FFM submits that the FFM is well accepted because of the reputations of the authors, Professors Eugene Fama and Kenneth French.<sup>555</sup> As evidence of the high esteem in which Fama and French are regarded, NERA notes:

- the Social Science Research Network records downloads of papers by each author:<sup>556</sup>
  - Fama is the second most downloaded author
  - French is the fifth most downloaded author.
- relationship with the American Finance Association:<sup>557</sup>
  - French was president in 2007
  - Fama was elected a Fellow in 2001.<sup>558</sup>
- a paper by Arnold, Butler, Crack and Altintig analysing citations in top finance journals between 1990 and 1999 finds:<sup>559</sup>

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553 JGN, *Initial response to the draft decision*, March 2010, pp. 109–110 and NERA, *Response to the draft decision*, March 2010, pp. 8–16 (section 3.2).

554 NERA, *Response to the draft decision*, March 2010, pp. 11–16.

555 NERA, *Response to the draft decision*, March 2010, pp. 8 (section 3.2.1).

556 The source given by NERA is the SSRN website at <www.ssrn.com>. NERA, *Response to the draft decision*, March 2010, p. 8 (footnote 23).

557 The AFA publishes the Journal of Finance, a leading paper in the field. The source given by NERA is the AFA website at [www.afajof.org/association/fellows.asp](http://www.afajof.org/association/fellows.asp). NERA, *Response to the draft decision*, March 2010, p. 8 (footnote 24).

558 The AER notes that French is also a Fellow, since all presidents of the AFA are automatically designated such.



- Fama is a co-author of five of the 50 most cited papers
- French is a co-author of three of the 50 most cited papers.
- analysis of citations of papers from the JFE between 1974 and 2003 finds:<sup>560</sup>
  - Fama is the most cited author of JFE papers
  - French is the third most cited author of JFE papers
- Fama was the bookmaker's favourite to win the 2009 Nobel Prize in economics.<sup>561</sup>

The AER notes that the issue of Fama and French being highly regarded academics is not in question. However, the second NERA report on the FFM does not outline how the reputations of Fama and French and the acceptance of the FFM by academics are linked. The AER does not consider the academic standing of Fama and French is a relevant determinant of whether the FFM is a well accepted financial model for the purposes of r. 87 of the NGR.

#### *Citation analysis*

The first NERA report on the FFM uses a basic analysis of academic paper citations to justify the FFM as being well accepted.<sup>562</sup> Specifically, in the Journal of Finance in 2007, the first NERA report on the FFM states that more papers cited the 1993 Fama–French paper (which established the FFM) than referenced the 1964 Sharpe paper (which established the CAPM).<sup>563</sup> The first NERA report on the FFM notes that the CAPM is considered well accepted, and considers that the citation analysis proves that the FFM is more widely used as a benchmark than the CAPM.<sup>564</sup>

The draft decision outlines that this citation analysis has limitations,<sup>565</sup> including the selective consideration of just one journal in a single year, the differing time period since the two source papers were published, and references to alternative source papers.<sup>566</sup> Further, the AER examines the twelve specific cases presented in the first NERA report on the FFM to assess whether, given that they cite the 1993 Fama–

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559 Source is T. Arnold, A. Butler, T. Crack and A. Altintig, 'Impact: What influences finance research?', *Journal of Business*, 2003, vol. 76, pp. 343–361. NERA, *Response to the draft decision*, March 2010, pp. 8 (footnote 20).

560 Source given by NERA is the JFE website at <www.jfe.rochester.edu/authorcites04.htm>, NERA, *Response to the draft decision*, March 2010, pp. 8–16 (section 3.2).

561 This was drawn from newspaper article presented in the NERA section dealing with media attention, but could be considered partially relevant to the matters discussed here. NERA, *Response to the draft decision*, March 2010, p. 9 (section 3.2.2).

562 NERA, *Cost of equity: Fama–French Three–Factor Model*, August 2009, pp. 28–29.

563 Source papers are E. Fama and K. French, 'Common risk factors in the returns to stocks and bonds', *Journal of Financial Economics*, 1993, vol. 33, pp. 4–5 (Fama and French, Common risk factors, 1993) (the 1993 Fama–French paper) and W. Sharpe, 'Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk', *Journal of Finance*, 1964, vol. 19, pp. 425–442 (Sharpe, Capital asset prices, 1964) (the 1964 Sharpe paper).

564 NERA, *Cost of equity: Fama–French Three–Factor Model*, August 2009, p. 29.

565 AER, *Draft decision*, February 2010, pp. 102–106.

566 AER, *Draft decision*, February 2010, pp. 103, 105.

French paper, the papers actually accept the use of the FFM.<sup>567</sup> The draft decision outlines that citations cannot be relied on to demonstrate acceptance of a model, and may indicate areas of continued debate or disagreement.<sup>568</sup>

In the absence of a link between citation and acceptance, the draft decision did not consider that this citation analysis provided support for the FFM being well accepted.<sup>569</sup>

The revised access arrangement proposal includes the following further citations to justify the FFM as well accepted:<sup>570</sup>

- a paper by Arnold, Butler, Crack and Altintig analysing citations in top finance journals between 1990 and 1999 finds:<sup>571</sup>
  - Fama is a co-author of five of the 50 most cited papers
  - French is a co-author of three of the 50 most cited papers
  - the 1992 Fama–French paper is the ninth most cited paper
  - the 1993 Fama–French paper is the 17th most cited paper
- analysis of citations of papers from the Journal of Financial Economics (JFE) between 1974 and 2003 finds:<sup>572</sup>
  - Fama is the most cited author of JFE papers
  - French is the third most cited author of JFE papers
  - the 1993 Fama–French paper is the third most cited JFE paper
- the results of a search on the US Federal Reserve System website:<sup>573</sup>
  - 1390 hits for the search term ‘CAPM’
  - 905 hits for the joint search terms ‘Fama’, ‘French’, ‘three’ and ‘factor’.

The AER considers that the second NERA report on the FFM responds to the AER’s criticism that the citation analysis in the access arrangement proposal—reference to

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567 AER, *Draft decision*, February 2010, pp. 103–106.

568 AER, *Draft decision*, February 2010, p. 106.

569 AER, *Draft decision*, February 2010, p. 106.

570 JGN, *Initial response to the draft decision*, March 2010, p. 109.

571 Source is T. Arnold, A. Butler, T. Crack and A. Altintig, 'Impact: What influences finance research?', *Journal of Business*, 2003, vol. 76, pp. 343–361. NERA, *Response to the draft decision*, March 2010, pp. 8, 10.

572 Source given by NERA is the JFE website at <[www.jfe.rochester.edu/authorcites04.htm](http://www.jfe.rochester.edu/authorcites04.htm)>. NERA, *Response to the draft decision*, March 2010, pp. 8, 10.

573 Source given by NERA is the Federal Reserve System website at <[www.federalreserveonline.org](http://www.federalreserveonline.org)>. NERA, *Response to the draft decision*, March 2010, p. 10.

citations for only one year of the *Journal of finance*—was arbitrary and selective.<sup>574</sup> For example, the published paper by Arnold et al analyses all citations in the six top finance journals across a decade—approximately 68,000 citations to more than 32,000 individual source documents.<sup>575</sup>

However, the AER considers that the second NERA report on the FFM does not adequately respond to any of the AER's other criticisms regarding the use of citation analysis. Most importantly, there is no acceptable justification of why acceptance of the FFM can be inferred from a citation.<sup>576</sup>

The second NERA report on the FFM states that a commercial entity, Thomson Reuters, spends considerable resources tracking citations to demonstrate the impact of authors and papers.<sup>577</sup> The AER notes that 'impact' includes any form of reaction, both positive and negative. The AER considers as outlined in the draft decision that the number of citations does not necessarily indicate support or acceptance of the FFM to satisfy it is well accepted under r. 87 of the NGR. This is because a citation does not necessarily provide a means to conclude that the issue is supported or viewed favourably.

The revised access arrangement proposal acknowledges that citations cannot be equated with acceptance and states:

As the AER points out, though, besides published work being cited, it is important to know what is being said about the work. Our view is that the FFM is well accepted. To support our assertion we provide two quotes, both from papers that the AER has introduced into the debate.<sup>578</sup>

The AER notes that the approach taken in the second NERA report on the FFM does not engage with the key problem.<sup>579</sup> Providing favourable quotes from two papers does not address the issue in the draft decision that the number of citations does not outline whether a financial model is well accepted or not. This is because this type of analysis does not comprehensively review the relevant academic papers in an unbiased and systematic way and seeks to draw conclusions that the FFM is well accepted from a small number of examples. The two quoted papers—one of which is a working paper that has not been peer reviewed—do not purport to be literature reviews that provide a comprehensive review that demonstrates the FFM is well accepted. Further, the primary conclusion of both quoted papers is that the empirical evidence does not support the FFM. The quotes suggest that the authors of the two papers consider that other academics think the FFM is well accepted, but the authors do not consider the FFM is well accepted. That said, this conclusion is not supported by a comprehensive literature review. Even if the analysis was more comprehensive,

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574 AER, *Draft decision*, February 2010, p. 103.

575 T. Arnold, A. Butler, T. Crack and A. Altintig, 'Impact: What influences finance research?', *Journal of Business*, 2003, vol. 76, p. 346.

576 Further, the AER notes that some of the citation statistics relate to the general reputations of Fama and French, not the FFM specifically, and that this additional problem is considered above.

577 NERA, *Response to the draft decision*, March 2010, p. 9.

578 NERA, *Response to the draft decision*, March 2010, p. 10.

579 NERA, *Response to the draft decision*, March 2010, p. 10.

this does not demonstrate that the mention of the FFM in academic literature can reasonably be used to infer the FFM being well accepted by academics.

As outlined in the draft decision there may be fewer citations for a more accepted model than a less accepted model because it is so well known and accepted that academics do not see a requirement to cite the source paper. The draft decision outlines that the CAPM is considered so well accepted in academic literature that references do not cite the seminal works and papers.<sup>580</sup>

This point is made in the Arnold et al paper, which notes that the 1964 Sharpe paper does not appear in their fifty most cited papers, but did appear in the top fifty most cited papers of a similar study conducted in 1994 by Alexander and Mabry.<sup>581</sup> Similarly, other important papers (the two mentioned in the quote below are the 1973 papers by Black and Scholes, and Merton) also show declines in citation rankings between 1994 (Alexander and Mabry) and 2003 (Arnold et al).<sup>582</sup> Arnold et al explain:

We theorize that this is because the Black–Scholes and the Merton and Sharpe papers are so widely known that authors simply refer to Black–Scholes or CAPM without citing the relevant paper in full. Oscar Wilde said that “the only thing worse than being talked about is not being talked about,” and the curse of fame here is that Black, Scholes, Merton and Sharpe are talked about so much that often they are no longer cited in full.<sup>583</sup>

This suggests, as outlined in the draft decision, that the citation of papers that discuss or reference the FFM does not mean the FFM is well accepted by those papers or more generally in academic literature.<sup>584</sup> Therefore, the AER considers that the revised access arrangement proposal's use of citation statistics does not, on its own account, provide support for the FFM being a well accepted financial model by academics.

#### *University curricula*

The revised access arrangement proposal and the second NERA report on the FFM outline that the FFM is well accepted because it is taught in finance courses at major

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580 AER, *Draft decision*, February 2010, p. 106.

581 The earlier study was J. C. Alexander Jr and R. H. Mabry, ‘Relative significance of journals, authors, and articles cited in financial research’, *Journal of Finance*, 1994, vol. 49, pp. 697–712. See T. Arnold, A. Butler, T. Crack and A. Altintig, ‘Impact: What influences finance research?’, *Journal of Business*, 2003, vol. 76, p. 358.

582 R. C. Merton, ‘Theory of rational option pricing’, *Bell Journal of Economics*, 1973, vol. 4, pp. 141–183; and F. Black and M. Scholes, ‘The pricing of options and corporate liabilities’, *Journal of Political Economy*, vol. 81, pp. 637–654.

583 T. Arnold, A. Butler, T. Crack and A. Altintig, ‘Impact: What influences finance research?’, *Journal of Business*, 2003, vol. 76, p. 358.

584 AER, *Draft decision*, February 2010, p. 106.

Australian universities.<sup>585</sup> Course outlines from nine universities are provided to support this submission.<sup>586</sup>

The AER considers that the revised access arrangement proposal does not outline why the inclusion of the FFM in university curricula is relevant to the consideration of whether the FFM is well accepted under r. 87 of the NGR. The AER notes that the course outlines place differing levels of emphasis on the FFM. At one extreme, the course outline from the University of Western Australia shows that two weeks are allocated for discussing the FFM.<sup>587</sup> The course outline from the University of Queensland (QLD) shows one week is spent discussing the FFM.<sup>588</sup> In the seven other university courses the FFM is not mentioned specifically, but there are topics covering multifactor asset pricing models, extensions of the CAPM or arbitrage pricing theory.

While the AER accepts that the FFM is taught in university finance courses, this on its own however does not demonstrate that the FFM is a well accepted financial model by academics.<sup>589</sup>

As supporting material on this point, the revised access arrangement proposal includes lecture slides from a finance course at the University of Sydney that covers the FFM.<sup>590</sup> On examination of this material, the FFM is mentioned on 3 out of 48 slides. The lecture slides outline the problems and limitations of the FFM.<sup>591</sup>

Overall, the AER considers that the revised access arrangement proposal does not address why the inclusion of the FFM in the teaching curricula of several university courses supports that the FFM is a well accepted financial model among academics. Rather than supporting the FFM, the teaching materials provided from the University of Sydney reveal that some university curricula focus on the problems and issues with the FFM. The AER considers that for the proposition to hold—that the inclusion of the FFM in teaching materials demonstrates the model is well accepted—this would at a minimum require an examination of the curricula and the content of the lectures. The AER does not consider that the presence of the FFM as a teaching topic provides a basis to infer that the FFM is well accepted by academics. The AER does not

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585 JGN, *Initial response to the draft decision*, March 2010, p. 110 and NERA, *Response to the draft decision*, March 2010, p. 11 (section 3.2.4).

586 The nine universities are Macquarie University and the Group of Eight (Australian National University, Monash University, University of Adelaide, University of Melbourne, University of New South Wales, University of Queensland, University of Sydney and University of Western Australia).

587 R. Durand, Course outline: Advanced Investments FINA7481, University of Western Australia, Semester 1 2009, p. 5.

588 University of Queensland, Course profile: Empirical Finance Honours, FINM6402, 2 March 2010, p. 5.

589 The second NERA report on the FFM outlines that the CAPM is used as a teaching device by the academic community, even though the CAPM does not provide the best estimate of the cost of equity. The AER notes that this statement accepts the proposition that what an academic teaches may not equate to what that same academic accepts—and that this proposition could equally apply to the FFM. NERA, *Response to the draft decision*, March 2010, p. ii.

590 University of Sydney, Investments and Portfolio Theory, FINC 3017, lecture slides. This was the only set of lecture slides provided in the revised access arrangement proposal. The power point slides on FFM note that the book-to-market factor is not stable, there are data selection biases and measurement issues relating to the beta estimates in the 1992 FFM study.

591 University of Sydney, Investments and Portfolio Theory, FINC 3017, p. 8 (lecture slides 45–46).

consider that the analysis provided in the revised access arrangement proposal is comprehensive.

Therefore, the AER considers that the information and material before the AER regarding the inclusion of the FFM in university curricula does not support the proposition that the FFM is a well accepted financial model among academics.

#### *Media reports*

The revised access arrangement proposal submits that favourable media reports on the FFM demonstrate it is well accepted by academics.<sup>592</sup> The second NERA report on the FFM presents one quote from the Guardian and two from the New York Times.<sup>593</sup>

The revised access arrangement proposal does not outline how a newspaper article provides a robust analysis of the acceptance of the FFM among academics. It is not clear from the material provided that these newspaper articles have undertaken a comprehensive survey of academic literature or academics to establish the conclusions drawn.<sup>594</sup> Further, the AER considers it is not reasonable to draw any conclusions from the material provided given the small sample of articles used to support the proposition that the FFM is accepted by academics.

Therefore, the AER does not consider that these articles provide a sufficient sample or authority to support the proposition that the FFM is a well accepted financial model by academics.

#### ***Conclusion on acceptance by academics***

The AER considers that, based on the information and material before the AER, the FFM is not well accepted by academics. In many cases the information provided does not sufficiently demonstrate the link to acceptance by the group of academics.

The AER notes that analysis later in this chapter presents limitations with the theoretical basis for the FFM, and that this may be a reason why academics do not accept it. The evaluation here includes consideration of this indirect evidence, but is principally based on matters directly relevant to the assessment of what is well accepted as outlined above.

#### ***Financial market practitioners***

The revised access arrangement proposal outlines that the FFM can be considered well accepted by financial market practitioners by reference to the following issues:<sup>595</sup>

- availability of FFM inputs from financial data service companies

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592 JGN, *Initial response to the draft decision*, March 2010, p. 109

593 NERA, *Response to the draft decision*, March 2010, pp. 8–9 (section 3.2.2).

594 The AER notes that the Guardian journalist does not appear to have an understanding of economics, since—as NERA points out—the journalist misunderstands the basic implications of the efficient market hypothesis. NERA, *Response to the draft decision*, March 2010, p. 9.

595 JGN *Initial response to the draft decision*, March 2010, pp. 109–110, also NERA, *Response to the draft decision*, March 2010, pp. 16–20 (section 3.3).

- provision of further information to support the US and Australian surveys of how finance managers estimate the cost of equity
- provision of further information to support the interpretation of the Mercer report
- requirements of the Chartered Financial Analyst (CFA) course
- awards bestowed on Fama by the finance industry
- material on the FFM in the McKinsey & Company textbook.

These issues are considered below.

*Sale of FFM inputs by Morningstar*

The second NERA report on the FFM states that the FFM is well accepted because Morningstar (a global financial data services organisation) sells a range of investment data which includes FFM inputs and calculations.<sup>596</sup>

The AER does not consider that the existence of Morningstar data services for the FFM can be used to inform the question about whether the FFM is well accepted by financial market practitioners. This submission just outlines that Morningstar collates a variety of data (that is, share market and other financial data) and as a commercial entity it seeks to market that data for application in as many ways possible. How much take-up there is of this data and how this data is used is another matter, and this issue is not addressed in the revised access arrangement proposal.

Use of this material to establish that the FFM is well accepted among market practitioners in an Australian context needs closer scrutiny. The revised access arrangement proposal does not establish that these data inputs are based on Australian data. The AER considers that there is a paucity of Australian data inputs to parameterise the FFM.<sup>597</sup> This lack of Australian FFM data suggests that the FFM is not widely used by Australian market practitioners.

The AER does not consider that the information and material before it provides a reasonable link between the availability of data and the use of data by market practitioners, particularly in Australia. Therefore, the AER considers that this information and material does not support that the FFM is well accepted by market practitioners.

*US and Australian survey evidence*

The first NERA report on the FFM notes two published academic papers that survey the use of financial models by finance managers.<sup>598</sup>

- Graham and Harvey (2001) surveyed US finance managers and found that 34 per cent used the CAPM with additional risk factors added—including size and value factors<sup>599</sup>

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<sup>596</sup> NERA, *Response to the draft decision*, March 2010, pp. 17–18.

<sup>597</sup> NERA, *Response to the draft decision*, March 2010, p. 17.

<sup>598</sup> NERA, *Fama–French model*, August 2009, p. 31.

- Truong, Partington and Peat (2008) surveyed Australian finance managers and found no evidence that the FFM was used.<sup>600</sup>

The draft decision notes that the Truong, Partington and Peat survey shows no use of the FFM in Australia. However, the AER clarifies the interpretation of the Graham and Harvey survey of the use of FFM in the US:<sup>601</sup>

- the draft decision outlines that 34 per cent of managers use any type of multifactor risk models, but this is irrelevant to the specific question at hand<sup>602</sup>
- Graham and Harvey explicitly identify ten risk factors (including the size and value factors) that are added as extensions to the CAPM, and report the proportion of financial market participants that use each risk factor (but not combinations of risk factors)<sup>603</sup>
- this allows the calculation of the proportion of US finance managers who might use the FFM:
  - the theoretical maximum is that four per cent use the FFM
  - under an even distribution of risk factors, less than one per cent (specifically, 0.06 per cent) use the FFM.

The draft decision thus considers that a reasonable interpretation of these survey results is that the FFM is not used by finance managers and therefore cannot be considered to be well accepted by finance managers.<sup>604</sup>

The second NERA report on the FFM responds to the analysis in the draft decision about the US survey by providing two explanations of why the survey results show use of the FFM is limited:<sup>605</sup>

- there is a delay between the development of a model by academics and the use of the model by financial market practitioners. This is particularly relevant for the US, since although Graham and Harvey published their paper in 2001, the survey was conducted in 1999, which was just six years after the 1993 Fama–French paper.<sup>606</sup> This demonstrates that financial market practitioners had not yet had time to learn about the benefits of using the FFM<sup>607</sup>

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599 J. Graham and C. Harvey, 'The theory and practice of corporate finance: Evidence from the field', *Journal of Financial Economics*, 2001, vol. 60, pp. 187–243 (Graham and Harvey, *Corporate finance: Field evidence*, 2001).

600 G. Truong, G. Partington and M. Peat, 'Cost of capital estimation and capital budgeting practice in Australia', *Australian Journal of Management*, 2008, vol. 33(1), pp. 95–121.

601 AER, *Draft decision*, February 2010, pp. 106–107.

602 Graham and Harvey, *Corporate finance: Field evidence*, 2001, pp. 202 (table 3).

603 Graham and Harvey, *Corporate finance: Field evidence*, 2001, pp. 205–206 (figure 4 and table 4).

604 AER, *Draft decision*, February 2010, p. 107.

605 NERA, *Response to the draft decision*, March 2010, p. 17.

606 Graham and Harvey, *Corporate finance: Field evidence*, 2001, p. 191.

607 NERA, *Response to the draft decision*, March 2010, p. 17.



- in Australia, use of the FFM has been restricted by the paucity of sources for Australian FFM data.<sup>608</sup>

Although the AER agrees that more recent data is generally preferable, the AER notes that the 2001 Graham and Harvey paper is the most recent survey on the US market before the AER. The AER considers that, although it is possible that the use of the FFM has increased since the Graham and Harvey survey, there is no reasonable information or material to support this proposition. The revised access arrangement proposal outlines that financial market participants have not taken up the FFM because its benefits are not well known. The AER considers that this is indicative that the FFM is not well accepted by financial market practitioners. Further, the lag in take-up of the FFM by financial market practitioners indicates that the FFM is not well accepted (or used) by this group.

The second NERA report on the FFM provides some indirect evidence that it takes years for market practitioners to adopt academic models by noting a paper by Gitman and Mercurio. NERA notes that this 1980 survey finds that only 30 per cent of respondents use the CAPM, 16 years after the publication of the 1964 Sharpe paper.<sup>609</sup>

The AER notes that the Gitman and Mercurio paper is difficult to interpret. In particular, when investigating financial techniques used to determine the cost of capital, the survey offered five separate answers that would all principally involve the CAPM—the Capital Asset Pricing Model, beta, systematic risk, the Security Market Line and the Capital Market Line—and it not possible to aggregate these answers to find the total CAPM usage.<sup>610</sup> That said, the AER considers that the comparison of the take-up of the CAPM compared to the FFM needs to take account of the changes in the global financial market since 1964, when the CAPM was first developed. Market sophistication, technology as well as financial practice and theory were markedly different at the time the CAPM was first developed compared to when the FFM was first developed. The AER considers that the conclusions that can be drawn about the time to take-up a model are limited because of the different operating contexts at the time the CAPM and FFM were first developed.

In an Australian context, the AER notes that the paper by Truong, Partington and Peat is based on a more recent 2004 survey.<sup>611</sup> This more recent Australian paper does not support acceptance or take-up of the use of the FFM by financial market practitioners. Another paper based on a 2005 Australian survey by Coleman, Pinder and

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608 NERA, *Response to the draft decision*, March 2010, p. 17.

609 Source paper is L. Gitman and V. Mercurio, 'Cost of capital techniques used by major US firms: Survey and analysis of Fortune's 1000', *Financial Management*, 1982, vol. 14, pp. 21–29 (Gitman and Mercurio, *Cost of capital survey*, 1982); cited in NERA, *Response to the draft decision*, April 2010, p. 15–16.

610 Respondents could select more than one answer. The specific proportions who indicated they used a technique in determining cost of capital and capital budgeting are beta (22.6 per cent), CAPM (21.5 per cent), systematic risk (7.3 per cent), CML (6.2 per cent) and SML (6.2 per cent). Thus the theoretical minimum and maximum CAPM usage rates—assuming complete overlap and no overlap respectively—are 23 per cent and 64 per cent. Gitman and Mercurio, *Cost of capital survey*, 1982, p. 27 (exhibit 8).

611 G. Truong, G. Partington and M. Peat, 'Cost of capital estimation and capital budgeting practice in Australia', *Australian Journal of Management*, 2008, vol. 33(1), pp. 95–121.

Maheswaran has recently been published.<sup>612</sup> Although this survey does not directly ask about use of the FFM, it does report that 74 per cent of respondents use the CAPM.<sup>613</sup> This supports the reliability of the results from the Truong, Partington and Peat paper that 72 per cent of respondents use the CAPM.<sup>614</sup> No information has been provided that there has been a large increase in the take-up of the FFM by market practitioners in the Australian context since these papers have been published. Further, the AER considers that, given that there was no use of the FFM by finance managers in 2005, it would be very unlikely for the use of the FFM to increase to such an extent that it was well accepted in 2010.

While the AER considers that these papers provide relevant and reliable evidence of what models financial market practitioners use, the survey results do not support the conclusion that the FFM is well accepted as required by r. 87(2)(b) of the NGR.

#### *Chartered Financial Analysts requirements*

The revised access arrangement proposal provides the CFA curriculum regarding equity valuation techniques, and notes that the curriculum includes the FFM.<sup>615</sup> The revised access arrangement proposal outlines that the reading for this component of the CFA curriculum looks at 'well-established methodologies of security analysis', and that the FFM is included.<sup>616</sup> The CFA reading states that one of the multifactor models that expand the CAPM with additional factors is the FFM.<sup>617</sup> The CFA curriculum goes on to explain that the FFM is among the most widely known non-proprietary multifactor models and that the FFM appears to have potential for being a practical addition to the analyst's toolkit.<sup>618</sup>

The AER notes the FFM is first described on page 130 of the CFA reading, and so considers that the 'well established' statement made in the introduction does not seem directly linked to the FFM.<sup>619</sup> The AER considers that the contents of the CFA reading suggest that while the FFM is widely known, this is relative to an extremely specific set of comparators (non-proprietary multifactor models). Further, these statements suggest it is not currently being used in the analyst's toolkit but has potential to be included. The AER does not consider that whether a financial model is well known is the same as whether a financial model is well accepted. In this regard, the AER does not consider that inclusion in the CFA curriculum provides compelling

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612 L. Coleman, K. Maheswaran, and S. Pinder, 'Narratives in managers' corporate finance decisions', *Accounting and Finance*, *Forthcoming*.

613 Although the survey was based on Graham and Harvey (2001), limitations on survey length forced the authors to remove questions on the specific risk factors that might be added to the CAPM. L. Coleman, K. Maheswaran, and S. Pinder, 'Narratives in managers' corporate finance decisions', *Accounting and Finance*, *Forthcoming*, p. 24 (table 3).

614 G. Truong, G. Partington and M. Peat, 'Cost of capital estimation and capital budgeting practice in Australia', *Australian Journal of Management*, 2008, vol. 33(1), p. 108.

615 Chartered Financial Analysts (CFA), Equity, CFA Program Curriculum, Volume 4, Level II, 2010 (CFA Curriculum).

616 J. Stowe, T. Robinson, J. Pinto and D. McLeavey, 'CFA Reading 35: Return concepts', *Equity asset valuation*, 2009, second edition, p. 3 (Stowe et al, *CFA Reading 35*, 2009).

617 Stowe et al, *CFA Reading 35*, 2009, p. 102.

618 CFA Curriculum, p. 130 and p. 134.

619 The statement about 'well established methodologies' is on page 3, the FFM is described on page 130. Stowe et al, *CFA Reading 35*, 2009.

evidence that the FFM is well accepted and used by analysts or market practitioners. The CFA reading material does not confirm that the FFM is, as yet, applied widely by practitioners. The reasons for this are not outlined in the CFA reading. Overall, the AER does not consider that the CFA curriculum, based on a review of the CFA reading, demonstrates that the FFM is well accepted.

#### *Interpretation of the Mercer report*

The access arrangement proposal submits that there are Australian investment portfolios that differ from the market average on size and book-to-market ratios, consistent with FFM predictions, but not the CAPM.<sup>620</sup> It states that this is evidence that the FFM is used in Australia, and is therefore well accepted.<sup>621</sup>

The draft decision outlines that acceptance of the FFM cannot be inferred from the Mercer report findings, since the differing size and book to market ratios may not have resulted from use of the FFM.<sup>622</sup>

The revised access arrangement proposal outlines that there may be some merit to the draft decision observation that the existence of such portfolios may not be caused by use of the FFM.<sup>623</sup> However, the second NERA report on the FFM notes that it is difficult for the CAPM to explain the value or growth tilt of a large number of passively managed funds in Australia and the US, which the FFM and not the CAPM explains.<sup>624</sup> As a result, the second NERA report on the FFM submits it is more plausible that investors are using the FFM rather than the CAPM.

The AER does not consider that the second NERA report on the FFM acknowledges the range of investment strategies that may be implemented. The draft decision did not only suggest that investors combine two separate portfolios—neither of which is at the market average—in order that the investor's aggregate position is at the market average (though this may well be occurring).<sup>625</sup> The draft decision outlines that numerous other portfolio investment strategies might produce variation in size and book-to-market ratios, yet the investment managers are not using the FFM and do not accept the FFM.<sup>626</sup> The AER considers that it is unreasonable to observe this variation and presume that it arises from the use of the FFM.

Further, there are two more issues raised in the draft decision. First, the interpretation of the Mercer report presented in the first NERA report on the FFM cannot explain the year-to-year variation in size and book-to-market ratios.<sup>627</sup> During 2004 there is

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620 NERA, *Fama–French model*, August 2009, p. 32. The source document is Mercer Investment Nominees, *Jemena: Book to Price and Market Cap of Australian Equity Portfolios*, 10 July 2009 (Mercer, *Australian equity portfolios*, July 2009).

621 NERA, *Cost of equity: Fama–French model*, August 2009, p. 33.

622 AER, *Draft decision*, February 2010, p. 107.

623 NERA, *Response to the draft decision*, March 2010, p. 16.

624 NERA, *Response to the draft decision*, March 2010, p. 16.

625 AER, *Draft decision*, February 2010, p. 107.

626 Further, these investment strategies might not use or accept the CAPM. The second NERA report on the FFM presumes that any evidence against use of the CAPM can be interpreted as evidence for use of the FFM, but this is entirely unsupported.

627 AER, *Draft decision*, February 2010, p. 107.

very little variation in size and book-to-market ratios.<sup>628</sup> It is implausible to infer that investment decisions in 2003 and 2005 were made using the FFM, but that no investment decisions made in 2004 used the FFM. Yet this is exactly what the second NERA report on the FFM suggests when it submits that the variation in size and book-to-market ratios can be directly equated to use of the FFM. Second, the Mercer report itself emphasises the majority of investment portfolios do not deviate significantly from the market portfolio, and the market portfolio can be measured in multiple ways.<sup>629</sup>

The AER considers that the revised access arrangement proposal does not address the issues raised in the draft decision. The AER considers that the information provided in the revised access information proposal regarding the Mercer report does not support that the FFM is well accepted.

#### *The Vanguard report*

The revised access arrangement proposal notes that a recent study by Vanguard computes abnormal returns from various trading studies relative to the FFM.<sup>630</sup>

The AER notes that the Vanguard study does not use the FFM.<sup>631</sup> The AER therefore considers that this report does not provide support that the FFM is well accepted.

#### *Morgan Stanley prize*

The revised access arrangement proposal outlines that Morgan Stanley provided the American Finance Association Prize in Financial Economics in 2007 to Fama.<sup>632</sup> The second NERA report on the FFM notes that the prize has been awarded in part for producing:

...a model that has replaced the CAPM in applied and empirical work.<sup>633</sup>

The second NERA report on the FFM considers that this statement indicates the FFM is empirically important and a well accepted model.

The AER notes that this statement is taken from the press release issued when the prize was awarded and is not supported by information and material to support this statement. The AER notes this statement is contrary to the findings in the first NERA report on the FFM. This report provides a US study by Graham and Harvey that finds less than one per cent of finance managers use the FFM in the US, and more than

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628 Mercer, *Australian Equity Portfolios*, July 2009, pp. 4, 10.

629 AER, *Draft decision*, February 2010, p. 108. Source document is Mercer, *Australian Equity Portfolios*, July 2009, pp. 2, 8, 14.

630 Source document is G. Mottola and S. Utkus, 'Do traders win? Trading behaviour and 401(k) portfolio performance', *Vanguard Center for Retirement Research*, January 2007, vol. 27, pp. 1–10 (Mottola and Utkus, *Do traders win?*, 2007).

631 The Vanguard report uses a custom five factor model that includes factors built on the market portfolio, a bond index, an international (that is, non-US) index, and the HML and SMB factors from the FFM. Mottola and Utkus, 'Do traders win?', Vanguard report, 2007, p. 10.

632 NERA, *Response to the draft decision*, March 2010, p. 19.

633 Morgan Stanley Press Release, 'Eugene F. Fama awarded first Morgan Stanley–AFA prize for excellence in financial economics', 26 September 2007, available at accessed 10 May 2010 <<http://www.morganstanley.com/about/press/articles/5558.html>>, (Morgan Stanley, Press release, September 2007).

70 per cent use the CAPM.<sup>634</sup> The same press release makes it clear that Fama received the award because of his high academic standing as the ‘father of efficient market theory’, not the development of the FFM.<sup>635</sup> As outlined above, the academic standing and reputation of Professors Fama and French is not in question.

The AER does not consider that the awarding of such a prize demonstrates the FFM is used in the US market for funds or in the relevant market for funds in Australia. The AER does not consider that the award bestowed on Fama supports that the FFM is well accepted by financial market practitioners.

*McKinsey & Company publication*

The revised access arrangement proposal outlines that the McKinsey & Company publication titled *Valuation: Measuring and managing the value of companies* (McKinsey publication), is evidence that the FFM is used by practitioners because information on how to use the FFM is mentioned at pages 315 to 317 of this publication.<sup>636</sup> The revised access arrangement proposal includes quotes from Amazon.com reviews to demonstrate that the McKinsey publication is highly regarded and states that this is direct evidence that the FFM is used by practitioners.<sup>637</sup>

The AER notes that the key chapter on estimating the cost of capital includes considerable discussion of the CAPM.<sup>638</sup> In this chapter, in acknowledging that the FFM is an alternative to the CAPM and that the academic community has begun measuring risk with this model,<sup>639</sup> the McKinsey publication outlines there are many questions still under investigation given the FFM's recent development.<sup>640</sup> The McKinsey publication outlines that one of the disadvantages is that it is based on purely empirical evidence and that no theory has gained universal acceptance to explain the empirical findings of the FFM model.<sup>641</sup> In contrast, the CAPM is based on solid financial theory about risk and return assumptions.<sup>642</sup> The McKinsey publication concludes its section on the problems with the FFM by stating:

It takes a better theory to kill an existing theory, and we have yet to see a better theory. Therefore, we continue to use the CAPM while keeping a watchful eye on new research in the area.<sup>643</sup>

The AER considers that rather than providing support that the FFM is well accepted by financial market practitioners (or indeed academics) the McKinsey publication suggests that the FFM is only starting to be used to measure risk by the academic

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634 AER, *Draft decision*, February 2010, pp. 106–107. Source document is J. Graham and C. Harvey, 'The theory and practice of corporate finance: Evidence from the field', *Journal of Financial Economics*, 2001, vol. 60, pp. 187–243

635 Morgan Stanley, Press release, September 2007.

636 NERA, *Response to the draft decision*, March 2010, p. 18.

637 NERA, *Response to the draft decision*, March 2010, p. 18.

638 McKinsey & Company, *Valuation: Measuring and managing the value of companies*, Fourth Edition, 2005, Chapter 10 (McKinsey, *Valuation*, 2005).

639 McKinsey, *Valuation*, 2005, p. 321.

640 McKinsey, *Valuation*, 2005, p. 323.

641 McKinsey, *Valuation*, 2005, p. 323.

642 McKinsey, *Valuation*, 2005, pp. 323–324.

643 McKinsey, *Valuation*, 2005, p. 324

community, and has numerous problems.<sup>644</sup> Rather than endorse the FFM the McKinsey publication continues to support the use of the CAPM.<sup>645</sup>

***Conclusion on acceptance by financial market practitioners***

The AER considers that based on the information and material before the AER the FFM is not well accepted by financial market practitioners.

**Overall conclusion on acceptance of the FFM**

The AER considers, based on the information and material before it, that:

- the FFM is not well accepted by the group of academics
- the FFM is not well accepted by the group of financial market practitioners.

As stated in the draft decision, the AER considers that based on the information and material before it:

- the FFM is not well accepted by the group of regulators
- the FFM is not well accepted by the group of academic literature.

Therefore, the AER considers that the FFM does not meet the requirement of r. 87(2)(b) of the NGR that the model used to set the rate of return must be a well accepted financial model.

**5.3.3.3 Empirical analysis of the FFM**

This section considers a range of information and material on the FFM itself that is relevant to the assessment of r. 87(1) and r. 74 of the NGR.<sup>646</sup> The AER has considered all these issues together in determining whether the FFM meets the requirements of r. 87 and r. 74 of the NGR.

The specific issues considered include:

- the lack of a theoretical basis for the FFM
- the non-systematic observation of FFM risk premiums
- modelling and statistical analysis
- evaluation of academic literature.

These issues are considered below.

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<sup>644</sup> McKinsey, Valuation, 2005, p. 324

<sup>645</sup> McKinsey, Valuation, 2005, pp. 324

<sup>646</sup> This information and material is indirectly relevant to the assessment of r. 87(2)(b), since it may provide a reason why the FFM is (or is not) well accepted by the relevant groups.

### ***The empirical basis of the FFM***

The draft decision outlines two issues with the theoretical basis of the FFM.<sup>647</sup>

- it has no theoretical grounding, and is driven by an econometric search for variables exhibiting correlations in historical data
- given that there is no theoretical basis for the underlying relationships of variables in the FFM, it relies on the robustness and reasonableness of empirical variables whose significance varies across different studies and timeframes.

The draft decision considers that these limitations mean that the estimates generated by the FFM have not been arrived at on a reasonable basis, as required by r. 74(2)(a) of the NGR.<sup>648</sup> The draft decision also outlines that the FFM may not correctly account for the risks involved in providing reference services,<sup>649</sup> and notes that the lack of a theoretical basis may be a reason why the financial model is not well accepted by relevant groups.<sup>650</sup>

The revised access arrangement proposal states that the outputs of the FFM have been arrived at on a reasonable basis,<sup>651</sup> and refers to the second NERA report on the FFM to justify that the FFM has a theoretical basis to support the relationships of variables. The second NERA report on the FFM states:<sup>652</sup>

- the AER is incorrect to label the FFM as a ‘data mining exercise’ because it follows the process of theory development set out by Friedman in 1953—first constructing a hypothesis, then testing the validity of that hypothesis<sup>653</sup>
- the FFM is based on the same principles as Merton’s intertemporal CAPM and Ross’ arbitrage pricing theory,<sup>654</sup> in that risks (including risks not based on market wide movement) which cannot be diversified away will be priced<sup>655</sup>
- the FFM has a theoretical grounding, as stated in the 1993 Fama–French paper:<sup>656</sup>

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647 AER, *Draft decision*, February 2010, p. 110.

648 AER, *Draft decision*, February 2010, pp. 110, 120.

649 NGR, r. 87(1).

650 NGR, r. 87(2)(b).

651 JGN, *Initial response to the draft decision*, March 2010, p. 110.

652 NERA, *Response to the draft decision*, March 2010, pp. 11–15.

653 Source paper is M. Friedman, *The methodology of positive economics*, in *Positive Economics*, University of Chicago press, 1953 (Friedman, *Positive economics*, 1953); see NERA, *Response to the draft decision*, March 2010, pp. 13–14.

654 Source papers are R. Merton, ‘An intertemporal asset pricing model’, *Econometrica*, 1973, vol. 41, pp. 867–887 and S. Ross, ‘The arbitrage theory of capital asset pricing’, *Journal of Economic Theory*, 1976, vol. 13, pp. 341–360.

655 NERA, *Response to the draft decision*, March 2010, p. 13, also NERA, *Fama–French model*, August 2009, pp. 14–15.

656 NERA, *Response to the draft decision*, March 2010, p. 12; also NERA, *Cost of equity: Fama–French model*, August 2009, p. 14.

Variables related to average returns, such as size and book-to-market equity, must proxy for sensitivity to common (shared and thus undiversifiable) risk factors in returns.<sup>657</sup>

The AER assesses each of these submissions in turn.

*The process of theory development in economics*

The second NERA report on the FFM mischaracterises the draft decision when it states that the draft decision labels the FFM to be a data mining exercise.<sup>658</sup> Instead the draft decision outlines that this is the opinion of academics such as Dr Fischer Black:

I think most of the Fama and French results are attributable to data mining, especially when they re-examine effects that people have discussed for years.<sup>659</sup>

A similar statement is made by Professor van Zijl of Victoria University of Wellington, in the NZ Commerce Commission's workshop on the cost of capital:

Fama–French ultimately just boils down to data dredging, and is therefore going to be specific to particular time periods, commercial environments, it really hasn't got a lot to recommend itself.<sup>660</sup>

A useful summary is also provided by Dr Graham Bornholt of Griffith University:

There are two main problems with this model. First, the method used by Fama and French to construct their size and book-to-market factors is empirically driven and seems ad hoc. As a result, the three-factor model lacks a strong theoretical basis derived from asset pricing theory. Second, its appeal in practice is limited by the need to find reliable forward-looking estimates of the three factor sensitivities and the three factor premiums.<sup>661</sup>

The AER also notes a paper by Ferson, Sarkissian and Simin that demonstrates how data mining can produce results similar to the size and value effects even when there is no actual risk relationship in the underlying data.<sup>662</sup>

In relation to the reference to Friedman, the AER considers that the second NERA report on the FFM appears to overstate the relevance of the Friedman essay to the theoretical basis of the FFM.<sup>663</sup> The Friedman essay is concerned only with positive economics, and has noted that for any given set of observed facts, an infinite number

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657 Fama and French, *Common risk factors*, 1993, pp. 4–5.

658 NERA, *Response to the draft decision*, March 2010, pp. 13–14.

659 F. Black, 'Beta and return', *Journal of Portfolio Management*, 1993, p. 10; see AER, *Draft decision*, February 2010, p. 110 (footnote 558).

660 New Zealand Commerce Commission, *Cost of Capital Workshop*: 12 November 2009, p. 22; see AER, *Draft decision*, February 2010, p. 110 (footnote 558).

661 G. Bornholt, 'Extending the capital asset pricing model: the reward beta approach', *Accounting and Finance*, 2007, vol. 47, pp. 69–83.

662 W. Ferson, S. Sarkissian and T. Simin, 'The alpha factor asset pricing model: A parable', *Journal of Financial Markets*, 1999, vol. 2, pp. 49–68.

663 NERA, *Response to the draft decision*, March 2010, pp. 14–15.



of hypotheses may be proposed.<sup>664</sup> This is the necessary condition for data mining, since a search through this infinite number of hypotheses will eventually explain the set of observed facts (even when this set is subsequently extended). Further, the two steps are delineated only in order to prove that the assumptions of a model are inextricably linked to the performance of that model, and the essay later combines them into one step.<sup>665</sup> The Friedman essay is not discussing the scenario—made possible by later developments in data analysis—where data mining is the basis for developing underlying relationships of variables and theory, but the opposite.

*Relationship to other theories*

Notwithstanding this interpretation of the Friedman essay, the AER notes that Fama and French themselves state:

From a theoretical perspective, the main shortcoming of the three-factor model is its empirical motivation. The small-minus-big (SMB) and high-minus-low (HML) explanatory returns are not motivated by predictions about state variables of concern to investors. Instead they are brute force constructs meant to capture the patterns uncovered by previous work on how average stock returns vary with size and the book-to-market equity ratio.<sup>666</sup>

The AER notes that Fama and French clearly and unambiguously state that:

- the FFM is empirically motivated
- the FFM factors do not have any underlying rationale but are 'brute force constructs'
- the FFM relies upon patterns in previous empirical observations.

The AER considers that, although NERA seeks to link the FFM to other theoretical developments in asset pricing, the genesis of the FFM is empirical outcomes, as indicated by Fama and French.<sup>667</sup>

*The requirement for systematic observance*

As outlined in the draft decision, the robustness of the FFM relies solely on the underlying patterns being consistently and systematically observed in the empirical data over time.<sup>668</sup> Only if the empirical relationships—between size and return, and between value and return—are systematically observed can the relationship of the variables within the FFM be established. The AER considers that if these empirical relationships cannot be established over time, the FFM cannot provide a basis to propose the two additional risk factors in the rate of return on equity. Fama and French describe these consequences:

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664 Conditional on at least one hypothesis existing, there are infinite hypothesis. See Friedman, *Positive economics*, 1953, p. 9.

665 Friedman, *Positive economics*, 1953, p. 15.

666 F. Fama and E. French, 'The Capital Asset Pricing Model: Theory and evidence', *Journal of Economic Perspectives*, 2004, vol. 18, p. 41 (Fama and French, *CAPM: Theory and evidence*, 2004).

667 Fama and French, *CAPM: Theory and evidence*, 2004, p. 41.

668 AER, *Draft decision*, February 2010, p. 111.

Similarly, when estimating the cost of equity capital, one might be unconcerned with whether expected return premiums are rational or irrational since they are in either case part of the opportunity cost of equity capital (Stein, 1996). But the cost of capital is forward looking, so if the premiums are sample specific they are irrelevant.<sup>669</sup>

That is, if the empirical patterns are robust and can be consistently observed over time they will be relevant to determining the (forward looking) cost of equity. However, if the premiums for size and book-to-market are sample specific and cannot be said to be observed as robust over time, they are considered by Fama and French as irrelevant to the (forward looking) cost of equity. If this is the case the FFM estimates cannot be considered to have a reasonable basis, and cannot be considered the best estimate possible in the circumstances.<sup>670</sup>

The second NERA report on the FFM does not make it clear that this requirement is what is meant in part by the quote 'variables related to average returns'.<sup>671</sup> However, this requirement is made clear in the first NERA report on the FFM:

As such, the Fama–French three–factor model has a robust theoretical underpinning—the theory is clear that premiums for specific factors should only be observed systematically if the relevant factor is a proxy for non-diversifiable risk.<sup>672</sup>

This quote makes it clear that the consultant used by JGN to support the revised access arrangement proposal considers that, without the systematic observance of risk premiums, the FFM has no sound basis.

As a direct consequence, the AER considers that predictions from the FFM can be classified as either valid or invalid depending on the systematic observance of risk premiums. If risk premiums are systematically observed, then the risk premiums observed at present are expected to continue into the future, and there is a valid basis for prediction. If risk premiums are not systematically observed, then there is no reason to expect that the risk premiums observed today (or at any time in the past) will continue into the future, and there is no valid basis for prediction—that is, the FFM has no predictive validity.

### ***Conclusion on the empirical basis of the FFM***

The AER considers that:

- the FFM is empirically driven, without a strong theoretical grounding
- if the FFM risk premiums are not observed systematically, it has no predictive validity.

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669 Fama and French, CAPM: Theory and evidence, 2004, p. 41.

670 NGR, r. 74.

671 The full quote is printed earlier in this chapter. Source paper is Fama and French, Common risk factors, 1993, pp. 4–5; cited in NERA, *Response to the draft decision*, March 2010, p. 12 and NERA, *Cost of equity: Fama–French model*, August 2009, p. 14.

672 NERA, *Cost of equity: Fama–French model*, August 2009, p. 29, cited in AER, *Draft decision*, February 2010, p. 111.

### *Observed FFM risk premiums*

As outlined in the previous section, in order for the FFM to have any relevance to estimating forward looking rates of return, the underlying premiums need to be observed systematically.

This is relevant to the requirement set out in r. 87(1) of the NGR that the rate of return is commensurate with prevailing market conditions. The estimates in the first NERA report on the FFM are based on data up to May 2009, but if the underlying FFM risk premiums are not robust then these estimates have no relevance to the rate of return that will apply at the beginning of the access arrangement period.<sup>673</sup> It is also relevant to the requirement that the rate of return estimates are arrived at on a reasonable basis and represent the best possible estimate or forecast in the circumstances.

### *Risk premiums in Australian academic papers*

The draft decision presents academic papers showing that in Australia both the high-minus-low (HML) risk premium and the small-minus-big (SMB) risk premium vary considerably. The draft decision observes that:<sup>674</sup>

- the HML risk premium varies from 6 per cent to 14.6 per cent
- the SMB risk premium varies from negative 9 per cent to 17.2 per cent.

The second NERA report on the FFM responds to this issue by stating that there is almost as much variation in market risk premium (MRP) estimates as there is in the HML estimates.<sup>675</sup> In this context, if the underlying MRP is at its long term stable level even though the MRP estimates vary, then so too can fluctuating HML and SMB estimates still be representative of systematic risk premiums.

The AER does not consider that this is a relevant consideration for establishing that premiums underlying the FFM can be systematically observed. This is because:

- the response in the second NERA report on the FFM omits any mention of variation in the SMB risk premium and focuses only on the HML risk premium.<sup>676</sup> The variation in SMB is more than four times the variation in the MRP
- the MRP estimates presented in the second NERA report on the FFM are not appropriately generated.

The second NERA report on the FFM relies on MRP estimates sourced from the Ken French data library.<sup>677</sup> It compares these MRP estimates to HML and SMB estimates generated from the eight academic papers. The AER considers that this is not a consistent basis for comparison. A more appropriate comparison is to use the MRP

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673 The FFM betas are estimated using a data set that covers the period 1 January 2002 to 29 May 2009; FFM risk premiums are calculated using data that ends in 2008, with varying start dates. NERA, *Cost of equity: Fama–French model*, August 2009, p. 39 and 45.

674 AER, *Draft decision*, February 2010, p. 114 (table 5.4).

675 NERA, *Response to the draft decision*, March 2010, pp. 44–46.

676 NERA, *Response to the draft decision*, March 2010, p. 44.

677 NERA, *Response to the draft decision*, March 2010, p. 44 (table 4.1).

estimates from each paper. The AER has calculated the relevant MRP estimates for the purposes of this comparison and presents them with the NERA figures for comparison in table 5.2.

**Table 5.2: Variability in risk premiums HML, SMB and MRP**

| Authors                        | Period    | HML        | SMB        | NERA MRP   | Paper MRP  |
|--------------------------------|-----------|------------|------------|------------|------------|
| Fama and French, 1998          | 1975–1995 | 12.3       | na         | 7.2        | 8.9        |
| Halliwel et al, 1999           | 1980–1991 | 14.6       | 6.0        | 3.2        | 5.3        |
| Faff, 2001                     | 1991–1999 | 14.0       | –6.0*      | 9.6        | 5.5        |
| Faff, 2004                     | 1996–1999 | 6.0        | –6.5       | 9.3        | 9.1        |
| Gaunt, 2004                    | 1993–2001 | 8.5        | 10.0       | 8.6        | 6.9        |
| Gharghori, Chan and Faff, 2007 | 1996–2004 | 10.4       | 17.2       | 6.0        | 5.6        |
| O'Brien et al, 2008            | 1982–2006 | 9.4        | 4.3        | 6.2        | 4.7        |
| Kassimatis, 2008               | 1993–2005 | 12.6       | 11.5       | 8.3        |            |
| <b>Standard deviation</b>      |           | <b>2.7</b> | <b>8.9</b> | <b>2.1</b> | <b>1.7</b> |

Source: NERA, response to the DD, p. 44 (table 44); Source papers for each academic reference; AER analysis.

Note: Faff 2001 SMB estimate has been scaled back (composition different)  
Sample standard deviation presented (the NERA report presents the standard deviation of the sample, this is biased estimate for small sample)  
Gaunt 04 has been adjusted to use GMM estimates.

The AER notes that the MRP estimates—generated from the same source as the HML and SMB estimates—are considerably less variable than the MRP estimates reported in the second NERA report on the FFM. Most importantly, this increases the difference between the HML/SMB risk premium variability and the MRP variability:

- the HML standard deviation of 2.7 per cent is 66 per cent larger than the MRP standard deviation of 1.7 per cent
- the SMB standard deviation of 8.9 per cent is more than 400 per cent larger than the MRP standard deviation of 1.7 per cent.

The AER considers that a comparison of the variability of MRP, HML and SMB risk premiums shows that the HML and SMB risk premiums are not systematically observed.

#### *Risk premiums in the first NERA report on the FFM*

The AER notes that the first NERA report on the FFM includes estimates of the FFM parameters from two data sources: one from Dimensional Fund Advisors (DFA), the

other from MSCI.<sup>678</sup> The draft decision notes that the estimates of risk premiums from these two sources are not compatible.<sup>679</sup>

- HML: DFA estimates 6.24 per cent (and statistically distinguishable from zero), MSCI estimates 3.5 per cent (but not statistically distinguishable from zero)
- SMB: DFA estimates –1.23 per cent (but not statistically distinguishable from zero), MSCI estimates 3.88 (but not statistically distinguishable from zero).

The second NERA report on the FFM makes no reference to the MSCI estimates.

The access arrangement proposal states that the SMB premium (in particular) was unreliable:

JGN notes that evidence available in Australia does not permit a conclusion that a premium is earned by small stocks; however, this relationship is clear in the long-term data from the US.<sup>680</sup>

As has already been noted, for a model which relies on the stability of empirical patterns to establish its validity, such variable risk premiums are an issue.

To facilitate comparison with the estimates from academic papers presented above, the estimates from the first NERA report on the FFM are presented in table 5.3.

**Table 5.3: NERA–proposed HML and SMB risk premiums and MRP**

| Authors                                       | Period                         | HML         | SMB        |
|---|--------------------------------|-------------|------------|
| NERA (DFA), 2009                              | HML 1975–2008<br>SMB 1980–2008 | 6.2         | –1.2       |
| NERA (MSCI), 2009                             | HML 1975–2008<br>SMB 2001–2008 | 3.6         | 3.9        |
| <b>Mean from academic papers in table 5.2</b> |                                | <b>11.0</b> | <b>5.2</b> |

Source: NERA, Fama–French model, pp. 39, 55 and AER analysis.

The AER considers that the estimates from the first NERA report on the FFM are incompatible and do not provide compelling evidence that the HML and SMB premiums are systematically observed. First, the estimates do not accord with each other. Second, they do not accord with the overall sample presented above.

These factors demonstrate that the premiums for the factors are not systematically observed and there is no reasonable theoretical basis for the FFM.

#### ***Conclusion on observed FFM risk premiums***

Based on the information and material before it, the AER considers that:

<sup>678</sup> NERA, *Cost of equity: Fama–French model*, August 2009, p. 39 and 55.

<sup>679</sup> AER, *Draft decision*, February 2010, pp. 116–117.

<sup>680</sup> JGN, *Access arrangement information*, August 2009, p. 142 (footnote 55).

- estimates of Australian SMB and HML risk premiums do not follow a pattern of systematic observance
- the SMB and HML risk premiums submitted by JGN are not consistent with systematic observance of risk premiums.

The AER notes that the section above outlines what the failure to systematically observe the risk premiums means for the FFM: there is no sound theoretical or empirical basis, and it has no predictive validity.

Therefore, the AER considers that the estimates or forecasts generated by the FFM are not arrived at on a reasonable basis and do not provide the best estimates or forecasts possible in the circumstances.<sup>681</sup>

#### 5.3.3.4 Modelling and statistical analysis

##### *Purpose of model*

The AER considers that the purpose for which the FFM is applied is not a relevant purpose to determine the rate of return for the benchmark business.

By way of background, in 1997 Carhart proposed a new multifactor model based on the FFM which added momentum as a fourth factor.<sup>682</sup> This momentum factor is designed to reflect empirical data which suggests that a stock which has outperformed comparator stocks in the past year will continue to do so for the next six months. Conversely, a stock that has underperformed comparator stocks in the past year will continue to do so for the next six months. Note that the empirical support for such momentum does not last beyond this time horizon; momentum is relatively short lived.

Advocates of the Carhart four-factor model outline that it is the best estimate of returns available, and in the draft decision the AER noted two papers that used it to determine their benchmark rate of return.

In response, the second NERA report on the FFM submits that a momentum factor cannot be included:

A momentum strategy is an active strategy because what today is a recent past winner will in all probability not be a recent past winner one year from now. In contrast, a benchmark gas distribution business is a passive strategy. A gas distributor is not in the business of loading up on stocks that are past winners and shorting past losers. So its exposure to Carhart's momentum factor is likely to be close to zero and the use of a four-factor momentum augmented version of the FFM to estimate the required rate of return on its equity is unnecessary.<sup>683</sup>

The AER notes that the second NERA report on the FFM does not accept the Carhart model because it is not used for a relevant purpose. That is, the Carhart model is relevant for a share market investor, who actively trades a large portfolio and need not

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681 NGR, r. 74.

682 M. Carhart, 'On persistence in mutual fund performance,' *Journal of Finance*, 1997, vol. 52(1), pp. 57–82.

683 NERA, *Response to the draft decision*, March 2010, p. 30.

hold any particular stock. The second NERA report on the FFM notes that this purpose is quite different to the relevant purpose, which is setting the rate of return for a benchmark gas distributor. The second NERA report on the FFM characterises this as a passive strategy—the gas distributor is fixed to the ownership of its assets and does not trade in stocks.

It should be noted that the construction of the momentum factor deliberately mirrors the construction of an FFM size or value factor. Portfolios in an FFM analysis typically last for a year or less. At the beginning of each year, all firms are ranked on size and book-to-market ratio and allocated to new portfolios.

By the reasoning presented in the second NERA report on the FFM regarding the Carhart four-factor model, the FFM is not a valid model. Just as the benchmark firm is not in the business of loading up on stocks that have performed well recently, the benchmark firm is not in the business of loading up on stocks that are small or have high book-to-equity.

The FFM literature does not investigate these questions. This is because the FFM, just like the Carhart four-factor model, is designed from the perspective of the share market investor, who will simply rebalance their portfolio regularly to obtain shares with the required attributes. By the reasoning in the second NERA report on the FFM, it is not a valid model to reflect the circumstances facing the benchmark firm.

#### *Development of the CAPM in the US*

The draft decision states that because the FFM was developed in a US context it may not be appropriate for use in Australia.<sup>684</sup> The second NERA report on the FFM responds by noting that the CAPM was also developed in the US—yet the AER has considered it appropriate to apply in Australia.<sup>685</sup>

The AER considers that this comparison is invalid because the CAPM has a theoretical basis independent of country. On the other hand, the FFM relies solely on an empirical basis to justify inclusion of the additional risk factors. As the FFM was developed with regard to observed empirical patterns in the US, what holds empirically in this market needs to be observed and measured in the relevant market for funds.<sup>686</sup> There is no a priori reason to expect that the empirical patterns observed in the US will hold in Australia. On this point the draft decision notes academic papers showing that such patterns do not exist in Australia, Japan, the UK and Germany (and there is an ongoing question about whether the empirical patterns initially observed in the US still hold).<sup>687</sup>

#### *Relevance of out of sample tests*

In the draft decision, the AER notes:

To test the predictive power of a model, the standard approach is to take the regression coefficients determine in-sample and test them against out-of-

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684 AER, *Draft decision*, February 2010, pp. 109, 111, 119, and 120.

685 NERA, *Response to the draft decision*, March 2010, p. 21.

686 AER, *Draft decision*, February 2010, pp. 111 and 120.

687 AER, *Draft decision*, February 2010, pp. 111–113 (table 5.3).

sample data. This basic experimental examination is not attempted in the NERA report on the FFM.<sup>688</sup>

The revised access arrangement proposal does not respond to this criticism by conducting out-of-sample (OOS) tests of the FFM.<sup>689</sup> Rather, the second NERA report on the FFM states that it is unclear that evaluation of OOS performance is superior to an analysis of in-sample (IS) performance, based on a paper by Inoue and Kilian.<sup>690</sup> The Inoue and Kilian paper outlines that OOS tests are just as susceptible to data mining as IS tests, and since IS tests have higher power than OOS tests they should be preferred.

The AER notes that a paper by Welch and Goyal does not agree with this finding.<sup>691</sup> Welch and Goyal note that Inoue and Kilian's recommendations might be appropriate in the situation where a researcher had complete confidence in the model specification, but not the model parameters. The AER also notes that this is not the case with the FFM, where the model specification itself is contentious. Welch and Goyal state that their empirical results for when OOS tests fail do not accord with the results of the computer simulations undertaken by Inoue and Kilian. They advocate first using IS, then OOS tests, to reliably detect model uncertainty:

The thought experiments and analyses in the critiques, which simply compare the power of OOS tests to that of IS tests, especially under their assumption of a correctly specified stable model, is therefore incorrect. The correct power experiment should explore whether, conditional on observed IS significance, OOS diagnostics are reasonably powerful. We later show that they are.<sup>692</sup>

Further, the paper by Welch and Goyal provides a recommendation on the appropriate sample period for OOS analysis:

It is important to have enough initial data to get a reliable regression estimate at the start of evaluation period, and it is important to have an evaluation period that is long enough to be representative.<sup>693</sup>

The AER notes that there is a clear reason to regard a five-year period as the representative period for the OOS test, since this matches the length of the access arrangement period.

#### *Predictive performance of the FFM*

The AER considers that there are grounds to consider that the OOS tests presented in the Oxera report are the most relevant and persuasive tests of the predictive ability of

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688 AER, *Draft decision*, February 2010, pp. 118–119.

689 The AER notes that this statement refers to the initial response to the draft decision; the further response to the draft decision (submitted on April 2010) contained a report by Oxera Consulting that did conduct an OOS analysis, as discussed later.

690 Source document is A. Inoue and L. Kilian, 'In-sample and out-of-sample tests of predictability: Which one should we use?', *Econometric Reviews*, 2004, vol. 23(4), pp. 371–402. NERA, *Response to the draft decision*, March 2010, p. 35.

691 I. Welch and A. Goyal, 'A comprehensive look at the empirical performance of equity premium prediction', *The Review of Financial Studies* 1, 2008, vol. 21(4), pp. 1455–1508 (Welch and Goyal, Equity premium prediction, 2008).

692 Welch and Goyal, Equity premium prediction, 2008, pp. 1463–1464.

693 Welch and Goyal, Equity premium prediction, 2008, p. 1464.



the FFM presented by JGN or its consultants.<sup>694</sup> These tests used the last six months of data from the NERA (DFA) dataset as the OOS period, based on three different methodologies (one step ahead, historic average and vector autoregressive forecasts).<sup>695</sup> The AER considers these tests are more relevant than the tests conducted in the three NERA reports because:

- they are based on ex-ante OOS forecasts, not in-sample estimation
- they are based on Australian companies, not overseas companies.

The AER observes that JGN repeatedly justifies the use of the FFM by stating that it is better than the CAPM:

The FF model demonstrably provides an estimate of the required returns that is more accurate than the CAPM.<sup>696</sup>

NERA's paper confirms JGN's view that the Fama-French three-factor model meets all the requirements of the national gas rules and law and demonstrably provides a more accurate estimate of the cost of equity than the Sharpe-Lintner CAPM.<sup>697</sup>

The FF model is a well accepted financial model and it provides a better estimate for a benchmark efficient gas network than the CAPM.<sup>698</sup>

The AER notes that the Oxera report—commissioned by JGN—does not support this submission. The Oxera report concludes:

The assessment undertaken by Oxera finds no evidence, in the majority of cases, to suggest that the CAPM provides significantly better forecasts of market returns than the Fama-French model.<sup>699</sup>

The AER notes that the reverse is equally true—that is, the Oxera report finds no evidence, in the majority of cases, to suggest that the FFM provides significantly better forecasts of market returns than the CAPM. Of the 33 comparisons undertaken in the Oxera report, 25 cases indicated the performance of the CAPM and the FFM could not be statistically distinguished from each other (at the 10 per cent level).<sup>700</sup>

The AER notes, however, that examination of the remaining eight cases (out of 33) would support the CAPM as the better model rather than the FFM.<sup>701</sup> This is shown in table 5.4.

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694 JGN, letter to the AER, JGN access arrangement revision proposal: *JGN further response to the draft*, April 2010, p. 3 and Oxera, *Estimating the cost of equity from the FFM*, April 2010.

695 Oxera, *Estimating the cost of equity from the FFM*, April 2010, pp. 13–14.

696 JGN, *Access arrangement information*, August 2009, p. 143.

697 JGN, letter to the AER, *JGN–Submission on ActewAGL draft decision*, 22 December 2009, p. 2.

698 JGN, *Initial response to the draft decision*, March 2010, p. 107.

699 Oxera, *Estimating the cost of equity from the FFM*, April 2010, p. 14.

700 Oxera, *Estimating the cost of equity from the FFM*, April 2010, p. 21 (table A1.4).

701 Oxera, *Estimating the cost of equity from the FFM*, April 2010, pp. 20–21.

**Table 5.4: Oxera comparison of FFM and CAPM forecasting ability**

| Level of statistical significance | 10 per cent | 5 per cent | 1 per cent |
|-----------------------------------|-------------|------------|------------|
| CAPM performs better              | 5           | 4          | 4          |
| FFM performs better               | 3           | 2          | 0          |
| Indeterminate                     | 25          | 27         | 29         |
| <b>Total comparisons</b>          | <b>33</b>   | <b>33</b>  | <b>33</b>  |

Source: Oxera, *Estimating the cost of equity from the Fama–French model*, April 2010, p. 21 (table A1.4).

At a ten per cent level of statistical significance, there are five cases where the forecasting ability of the CAPM is better than the FFM, and only three cases where the reverse is found.<sup>702</sup> This suggests that the CAPM produces better forecasts. Further, at a much more stringent level of statistical significance—one per cent—there are four cases where the forecasting ability of the CAPM is better than the FFM, and no cases where the FFM is better than the CAPM.

Therefore, the AER considers that although the majority of cases considered in the Oxera report cannot distinguish between the two models, there is some suggestion that the CAPM outperforms the FFM.

The AER notes that the statistical tests used in the Oxera report are not without limitations. For instance, the OOS testing period assessment is only six months, where a period of five years would better reflect the circumstances of a regulated firm. Further, the Oxera report does not provide the numerical results of the forecast comparisons, only the level of statistical significance.<sup>703</sup>

#### *Inconsistent statistical evaluation*

The AER notes that following inconsistencies in the statistical evaluation of the FFM:

- on the use of R-squared statistics:
  - the first NERA report on the FFM uses R-squared statistics to justify the FFM<sup>704</sup>
  - the NERA report on DGJ09 states that R-squared statistics do not provide justification that a model is better<sup>705</sup>
- on whether the FFM risk premiums should hold across different time periods and data sets:

702 Oxera, *Estimating the cost of equity from the FFM*, April 2010, p. 21 (table A1.4).

703 On 14 May 2010, JGN made a submission of the numerical data underlying the Oxera analysis. The AER was unable to place weight on this material because of the late submission. JGN, *Underlying analysis for Oxera report*, 14 May 2010.

704 NERA, *Cost of equity: Fama–French model*, August 2009, pp. 16–17.

705 NERA, *Cost of equity: Fama–French model*, August 2009, p. 22.

- the first NERA report on the FFM states that the FFM is justified because it is found in differing time periods and data sets<sup>706</sup>
- the second NERA report on the FFM submits that because they arise from differing time periods/data sets, the FFM should not hold<sup>707</sup>
- on whether the proportion of portfolios with significant alphas should be considered:
  - the NERA report on DGJ09 uses a proportion of portfolios to justify the FFM<sup>708</sup>
  - the second NERA report on the FFM states that this is not an appropriate comparison<sup>709</sup>
  - the second NERA report on the FFM then counts portfolios to reject the momentum factor.<sup>710</sup>

The AER considers that this is inconsistent: where the application of a statistical methodology supports the FFM, the three NERA reports consider the methodology appropriate and relevant. Where the application of the same statistical methodology shows the FFM is not correct, NERA opposes the use of that methodology as inappropriate and irrelevant.

#### *Roll's critique*

The AER notes that the second NERA report on the FFM continues to dispute the implications of Roll's critique,<sup>711</sup> stating:

It is misleading to say that the empirical version of the SL CAPM used by the AER has a 'strong theoretical basis'.<sup>712</sup>

The AER considers that the draft decision deals with this issue,<sup>713</sup> and that NERA is incorrect to separate the CAPM into theoretical and empirical versions.

#### *Friedman's test and the CAPM*

The AER notes that the second NERA report on the FFM outlines that the CAPM did not pass the first of Friedman's tests—explaining the data on which it was first

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706 NERA, *Review of Da, Guo and Jagannathan*, December 2009, p. 17.

707 NERA, *Response to the draft decision*, March 2010, pp. 44–45.

708 NERA, *Review of Da, Guo and Jagannathan*, December 2009, p. 20.

709 NERA, *Response to the draft decision*, March 2010, pp. 21–22.

710 NERA, *Response to the draft decision*, March 2010, pp. 25.

711 The source paper for Roll's critique is R. Roll, 'A critique of the asset pricing theory's tests', *Journal of Financial Economics*, 1977, vol. 4(2), pp. 129–176. Original reference from NERA is in NERA, *Review of Da, Guo and Jagannathan*, 21 December 2009, pp. 13–14 (section 4.2).

712 NERA, *Response to the draft decision*, March 2010, p. 12.

713 AER, *Draft decision*, February 2010, pp. 354–355.

derived.<sup>714</sup> The AER notes that this is an irrelevant point since these assessments were not true tests of the CAPM.

#### ***Conclusion on modelling and statistical analysis***

The AER has assessed the information and material before it on the modelling and statistical analysis of the FFM and considers that:

- based on the reasoning in the second NERA report on the FFM, the FFM is used for a different purpose than the purpose required under the NGR
- OOS testing is preferred to in-sample testing when assessing the validity of an asset pricing model
- the OOS testing in the Oxera report does not show that the FFM performs better than the CAPM
- the statistical evaluation of the FFM within the three NERA reports is repeatedly internally inconsistent.

As a consequence, the AER considers that:

- the FFM may not produce an outcome commensurate with the prevailing conditions in the market for funds and the risk involved in providing reference services<sup>715</sup>
- the FFM does not produce a better estimate or forecast than the CAPM of the cost of equity.<sup>716</sup>

#### ***Evaluation of academic literature***

##### *Approach to assessing academic literature*

The access arrangement proposal—relying on the first NERA report on the FFM—states that the FFM has ‘wide acceptance’ in the academic literature,<sup>717</sup> and that although the FFM was first developed in the US, there is also evidence supporting the FFM in Europe, the UK, Japan and Australia.<sup>718</sup> The first NERA report on the FFM specifically refers to:<sup>719</sup>

- four academic papers on empirical evidence supporting the FFM outside of Australia
- one academic paper (and one working paper) on empirical evidence supporting the FFM in Australia.

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714 NERA, *Response to the draft decision*, March 2010, p. 15.

715 NGR, r. 87.

716 NGR, r. 87 and r. 74.

717 JGN, *Access arrangement information*, August 2009, p. 143.

718 NERA, *Cost of equity: Fama–French model*, August 2009, p. 28.

719 The references for these papers are collated at AER, *Draft decision*, February 2010, pp. 102–103, also 112 (table 5.3) and 114 (table 5.4).

The draft decision outlines that the access arrangement proposal and the first NERA report on the FFM present no information or material to support the submission that the FFM has ‘wide acceptance’ in the academic literature.<sup>720</sup> Further, there is no evidence that the first NERA report on the FFM reviews the breadth of academic literature and no explanation of the basis for selection of the few papers it does cite.<sup>721</sup> In particular, the draft decision outlines that no information or material is presented in the access arrangement proposal (or the first NERA report on the FFM) to support the submission that the FFM relationships are found in Europe or the UK,<sup>722</sup> and that the one paper referencing Japan does not find the FFM size effect to be significant there.<sup>723</sup>

In relation to non-Australian academic literature, the draft decision reviews and presents empirical evidence from eight academic papers (and one working paper) that are matched to the time periods and countries assessed by the first NERA report on the FFM.<sup>724</sup> These academic papers present empirical evidence that does not support the predictions of the FFM, including evidence that the FFM relationships are not found in Japan, Germany or the UK.<sup>725</sup> In consideration of academic literature that deals specifically with Australian data, the draft decision reviews seven other published academic papers on the FFM in addition to the two references in the first NERA report on the FFM.<sup>726</sup> The AER finds that these academic papers do not show systematic observance of the FFM risk premiums and do not support the use of the FFM in Australia.

The revised access arrangement proposal—including the second NERA report on the FFM—does not provide a comprehensive review of the relevant academic literature, or justify how the selected papers it cites are representative of the relevant academic literature. In particular, there is no empirical evidence presented regarding the FFM in

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720 AER, *Draft decision*, February 2010, p. 102.

721 AER, *Draft decision*, February 2010, p. 103.

722 AER, *Draft decision*, February 2010, p. 111–113.

723 Source paper is L. Chan, Y. Hamao, and J. Lakonishok, ‘Fundamentals and stock returns in Japan’, *Journal of Finance*, December 1991, vol. 46(5), pp. 1739–1764, see AER, *Draft decision*, February 2010, p. 113.

724 See AER, *Draft decision*, February 2010, p. 112 (table 5.3). The eight papers are F. Black, ‘Beta and return’, *Journal of Portfolio Management*, 1993, pp. 8–18 (Black, Beta and return, 1993); S. Kothari, J. Shanken and R. Sloan, ‘Another Look at the Cross-section of Expected Returns’, *Journal of Finance*, March 1995, vol. 50(1), pp. 185–224 (Kothari et al, The cross-section of expected returns, 1995); G. Schwert, ‘Anomalies and market efficiency’, in *Handbook of the Economics of Finance*, editors G. Constantinides, M. Harris and R. Stulz, 2003, Elsevier Science, ch. 15, pp. 937–972 (Schwert, Anomalies, 2003); A. Ang and J. Chen, ‘CAPM over the long run: 1926–2001’, *Journal of Empirical Finance*, 2007, vol. 14, pp. 1–40 (Ang and Chen, CAPM: 1926–2001, 2007); R. Grauer and J. Janmaat, ‘Cross-sectional tests of the CAPM and Fama–French three-factor model’, *Journal of Banking and Finance*, 2010, vol. 34, pp. 457–470 (Grauer and Janmaat, CAPM and FFM, 2010); K. Daniel, S. Titman and J. Wei, ‘Explaining the cross-section of stock returns in Japan: factors or characteristics’, *Journal of Finance*, April 2001, vol. 56(2), pp. 743–767; A. Schrimpf, M. Schröder and R. Stehle, ‘Cross-sectional tests of conditional asset pricing models: Evidence from the German stock market’, *European Financial Management*, November 2007, vol. 31(5), pp. 880–907; A. Gregory, and M. Michou, ‘Industry cost of equity capital: UK evidence’, *Journal of Business Finance and Accounting*, June 2009, vol. 36(5), pp. 679–704. The working paper is Da, Guo and Jagannathan, ‘CAPM: Interpreting the evidence’, 2009, NBER working paper 14889 (Da et al, CAPM: the evidence, 2009).

725 AER, *Draft decision*, February 2010, pp. 111–113 (table 5.3).

726 These papers are individually cited later in the chapter. AER, *Draft decision*, February 2010, p. 114 (table 5.4).

markets outside the US and Australia.<sup>727</sup> The AER therefore confirms its draft decision conclusions on this matter:<sup>728</sup>

- there is no empirical evidence that the FFM is relevant to Japan, Europe or the UK (or any other country, outside of the US and Australia)
- there is no information or material to support the proposition that the FFM is well accepted in the academic literature as a reliable predictor of equity returns.<sup>729</sup>

The AER's assessment of the academic literature on the FFM in the context of US and Australia markets is set out below.

### *Evaluation of US academic literature*

The first NERA report on the FFM references three academic papers on the FFM in the US, all authored by Fama and French (one with an additional co-author, James Davis).<sup>730</sup> The second NERA report on the FFM includes passing references to two additional papers by Fama and French, describing one as a 'comprehensive survey of the US empirical evidence on the SL CAPM'.<sup>731</sup>

However, the second NERA report on the FFM does not attempt to summarise or reconcile the empirical evidence in respect of the FFM in the US. In particular, the AER notes that there is no discussion of the four academic papers (and one working paper) which examine US data and were presented in the draft decision.<sup>732</sup> These academic papers present results that do not support the FFM, using US data over the same time period—and in one case the same source data—as the academic papers by Fama and French.

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727 The second NERA report on the FFM includes as an appendix an extract from a CFA reading on the FFM to demonstrate how the FFM is applied. This extract includes a footnote to three papers that look at the FFM outside of the US; but these papers are not referenced by NERA or presented as relevant evidence on this point. Nonetheless, the AER has reviewed these papers, and notes that none finds support for the FFM size effect (note that the 1997 Strong and Xu paper transposes the column headings for ln(BE/ME) and ln(BE) in table 4, page 16). See NERA, *Response to the draft decision*, p. 50 (appendix A), footnote 155.

728 AER, *Draft decision*, February 2010, p. 111.

729 The AER clarifies that this point is relevant to the requirements of r. 87(2) of the NGR, and has been included in the AER's considerations on whether the FFM is well accepted.

730 The source papers are E. Fama, and K. French, 'The cross-section of expected stock returns', *Journal of Finance*, 1992, vol. 47(2), pp. 427–465; Fama and French, *Common risk factors*, 1993; and J. Davis, E. Fama, and K. French, 'Characteristics, covariances, and average returns: 1929 to 1997', *Journal of Finance*, February 2000, vol. 60(1), pp. 389–406. See AER, *Draft decision*, pp. 102 for details of where these papers are cited in the first NERA report on the FFM.

731 The AER clarifies that these passing references do not include any review of the FFM content of the papers or explanation of how they relate to the broader body of academic literature. Source papers are E. Fama and K. French, 'Multifactor explanations of asset-pricing anomalies', *Journal of Finance*, 1996, vol. 47, pp. 426–465, cited in NERA, *Response to the draft decision*, March 2010, p. 15; and Fama and French, *CAPM: Theory and evidence*, 2004; cited in NERA, *Response to the draft decision*, March 2010, p. 28 (and p. 11, footnote 33, though this is a tangential reference to reading requirements for university curricula).

732 Source papers are Black, *Beta and return*, 1993 (note that the non-significant size premium reported by Black uses data from the 1992 Fama and French paper itself); Kothari et al, *The cross-section of expected returns*, 1995; Schwert, *Anomalies*, 2003; Ang and Chen, *CAPM: 1926–2001*, 2007; Da et al, *CAPM: the evidence*, 2009; and Grauer and Janmaat, *CAPM and FFM*, 2010. See AER, *Draft decision*, February 2010, p. 112–113.

Instead, the second NERA report on the FFM employs this approach:

Rather than attempt to review the significant body of academic literature on the performance of the FFM in the US, in the section that follows, we illustrate that the AER in its draft decision has been selective in reviewing the academic literature and has made arguments that are not relevant.<sup>733</sup>

The AER notes that while the second NERA report on the FFM criticises the AER for being selective, the second NERA report on the FFM reviews the findings of only one academic paper from twelve papers (Boudoukh, Michaely, Richardson and Roberts) to state that it supports the FFM over the CAPM.<sup>734</sup> There is no justification of why this paper is selected or why there is no analysis of the findings of the remaining eleven academic papers.<sup>735</sup>

Further, this set of twelve papers is not the reason the AER questions the validity of the FFM in the US. As noted above, the draft decision presents four academic papers and one working paper that present empirical evidence that do not support the FFM in the US.<sup>736</sup> The second NERA report on the FFM selects one of these papers for review—the working paper by Da, Guo and Jagannathan.<sup>737</sup> No justification is provided on why this paper is selected over the other four papers, all of which have been published and are therefore considered more reliable by the AER.

The AER considers that, in contrast to the approach taken in the second National Electricity Rules (NER) report on the FFM, its review of the academic literature is not selective and that it responds to all relevant references in the access arrangement proposal and the revised access arrangement proposal.

The AER reviews in detail below the two papers relevant to the FFM in the US that the second NERA report on the FFM reviews.

*Boudoukh, Michaely, Richardson and Roberts (2007)*

The first NERA report on the FFM presents a simple citation analysis to suggest the FFM is well accepted—that is, there were more references in the 2007 *Journal of Finance* to the 1993 Fama–French paper on the FFM (twelve) than to the 1964 Sharpe paper on the CAPM (one).<sup>738</sup>

The draft decision tests the underlying premise that the number of citations imply acceptance. The AER reviews each of the twelve papers that cite the 1993 Fama–

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733 NERA, *Response to the draft decision*, 19 March 2010, p. 28.

734 The source paper is J. Boudoukh, R. Michaely, M. Richardson and M. Roberts, 'On the importance of measuring payout yield: Implications for empirical asset pricing', *Journal of Finance*, 2007, vol. 62(2), pp. 877–915 (Boudoukh et al, *Empirical asset pricing*, 2007), cited in NERA, *Response to the draft decision*, March 2010, pp. 28–30.

735 AER, *Draft decision*, February 2010, pp. 103–106.

736 AER, *Draft decision*, February 2010, pp. 111–113 (table 5.3).

737 NERA, *Response to the draft decision*, March 2010, p. 30. Source paper is Da et al, CAPM: the evidence, 2009.

738 NERA, *Fama–French model*, August 2009, p. 29.

French paper, and notes that, generally, the papers do not show acceptance of the FFM.<sup>739</sup> One of these papers was by Boudoukh et al, and the AER states:

Three papers use the FFM as the benchmark predictor of returns, but only in the context of showing shortcomings of the FFM that can be corrected by the use of a different model or factor specification. These papers do not support the FFM as proposed in the NERA report on the FFM. Specifically:

Boudoukh, Michaely, Richardson and Roberts state that using payout yields (rather than dividend yields) explains share returns and subsumes the HML factor.<sup>740</sup>

The second NERA report on the FFM states that the draft decision does not accurately convey the findings of Boudoukh et al regarding the FFM:

At no stage do they state that a payout factor 'subsumes the HML factor'. Their evidence is weak because whether augmenting the FFM with an additional payout factor improves or worsens the performance of the FFM depends on the set of portfolios they use and the way in which they measure payout.<sup>741</sup>

The AER notes that the central aim of the Boudoukh et al paper is to investigate the effect of replacing dividend yield (which has poor explanatory power post 1984) with more effective payout measures, and they are unambiguous about how this improves performance relative to the FFM:

In sum, excess returns are driven to zero, or generally closer in the case of size portfolios, as we progress from the Fama-French three-factor model to a model that includes the dividend yield, then payout yield, and, finally, net payout yield.<sup>742</sup>

The AER observes that the size/payout yield portfolios do not show improved performance, but notes that this was not stated by the AER in the draft decision. The draft decision only focused on the value factor.<sup>743</sup> As for the reference to 'subsume', the Boudoukh et al paper states:

Interestingly, book-to-market is subsumed within payouts when we confine our attention to those firms that actually pay out cash via dividends.<sup>744</sup>

The Boudoukh et al paper concludes:

Further, factor regressions reveal that a payout yield factor...appears to be priced in the sense that asset pricing restrictions cannot be rejected in the

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739 AER, *Draft decision*, February 2010, pp. 103–106.

740 AER, *Draft decision*, February 2010, p. 104.

741 NERA, *Response to the draft decision*, March 2010, p. 29.

742 Boudoukh et al, *Empirical asset pricing*, 2007, p. 906.

743 AER, *Draft decision*, February 2010, p. 104.

744 Boudoukh et al, *Empirical asset pricing*, 2007, p. 881.



presence of this payout factor, whereas they can be when only the traditional three factors (Fama and French (1993)) are examined.<sup>745</sup>

The AER considers that this conclusion is consistent with the draft decision.<sup>746</sup> The Boudoukh et al paper uses the FFM as a benchmark, but finds its performance unsatisfactory—that is, it fails the statistical asset pricing test. However, the alternative model that adds a factor based on payout yield passes the asset pricing test, and this is the model accepted by Boudoukh et al.

The second NERA report on the FFM also states that the draft decision omits to mention what the Boudoukh et al paper says about the CAPM.<sup>747</sup> However, this was not the purpose of the AER's analysis and consideration for the draft decision. The AER examines the Boudoukh et al paper to consider whether, given that it cites the 1993 Fama-French paper, it accepts the FFM.<sup>748</sup> At no stage was the evaluation of what the Boudoukh et al papers says (or does not say) about the CAPM relevant to this analysis.

*Da, Guo and Jagannathan (2008)*

The second NERA report on the FFM also specifically reviews the findings of the working paper by Da, Guo and Jagannathan, which has been the subject of previous discussion in the NERA report on DGJ09 and the draft decision.<sup>749</sup>

The AER notes that its assessment of the FFM, both in the draft decision and in the final decision, rely on a range of materials and not just this working paper.<sup>750</sup> As such, the AER considers that both the NERA report on the DGJ09 and the second NERA report on the FFM place a level of emphasis on this paper that is not commensurate with its status as a working paper and its limited role in the AER's analysis and considerations of the FFM. Nonetheless, the AER considers the points raised about this paper in the second NERA report on the FFM.

The second NERA report on the FFM implies that the draft decision previously relied on parts of the Da, Guo and Jagannathan working paper that used 'aged betas', a concept that has little academic support, in its assessment of the FFM.<sup>751</sup> The AER clarifies that this implication is incorrect, and notes that its assessment of the access

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745 The omitted section of this quote describes how the payout yield factor is constructed to mirror the construction of the Fama–French HML and SMB factors: '...payout yield factor constructed from a portfolio that is long stocks in the upper 30 per cent of the yield distribution and short those in the bottom 30 per cent of the yield distributions appears to be priced...', see Boudoukh et al, *Empirical asset pricing*, 2007, p. 912.

746 AER, *Draft decision*, February 2010, p. 104.

747 NERA, *Response to the draft decision*, March 2010, p. 29.

748 NERA, *Cost of equity: Fama–French model*, August 2009, p. 29 and AER, *Draft decision*, February 2010, pp. 103–106.

749 The NERA report on DDGJ09 is submitted in response to the AER's draft decision on ActewAGL Distribution's access arrangement proposal for the ACT, Queanbeyan and Palerang gas distribution network, but a cover letter from JGN requests that the material also be considered as part of the AER's review of the JGN access arrangement proposal. NERA, *Review of DGJ09*, December 2009; JGN, letter to the AER, *JGN–Submission on ActewAGL draft decision*, 22 December 2009, p. 2; AER, *Draft decision*, February 2010, pp. 354–360 (appendix B).

750 AER, *Draft decision*, February 2010, pp. 118, 354, 360.

751 The second NERA report on the FFM states 'the AER now limits its focus to a subset of the results', see NERA, *Response to the draft decision*, March 2010, p. 31.

arrangement proposal and revised access arrangement proposal has not relied on the 'aged beta' components of the Da Guo and Jagannathan working paper.<sup>752</sup>

Both the draft decision and the second NERA report on the FFM review three tests of the CAPM and FFM in the working paper—one using 10 beta-sorted portfolios, one using 30 industry/book-to-market portfolios, and one using 10 industry portfolios selected from the group of 30 so as to have maximum book-to-market dispersion.<sup>753</sup>

The first test, using beta-sorted portfolios, was assessed in a broadly similar manner by both the draft decision and the second NERA report on the FFM. The CAPM is rejected because it produces an intercept that is significantly different from zero.<sup>754</sup> The FFM is not rejected, because its intercept cannot be statistically distinguished from zero.<sup>755</sup> However, the coefficients for the HML and SMB factors in the FFM are not statistically significant, and cannot be distinguished from zero. The AER considers that this is a reason not to interpret the result as supporting the FFM.<sup>756</sup> The second NERA report on the FFM, however, states that since the HML coefficient is large in absolute terms, the lack of statistical significance of the coefficient is because the test has low power.<sup>757</sup>

The remaining two tests using industry based portfolios, however, were assessed differently by the draft decision and the second NERA report on the FFM. The second NERA report on the FFM states:

The second and third series of tests—which again, are not independent—similarly provide no evidence that the slope coefficients from the regressions differ from their theoretical counterparts. The tests also provide little evidence that the coefficients differ significantly from zero. Thus, again the tests lack power. In contrast to the first set of tests, though, there is no evidence from the tests of the SL CAPM that the zero-beta and risk-free rates differ but there is evidence from tests of the FFM that the zero-beta rate exceeds the risk free rate.<sup>758</sup>

The AER considers that the second NERA report on the FFM is correct to state that since the third test is based on a subset of portfolios from the second test, it is not independent. The AER also notes that the statistical tests presented in the Da, Guo and Jagannathan working paper show that both betas (in the CAPM tests) and one HML factor (in one of the FFM tests) are statistically significantly different from zero.<sup>759</sup>

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752 AER, *Draft decision*, February 2010, p. 355.

753 AER, *Draft decision*, February 2010, pp. 358–359 and NERA, *Response to the draft decision*, March 2010, p. 31.

754 AER, *Draft decision*, February 2010, p. 359 (table A.2) and NERA, *Response to the draft decision*, March 2010, p. 32.

755 AER, *Draft decision*, February 2010, p. 359 (table A.2) and NERA, *Response to the draft decision*, March 2010, pp. 32–33.

756 AER, *Draft decision*, February 2010, p. 359.

757 NERA, *Response to the draft decision*, March 2010, p. 33.

758 NERA, *Response to the draft decision*, March 2010, p. 33.

759 In the third test, using 10 industry/book-to-market dispersed portfolios, the CAPM beta is significant (t-statistic = 2.76) and the FFM HML coefficient is significant (t-statistic = 2.57). Further, in the second test, using 30 industry/book-to-market sorted portfolios, the CAPM beta is just above significance with a standard t-test (t-statistic = 2.22, Shanken t-statistic = 1.85) and the FFM SMB coefficient is just below

However, the AER notes that the tests do show that the intercepts from the FFM regressions in both the second and third tests are significantly different from zero.<sup>760</sup> This is empirical evidence that the FFM can be rejected for the second and third tests. Thus, although the second NERA report on the FFM states that these tests lack power, there is sufficient power to show the FFM is incorrect. In contrast, the CAPM intercepts are not significantly different from zero, and so there is no empirical evidence that the CAPM is not correct.<sup>761</sup>

The AER notes that the second NERA report on the FFM is inconsistent in its interpretation of statistically significant intercepts. In the first test, the CAPM intercept is significant, and the second NERA report on the FFM states:

Thus the SL CAPM fails perhaps the most basic test: Can the model explain the returns to portfolios formed on the basis of beta?<sup>762</sup>

In the second and third tests, the FFM intercepts are significant, but the second NERA report on the FFM reaches a different conclusion:

There is evidence from tests of the FFM that the zero-beta rate exceeds the risk-free rate.<sup>763</sup>

The AER notes that the second and third tests use book-to-market sorted portfolios—sorting on the HML factor that was one of the two empirical patterns that were the basic motivation for the FFM.<sup>764</sup> The AER considers that if the second NERA report on the FFM was to consistently review the empirical evidence, it would conclude as it does for the first test—that the FFM fails the most basic test: it cannot explain the returns to portfolios formed on the basis of book-to-market.

Further, the AER notes that the second NERA report on the FFM does not respond to several other issues raised in the draft decision. In particular:

- the portfolios used in the second and third tests show greater variation in book-to-market values than the original 1993 Fama–French paper—that is, the poor results achieved by the FFM cannot be discounted as resulting from insufficient variation in the core data<sup>765</sup>
- the conditional CAPM is plausible.<sup>766</sup>

The AER considers that, on balance, the Da Guo and Jagannathan working paper provides empirical evidence that supports the CAPM as being more reliable and accurate than the FFM.

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significance (t-statistic = 1.98, Shanken t-statistic = 1.72) AER, *Draft decision*, February 2010, p. 359 (table A.2).

760 AER, *Draft decision*, February 2010, p. 359.

761 AER, *Draft decision*, February 2010, p. 359.

762 NERA, *Response to the draft decision*, March 2010, p. 32.

763 NERA, *Response to the draft decision*, March 2010, p. 33.

764 AER, *Draft decision*, February 2010, p. 357.

765 AER, *Draft decision*, February 2010, pp. 356–358.

766 AER, *Draft decision*, February 2010, pp. 355–356.

### ***Conclusion on US academic literature***

The AER notes that the draft decision presented empirical evidence that the FFM risk premiums were not systematically observed in the US context. The AER considers that the treatment of US academic papers in the revised access arrangement proposal—including the second NERA report on the FFM—does not directly address the empirical evidence in the draft decision. The AER does not consider that the joint consideration of the Boudoukh et al paper and the Da, Guo and Jagannathan working paper provides evidence to outweigh this view.

The AER does not consider, on the basis of the material and information before it, that the FFM is reliable or accurate in a US context.

### ***Evaluation of Australian academic literature***

The first NERA report on the FFM refers to one academic paper (and one working paper) on empirical evidence for the FFM in an Australian context:<sup>767</sup>

- a paper by Gaunt published in 2004 in *Accounting and Finance*<sup>768</sup>
- a working paper by O'Brien, Brailsford and Gaunt presented at the 2008 Australasian Finance and Banking Conference.<sup>769</sup>

The draft decision reviews seven other published academic papers on the FFM in Australia in addition to the two references in the first NERA report on the FFM:<sup>770</sup>

- Fama and French (1998, *Journal of Finance*)<sup>771</sup>
- Halliwell, Heaney and Sawicki (1999, *Accounting Research Journal*)<sup>772</sup>
- Faff (2001, *Australian Journal of Management*)<sup>773</sup>
- Faff (2004, *Applied Financial Economics*)<sup>774</sup>
- Gharghori, Chan and Faff (2007, *Australian Journal of Management*)<sup>775</sup>

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767 Full details of where these citations occur are available in AER, *Draft decision*, February 2010, p. 114.

768 C. Gaunt, 'Size and book to market effects and the Fama French three factor asset pricing model: Evidence from the Australian stockmarket', *Accounting and Finance*, 2004, vol. 44, pp. 27–44 (Gaunt, FFM: Australian evidence, 2004)

769 M. O'Brien, T. Brailsford, and C. Gaunt, 'Size and book-to-market factors in Australia', Presentation to the 21st Australasian Finance and Banking Conference, 2008 (O'Brien, Brailsford, and Gaunt, Market factors in Australia, 2008).

770 AER, *Draft decision*, February 2010, p. 114 (table 5.4).

771 E. Fama and K. French, 'Value versus growth: The international evidence', *Journal of Finance*, 1998, vol. 54, pp. 1975–1999 (Fama and French, Value: international evidence, 1998).

772 J. Halliwell, R. Heaney and J. Sawicki, 'Size and book to market effects in Australian share markets: a time series analysis', *Accounting Research Journal*, 1999, vol. 12, pp. 122–137 (Halliwell et al, Size and B/M effects in Australia, 1999)

773 R. Faff, 'An examination of the Fama and French three-factor model using commercially available factors', *Australian Journal of Management*, 2001, vol. 26, pp. 1–17 (Faff, FFM using commercial factors, 2001).

774 R. Faff, 'A simple test of the Fama and French model using daily data: Australian evidence', *Applied Financial Economics*, 2004, vol. 14, pp. 83–92 (Faff, FFM using daily data, 2004).

- Kassimatis (2008, *Australian Journal of Management*)<sup>776</sup>
- Gharghori, Lee and Veeraraghavan (2009, *Accounting and Finance*).<sup>777</sup>

The draft decision considers that the nine academic papers do not provide a consensus view about the magnitude or existence of the FFM risk premiums in Australia. The draft decision also outlines that this is a limitation with the FFM since it relies on systematic observance of these premiums to explain that other risk factors are relevant in an Australian context.<sup>778</sup> Examining the portfolio coefficients, the AER considers that there is no systematic observance of empirical evidence in Australia consistent with the FFM.<sup>779</sup> This conclusion is also reached by the two most recent studies.<sup>780</sup>

The revised access arrangement proposal does not respond or present evidence that it has assessed the breadth of academic literature to address the limitations of the literature review and analysis outlined in the draft decision. The second NERA report on the FFM does not present any new empirical evidence that the FFM explains the risk–return relationship in Australia. Instead, it outlines that the AER has inappropriately assessed the nine academic papers in the draft decision.<sup>781</sup> The key issue is:

...our interest is not so much in whether the FFM is true but in whether it is better to use the FFM than the SL CAPM. Thus it is essential that the evidence on whether the SL CAPM can correctly measure the returns required on the portfolios also be examined.<sup>782</sup>

Rather than focus on how well the FFM explains the empirical evidence in the nine papers, the second NERA report on the FFM emphasises that the CAPM does a worse job than the FFM. This issue is also expressed in the ENA submission, which states that the draft decision fails to compare the CAPM and FFM in a balanced manner.<sup>783</sup> The AER notes that r. 87(2)(b) of the NGR outlines that the CAPM is a well accepted financial model. Therefore, the use of the CAPM for determining the rate of return is not in question. In addition, the AER considers that:

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- 775 P. Gharghori, H. Chan and R. Faff, ‘Are the Fama–French factors proxying default risk?’, *Australian Journal of Management*, December 2007, vol. 32(2), pp. 223–249 (Gharghori, Chan and Faff, FFM and default risk, 2007).
- 776 K. Kassimatis, ‘Size, book to market and momentum effects in the Australian stock market’, *Australian Journal of Management*, June 2008, vol. 33(1), pp. 145–168 (Kassimatis, Size, BM and momentum in Australia, 2008).
- 777 P. Gharghori, R. Lee and M. Veeraraghavan, ‘Anomalies and stock returns: Australian evidence’, *Accounting and Finance*, 2009, vol. 49, pp. 555–576 (Gharghori, Lee and Veeraraghavan, Anomalies and stock returns, 2009).
- 778 AER, *Draft decision*, February 2010, p. 114–115.
- 779 AER, *Draft decision*, February 2010, p. 114–116.
- 780 Specifically, Kassimatis (2008) and Gharghori, Lee and Veeraraghavan (2009). See AER, *Draft decision*, February 2010, p. 116.
- 781 NERA, *Response to the draft decision*, March 2010, pp. 21–22.
- 782 NERA, *Response to the draft decision*, March 2010, p. 22.
- 783 ENA, *Submission to the AER*, April 2010, pp. 3–5.

- the CAPM has a solid theoretical foundation, providing a reasonable basis for the model<sup>784</sup>
- the CAPM has empirical support, particularly over long periods and under the conditions relevant for the regulated firm.<sup>785</sup> Further, there are sound theoretical reasons why some conflicting empirical results do not invalidate the CAPM<sup>786</sup>
- the CAPM is the dominant financial model used by Australian finance managers to estimate the expected rate of return<sup>787</sup>
- the CAPM has established long-term parameter inputs.<sup>788</sup>

As an aside, the second NERA report on the FFM also criticises the AER's approach of counting portfolios for which the FFM can and cannot be rejected on the grounds that the portfolios are not independent.<sup>789</sup>

The revised access arrangement proposal refers to eight papers, omitting the earliest of the nine papers reviewed by the AER,<sup>790</sup> and concludes:

To summarise, we review the results of eight papers that provide evidence on the ability of Australian versions of the FFM and SLCAPM to correctly measure the cost of equity. The two studies that restrict their attention to the FFM find evidence in support of the model while the five papers that compare the FFM and SL CAPM all conclude that the FFM provides better estimates of the cost of equity than does the SL CAPM.<sup>791</sup>

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- 784 Sharpe, W., 'Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk', *Journal of Finance*, 1964, vol. 19, pp. 425–442; Lintner, J., 'The Valuation of Risky Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets', *The Review of Economics and Statistics*, 1965, vol. 47, pp. 13–37; Mossin, J., 'Equilibrium in a Capital Asset Market', *Econometrica*, 1966, vol. 34(2), pp. 768–83. Black, F., 'Capital market equilibrium with restricted borrowing', *Journal of Business*, July 1972, vol. 45, pp. 444–454.
- 785 Ang and Chen, CAPM: 1926–2001, 2007; Grauer and Janmaat, CAPM and FFM, 2010; Gregory and Michou, UK cost of equity, 2009; and Schrimpf, Schröder and Stehle, 'Cross-sectional tests of CAPMs: German evidence', 2007 from AER, *Draft decision*, February 2010, pp. 111–113 (table 5.3); also K. Cremers, 'Multifactor efficiency and Bayesian inference', *Journal of Business*, 2006, vol. 79(6), pp. 2951–2998; C. Morana, 'Realized betas and the cross-section of expected returns', *Applied Financial Economics*, 2009, vol. 19(17), pp. 1371–1381 and C. Guermat and M. Freeman, 'A net beta test of asset pricing models', *International Review of Financial Analysis*, 2010, vol. 19(1), pp. 1–9.
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- 787 Truong, G., Partington, G. and Peat, M., 'Cost-of-capital estimation and capital-budgeting practice in Australia', *Australian Journal of Management*, June 2008, vol. 33(1), pp. 95–121 and L. Coleman, K. Maheswaran, and S. Pinder, 'Narratives in managers' corporate finance decisions', *Accounting and Finance*, 2010, Forthcoming.
- 788 APIA, *Submission to the AER*, 9 November 2009, p. 4; EMRF, *Response to the draft decision*, April 2010, p. 47.
- 789 NERA, *Response to the draft decision*, March 2010, p. 22.
- 790 The omitted paper is Fama and French, Value: international evidence, 1998.
- 791 NERA, *Response to the draft decision*, March 2010, p. 27.

The AER does not consider that the second NERA report on the FFM appropriately evaluates the contents of the nine papers. Below, the AER reviews each paper in order of publication, responding to the assessment made by the second NERA report on the FFM. However, it is important to clarify that:

- the important test is whether or not the rate of return produced by the FFM matches the observed empirical evidence
- the AER's evaluation of any one paper in isolation is not considered determinative, but it is the overall assessment of the body of academic literature that informs the AER's decision.

*Fama and French (1998)*

The Fama and French 1998 paper presents international empirical evidence for the value factor (not the size factor). This paper is not mentioned by the second NERA report on the FFM at all. It finds a large and statistically significant value (HML) premium in Australia.<sup>792</sup>

As has been noted by subsequent authors,<sup>793</sup> this study only considers a small number of large Australian stocks. This is why the size factor cannot be investigated at all. However, the highly skewed sample may place some doubt on the robustness of the results or any inferences made from this paper.

The AER considers this study provides weak empirical evidence for the value effect, but does not provide any reliable empirical evidence that the FFM is an accurate or reliable model. Based on this paper, the AER considers that there is no empirical evidence that the FFM generates a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>794</sup> Further, there is no empirical evidence that the FFM generates a forecast or estimate on a reasonable basis, and no empirical evidence that the forecast or estimate will be the best estimate possible in the circumstances.<sup>795</sup>

*Halliwell, Heaney and Sawicki (1999)*

While using a more relevant data set than the Fama and French paper, the study has limitations. The Halliwell, Heaney and Sawicki paper outlines that it is unable to obtain share market and accounting data for a large proportion of shares,<sup>796</sup> a limitation noted by other authors in later studies.<sup>797</sup>

The Halliwell, Heaney and Sawicki paper finds just six of 25 portfolios significant for HML coefficients.<sup>798</sup> The AER notes that, although the second NERA report on the

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792 Average annual return to the HML portfolio (sorted by book-to-market) is 12.32 per cent with a t-statistic of 2.32. Fama and French, Value: international evidence, 1998, p. 1980 (table III).

793 Kassimatis, Size, BM and momentum in Australia, 2008, p. 146.

794 NGR, r. 87.

795 NGR, r. 74.

796 Halliwell et al, Size and BM effects in Australia, 1999, pp. 126.

797 See Gaunt, FFM: Australian evidence, 2004, p. 30, and Kassimatis, Size, BM and momentum in Australia, 2008, p. 146.

798 Halliwell et al, Size and BM effects in Australia, 1999, p. 132.

FFM outlines that 'counting portfolios' is not an appropriate examination, this is the initial method used in the Halliwell, Heaney and Sawicki paper to assess results. The paper states:

The parameter magnitudes and statistical significance are generally comparable with those reported in Fama and French (1993), though there is little evidence of statistically significant B/M parameters in this study. The impact of B/M effects may not be as pervasive as suggested in the literature for time series based analysis.<sup>799</sup>

That is,

The relative small and statistically insignificant B/M sensitivity (HML coefficients) are not consistent with the Fama and French (1993) results... Only six of the 25 HML coefficients are statistically significant at the traditional 5% level.<sup>800</sup>

The AER considers that, given the data limitations, this study provides limited empirical evidence about the reliability and accuracy of the FFM. Based on this paper, the AER considers that there is limited empirical evidence that the FFM does not generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>801</sup> Further, there is limited empirical evidence that the FFM does not generate a forecast or estimate on a reasonable basis, and limited empirical evidence that the forecast or estimate will not be the best estimate possible in the circumstances.<sup>802</sup>

*Faff (2001)*

The 2001 Faff paper improves the quality of the data set compared with the one used in the Halliwell, Heaney and Sawicki paper, and concludes:

Based on the outcome of all the GMM tests performed on our sample, the evidence seems to quite strongly support the three-factor Fama and French model.<sup>803</sup>

On face value, this provides support for the FFM. However, as the 2001 Faff paper notes:

Our main 'perverse' finding relates to the size risk premium which in our sample is typically significantly negative.<sup>804</sup>

The 2001 Faff paper is using a different time period (1991–1999) than that used in the Halliwell, Heaney and Sawicki paper (1981–1991), so has no problem incorporating a (statistically significant) negative size premium into the FFM estimate. However, the presence of later academic papers (discussed below) which cover the same period and find the opposite result—a statistically significant and positive size premium—do not

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799 Halliwell et al, *Size and B/M effects in Australia*, 1999, p. 122.

800 Halliwell et al, *Size and B/M effects in Australia*, 1999, p. 133.

801 NGR, r. 87.

802 NGR, r. 74.

803 Faff, *FFM using commercial factors*, 2001, p. 1.

804 Faff, *FFM using commercial factors*, 2001, p. 15.



support that there is systematic observance of the risk premiums using the same time period for analysis.

However, it should also be noted that when using industry sorted portfolios, the coefficients do not support the FFM. The FFM factor coefficients are significant in relatively few portfolios (SML coefficient in 11 of 24 portfolios, HML coefficients in just 7 of 24 portfolios).<sup>805</sup>

The AER considers that this paper (considered in isolation) provides limited empirical evidence for the reliability and accuracy of the FFM. Based on this paper (in isolation), the AER considers that there is limited empirical evidence that the FFM does generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>806</sup> Further, there is limited empirical evidence that the FFM does generate a forecast or estimate on a reasonable basis, and limited empirical evidence that the forecast or estimate is the best estimate possible in the circumstances.<sup>807</sup>

However, the support for the FFM from the aggregated results across academic papers using data from the 1990s (for example, the comparison between the 2001 Faff paper, the 2004 Faff paper and the Gaunt paper, outlined below) is less than the support for the FFM from each paper in isolation.

#### *Faff (2004)*

The 2004 Faff paper refines the data set used in the 2001 Faff paper. The data set covers a shorter time span (1996–1999) but using more data points by using daily instead of monthly data.<sup>808</sup>

The 2004 Faff paper acknowledges that, even viewed in isolation, the support for the FFM is not overwhelming. The FFM factor coefficients are intermittent (in particular, HML coefficients are significant in just 14 of 24 portfolios) and more alphas differ from zero than in the earlier study (5 of 24 are statistically significant).<sup>809</sup>

Moreover, the 2004 Faff paper again finds a significant negative size premium, a direct contrast with later studies covering the same time period.<sup>810</sup>

The AER considers that this paper (considered in isolation) provides empirical evidence against the reliability and accuracy of the FFM. Based on this paper (in isolation), the AER considers that there is empirical evidence that the FFM does not generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>811</sup> Further, there is empirical evidence that the FFM does not generate a forecast or estimate on a

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805 Faff, *FFM using commercial factors*, 2001, p. 10 (table 2).

806 NGR, r. 87.

807 NGR, r. 74.

808 Compare Faff, *FFM using commercial factors*, 2001, pp. 6–7 and Faff, *FFM using daily data*, 2004, pp. 86–87.

809 Faff, *FFM using daily data*, 2004, p. 89 (table 3).

810 Faff, *FFM using daily data*, 2004, p. 88.

811 NGR, r. 87.

reasonable basis, and empirical evidence that the forecast or estimate will not be the best estimate possible in the circumstances.<sup>812</sup>

Further, there is even less support for the FFM when comparing the aggregated results across academic papers using data from the 1990s (for example, the comparison between the 2001 Faff paper, the 2004 Faff paper and the Gaunt paper, outlined below).

*Gaunt (2004)*

The Gaunt paper reviews data from 1993–2001, a period that overlaps with the 2001 Faff paper and the 2004 Faff paper. The Gaunt paper finds that the size (SMB) factor has a significant effect (21 of 25 portfolios have significant SMB coefficients),<sup>813</sup> but the SMB risk premium in the Gaunt paper is in the opposite direction to the SMB risk premium found in the 2001 Faff paper—a positive size effect.

The Gaunt paper does not find strong support for the value (HML) factor either (just 13 of 25 portfolios have significant HML coefficients)<sup>814</sup> and states:

Contrary to Halliwell, Heaney and Sawicki (1999), there is some evidence that HML possesses explanatory power, but this falls a long way short of significance of the HML factor reported by Fama and French.<sup>815</sup>

Further, the results from a cross check, based on splitting portfolios using return on assets (rather than size and book-to-market), do not support the FFM.<sup>816</sup>

The AER considers that the Gaunt paper provides empirical evidence against the reliability and accuracy of the FFM. Based on this paper (in isolation), the AER considers that there is empirical evidence that the FFM does not generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>817</sup> Further, there is empirical evidence that the FFM does not generate a forecast or estimate on a reasonable basis, and empirical evidence that the forecast or estimate is not the best estimate possible in the circumstances.<sup>818</sup>

Further, there is even less support for the FFM when comparing the aggregated results across academic papers using data from the 1990s (for example, the comparison between the 2001 Faff paper, the 2004 Faff paper, and the Gaunt paper).

*Papers primarily looking at the 1990s*

The AER notes that the three papers directly above look at data sets with overlapping time periods across the 1990s:

■ 2001 Faff paper (1991 to 1999)

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812 NGR, r. 74.

813 Gaunt, FFM: Australian evidence, 2004, p. 39 (table 4).

814 Gaunt, FFM: Australian evidence, 2004, p. 39 (table 4).

815 Gaunt, FFM: Australian evidence, 2004, pp. 38–40.

816 Gaunt, FFM: Australian evidence, 2004, p. 41 (table 5).

817 NGR, r. 87.

818 NGR, r. 74.

- 2004 Faff paper (1996 to 1999)
- Gaunt paper (1993 to 2001).

The AER observes that the risk premiums found in the studies are incompatible and there is no consistent pattern of significant coefficients for the HML and SMB factors. Based on the contradictory results in these papers (in aggregate), the AER considers that there is strong empirical evidence against the reliability and accuracy of the FFM. Based on these papers (in aggregate), the AER considers that there is strong empirical evidence that the FFM does not generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>819</sup> Further, there is strong empirical evidence that the FFM does not generate a forecast or estimate on a reasonable basis, and strong empirical evidence that the forecast or estimate is not the best estimate possible in the circumstances.<sup>820</sup>

*Gharghori Chan and Faff (2007)*

The Gharghori, Chan and Faff paper undertakes a system wide generalised method of moments (GMM) test of the asset pricing model, using a data set that covers 1996 to 2004. The results support the FFM—that is, the SMB and HML factors are statistically significant and with the expected positive signs.<sup>821</sup> The individual portfolio regressions also find results consistent with the FFM—that is, there are just three significant alphas (out of 27 portfolios).<sup>822</sup> The FFM factor coefficients also support findings of the FFM, with 20 of 27 portfolios having significant SMB coefficients and 14 of 27 having significant HML coefficients.<sup>823</sup> As the Gharghori, Chan and Faff paper states:

This is the strongest evidence presented in favour of the Fama–French model by any researcher using Australian data.<sup>824</sup>

The AER considers that this paper (considered in isolation) provides empirical evidence for the reliability and accuracy of the FFM. Based on this paper (in isolation), the AER considers that there is empirical evidence that the FFM does generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>825</sup> Further, there is empirical evidence that the FFM does generate a forecast or estimate on a reasonable basis, and empirical evidence that the forecast or estimate is the best estimate possible in the circumstances.<sup>826</sup>

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819 NGR, r. 87.

820 NGR, r. 74.

821 Gharghori, Chan and Faff, FFM and default risk, 2007, pp. 243–244 (table 6).

822 Gharghori, Chan and Faff, FFM and default risk, 2007, pp. 238–239, (table 4).

823 The AER notes that, although the number of significant portfolios is not dramatically high, the pattern of portfolio significance matches FFM predictions—the SMB coefficients are significant for small portfolios, and the HML coefficients are significant for high book-to-market portfolios.

824 Gharghori, Chan and Faff, FFM and default risk, 2007, pp. 244 (footnote 26).

825 NGR, r. 87.

826 NGR, r. 74.

However, the support for the FFM from the aggregated results across academic papers (for example, the comparison between the Gharghori, Chan and Faff paper, the O'Brien, Brailsford and Gaunt working paper, the Kassimatis paper and the Gharghori, Lee and Veeraraghavan paper, as outlined below) is less than the support for the FFM from each paper in isolation.

*O'Brien, Brailsford and Gaunt (2008)*

The second NERA report on the FFM focuses on the O'Brien, Brailsford and Gaunt working paper because it uses a data set of more than thirteen years.<sup>827</sup>

The AER agrees that analysis based on a longer time series is preferable. However, the AER notes that this working paper is the only non-published paper amongst the set of eight papers presented in the draft decision.<sup>828</sup> That is, the revised access arrangement proposal emphasises the only document from the set of eight that has not been peer reviewed.

The AER notes that such reliance on this working paper is inconsistent with the previous submission by JGN,<sup>829</sup> based on the NERA report on DGJ09. In particular, this submission criticises the regulator for relying on the conclusions of a working paper by Da, Guo and Jagannathan in the draft decision. The NERA report on DGJ09 stated:

Nonetheless, we show that there are significant theoretical, methodological and empirical issues with the Da, Guo and Jagannathan working paper. We expect that these issues will be raised by participants in the peer review process that must precede the publication of any paper in a recognized economics or finance journal. We feel that the issues must be resolved by the authors, however, before a regulator can rely on the conclusions of the study.<sup>830</sup>

The AER does not seek to disregard the O'Brien, Brailsford and Gaunt working paper. However, it reiterates the position from the draft decision that peer reviewed academic papers should be given more weight than working papers which have not yet been peer reviewed.<sup>831</sup>

The AER considers that the analysis in the second NERA report on the FFM overlooks the important empirical results of the O'Brien, Brailsford and Gaunt working paper and instead relies on trivial and relatively arbitrary empirical analysis.

Most importantly, the AER observes that the SMB risk premium in this working paper is not significant.<sup>832</sup> That is, the difference between small and large firms is statistically equivalent to zero. This appears to be overlooked by the second NERA

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827 NERA, *Response to the draft decision*, March 2010, p. 22.

828 AER, *Draft decision*, February 2010, pp. 114 (table 5.4), 117–118.

829 JGN, letter to the AER, *JGN–Submission on ActewAGL draft decision*, 22 December 2009.

830 NERA, Review of DGJ09, December 2009, p. iii.

831 AER, *Draft decision*, February 2010, pp. 117–118.

832 The mean SMB risk premium is 0.35 per cent per month, with a t-statistic of 1.12. O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, pp. 12–13, 25 (table 3).

report on the FFM. The AER notes that for the FFM to explain the presence of the risk premiums they need to be systematically observed.<sup>833</sup>

In addition to the overall statistical analysis rejects the FFM. If a model is true, it would be expected that the intercept of each portfolio regression (known as the alpha) is equal to zero. For the FFM, the suggestion that all alphas are jointly equal to zero is convincingly rejected—that is, at the one per cent level.<sup>834</sup>

Also, if the pattern of individual alphas is to be examined, then the most important aspect is whether or not each is statistically different from zero. Using the FFM, alphas for 9 of 25 portfolios are statistically different from zero.<sup>835</sup> This is a moderate level—if the alphas were all truly zero, but sampled with independent random errors, it would be expected that five per cent (one of 25) are statistically different from zero. As the second NERA report on the FFM notes, portfolios are not independently distributed.

The AER considers that all three points of analysis above are more important and more conventional than the type of analysis the second NERA report on the FFM focuses on—comparing the mean absolute alphas.<sup>836</sup> Moreover, since this analysis is predicated on the position that the relative evaluation against the CAPM is more important than analysis of the FFM itself, it is of limited usefulness. Notwithstanding this fact, the AER examines this empirical evidence below.

The AER notes that the mean absolute alpha of the CAPM (8.58 per cent) is larger than that of the FFM (6.69 per cent).<sup>837</sup> However, the AER observes that the FFM outperforms the CAPM only because of the smallest size portfolio. The O'Brien, Brailsford and Gaunt working paper labels this the 'micro' portfolio to emphasise just how small these firms are—average capitalization is \$2.65 million.<sup>838</sup> The extent to which the relevant benchmark firm will share attributes or exposure with these firms is contentious. Across all other portfolios, the mean absolute alphas are close to equal between CAPM (4.86 per cent) and the FFM (4.63 per cent).<sup>839</sup> The AER also notes that the decision to use absolute values is arbitrary. If instead the mean alphas were calculated, the CAPM has an average alpha of −0.06 per cent but the FFM has an average alpha of −4.24 per cent. That is, taking account of both overestimates and underestimates, on average the CAPM accurately prices the portfolio returns, but the FFM overestimates by 4 per cent.<sup>840</sup>

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833 As stated earlier in this chapter.

834 O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, pp. 16, 28–29 (table 5).

835 O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, pp. 14, 28 (table 5).

836 NERA, *Response to the draft decision*, March 2010, pp. 22–23.

837 O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, pp. 26–27 (table 4), 28–29 (table 5) and NERA, *Response to the draft decision*, March 2010, p. 23 (table 4.1).

838 O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, p. 23 (table 1).

839 AER analysis of O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, pp. 26–27 (table 4), 28–29 (table 5) and NERA, *Response to the draft decision*, March 2010, p. 23 (table 4.1).

840 AER analysis of O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, pp. 26–27 (table 4), 28–29 (table 5) and NERA, *Response to the draft decision*, March 2010, p. 23 (table 4.1).

The AER notes that the O'Brien, Brailsford and Gaunt working paper places weight on the R-squared statistic, which indicates that the FFM explains 71.9 per cent of variation.<sup>841</sup> The AER notes that the NERA report on DGJ09 has already stated that the R-squared statistic should not be relied on if the regression statistics do not accord with predictions (such as the significant intercepts reported above).<sup>842</sup>

The AER notes that the strongest empirical evidence supportive of the FFM in the O'Brien, Brailsford and Gaunt working paper is not mentioned by the second NERA report on the FFM. The cross-sectional test of the FFM produces significant positive coefficients on both the HML and SMB factors.<sup>843</sup> However, this is tempered by the rejection of the overall hypothesis.<sup>844</sup>

The O'Brien, Brailsford and Gaunt working paper concludes:

The results reveal that all factors are significant in both the time-series and in cross-sectional tests and that the premiums carry significant positive exposures. This is the first time that these factors have been consistently found to exhibit significant positive influences over Australian equity returns.<sup>845</sup>

The AER considers that there are shortcomings in this statement because:

- the SMB premium, though positive, is not significant
- the HML coefficients are not significant in 9 of 25 portfolios
- this is not the 'first time' that researchers are said to find empirical evidence consistent with the FFM in Australia—although this is consistent with the evidence presented in the O'Brien, Brailsford and Gaunt paper.

The AER considers that this paper (considered in isolation) provides empirical evidence against the reliability and accuracy of the FFM. Based on this paper (in isolation), the AER considers that there is empirical evidence that the FFM does not generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>846</sup> Further, there is empirical evidence that the FFM does not generate a forecast or estimate on a reasonable basis, and empirical evidence that the forecast or estimate is not the best estimate possible in the circumstances.<sup>847</sup>

Further, there is even more empirical evidence against the FFM when comparing the aggregated results across academic papers (for example, the comparison between the Gharghori, Chan and Faff paper, this the O'Brien, Brailsford and Gaunt paper, the

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841 O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, pp. 15–16.

842 NERA, *Review of DGJ09*, December 2009, p. 13.

843 O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, page 17, 30 (table 6).

844 This statement refers to the test that the pricing errors from the FFM are jointly equal to zero. O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, page 17.

845 O'Brien, Brailsford, and Gaunt, *Market factors in Australia*, 2008, page 18.

846 NGR, r. 87.

847 NGR, r. 74.

Kassimatis paper and the Gharghori, Lee and Veeraraghavan paper, as outlined below).

*Kassimatis (2008)*

The second NERA report on the FFM states that the results in the Kassimatis paper are unreliable and irrelevant because it uses analysis over too short a time period (rolling 12-month observation windows).<sup>848</sup>

The AER notes that in general longer data periods are preferable, and there is therefore reason to look closely at this aspect of the methodology in the Kassimatis paper. The Kassimatis paper selects the 12-month period only after examination of 12-month, 24-month and 60-month rolling regression windows, the results of which are that the 12-month window has the most explanatory power.<sup>849</sup> Further, the selection of a 12-month rolling period follows the methodology of a 2006 paper by Fama and French themselves.<sup>850</sup> The AER considers that this is therefore a relevant and reasonable methodology.

The second NERA report on the FFM also challenges the use of the Carhart four-factor model by the Kassimatis paper, labelling the inclusion of a momentum factor unnecessary and suggests that empirical evidence in favour of the four-factor model should be interpreted as favouring the FFM.<sup>851</sup>

The AER describes above how the Carhart four-factor model constructs the momentum factor in exactly the same way as the size and value factors. Therefore, it is inconsistent for the second NERA report on the FFM to criticise the momentum factor while upholding the size and value factors. The AER also notes that the second NERA report on the FFM incorrectly reports the number of significant momentum betas (five, not three).<sup>852</sup>

The Kassimatis paper finds that the HML and SMB factors have explanatory power in the unconditional four factor model, with 20 of 25 SMB coefficients and 11 of 25 HML coefficients reaching significance.<sup>853</sup>

However, once the Kassimatis paper allows for time-varying factor loadings, the FFM finds no support. There are zero HML coefficients and three (of 25) SMB coefficients reaching statistical significance.<sup>854</sup>

The AER considers that this paper (considered in isolation) provides empirical evidence against the reliability and accuracy of the FFM. Based on this paper (in

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848 NERA, *Response to the draft decision*, March 2010, p. 25.

849 Kassimatis, *Size, BM and momentum in Australia*, 2008, p. 157.

850 E. Fama and K. French, 'The value premium and the CAPM', *Journal of Finance*, 2006, vol. 61, pp. 2163–2185; cited in Kassimatis, *Size, BM and momentum in Australia*, 2008, p. 152, 157.

851 NERA, *Response to the draft decision*, March 2010, p. 25.

852 Kassimatis, *Size, BM and momentum in Australia*, 2008, p. 156 (table 3) and NERA, *Response to the draft decision*, March 2010, p. 25.

853 Kassimatis, *Size, BM and momentum in Australia*, 2008, pp. 155–156 (table 3)

854 These figures are at the conventional (five per cent) level of significance. At 10 per cent there is one HML coefficient and 5 SMB coefficients reaching significance. Kassimatis, *Size, BM and momentum in Australia*, 2008, pp. 159–160 (table 5).

isolation), the AER considers that there is empirical evidence that the FFM does not generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>855</sup> Further, there is empirical evidence that the FFM does not generate a forecast or estimate on a reasonable basis, and empirical evidence that the forecast or estimate is not the best estimate possible in the circumstances.<sup>856</sup>

Further, there is even more empirical evidence against the FFM when comparing the aggregated results across academic papers (for example, the comparison between the Gharghori, Chan and Faff paper, the O'Brien, Brailsford and Gaunt working paper, the Kassimatis paper, and the Gharghori, Lee and Veeraraghavan paper, as outlined below).

*Gharghori, Lee and Veeraraghavan (2009)*

The second NERA report on the FFM also considers a working paper by Gharghori, Lee and Veeraraghavan instead of the published version of the same paper referred to by the AER.<sup>857</sup> The second NERA report on the FFM justifies this decision by stating that the working paper includes additional analysis comparing the CAPM and the FFM based on the same data.<sup>858</sup>

Similar to the O'Brien, Brailsford and Gaunt working paper discussed above, the AER considers that such analysis should be given less weight than the published paper.

The second NERA report on the FFM considers that there are errors in the data in the Gharghori, Lee and Veeraraghavan paper, on the basis that several reported alpha statistics seem implausibly large and would create arbitrage opportunities if they were correctly reported.<sup>859</sup> These large alpha statistics are present in both the working paper and the published version.<sup>860</sup> The second NERA report on the FFM proposes an approximate solution by adjusting all portfolios in all tests by the risk-free rate. This solution would not change the relative performance of the CAPM and FFM but would improve the performance of both.

The AER notes that the implausible alphas do not seem pervasive, but limited to several isolated portfolios.<sup>861</sup> Further, the AER notes that each set of six regressions was estimated as a system (using seemingly unrelated regression) such that it may be inappropriate to assess one individual alpha as anomalous. The AER also notes that the published paper has been peer reviewed. Overall, the AER accepts the data presented in the Gharghori, Lee and Veeraraghavan paper as reliable.

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855 NGR, r. 87.

856 NGR, r. 74.

857 The source document is P. Gharghori, R. Lee and M. Veeraraghavan, *Anomalies and stock returns: Australian evidence*, Monash University working paper, 2008.

858 NERA, *Response to the draft decision*, March 2010, p. 24.

859 NERA, *Response to the draft decision*, March 2010, p. 25.

860 The AER clarifies that the alphas are identical for the FFM analysis conducted by the working paper and the published version—since the published version does not present any analysis of the CAPM.

861 The NERA report presents one example, size-sorted portfolio six, which has an alpha of 0.5 per cent per month and R-squared of 0.98. There are no similar portfolio results when sorting by book-to-market or leverage; and one similar portfolio when sorting by share turnover (portfolio 5). Gharghori, Lee and Veeraraghavan, *Anomalies and stock returns*, 2009, p. 569–571 (table 2).



The AER notes that the primary analysis in this paper does not support the FFM:

Although the adjusted R-squares are relatively high, particularly in comparison to the other panels and prior Fama–French analysis in Australia (Gaunt, 2004, Gharghori et al, 2007), all of the intercepts are statistically significant indicating that the model has not explained the test portfolio's returns.<sup>862</sup>

When the Gharghori, Lee and Veeraraghavan paper sorts its data by book-to-market ratios, four of six portfolios have significant alphas. It concludes:

More importantly though, even though the R-square for the sextile portfolios are higher, there is still significant mispricing across all of the sets of test portfolios. This is evidenced by the fact that all of the tests that the intercepts are jointly equal to zero are rejected. Therefore, our findings reinforce prior Australian research that shows that the Fama–French model is less than satisfactory in Australia. This is in contrast to Fama and French's (1993, 1996) findings in the USA.<sup>863</sup>

The AER considers that this paper (considered in isolation) provides empirical evidence against the reliability and accuracy of the FFM. Based on this paper (in isolation), the AER considers that there is empirical evidence that the FFM does not generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>864</sup> Further, there is empirical evidence that the FFM does not generate a forecast or estimate on a reasonable basis, and empirical evidence that the forecast or estimate is not the best estimate possible in the circumstances.<sup>865</sup>

Further, there is even more empirical evidence against the FFM when comparing the aggregated results across academic papers (for example, the comparison between the Gharghori, Chan and Faff paper, the O'Brien, Brailsford and Gaunt working paper, the Kassimatis paper and the Gharghori, Lee and Veeraraghavan paper).

*Papers with data sets extending into the 2000s*

The AER notes that the four papers directly above look at data sets with overlapping time periods that extend into the 2000s:

- the Gharghori, Chan and Faff paper (1996 to 2004)
- the O'Brien, Brailsford and Gaunt working paper (1982 to 2006)
- the Kassimatis paper (1993 to 2005)
- the Gharghori, Lee and Veeraraghavan paper (1993 to 2005).

The AER observes that the risk premiums found in the studies are not consistent and there is similarly no consistent pattern of significant coefficients for the HML and

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862 Gharghori, Lee and Veeraraghavan, *Anomalies and stock returns*, 2009, p. 568.

863 Gharghori, Lee and Veeraraghavan, *Anomalies and stock returns*, 2009, p. 574.

864 NGR, r. 87.

865 NGR, r. 74.

SMB factors. Based on the conflicting results in these papers (in aggregate), the AER considers that there is strong empirical evidence against the reliability and accuracy of the FFM. Based on these paper (in aggregate), the AER considers that there is strong empirical evidence that the FFM does not generate a rate of return that is commensurate with the prevailing conditions in the market for funds and the risks involved in providing reference services.<sup>866</sup> Further, there is strong empirical evidence that the FFM does not generate a forecast or estimate on a reasonable basis, and strong empirical evidence that the forecast or estimate is not the best estimate possible in the circumstances.<sup>867</sup>

#### ***Conclusion on Australian academic literature***

Based on the information and material before it concerning Australian academic literature, the AER considers that:

- several Australian academic papers support the FFM—that is, the results of FFM regressions are broadly consistent with the observed data
- the majority of Australian academic papers do not support the FFM—that is, the results of FFM regressions are not consistent with the observed data
- the aggregate results are less supportive of the FFM than the individual results, since there are conflicting FFM parameters for the same time periods.

As a consequence, the AER considers that:

- the FFM does not produce a rate of return commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services, since the observed rate of return is not consistent with the rate of return generated by the FFM
- the estimates generated by the FFM are not arrived at on a reasonable basis, since the model is found not to be a reasonable predictor.

#### **Overall conclusion on the empirical analysis of the FFM**

The AER assesses a range of information and material before it that is relevant to the assessment of the FFM against the requirements of r. 87 and r. 74 of the NGR. The AER considers that:

- there is no strong theoretical basis to support the inclusion of the additional FFM risk factors for the rate of return on equity:
  - the model is dependent on empirical justification—that is, the systematic observance of the FFM risk premiums
  - since the FFM risk premiums are not systematically observed in the Australian market, there is no reasonable basis for the FFM to be applied in Australia

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866 NGR, r. 87.

867 NGR, r. 74.

- the modelling and statistical analysis presented in the revised access arrangement proposal do not provide support for the FFM, including but not limited to:
  - the predictive testing presented in the Oxera report does not support the submission that the FFM is a better predictor than the CAPM
  - grounds for rejecting the Carhart four-factor model could equally be used to reject the FFM
- Evaluation of the academic literature does not support the FFM as a reliable or accurate financial model. In particular:
  - analysis from Australia, which is the relevant market for funds, shows that observed empirical evidence is not consistent with the FFM, with conflicting, variable FFM risk premiums and inconsistent FFM factor coefficients. This means that it is unreasonable to conclude that the additional FFM risk factors are present in the market for funds and can be used to determine a rate of return on equity
  - in relation to evidence in other markets for funds:
    - analysis from a global perspective (including the UK, Japan and Germany) shows that the observed empirical evidence is not consistent with the FFM
    - analysis from the US shows conflicting evidence that does not support the FFM for each time period analysed.

With regard to the evidence examined, the AER considers that:

- the FFM does not produce a rate of return commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services
- the estimates generated are not arrived at on a reasonable basis
- the estimates generated by the FFM do not represent the best estimates possible in the circumstances.

#### **5.3.3.5 Evaluation and conclusion**

The AER notes that it has full discretion (as set out in r. 40(3) of the NGR) over determination of the rate of return to meet the requirements of r. 87 of the NGR.

The AER assesses the FFM after assessment of all material before it, including information provided in the revised access arrangement proposal and other relevant material.

Overall, the AER considers that:

- the FFM does not meet the requirements of r. 87(1) of the NGR
- the FFM does not meet the requirements of r. 87(2)(b) of the NGR.

Further, the AER also considers that the FFM does not produce forecasts or estimates that meet the requirements of r. 74(2) of the NGR.

Therefore, the AER does not accept the use of the FFM.

The AER instead uses the standard Sharpe–Lintner CAPM to estimate the rate of return on equity. The CAPM is provided under r. 87(2)(b) of the NGR as an example of a well accepted financial model. The use of the CAPM to determine the cost of equity complies with the applicable requirements of the NGL and the NGR and is consistent with the applicable criteria prescribed by the NGL and the NGR. The AER also considers that the use of the CAPM (instead of the FFM) for determining the rate of return is consistent with the revenue and pricing principles set out in section 24 of the NGL and will or is likely to contribute to the achievement of the National Gas Objective (NGO) in section 23 of the NGL.

The risk-free rate, equity beta, and MRP to be used in the CAPM are discussed in sections 5.5 and 5.4 of this chapter respectively.

## 5.4 Cost of equity—Capital asset pricing model

For the reasons set out in section 5.5 of the draft decision and section 5.3 of this final decision, the AER does not approve the revised access arrangement proposal to use the FFM for estimating the cost of equity and instead uses the Sharpe–Lintner CAPM:

$$R_e = R_f + MRP \times \beta_e$$

where:

$R_e$  is the nominal return on equity

$R_f$  is the nominal risk free rate

$MRP$  is the market risk premium, i.e.  $(R_m - R_f)$  where  $R_m$  is the return on the market portfolio

$\beta_e$  is the equity beta of the benchmark business.

### 5.4.1.1 AER’s analysis and considerations

The CAPM is an example of a ‘well accepted financial model’ to estimate the return on equity for the rate of return under the NGR.<sup>868</sup> As outlined in section 5.5 of the draft decision and section 5.3 of the final decision, the AER considers that the CAPM is a well accepted model for estimating the expected return of an entity that takes into account the level of systematic (i.e. non-diversifiable) risk in accordance with r. 87 of the NGR. The AER therefore establishes the return on equity using the Sharpe–Lintner CAPM.

The risk-free rate used by the AER to estimate the cost of equity in the CAPM is discussed in section 5.5 of the final decision.

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868 NGR, r. 87(2)(b).

The other parameters used in the CAPM to estimate the cost of equity are the MRP and equity beta.

### **Market risk premium**

The revised access arrangement proposal incorporates the draft decision MRP estimate of 6.5 per cent, which is consistent with that determined in the AER's review of the WACC parameters (the WACC review).<sup>869</sup>

For the reasons outlined in the draft decision, and consistent with the revised access arrangement proposal, the AER considers that an MRP of 6.5 per cent provides the best forward looking estimate of the MRP arrived at on a reasonable basis<sup>870</sup>, which also takes into account prevailing market conditions in the immediate post global financial crisis period and the risks involved in providing the reference services.<sup>871</sup>

### **Equity beta**

The revised access arrangement proposal submits that the equity beta estimate of 0.8 is specific to the CAPM in the draft decision, and is not relevant to the FFM and the proposed cost of equity.<sup>872</sup>

As discussed above, the AER does not accept the use of the FFM to estimate the cost of equity and instead uses the CAPM.

Consistent with the draft decision, the AER estimates an equity beta of 0.8 for a benchmark efficient service provider. The AER applies an equity beta of 0.8 in the recent decisions regarding the ActewAGL Distribution and Country Energy Gas Pty Ltd gas distribution access arrangements.<sup>873</sup> The AER considers that the best estimate of the equity beta for a gas distribution service provider is between 0.4 and 0.7 taking into account the need to reflect prevailing market conditions, the risks involved in providing reference services<sup>874</sup> and the importance of regulatory certainty. Although reliance on market data suggests a value of between 0.4 and 0.7, the AER concludes that a conservative approach has merit, providing the service provider with a reasonable opportunity to at least recover efficient costs.<sup>875</sup> Therefore, the AER considers that the value of 0.8 for the equity beta is a best estimate arrived at on a reasonable basis in the circumstances.<sup>876</sup>

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869 JGN, *Revised access arrangement information*, March 2010, p. 36; JGN, *Initial response to the draft decision*, March 2010, p. 113; AER, *Final decision: WACC review*, May 2009.

870 NGR, r. 74(2).

871 NGR, r. 87(1).

872 JGN, *Initial response to the draft decision*, March 2010, p. 113.

873 AER, *Final decision, ActewAGL distribution access arrangement proposal 1 July 2010 – 30 June 2015*, March 2010, pp. 63–68 (AER, *Final decision: ActewAGL distribution access arrangement proposal*, March 2010), and AER, *Final decision: Country Energy access arrangement proposal 1 July 2010 – 30 June 2015*, March 2010, pp. 44–45. (AER, *Final decision: County Energy access arrangement proposal*, March 2010).

874 NGR, r. 87(1).

875 NGL, s. 24(2).

876 NGR, r. 74(2) and AER, *Draft decision*, February 2010, pp. 124–131.

## 5.5 Risk-free rate

### 5.5.1 Revised access arrangement proposal

The revised access arrangement proposal estimates a nominal risk-free rate of 5.58 per cent over the 20 day averaging period ending on 12 February 2010. The risk-free rate is estimated using a straight-line interpolation of the yields on the Commonwealth Government Securities (CGS) maturing on 15 March 2019 and 15 April 2020.<sup>877</sup>

The revised access arrangement proposal notes that the averaging period used is for presentation purposes only and that the averaging period determined by the AER in the draft decision is to be used to estimate the risk-free rate.<sup>878</sup>

### 5.5.2 AER's analysis and considerations

As outlined in the draft decision, the AER accepts the proposal to use a 20 business day averaging period to estimate the risk-free rate.<sup>879</sup>

The final decision uses a 20 business day averaging period commencing on 8 April 2010 and ending on 6 May 2010. Using this averaging period and CGS yields with 10-year maturity (interpolated), the nominal risk-free rate is 5.85 per cent (effective annual compounding rate).

## 5.6 Debt risk premium

### 5.6.1 Revised access arrangement proposal

The revised access arrangement proposal estimates a debt risk premium of 4.48 per cent.<sup>880</sup> This estimate is based on a BBB credit rating, using Bloomberg's fair value curve and a linear extrapolation method over the 20 business day averaging period ending 12 February 2010 (consistent with the averaging period used to estimate the risk-free rate).<sup>881</sup>

The revised access arrangement proposal maintains the proposed BBB credit rating as it does not agree that electricity and gas businesses are sufficiently close comparators.<sup>882</sup> JGN submits that this is because:

- annual revenues of gas businesses tend to be more volatile than comparable electricity businesses in Australia<sup>883</sup>

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877. JGN, *Revised access arrangement information*, March 2010, p. 36.

878. JGN, *Initial response to the draft decision*, March 2010, p. 112.

879. JGN, *Initial response to the draft decision*, March 2010, p. 112.

880. JGN, *Revised access arrangement information*, March 2010, pp. 31, 34–36 and JGN, *Initial response to the draft decision*, March 2010, pp. 113–125.

881. JGN, *Revised access arrangement information*, March 2010, pp. 31–36 and JGN, *Initial response to the draft decision*, March 2010, pp. 113–125.

882. JGN, *Initial response to the draft decision*, March 2010, p. 113.

883. JGN, *Initial response to the draft decision*, March 2010, p. 116.

- the credit ratings of gas businesses tend to be lower than comparable electricity businesses in Australia<sup>884</sup>
- regulatory differences exist between gas and electricity networks<sup>885</sup>
- gas businesses experience higher market expansion risk and weather related risk than electricity businesses<sup>886</sup>
- gas businesses face greater competition from electricity businesses than electricity businesses face from gas businesses.<sup>887</sup>

The revised access arrangement proposal submits that the draft decision does not provide sufficient evidence to support the use of CBASpectrum's fair value curve to estimate the debt risk premium.<sup>888</sup> JGN submits that this is because:

- the AER tests CBASpectrum's and Bloomberg's fair value curves over ActewAGL's draft decision averaging period, not the proxy averaging period ending 23 December 2009 in the access arrangement proposal<sup>889</sup>
- the AER's analysis only tests bonds with a maximum maturity of 5.6 years so it cannot, without further analysis, support the finding that the CBASpectrum fair value curve provides the best estimate for bonds with a maturity of ten years.<sup>890</sup>

The revised access arrangement proposal includes a report by PwC (the first PwC gas report) about the data sources and methodology for estimating the 10 year debt risk premium. The first PwC gas report proposes a method to determine whether to use Bloomberg or CBASpectrum to estimate the debt risk premium.<sup>891</sup> The PwC gas report concludes that:

- CBASpectrum's yield estimates are not representative of the general opinion in the financial market<sup>892</sup>
- CBASpectrum's fair value curves do not align with economic theory.<sup>893</sup>

Based on the method contained in the first PwC gas report, the revised access arrangement proposal uses Bloomberg's fair value curve to estimate the debt risk premium.<sup>894</sup>

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884 JGN, *Initial response to the draft decision*, March 2010, p. 116.

885 JGN, *Initial response to the draft decision*, March 2010, p. 118.

886 JGN, *Initial response to the draft decision*, March 2010, pp. 118–119.

887 JGN, *Initial response to the draft decision*, March 2010, p. 120.

888 JGN, *Initial response to the draft decision*, March 2010, p. 121.

889 JGN, *Initial response to the draft decision*, March 2010, p. 121.

890 JGN, *Initial response to the draft decision*, March 2010, p. 121

891 PwC, *The benchmark cost of debt for a gas distributor*, March 2010.

892 JGN, *Initial response to the draft decision*, March 2010, p. 122 and PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p.44.

893 JGN, *Initial response to the draft decision*, March 2010, p. 122 and PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p.44.

JGN also submits another report (the second PwC gas report) which provides further analysis to support the debt risk premium in the revised access arrangement proposal. The second PwC gas report is based on a review of the AER's recent decision regarding the ActewAGL gas distribution access arrangement. The second PwC gas report considers both the method for extrapolation of Bloomberg's fair value curve to a term of 10 years and the approach employed by the AER on selecting the Bloomberg or CBASpectrum fair value curves.<sup>895</sup>

On the method used to select the Bloomberg or CBASpectrum fair value curves, the second PwC gas report submits that there is nothing in the AER's decision for ActewAGL which would change the conclusions from the first PwC gas report. In particular, it submits that it is quite likely that the relative accuracy of the CBASpectrum service for predicting the yields of the bonds on issue is marginal.<sup>896</sup>

In relation to extrapolating Bloomberg's fair value curve to a term of 10 years, the second PwC gas report submits a number of points:

- the AER's testing method uses the average squared error test rather than the preferred average error test from the first PwC report and the second PwC report<sup>897</sup>
- the AER's conclusion that Bloomberg's AAA curve should be used to extrapolate Bloomberg's BBB curve is sensitive to the time period used for testing<sup>898</sup>
- theory suggests that the slope of yield curves for bonds with different credit ratings will be different<sup>899</sup>
- the extrapolation methods should be tested based on the debt risk premium generated by the extrapolation method, not the yield generated by the extrapolation method.<sup>900</sup>

### 5.6.2 Submissions

The AER received submissions from the EUAA<sup>901</sup> and JGN on the debt risk premium.<sup>902</sup>

The EUAA submits that the AER has allowed a high WACC of 10.19 per cent. The cost of capital was determined by the AER using a high cost of debt of 9.84 per cent

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894 JGN, *Initial response to the draft decision*, March 2010, pp. 124–125.

895 PwC, *Update of cost of debt methodology*, April 2010.

896 PwC, *Update of cost of debt methodology*, April 2010, p. 3.

897 PwC, *Update of cost of debt methodology*, April 2010, pp. 6–7.

898 PwC, *Update of cost of debt methodology*, April 2010, pp. 7–8.

899 PwC, *Update of cost of debt methodology*, April 2010, p. 8.

900 PwC, *Update of cost of debt methodology*, April 2010, pp. 8–9.

901 EUAA, *Submission to the AER*, April 2010.

902 JGN, letter to the AER, JGN access arrangement revision proposal: *JGN further response to the draft*, 28 April 2010 and PricewaterhouseCoopers, *Update of cost of debt methodology analysis in light of the AER's ActewAGL decision*, April 2010, (PwC, *Update of cost of debt methodology*, April 2010).



using an Australian benchmark rate that is far higher than the cost of debt overseas.<sup>903</sup> The EUAA submits that the NGR allows a discretion which suggests that the AER can and should set the cost of debt based on an efficient cost of debt and one that reflects the true cost of debt faced by the Australian network companies. It notes that the Australian network companies raise capital internationally at much lower rates than the rate set by the AER.<sup>904</sup>

The EUAA also presents a February 2010 research note from Credit Suisse, which indicates that SP AusNet sources offshore debt at a debt risk premium of 280 basis points less than the debt risk premium set by the AER in the South Australian draft electricity distribution determination. The EUAA submits that by setting a cost of debt in Australia based on the AER's theoretical construction of the debt risk premium on top of Australian risk-free rates, the AER is allowing a cost of debt that is out of proportion to the price that energy companies are actually paying.<sup>905</sup>

### **5.6.3 AER's analysis and considerations**

In order to estimate the benchmark debt risk premium the AER needs to consider which credit rating is appropriate and which fair value curve (Bloomberg, CBASpectrum or an average of the two) is to be used.

This section sets out the AER's consideration of which credit rating is appropriate for a benchmark gas network service provider. This is followed by an outline of the standard methodology used by the AER to select a fair value curve. Issues raised in the revised access arrangement proposal and submissions are considered. Finally, the AER's methodology, including any refinements or augmentations, is applied to select the data source which is then used to estimate the benchmark debt risk premium.

#### **5.6.3.1 Credit rating for the benchmark service provider**

The revised access arrangement proposal submits that electricity and gas businesses are not sufficiently close comparators for the purposes of determining the benchmark credit rating.<sup>906</sup> It proposes that gas businesses tend to have lower credit ratings than electricity businesses,<sup>907</sup> on the basis that revenue for gas businesses tends to be more volatile than for electricity businesses.<sup>908</sup> This is attributed to:

- regulatory differences between gas and electricity networks<sup>909</sup>
- gas businesses experiencing higher market expansion and weather related risk than electricity businesses<sup>910</sup>

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903 EUAA, *Submission to the AER*, April 2010, pp. 16–17.

904 EUAA, *Submission to the AER*, April 2010, pp. 16–17.

905 EUAA, *Submission to the AER*, April 2010, pp. 16–17.

906 JGN, *Initial response to the draft decision*, March 2010, pp. 113–120.

907 JGN, *Initial response to the draft decision*, March 2010, pp. 113–120.

908 JGN, *Initial response to the draft decision*, March 2010, p. 116.

909 JGN, *Initial response to the draft decision*, March 2010, p. 118.

910 JGN, *Initial response to the draft decision*, March 2010, pp. 113–119.

- gas businesses facing greater competition from electricity businesses than electricity businesses face from gas businesses.<sup>911</sup>

The AER notes that the draft decision considers similar issues about the volatility of revenue for gas and electricity businesses. The AER observes that the benchmark gas distribution service provider operates in a regulated environment that includes a number of features common to the electricity service providers considered in the WACC review, which effectively lowers these service providers' exposure to risks relative to an unregulated competitive business.<sup>912</sup> These features include:<sup>913</sup>

- the tariff variation mechanism allows for the annual adjustment for inflation, lowering exposure to inflation risk<sup>914</sup>
- the cost pass through mechanism allows for certain costs to be passed on to consumers during the access arrangement period, lowering exposure to costs not forecast at the commencement of the access arrangement period<sup>915</sup>
- a service provider may submit an access arrangement variation proposal for the AER's approval.<sup>916</sup>

***Gas businesses tend to have lower credit ratings***

The revised access arrangement proposal includes a comparison of the credit ratings of United Energy Distribution Pty Ltd (UED) and Multinet Gas. JGN submits that these two businesses share the same majority owner, the Diversified Utilities and Energy Trust Group (DUET), and therefore have comparable ownership structures. The revised access arrangement proposal states that despite having a higher gearing ratio, UED has a higher credit rating than Multinet Gas. The revised access arrangement proposal outlines that this is evidence that gas businesses are inherently riskier than electricity businesses and that this difference is sufficient to warrant a lower credit rating for gas businesses.<sup>917</sup>

The AER considers that the basis of the comparative analysis is not well established. This is because the revised access arrangement proposal seeks to support the proposition that the difference between the credit rating for DUET and UED is explained by reference to one entity being a gas business and the other entity being an electricity business and that this comparison is valid because they have one common characteristic—the same majority shareholder.

The AER notes that credit ratings are influenced by a number of factors, including but not limited to the owners of an entity. For example, Standard & Poor's (S&P) corporate rating methodology takes into account a number of factors including:

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911 JGN, *Initial response to the draft decision*, March 2010, p. 119.

912 AER, *Draft decision*, February 2010, pp. 127–130.

913 AER, *Final decision: WACC review*, May 2009, pp. 249–250.

914 NGR, r. 97.

915 NGR, r. 97.

916 NGR, r. 60 to r. 67.

917 JGN, *Initial response to the draft decision*, March 2010, p. 117.

- a fundamental business analysis, which considers:
  - country and macroeconomic risk
  - industry risk
  - competitive position, including:
    - market position
    - diversification
    - operating efficiency
    - management
    - ownership and governance
    - profitability
    - peer comparisons
- a financial analysis, which considers:
  - accounting
  - financial governance and policies and risk tolerance
  - cash flow adequacy
  - capital structure and asset protection
  - liquidity and short-term factors.<sup>918</sup>

As evident from the list above, there are a number of factors that inform a credit rating. The revised access arrangement proposal seeks to demonstrate based on one similar characteristic, a common owner, and with reference to only two entities that inferences can be drawn about the reasons for the differences in credit ratings. The AER considers that this analysis and comparison over simplify the reasons why these two entities have different credit ratings.<sup>919</sup>

As outlined in table 5.5 the AER considers that the basis for comparison in the revised access arrangement proposal does not take account of other relevant factors that may influence the credit rating of UED and Multinet Gas.

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918 S&P, *Criteria, Corporates, General: Criteria Methodology: Business Risk/Financial Risk Matrix Expanded*, 27 May 2009, viewed 22 April 2010, <<http://www.standardandpoors.com/prot/ratings/articles/en/us/?assetID=1245199778453>> and S&P, *Criteria, Corporates, Utilities: Key Credit Factors: Business and Financial Risk*, 26 November 2008, viewed 22 April 2010, <<http://www.standardandpoors.com/prot/ratings/articles/en/us/?assetID=1245206927841>>.

919 Standard & Poors (S&P), *Criteria, Corporates, General: Criteria Methodology: Business Risk/Financial Risk Matrix Expanded*, 27 May 2009, viewed 22 April 2010, <<http://www.standardandpoors.com/prot/ratings/articles/en/us/?assetID=1245199778453>>.

**Table 5.5: Factors influencing UED and Multinet Gas credit ratings by S&P (units as stated)**

|   | UED <sup>a</sup>  | Multinet Gas <sup>b</sup>  |
|---|---|--|
| <b>S &amp; P credit rating:</b> 2009                  | BBB/Stable/--   | BBB--/Stable/--  |
| 2008  | BBB/Negative/--   | BBB/Negative/-   |
| 2007  | BBB/Stable/--   | BBB/Stable/-   |
| 2006  | BBB/Stable/--   | BBB/Stable/-   |
| <b>Major rating factors (2009)</b>                    |   |  |
| <b>Strengths:</b> Competitive position                | Natural monopoly electricity distribution   | Natural monopoly gas distribution  |
| Cash-flow   | High degree of cash flow certainty from regulatory regime. Minimal operating risks  | Predictable cash flow from a broadly supportive regulatory regime. Low operational risk. Secure and relatively stable regulated returns  |
| <b>Weaknesses:</b> Financial profile/<br>Volume risk  | Aggressive financial profile and significant capital expenditure planned  | Aggressive financial profile and weak financial flexibility  |
|   | Exposure to the risk tolerance of its shareholders  | Less predictable volume pattern, which induces some cash flow volatility   |
|   | Exposure to volume risk   | Minimal headroom to withstand regulatory reset risk in 2013  |
| <b>Key financial ratios</b>                           |   |  |
| Funds from operations (FFO)/interest coverage (times) | 2.4   | 1.7  |
| FFO/debt (%)  | 10.3  | 4.9  |
| Debt/debt and equity (gearing) (%)                    | 77.2 <sup>c, d</sup>  | 89.7 <sup>c</sup>  |
| <b>Parent company</b>                                 | DUET 66%, BBB-/Stable/--) SPI (Australia) Assets Pty Ltd (34%, SPIA; A-/Negative/--)  | DUET (79.9%, BBB-/Stable/--) Prime Infrastructure (formerly Babcock & Brown Infrastructure, 20.1%, not rated)  |
| <b>S &amp; P outlook</b>                              | Stable outlook reflects UED's fundamental business profile, certainty of returns and funding of the Advanced Metering Infrastructure (AMI) project, and the financial parameters within which UED intends to operate. | Stable outlook based on the shareholder's current strategy to reinvest dividends, gradually reducing debt and progressively building financial headroom before next access arrangement revision in January 2013. |

Source: S&P, *Global Credit Portal, Ratings Direct, Energy Partnership (Gas) Pty Ltd*, 22 December 2009; S&P, *Credit Portal, Ratings Direct, United Energy Distribution Holdings Pty Ltd and United Energy Distribution Pty Ltd*, 13 July 2009; AER analysis.

- a: United Energy Distribution Holdings Pty Ltd and United Energy Distribution Pty Ltd (UED).
- b: Energy Partnership (Gas) Pty Ltd (financing arm of Multinet Group Holdings)
- c: S&P in its rating reports has calculated debt/debt and equity ratio (gearing) as debt divided by debt plus equity.
- d: For the financial year 2008 as set out in S&P, *Credit Portal, Ratings Direct, United Energy Distribution Holdings Pty Ltd and United Energy Distribution Pty Ltd*, 13 July 2009.

The AER notes that UED and Multinet Gas have similar business risk profiles. Both entities have natural monopoly distribution networks, cash flow predictability supported by similar regulatory regimes, low exposure to volume risk and financial profiles that S&P describe as ‘aggressive’. Both entities also have BBB ratings for the period from 2006 to 2008. However, from 2008, Multinet Gas's credit rating was down-graded. With reference to the S&P report, the AER considers that S&P may have down-graded Multinet Gas by one notch due to its comparatively weak financial metrics minimal headroom to withstand regulatory reset risk in 2013, increase in its gearing level from 84.4 per cent in 2008 to 89.7 per cent in 2009 and an increase in the net cash flow to capital expenditure ratio from 61.0 per cent in 2008 to 95.0 per cent in 2009.<sup>920</sup>

The AER therefore considers that the comparison of UED and Multinet Gas does not support the conclusion that gas businesses tend to have lower credit ratings than electricity businesses as other factors which may also have a bearing on credit ratings are not taken into consideration in the comparative analysis provided in the revised access arrangement proposal. The AER notes that the credit rating for the two entities was actually the same for three of the four years shown in table 5.5.

Further, the AER notes that both UED and Multinet Gas have characteristics which are not representative of the benchmark firm used by the AER in estimating the WACC. For example, both have much higher gearing ratios (77.2 per cent and 89.7 per cent respectively) than the 60 per cent gearing ratio accepted in this decision. In the draft decision and WACC review the AER considers the conceptual definition of the benchmark efficient gas network service provider to be a ‘pure play’ regulated gas network business operating within Australia without parent ownership.<sup>921</sup> The AER therefore considers that it is difficult to draw inferences about the credit rating that should be used based on a comparison of these two entities with very different characteristics to a service provider that meets benchmark levels of efficiency.

The AER maintains its view expressed in the draft decision that the assumed 60:40 gearing ratio needs to be considered in conjunction with the appropriate credit rating for determining the benchmark cost of debt.<sup>922</sup> The AER maintains its view that a

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920 S&P, *Credit Portal, Ratings Direct, United Energy Distribution Holdings Pty Ltd and United Energy Distribution Pty Ltd*, 13 July 2009.

921 AER, *Draft decision*, February 2010, p. 129 and AER, *Final decision: WACC review*, 1 May 2009, pp. 79–82.

922 AER, *Draft decision*, February 2010, pp. 135–136.

credit rating higher than BBB should apply for benchmark gas business with a 60:40 gearing ratio.<sup>923</sup> In the WACC review the AER stated that gas businesses tend to have a lower credit rating (and a higher gearing ratio) than electricity businesses. This statement is importantly predicated on the relationship between the credit rating and the gearing ratio.<sup>924</sup>

***Gas businesses' revenues are more volatile***

The revised access arrangement proposal includes a sample of data to support the proposition that, on average, revenue is more variable for gas businesses than for electricity businesses in Australia. This proposal is based on an analysis of the standard deviation of annual per cent changes in revenue for both gas and electricity businesses in the sample used by JGN.<sup>925</sup>

However, the AER's review of this sample data indicates that the standard deviations of annual per cent changes in revenue for gas and electricity businesses are not statistically significantly different from each other.<sup>926</sup> That is, using statistical measures the data does not support the conclusion that revenue streams for a gas business are more variable than those of electricity businesses.

The AER also considers that the sample of businesses used by JGN may not be appropriate. Some issues noted by the AER are that the sample of electricity businesses includes EnergyAustralia Retail (EnergyAustralia), which is involved in retail operations, and ElectraNet, which is a transmission business. It is also unclear why the sample does not include QLD electricity businesses. Consideration was given to this issue in the WACC review—in particular, how closely the selected businesses resemble the conceptual definition of a hypothetical benchmark efficient service provider.<sup>927</sup>

Therefore, the AER considers that JGN's submission that revenues for gas businesses are more variable than revenues for electricity businesses is not supported by the data in the revised access arrangement proposal. The AER considers that the data displays a similar average variability in revenues for gas and electricity businesses. Notwithstanding this, the AER considers that the sample of businesses used in this analysis may not be appropriate.

The revised access arrangement proposal also includes some conceptual reasons why gas businesses' revenues are more volatile than electricity businesses. These are:

- the regulatory differences between gas and electricity networks<sup>928</sup>

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923 AER, *Draft decision*, February 2010, pp. 135–136.

924 AER, *Final Decision: WACC review*, May 2009, p. 348.

925 JGN, *Initial response to the draft decision*, March 2010, pp. 116–117.

926 The following regression was run:  $stdev = \beta_0 + \beta_1 Gas + u$  where Gas is equal to one if the business is a gas business. The p-value for  $\beta_1$  was equal to 0.60 indicating that the average for the two groups is not statistically significantly different at any conventional level of significance.

927 AER, *Final Decision: WACC review*, May 2009, pp. 102, 379–381.

928 JGN, *Initial response to the draft decision*, March 2010, p. 118.

- gas businesses experience higher market expansion risk and weather related risk than electricity businesses<sup>929</sup>
- gas businesses face greater competition from electricity businesses than electricity businesses face from gas businesses.<sup>930</sup>

The AER, however, considers that there are similarities between regulated gas and electricity businesses such as:

- they are regulated under comparable frameworks
- the infrastructure used to provide regulated services has natural monopoly characteristics.

As outlined in the draft decision, the AER considers that electricity network businesses are sufficiently close comparators to estimate the credit rating of a benchmark efficient gas network service provider.<sup>931</sup> As a result, the AER considers that it is appropriate to apply the conclusions of the WACC review to both electricity and gas service providers based on the outcomes from using median credit ratings and the ‘best comparators’ approach in informing a view of the credit rating of a benchmark efficient service provider.<sup>932</sup>

The AER also notes that the revised access arrangement proposal states that in the WACC review the AER relies on the BBB+ credit rating of a single electricity network to determine the benchmark credit rating.<sup>933</sup> The AER does not consider that this is an accurate interpretation of the WACC review.<sup>934</sup> In the WACC review the AER states that it is not persuaded that a departure from the BBB+ credit rating is appropriate. In coming to this conclusion the AER relies on the median credit rating of a sample of Australian energy businesses and the credit rating of a number of businesses which approximates the benchmark efficient network service provider. This analysis identified a range of credit ratings from BBB+ to A–.<sup>935</sup> The AER finds that the median credit rating for the sample of Australian energy businesses was A– but taking into consideration the credit rating of the only business which closely approximates the benchmark efficient network service provider, the AER made the decision to not depart from the use of BBB+ credit rating.<sup>936</sup> The AER considers that this is a conservative approach to establishing the credit rating for the benchmark service provider

The AER notes that there is some internal inconsistency in the revised access arrangement proposal. This is because the revised access arrangement proposal

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929 JGN, *Initial response to the draft decision*, March 2010, pp. 119–120.

930 JGN, *Initial response to the draft decision*, March 2010, p. 119–120.

931 AER, *Draft decision*, February 2010, pp. 135–136.

932 AER, *Final Decision: WACC review*, May 2009, pp. 347, 360.

933 JGN, *Initial response to the draft decision*, March 2010, pp. 118–119.

934 AER, *Final decision: WACC review*, May 2009, pp. 351–392.

935 AER, *Final decision: WACC review*, May 2009, p. 391.

936 AER, *Final decision: WACC review*, May 2009, p. 391.

submits a BBB credit rating for the purposes of estimating the debt risk premium, while the first PwC gas report and second PwC gas report use a sample of BBB+ rated bonds for determining the relevant data source to derive the 10 year bond yields.<sup>937</sup>

As a result of the above considerations, and in view of the gearing ratio of 60:40 accepted by the AER, the AER does not consider that it is appropriate to depart from the past regulatory practice of using a BBB+ credit rating.

### 5.6.3.2 The AER's standard methodology to select a fair value curve

The AER acknowledges the submission by the EUAA to set the debt risk premium with regard to international capital markets. The AER considers that this would not be consistent with the basis on which the other parameters of the WACC are estimated. The AER applies a domestic CAPM,<sup>938</sup> and derives estimates for the WACC parameters on this basis—that is, with reference to the Australian capital market. It would be inconsistent to change one component of the WACC.

Further, the AER notes that the debt risk premium is set with regard to the Australian benchmark BBB+ corporate bond rate. The EUAA submission<sup>939</sup> suggests that the AER should reference the actual cost of debt on the basis of the recent capital raising by SP AusNet. However, the NGR requires the use of a benchmark approach to deriving the cost of debt and not the actual cost of debt of a particular service provider.<sup>940</sup>

As outlined in the draft decision, the AER selects the data source used to estimate the debt risk premium by:

- defining a population of corporate bonds that closely reflect the characteristics of bonds that would be issued by the benchmark service provider<sup>941</sup>
- considering whether any of these bonds should be excluded from the analysis on the basis that the yields for these bonds are not representative of their credit rating
- comparing the observed yields of this sample of bonds to the fair value curves of CBASpectrum, Bloomberg and an average of the two curves, in order to determine which curve aligns most closely to the observed yields.<sup>942</sup>

The first step in the AER's methodology involves defining the population of relevant bonds. The relevant bond population is comprised of BBB+ fixed rate corporate bonds, with a time to maturity over two years, issued in Australia by Australian companies with observations available from Bloomberg, CBASpectrum and Union Bank of Switzerland (UBS) over the averaging period. The AER excludes bonds from

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937 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, pp. 18–19, 51; and PwC, *Update of cost of debt methodology*, April 2010, p. 4.

938 AER, *Final decision: WACC review*, May 2009, pp. 97–101.

939 EUAA, *Submission to the AER*, April 2010, pp. 16–17.

940 NGR, r. 87.

941 BBB+ fixed rate corporate bonds, with a maturity over two years, issued in Australia by Australian companies with observations available from Bloomberg, CBASpectrum and UBS over the averaging period.

942 AER, *Draft decision*, February 2010, pp. 136–140.



the population where information is not available from all three data sources to ensure consistency and completeness of the data used in later steps.

In the second step, the AER considers whether any of the bonds in the population should be excluded from the analysis as the yields for the particular bonds are not representative of their credit rating. To do this, the AER inspects graphs of yields of the sample of bonds over time to identify any obvious anomalies. If any anomalous bonds are identified then that bond's yields are tested using the Chow test. The Chow test identifies whether the anomaly is statistically significant, which may indicate an outlier.

The Chow test is commonly used to determine the existence of a sudden and permanent change in a data set—it compares two time periods to determine if they have the same explanatory factors.<sup>943</sup> If the change is statistically significant then the AER considers relevant market developments to assess whether a fundamental shift in the market's perception of the business has occurred. A bond may be excluded from the sample and assessed as an outlier after consideration of these matters.

After outlying bonds are excluded the remaining part of the population is referred to as the sample of bonds. The third step in the AER's methodology compares the observed yields of the sample of bonds to the fair value curves of CBASpectrum, Bloomberg and an average of the two curves. The comparison is conducted using the weighted sum of squared errors.<sup>944</sup>

The weighted sum of squared errors is a mathematical formula which provides a measure of how closely each fair value curve represents the observed bond yields. A smaller value indicates the fair value curve more closely fits or matches the observed bond yields.

A similar approach to that described above was reviewed by the Tribunal which found that there was no compelling case for departing from the AER's methodology.<sup>945</sup> The Tribunal also noted that the AER needs to reconsider the data sources and methodology in future review processes.<sup>946</sup> The AER has since reconsidered its methodology and has made some refinements.

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943 G. Chow, 'Tests of equality between sets of coefficients in two linear regressions', *Econometrica*, July 1960, vol. 28(3).

944 The weighted sum of squared errors is defined as:

$$WSSE = \frac{1}{n} \sum_{i=1}^n \left\{ \left[ \sum_{j=1}^{t_i} (Observed_{i,j} - Fair_{i,j})^2 \right] \frac{1}{t_i} \right\}$$

Where:

n is the number of bonds in the sample

t<sub>i</sub> is the number of observations for the ith bond

Observed<sub>i,j</sub> is the jth observed yield for the ith bond, taken from either Bloomberg, CBASpectrum or UBS

945 Australian Competition Tribunal (Tribunal), *Application by EnergyAustralia and other [2009] ACompT8*, November 2009, p. 39.

946 Tribunal, *Application by EnergyAustralia and other [2009] ACompT8*, November 2009, p. 39.

The AER considers that selecting a fair value curve that most closely aligns to the observed yields in the sample of bonds is a reasonable approach to estimating a benchmark debt risk premium for a rate of return commensurate with prevailing market conditions, as required by r. 87 of the NGR. The AER also considers that the fair value curve that most closely aligns to the observed yields in the sample of bonds represents the best estimate possible in the circumstances as required by r. 74(2)(b) of the NGR.

### **5.6.3.3 Issues raised in the revised access arrangement proposal—the fair value curves**

The revised access arrangement proposal raises the following issues in response to the draft decision. These can be classified into:

- the basis for the extrapolation of Bloomberg's BBB fair value curve
- further tests of CBASpectrum and Bloomberg
- augmentations to the AER's methodology including the use of sensitivity tests.

These issues are raised in the first PwC gas report submitted as part of the revised access arrangement proposal.<sup>947</sup> The AER's consideration of these issues is outlined below.

#### ***Extrapolation of Bloomberg's BBB fair value curve***

On 9 October 2007 Bloomberg ceased publishing values for the BBB fair value curve beyond a term of eight years. This requires the AER to establish a method to extrapolate the fair value curve from a term of 8 to 10 years. In order to do this the AER adds the spread between Bloomberg's 8 and 10 year A fair value estimates to the Bloomberg eight year BBB fair value estimate.<sup>948</sup>

However, on 19 August 2009 Bloomberg ceased publishing both its BBB and A rated fair yield estimates beyond a term of seven years. Consequently, the AER can no longer use the Bloomberg's A fair value curve to extrapolate Bloomberg's BBB curve to 10 years. For this reason the AER's methodology, as outlined below, uses empirical analysis of various extrapolation methods to determine the most reasonable method of extrapolating the BBB fair value curve.

Instead, the first PwC gas report proposes to use a linear extrapolation methodology to estimate a 10 year BBB fair value curve. The first PwC gas report methodology involves taking the difference between the seven and five year maturity debt risk premium on the Bloomberg BBB fair value curve and extending this difference out to 10 years. This can be thought of as putting a straight line between the seven and five year points and simply continuing this line out to 10 years. The first PwC gas report outlines that this is an appropriate method to extrapolate Bloomberg's fair value curve as it proposes that there is theoretical evidence that a linear extrapolation is appropriate for bonds with longer maturities.<sup>949</sup> The AER notes an inconsistency in

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947 PwC, *The benchmark cost of debt for a gas distributor*, March 2010.

948 Bloomberg's BBB fair value estimates are assumed to approximate BBB+ fair values estimates due to the estimation technique employed and the market being disproportionately weighted with BBB+ rated bonds.

949 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, pp. 30–35.

other areas of the revised access arrangement proposal, such as the demand forecast, that linear extrapolation is criticised.<sup>950</sup>

The AER considers that its methodology which relies on measuring the accuracy of different extrapolation methods is more likely to provide reliable conclusions than reliance on theory alone as the first PwC gas report does. The AER considers a number of possible data sources for extrapolating Bloomberg's fair value curve. The data sources are:

- Bloomberg's AA and AAA fair value curves
- Bloomberg's CGS fair value curve
- Bloomberg's semi-government fair value curves (NSW, VIC, QLD and WA)
- Bloomberg's interest rate swaps curve
- a linear extrapolation based on the spread between the Bloomberg BBB five and seven year fair value estimates
- a linear extrapolation based on the spread between the Bloomberg BBB five and seven year debt risk premium estimates.

For the first four data sources the difference between the seven and 10 year yield is used to extrapolate Bloomberg's BBB fair value curve to a term of 10 years. For the last two data sources the difference in maturity between the yields or debt risk premiums is only 2 years so the spread is multiplied by 1.5 to estimate a three year spread.

The AER compares each extrapolated 10 year curve to the Bloomberg BBB fair value curve over the period from 10 November 2005 to 9 October 2007. This period is selected because it represents the most recent period for which Bloomberg's BBB fair value curve out to 10 years is available.

The difference between the extrapolated curve and the actual Bloomberg BBB fair value curve on each day during the period is squared and then averaged. This measurement is called the average squared error. A lower average squared error indicates a more accurate extrapolation. That is, the lowest average squared error indicates the best estimate of the fair value curve possible in the circumstances.<sup>951</sup> The results of this analysis are shown in table 5.6.

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950 JGN, *Initial response to the draft decision*, March 2010, pp. 207–209.

951 NGR, r. 74(2)(b).

**Table 5.6: Results of testing of extrapolation methods**

|  | Average squared error |
|--|-----------------------|
| Bloomberg AA                           | na <sup>a</sup>       |
| Bloomberg AAA                          | 0.0025                |
| Bloomberg CGS                          | 0.0041                |
| Bloomberg NSW                          | 0.0048                |
| Bloomberg VIC                          | 0.0053                |
| Bloomberg QLD                          | 0.0047                |
| Bloomberg WA                           | 0.0049                |
| Bloomberg interest swaps               | 0.0047                |
| Linear (based on yields)               | 0.0122                |
| Linear<br>(based on debt risk premium) | 0.0352                |

Source: AER analysis, Bloomberg.

na: Not available.

a: This data is unavailable as Bloomberg did not publish a AA fair value curve over the required maturities during the period under consideration.

The AER notes that both linear extrapolation methods shown in table 5.6 do not provide a good match to the actual Bloomberg BBB fair value curve. On this basis, the AER considers that a linear extrapolation methodology may not be a reasonable basis to provide a best estimate for the 10 year fair value yield.<sup>952</sup>

The AER also considers that there are limitations with the theoretical evidence used in the first PwC gas report to support the linear extrapolation methodology. Most of the evidence presented to show the theoretical support for a linear extrapolation methodology in the first PwC gas report is actually empirical. Further, this empirical analysis does not directly support the linear relationship between the term to maturity and the debt risk premium.<sup>953</sup> Empirical evidence is provided to support the linear relationship between the term to maturity and the cumulative default risk. However, a linear relationship between the term to maturity and the cumulative default risk does not necessarily imply a linear relationship between term to maturity and the debt risk premium.

The AER considers that in the current circumstances, where the Bloomberg BBB fair value curve does not extend to a maturity of 10 years, an empirical approach which tests and compares different extrapolation methods allows for conclusions to be arrived at on a reasonable basis. The AER notes that if the theoretical arguments proposed in the first PwC gas report are of importance then they will be reflected in

952 NGR r. 74(2).

953 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, pp. 30–33.

the results of empirical testing. This is because an accurate theory will be reflected in the data and the AER's testing approach will select the extrapolation method which most accurately reflects the data.

The second PwC gas report raises a number of additional issues:

- the AER's testing method uses the average squared error rather than the preferred average error test in the first PwC gas report and the second PwC gas report<sup>954</sup>
- the AER's conclusion that Bloomberg's AAA curve should be used to extrapolate Bloomberg's BBB curve is sensitive to the time period used for testing<sup>955</sup>
- theory suggests that the slope of yield curves for bonds with different credit ratings will be different.<sup>956</sup>

The AER considers that the average squared error test used in its analysis performs better than the average error test proposed in the second PwC gas report. The reasons for this are discussed further below. The AER also notes that changing the testing method does not alter the AER's earlier conclusions.

The AER has analysed the period from 10 November 2005 to 9 October 2007 as it represents the most recent period for which Bloomberg's BBB fair value curve to a term of 10 year is available. Bloomberg's BBB fair value curve to 10 year was also available in the periods December 2001 to March 2002 and mid 2003 to late 2004.

The AER's analysis indicates that the linear extrapolation methods perform poorly in the period from mid 2003 to late 2004. In the period from December 2001 to March 2002 the linear extrapolation method based on the debt risk premium performs slightly better than the extrapolation method using the spread between the seven and 10 year term on Bloomberg's AAA fair value curves. However, the AER agrees with the second PwC gas report that this period has relatively few observations and may be influenced by the uncertainty of future terrorist attacks in the aftermath of the September 11 attacks in New York.<sup>957</sup> The AER does not consider that the market uncertainty existing in late 2001 and early 2002 is necessarily reflective of prevailing market conditions or those that may operate in the access arrangement period. The AER therefore considers that the period from December 2001 to March 2002 should not be used as the basis for selecting the method to extrapolate Bloomberg's BBB fair value curve to a term of 10 years.

The AER acknowledges the theoretical argument raised in the second PwC gas report that bonds with lower credit ratings should, other things being equal, be expected to have a higher yield.<sup>958</sup> However, as stated above, the AER considers that an empirical

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954 PwC, *Update of cost of debt methodology*, April 2010, pp. 6–7 and PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 29.

955 PwC, *Update of cost of debt methodology*, April 2010, pp. 7–8.

956 PwC, *Update of cost of debt methodology*, April 2010, p. 8.

957 PwC, *Update of cost of debt methodology*, April 2010, pp. 7–8.

958 PwC, *Update of cost of debt methodology*, April 2010, p. 8.

approach which tests and compares different extrapolation methods is likely to provide the most reliable estimates possible in the circumstances.

As the spread between Bloomberg's AAA 7 and 10 year fair value estimates provides the closest match to the BBB fair value curve, the AER considers that applying this spread provides a reasonable approach to extrapolating Bloomberg's BBB fair value curve to a term of 10 years.

***Further proposed tests of CBASpectrum and Bloomberg***

The first PwC gas report proposes the following three tests to determine whether the bond yield estimates produced by CBASpectrum and Bloomberg are likely to represent prevailing conditions in the market for funds:

- divergence in bank opinions
- divergence of fair value yields from bank opinions
- divergence of fair value curves from observed yields.<sup>959</sup>

The first test, divergence in bank opinions, looks at the variance in observed yields provided by market participants to Bloomberg. This test seeks to identify whether there is general market consensus on bond yields. This is largely a test of available market data on observed bond yields and of the quality of information available from the bond market. It is not used to draw any conclusions about CBASpectrum or Bloomberg but rather to ensure that current market data provides reliable information.

The second test, divergence of fair value yields from bank opinions, compares the difference in observed yields of bonds reported by Bloomberg and CBASpectrum to the average of the observed yield of bonds based on the information given by banks to Bloomberg. The first PwC gas report outlines that if this difference is less than  $\pm 2.5$  per cent then the data provider passes the test.<sup>960</sup> That is, the data provider's yields are representative of bank opinion.

The AER makes four main observations regarding this test. First, the AER considers that the first PwC gas report does not establish that a data service provider is more reliable because it reflects the central tendency of the inputs used in the data service providers' estimation methodology. Second, the AER considers that the  $\pm 2.5$  per cent range is arbitrary. This range is derived from the PwC electricity report and the extent of the justification given in that report is considering the historical values.<sup>961</sup> Second, it would be expected that the Bloomberg's reported observed yields should perform relatively better in this test. This is because the test is based on a comparison of observed yields to the average observed bond yields provided to Bloomberg by banks. It is precisely this information which Bloomberg uses to derive its reported observed yields. That is, this test effectively tests Bloomberg's reported observed yields against Bloomberg's input data and CBASpectrum's reported observed yields against Bloomberg's data. Third, the AER notes that for the relevant credit rating, BBB+,

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959 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, pp. 26–29.

960 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 26.

961 PwC, *Methodology to estimate the debt risk premium*, November 2009, p. 25.

CBASpectrum actually outperforms Bloomberg according to these test results. CBASpectrum has a test value of 0.010 while Bloomberg has a test value of 0.012.<sup>962</sup>

The third test, divergence of fair value curves from observed yields, compares CBASpectrum's fair value curve to observed yields reported by CBASpectrum. This approach is similar to that used by the AER in the draft decision.<sup>963</sup> However, it only compares each data provider's fair value curve with its own observed yield data. The first PwC gas report submits that if this difference is less than  $\pm 4$  per cent then the data provider passes the test.<sup>964</sup>

As indicated above in relation to the  $\pm 2.5$  per cent range, the AER considers that the  $\pm 4$  per cent threshold is similarly not determined on a rigorous basis. The AER considers that this test's use of the average error test, described in more detail below and proposed in the PwC electricity report, the first PwC gas report and the second PwC gas report may be problematic.<sup>965</sup> The reasons for this are also outlined below.

Overall, the AER considers that the further tests proposed in the first PwC gas report do not provide additional support for the conclusion that either Bloomberg or CBASpectrum use, or provide, inappropriate data.

Moreover, given that both Bloomberg and CBASpectrum generate their fair value curves using proprietary methods, it is inappropriate to speculate on the relative merits of the methodologies employed by these data service providers. The AER does not consider a reliable conclusion can be made regarding the selection of input data or mathematical formulation of the fair value curves without an understanding of the methodology used. While the methodologies utilised by Bloomberg and CBASpectrum have been subjected to scrutiny through the AER's recent regulatory review processes, the AER acknowledges that they are not completely transparent to stakeholders. A fully transparent method may be preferred and developed in the future, but at present the AER relies on the fact that Bloomberg and CBASpectrum are experienced market operators who use their knowledge and expert judgement to establish best estimates.

***Proposed augmentations to the AER's methodology including sensitivity analysis***

The first PwC gas report slightly modifies the AER's methodology used in the draft decision to select a fair value curve.<sup>966</sup> The two main modifications are the introduction of the average error test and sensitivity analysis of the minimum term to maturity.<sup>967</sup> The AER notes that the second PwC gas report submits that the conclusions from the first PwC gas report are still valid.<sup>968</sup>

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962 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 39.

963 AER, *Draft decision*, February 2010, pp. 134–140.

964 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 15.

965 PwC, *Methodology to estimate the debt risk premium*, November 2009, p. 26.; PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 29; and PwC, *Update of cost of debt methodology*, April 2010, p. 7.

966 AER, *Draft decision*, February 2010, pp. 134–140.

967 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, pp. 16–17.

968 PwC, *Update of cost of debt methodology*, April 2010, p. 3.

The first PwC gas report outlines that the average error test is 'preferred' by it for measuring the difference between observed yields and fair value curves, as opposed to the weighted sum of squared errors test employed by the AER.<sup>969</sup>

The average error test is defined in the first PwC gas report as:

$$\text{Average Error}_r = \frac{1}{n} \sum (FVC_n - \text{Yield}_{rt})$$

Where: FVC is the fair value of the nth bond

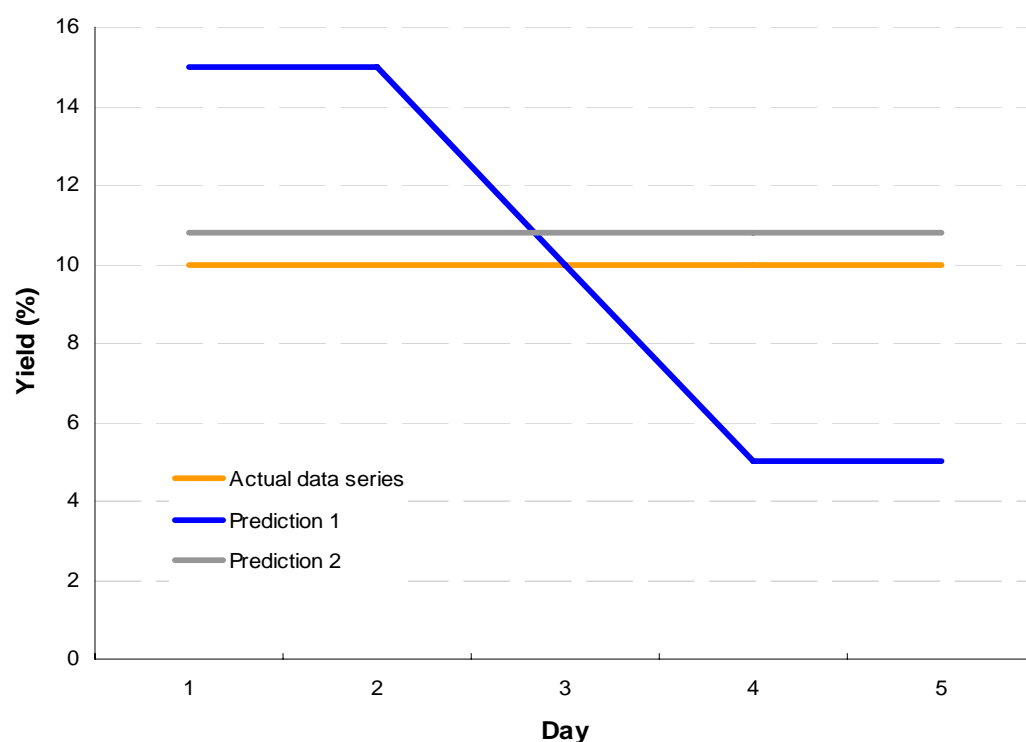
r is credit rating

n is the number of bonds

t is the term to maturity.<sup>970</sup>

The AER considers that there are significant issues with the average error test which make it unsuitable for measuring goodness of fit as intended in the first PwC gas report. This is best expressed using a hypothetical example as shown in Figure 5.1 and table 5.7.

**Figure 5.1: A hypothetical example of calculating the average error**



Source: AER analysis.

<sup>969</sup> PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 19.

<sup>970</sup> PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 29.



**Table 5.7: A hypothetical example of calculating the average error**

|                     |      |      |      |      |      | Total | Average |
|---------------------|------|------|------|------|------|-------|---------|
| Day number          | 1    | 2    | 3    | 4    | 5    |       |         |
| Observed yield data | 10   | 10   | 10   | 10   | 10   |       | 10      |
| Prediction 1        | 15   | 15   | 10   | 5    | 5    |       |         |
| Error               | 5    | 5    | 0    | -5   | -5   | 0     | 0       |
| Squared error       | 25   | 25   | 0    | 25   | 25   | 100   | 20      |
| Prediction 2        | 10.8 | 10.8 | 10.8 | 10.8 | 10.8 |       | 10.8    |
| Error               | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 4     | 0.8     |
| Squared error       | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 3.2   | 0.64    |

Source: AER analysis.

In this hypothetical example, an observed data series which has a stable yield of 10 per cent over the time period is considered. Prediction one initially starts off higher and then becomes lower than the observed data series while prediction two sits very close to the observed data series throughout the entire time period. It is clear that prediction two provides a better estimate of the observed data compared to prediction one. However, the average error test, which is preferred in the first PwC gas report, indicates that prediction one provides a better estimate of the observed data, as it has an average error closer to zero. This is because the over estimates and under estimates of bond yields observed over the period cancel each other out when calculating the average. This result is in contrast to the average sum of squared error test which indicates that prediction two provides a better estimate of the actual data. The weighted sum of squared errors test used by the AER is simply an extension of the average sum of squared error test presented in table 5.7 and illustrated in figure 5.1 that is adapted to a situation where yields on multiple bonds are considered.

As a result of the problems inherent in the average error test illustrated above, the AER does not consider it appropriate to rely on conclusions drawn from this test. Notwithstanding this, the AER notes that the first PwC gas report finds that the average error test indicates that CBASpectrum provides a better fit to observed bond yields when applied to the proxy averaging period for the draft decision.<sup>971</sup>

971 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 41.

The AER also has issues with the proposed sensitivity tests in the first PwC gas report.<sup>972</sup> As outlined above, the AER only includes bonds with a maturity of two years or more in the sample used for its analysis. The first PwC gas report conducts tests to determine how sensitive the AER's methodology is to changes in this minimum term to maturity of bonds in the sample.<sup>973</sup>

The sensitivity tests are conducted by successively raising the minimum term to maturity used in defining the sample of bonds. However, the major effect of this sensitivity testing is to decrease the number of bonds under consideration. In the case where the minimum maturity is raised to five years there is only one bond left in the sample.<sup>974</sup>

The AER considers that, given the already limited number of bonds in the sample, it is not appropriate to consider sensitivity tests which function primarily to further reduce the sample size. The AER notes that the first PwC gas report also outlines this issue when it states that in some cases the size of this sample does not permit firm conclusions to be drawn.<sup>975</sup>

The AER therefore does not consider that the augmentations to the AER's methodology proposed in the first PwC gas report are appropriate for the final decision.

#### **5.6.3.4 Selection of the fair value curve using the AER's methodology**

Having considered the issues raised in the revised access arrangement proposal and submissions the AER maintains the methodology for selecting a fair value curve that was used in the draft decision and which has been outlined above.

As outlined step one of the AER's methodology is to identify the population of BBB+ bonds from which the sample of bonds is drawn. For the final decision, the relevant population of BBB+ bonds is set out in table 5.8.

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972 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 17.

973 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, pp. 16–17.

974 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 41.

975 PwC, *The benchmark cost of debt for a gas distributor*, March 2010, p. 40.

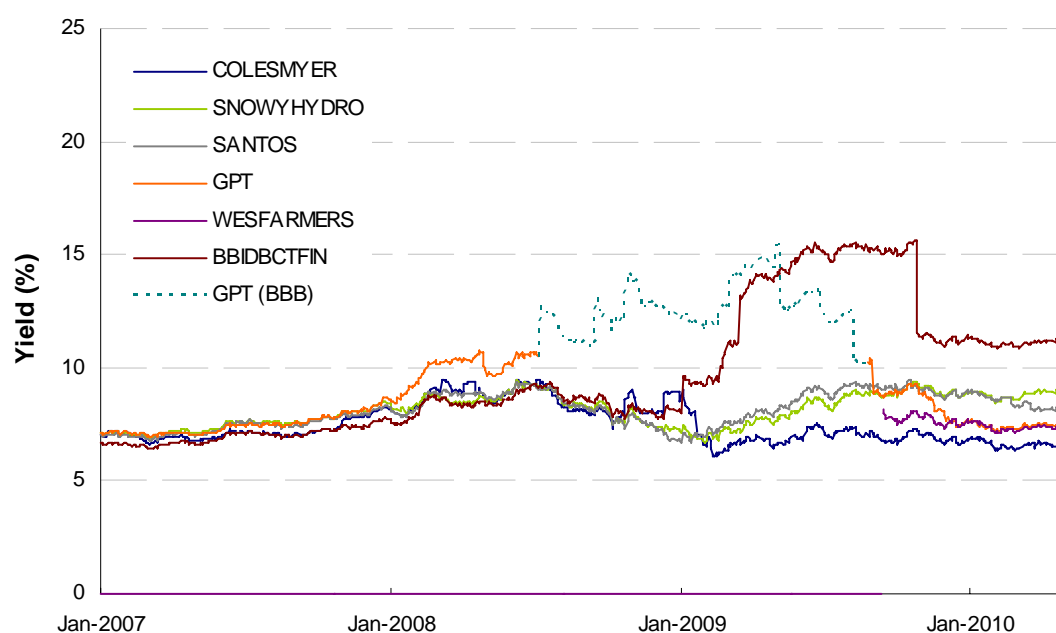
**Table 5.8: Population of BBB+ rated corporate bonds**

| Issuer                           | Maturity          | ISIN         |
|----------------------------------|-------------------|--------------|
| Coles Myer                       | 25 July 2012      | AU300CML1014 |
| Snowy Hydro                      | 25 February 2013  | AU000SHL0034 |
| GPT                              | 22 August 2013    | AU300GPTM218 |
| Wesfarmers                       | 11 November 2014  | AU3CB0126860 |
| Santos                           | 23 September 2015 | AU300ST50076 |
| Babcock and Brown Infrastructure | 9 June 2016       | AU300BBIF018 |

Source: Bloomberg; CBASpectrum; UBS, Rate sheet.

In step two, prior to selecting the relevant fair value curve, the AER identifies outliers in the population of bonds, to determine the relevant sample of bonds for analysis.

On examination of the data, the AER considers that the period beginning in early 2009 may represent a structural change impacting the underlying value of the Babcock and Brown Infrastructure (BBI) bond.

**Figure 5.2: Yields on the population of bonds, UBS**

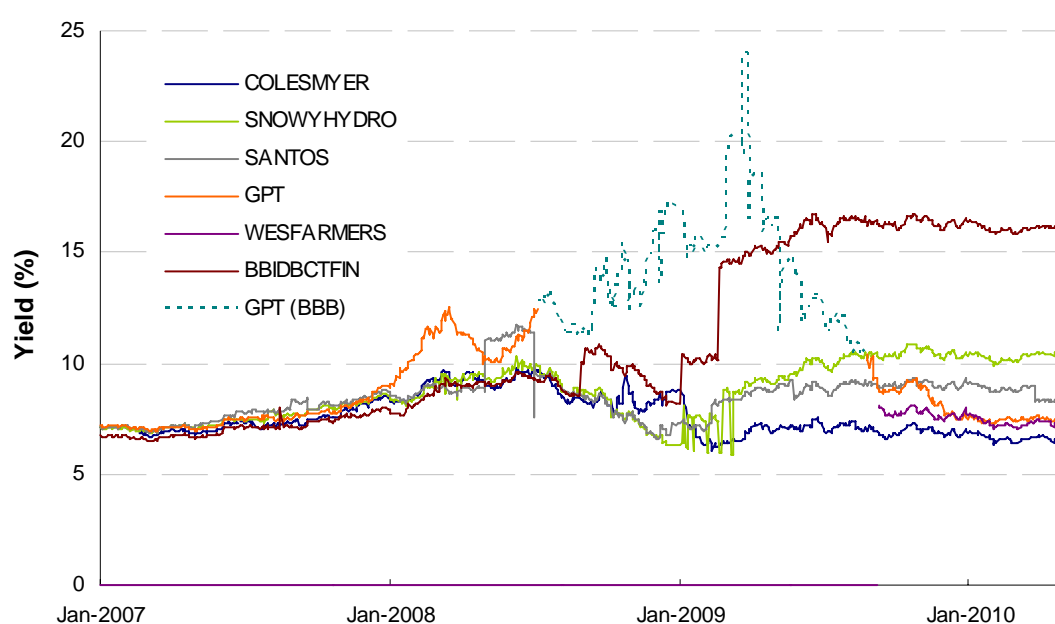
Source: UBS, Rate sheet.

As shown in figure 5.2, based on data from UBS, the average observed yield for the BBI bond was 7.4 per cent between June 2006 and December 2008 but this increases significantly to 12.7 per cent between January 2009 and May 2010. Based on this initial inspection, the Chow test on the spread between the yields on the BBI bond and CGS indicates that the change in yield is also statistically significant. The AER also

considers market developments in late 2008 and early 2009, which include the voluntary suspension of trading in Babcock and Brown shares and attempts to de-link Babcock and Brown and its associated companies, are likely to affect the reliability of the observed yield for the BBI bond.<sup>976</sup> A majority of the statistical tests used indicate that after late 2008, the yield on the BBI bond is an outlier when compared with other bonds in the population.<sup>977</sup>

As an additional consideration, the AER also compares the UBS data with the CBASpectrum data, as shown in Figure 5.3. This review shows that the CBASpectrum data does not exhibit the second period of structural change in late 2009 that is observed in the UBS data.

**Figure 5.3: Yields on the population of bonds, CBASpectrum**



Source: CBASpectrum

The AER considers that this provides additional evidence that even in late 2009 there is significant divergence in yields for the BBI bond, as reported by CBASpectrum and UBS, suggesting the observed yield for this bond is unreliable and cannot be included in the sample for analysis.

As a result of this analysis the AER considers that the BBI bond should be excluded from the sample of BBB+ rated bonds that is used in the comparison of fair value curves to observed yields.

976 Bloomberg, Babcock extends trading halt as rescue talks continue, January 12 2009, viewed 7 May 2010, <<http://www.bloomberg.com/apps/news?pid=20601081&sid=afLoWqxGcWFM&refer=australia>>.

977 The statistical tests used are Chauvenet's test, the classical outlier test and the box plot test. These tests are applied to the spread to the CGS.

Once step two of the AER's methodology is complete and the sample of bonds is identified, the AER undertakes step three to test the sample of observed bond yields against the fair value estimates from Bloomberg and CBASpectrum.

Table 5.9 outlines the average yields observed from Bloomberg, CBASpectrum and UBS, and average fair value estimates for the sample of bonds over the averaging period, 8 April 2010 to 6 May 2010.

**Table 5.9: Sample of BBB+ bonds—observed yields and fair values between 8 April to 6 May 2010 (%)**

| Issuer      | Average observed yield |             |      | Average fair value yield |             |
|-------------|------------------------|-------------|------|--------------------------|-------------|
|             | Bloomberg              | CBASpectrum | UBS  | Bloomberg                | CBASpectrum |
| Coles Myer  | 6.67                   | 6.58        | 6.51 | 7.30                     | 7.28        |
| Snowy Hydro | 8.64                   | 10.42       | 8.95 | 7.57                     | 7.60        |
| GPT         | 7.47                   | 7.43        | 7.39 | 7.79                     | 7.77        |
| Wesfarmers  | 7.32                   | 7.30        | 7.29 | 8.32                     | 8.03        |
| Santos      | 9.39                   | 8.31        | 8.17 | 8.83                     | 8.21        |

Source: Bloomberg; CBASpectrum; UBS; AER analysis.

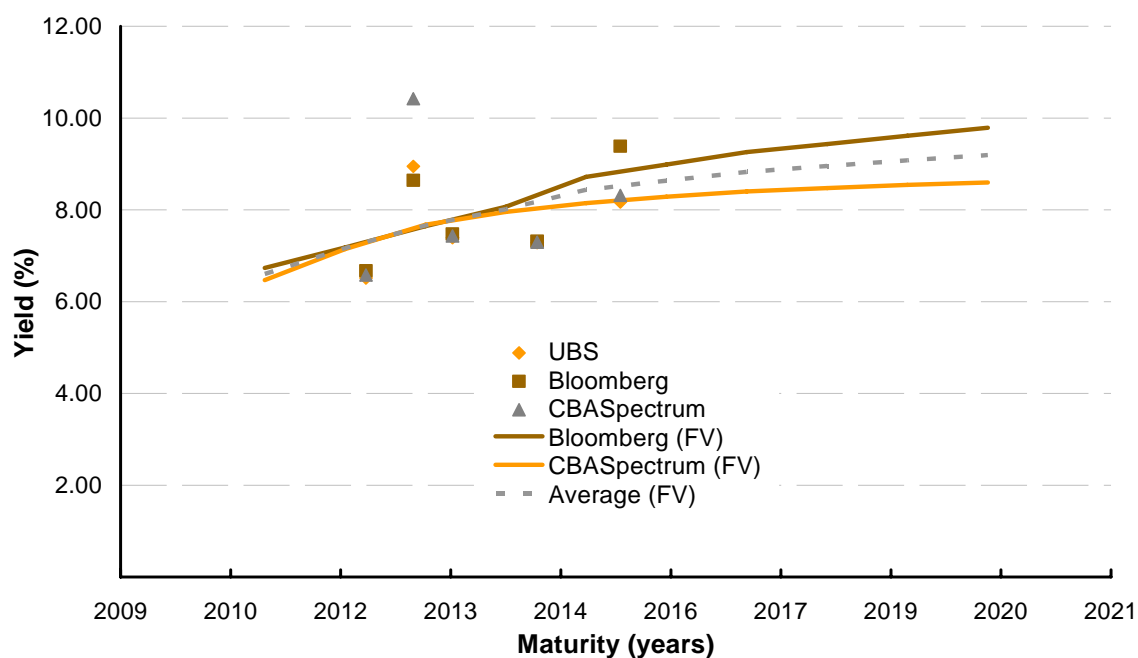
The observed yields are compared to the Bloomberg BBB fair value curve, the CBASpectrum BBB+ fair value curve and an average of the two curves using the weighted sum of squared errors. Table 5.10 and Figure 5.4 show the results.

**Table 5.10: Fair value and observed yield analysis using weighted sum of squared errors between 8 April to 6 May 2010 (%)**

|                    |             | Fair value source |             |         |
|--------------------|-------------|-------------------|-------------|---------|
|                    |             | Bloomberg         | CBASpectrum | Average |
| Observation source | UBS         | 0.84              | 0.63        | 0.71    |
|                    | Bloomberg   | 0.60              | 0.71        | 0.63    |
|                    | CBASpectrum | 2.02              | 1.83        | 1.90    |

Source: Bloomberg; CBASpectrum; UBS; AER analysis.

**Figure 5.4: Fair value and observed yield analysis**



Source: Bloomberg; CBASpectrum; UBS; AER analysis.

For the sample of bonds over the 20 day averaging period of 8 April to 6 May 2010, CBASpectrum's BBB+ fair value curve best matches the observed yields. This is because CBASpectrum's BBB+ fair value curve has the smallest weighted sum of squared errors for observations from both CBASpectrum and UBS. The weighted sum of squared errors is a mathematical formula which provides a measure of how closely each fair value curve fits observed bond yields. A smaller value indicates a better fit. Therefore, the AER considers that CBASpectrum's BBB+ fair value curve provides estimates which are more closely aligned to observed yields for a sample of BBB+ bonds.

#### 5.6.4 Summary on debt risk premium

Based on its analysis conducted over the averaging period, using the AER's methodology, the AER considers that CBASpectrum's fair value curve provides estimates which are more closely aligned to observed yields for a sample of BBB+ bonds. The AER's approach has been put in place to reduce the need for an arbitrary selection of the data source used to estimate the debt risk premium. The AER considers that its approach results in an estimate of the benchmark debt risk premium that is arrived at on a reasonable basis and represents the best estimate possible in the circumstances, as required by r. 74(2) of the NGR. The AER's approach to estimating the debt risk premium is also consistent with r. 87(1) of the NGR, which requires the rate of return on capital to be commensurate with prevailing market conditions and the risks involved in providing reference services.<sup>978</sup> The AER's approach is consistent with the revenue and pricing principles set out in section 24 of the NGL and will or is likely to contribute to the achievement of the NGO in section 23 of the NGL.

<sup>978</sup> Rule 87 of the NGR is a full discretion rule.

The benchmark debt risk premium is estimated by averaging the yield on a 10 year corporate bond over the averaging period between 8 April 2010 and 6 May 2010 (to match the period used for the risk-free rate). The resulting debt risk premium is 2.93 per cent. Adding this debt risk premium to the risk-free rate of 5.85 per cent provides a return on debt of 8.78 per cent, which is 1.28 per cent below that proposed in the revised access arrangement proposal,<sup>979</sup> as set out in section 5.8.

## 5.7 Inflation forecast

### 5.7.1 Revised access arrangement proposal

The revised access arrangement proposes an inflation forecast of 2.52 per cent using the methodology in the draft decision.

### 5.7.2 AER's analysis and considerations

As outlined in the draft decision, the AER's approach to estimate the inflation forecast over a 10-year period is to apply the Reserve Bank of Australia's (RBA) short-term inflation forecasts for the first two years and the mid-point of the RBA's target inflation band beyond that period (i.e. 2.5 per cent) for the remaining eight years. An implied 10-year inflation forecast is derived by estimating the geometric average of these individual forecasts.<sup>980</sup>

In the draft decision, the AER outlines that the estimate of expected inflation is to be updated with the latest available RBA forecasts close to the time of the final decision.<sup>981</sup> As a consequence, the AER uses an updated inflation forecast of 2.60 per cent per annum as the best estimate<sup>982</sup> of a 10-year inflation forecast for the final decision.<sup>983</sup> Table 5.11 shows the estimation of the inflation forecast for the access arrangement period using RBA data.

**Table 5.11: Final decision on inflation forecast (%)**

|                       | June<br>2011 | June<br>2012 | June<br>2013 | June<br>2014 | June<br>2015 | June<br>2016 | June<br>2017 | June<br>2018 | June<br>2019 | June<br>2020 | Geometric<br>average |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------------|
| Forecast<br>inflation | 3.00         | 3.00         | 2.50         | 2.50         | 2.50         | 2.50         | 2.50         | 2.50         | 2.50         | 2.50         | 2.60                 |

Source: RBA, *Statement on monetary policy*, 7 May 2010, p. 56.

979 JGN, *Revised access arrangement information*, March 2010, pp. 31–36.

980 AER, *Draft decision*, February 2010, pp. 141–142.

981 AER, *Draft decision*, February 2010, pp. 141–142.

982 NGR, r. 74(2).

983 The current RBA forecasts are available at [www.rba.gov.au](http://www.rba.gov.au). The current target inflation band is between 2 and 3 per cent per annum; see Treasurer and the Governor of the Reserve Bank of Australia, *Joint statement on the conduct of monetary policy*, 6 December 2007; viewed 31 March 2010, <<http://www.rba.gov.au/monetary-policy/inflation-target.html>>.

## 5.8 Conclusion

The AER does not approve the nominal vanilla WACC of 10.86 per cent specified in the revised access arrangement proposal as it does not comply with r. 74(2) and r. 87 of the NGR.

The AER estimates a nominal vanilla WACC of 9.69 per cent for JGN, based on the updated risk-free rate and debt risk premium. Table 5.12 sets out the WACC parameter values for the final decision and provides a comparison with the values submitted in the revised access arrangement proposal. The WACC is lower than that in the revised access arrangement proposal due to the use of the CAPM for estimating the return on equity instead of the FFM, and updated cost of debt.

**Table 5.12: Final decision on WACC parameters (units as stated)**

| Parameter                            | Revised access arrangement proposal | Final decision     |
|--------------------------------------|-------------------------------------|--------------------|
| Nominal risk-free rate (%)           | 5.58 <sup>a</sup>                   | 5.85 <sup>b</sup>  |
| Inflation rate (%)                   | 2.52 <sup>a</sup>                   | 2.60 <sup>c</sup>  |
| Real risk-free rate (%)              | 2.98                                | 3.17 <sup>b</sup>  |
| Equity beta <sup>d</sup>             | na                                  | 0.80               |
| Market beta <sup>e</sup>             | 0.59                                | na                 |
| Growth beta <sup>e</sup>             | 0.48                                | na                 |
| Size beta <sup>e</sup>               | 0.30                                | na                 |
| Market risk premium (%) <sup>f</sup> | 6.5                                 | 6.5                |
| Growth risk premium (%) <sup>f</sup> | 6.24                                | na                 |
| Size risk premium (%) <sup>f</sup>   | -1.23                               | na                 |
| Debt risk premium (%)                | 4.48                                | 2.93 <sup>b</sup>  |
| Debt to total assets (gearing) (%)   | 60                                  | 60                 |
| Nominal return on equity (%)         | 12.04                               | 11.05 <sup>b</sup> |
| Nominal return on debt (%)           | 10.06                               | 8.78 <sup>b</sup>  |
| Nominal vanilla WACC (%)             | 10.86                               | 9.69 <sup>b</sup>  |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 31–32.

a: JGN has adopted the AER methodologies to estimate the risk-free rate and inflation forecast.

b: These figures have been updated using data for the 20 business days averaging period ending on 6 May 2010.

c: This figure has been updated using the latest data from the RBA's statement on monetary policy dated 7 May 2010, p. 56.

d: Equity beta is used in the CAPM but not the FFM.

e: The FFM uses three beta values (market beta, growth beta and size beta) to predict equity returns.



- f. The FFM uses a market risk premium (MRP), a growth risk premium for high book-to-market firms, and a size risk premium for small firms compared to large firms.

## 5.9 Revisions

The AER proposes the following revisions:

**Revision 5.1:** amend the revised access arrangement information to delete Table 8.1 and replace it with the following:

**Table 5.13: WACC parameters for the access arrangement period (units as stated)**

| Parameter                          |             |
|------------------------------------|-------------|
| Nominal risk-free rate (%)         | 5.8         |
| Inflation rate (%)                 | 2.60        |
| Real risk-free rate (%)            | 3.17        |
| Equity beta                        | 0.80        |
| Market risk premium (%)            | 6.5         |
| Debt risk premium (%)              | 2.93        |
| Debt to total assets (gearing) (%) | 60          |
| Nominal return on equity (%)       | 11.05       |
| Nominal return on debt (%)         | 8.78        |
| <b>Nominal vanilla WACC (%)</b>    | <b>9.69</b> |

**Revision 5.2:** amend the revised access arrangement information to delete Table 8.3.

**Revision 5.3:** amend the revised access arrangement information to delete Table 8.4.

**Revision 5.4:** amend schedule 1 of the revised access arrangement proposal to delete 'real pre-tax' in the definition of WACC in clause 1.1 and replace it with 'nominal vanilla'.

**Revision 5.5:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revisions 5.1 to 5.4.

## 6 Taxation

### 6.1 Introduction

This chapter sets out the AER's analysis and consideration of the revised access arrangement proposal's approach to estimating taxation for the access arrangement period. This includes the assumed value of imputation credits (gamma) to shareholders.

Under the imputation taxation system operating in Australia, resident investors are able to offset their taxation liabilities using imputation credits attached to dividend earnings. Any imputation credits in excess of an investor's taxation liabilities can be claimed by the investor as a taxation rebate. This means there is an inverse relationship between the assumed value of imputation credits and the building block for taxation.

### 6.2 Revised access arrangement proposal

#### 6.2.1 Estimation of taxation and opening taxation asset base

The revised access arrangement proposal accepts amendments 6.1–6.6 and 6.13 of the draft decision to use a post-taxation framework to estimate total revenue.<sup>984</sup> This approach involves estimating the building block for the cost of corporate income taxation. JGN proposes to estimate the cost of corporate income taxation as:

$$ETC = (ETI \times r)(1 - \gamma)$$

Where:

- ETI is the estimate of taxable income for the year
- $r$  is the tax rate
- $\gamma$  is the assumed utilisation of imputation credits (gamma).<sup>985</sup>

The revised access arrangement proposal does not accept amendments 6.7–6.11 and 6.13 to use straight line depreciation to estimate the opening taxation asset base. Instead the revised access arrangement proposal takes a diminishing value approach to estimate the opening taxation asset base.<sup>986</sup>

#### 6.2.2 Assumed value of imputation credits

The revised access arrangement proposal incorporates a value for imputation credits in estimating the taxation building block. The assumed value of imputation credits is represented by gamma ( $\gamma$ ) in the equation above. As imputation credits provide a benefit to investors, a lower gamma value will increase taxation and vice versa.

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984 JGN, *Initial response to the draft decision*, March 2010, p. 132.

985 JGN, *Initial response to the draft decision*, March 2010, p. 132.

986 JGN, *Initial response to the draft decision*, March 2010, p. 132.

The revised access arrangement proposal does not accept the draft decision amendment 6.12 requiring it to use a gamma value of 0.65 and instead proposes a gamma of 0.2, which is consistent with the access arrangement proposal.<sup>987</sup>

The revised access arrangement proposal accepts that gamma value should be estimated as a market wide parameter for the Australian economy.<sup>988</sup> The revised access arrangement proposal also agrees that gamma value should be defined as a product of the distribution rate of imputation credits (the payout ratio) and the utilisation rate of distributed imputation credits (theta).<sup>989</sup> This is illustrated by the following equation:

$$\text{Gamma } (\gamma) = \text{Payout ratio} \times \text{Utilisation rate of imputation credits (theta)}$$

The revised access arrangement proposal does not agree with the payout ratio or the estimate of theta used to estimate gamma value in the draft decision. The revised access arrangement proposal submits the following:<sup>990</sup>

- a payout ratio of 68 per cent based on a report by NERA Economic Consulting (NERA).<sup>991</sup> The revised access arrangement proposal submits this estimate is supported by reports from Emeritus Professor Robert Officer, Associate Professor Neville Hathaway, and Synergies Economic Consulting (Synergies)<sup>992</sup>
- a theta estimate of 0.23 based on a May 2009 study by Strategic Finance Group Consulting (May 2009 SFG study).<sup>993</sup> The revised access arrangement proposal submits that the issues raised in the draft decision with the May 2009 SFG study are addressed by reports from Associate Professor Christopher Skeels and SFG.<sup>994</sup>

The revised access arrangement proposal submits the approach of averaging theta estimates from taxation statistics and dividend drop-off studies used in the draft

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987 JGN, *Initial response to the draft decision*, March 2010, p. 136 and JGN, *Revised access arrangement information*, March 2010, pp. 31, 37.

988 JGN, *Initial response to the draft decision*, March 2010, p. 137.

989 JGN, *Initial response to the draft decision*, March 2010, p. 137.

990 JGN, *Initial response to the draft decision*, March 2010, pp. 137–141.

991 NERA, *Payout ratio of regulated firms*, 5 January 2010.

992 R.R. Officer, *Estimating the distribution rate of imputation tax credits: Questions raised by ETSA's Advisers*, 23 June 2009; N. Hathaway and R.R. Officer, *The value of imputation tax credits—Update 2004*, Capital Research Pty Ltd, November 2004; Synergies, *Gamma: New analysis using tax statistics*, 28 May 2009.

993 The 0.23 estimate of theta is cited in C. J. Skeels, *A Review of the SFG Dividend Drop-Off Study*, 28 August 2009, p. 5. The May 2009 SFG study updates estimates from a February 2009 SFG study prepared for the Joint Industry Associations' Submission to the AER's WACC review explanatory statement. See SFG, *The value of imputation credits as implied by the methodology of Beggs and Skeels (2006): Report prepared for ENA, APIA and Grid Australia*, 1 February 2009, available at <<http://www.aer.gov.au/content/index.phtml?itemId=726698>>.

994 Skeels, *Response to Australian Energy Regulator draft determination*, 13 January 2010; SFG, *Response to AER draft determination in relation to gamma*, 13 January 2010; SFG, *Further analysis in response to AER draft determination in relation to gamma*, 4 February 2010.

decision is not appropriate because taxation statistics do not represent economic values.<sup>995</sup>

JGN provides a further submission on gamma that includes a report from NERA (2010 NERA report on gamma).<sup>996</sup> The 2010 NERA report on gamma is provided in response to the Queensland and South Australian final determinations which refer to the advice from Professor Michael McKenzie and Associate Professor Graham Partington from the University of Sydney (McKenzie and Partington advice).<sup>997</sup> This decision refers to the 2010 NERA report on gamma which raises issues arising from the McKenzie and Partington advice.

## 6.3 Submissions

The AER received a submission from the Energy Markets Reform Forum (EMRF) in relation to gamma. The EMRF submits that the AER should adopt a gamma of 1.0 in the final decision.<sup>998</sup>

## 6.4 Consultants' review

The AER engaged consultants to provide expert advice on the issues raised by JGN relating to the estimation of gamma value.

The McKenzie and Partington advice relates to the estimation of gamma value focussing on dividend drop-off based estimates of theta (McKenzie and Partington advice).<sup>999</sup> The McKenzie and Partington advice reviews the May 2009 SFG dividend drop-off study submitted to support the proposed gamma value of 0.2 and finds significant data and methodological issues.<sup>1000</sup> The McKenzie and Partington advice also states that relying on one type of study such as the May 2009 SFG dividend drop-off study is inappropriate and that much more evidence can be cited to support the gamma value of 0.65 in the draft decision.<sup>1001</sup>

Associate Professor John Handley from the University of Melbourne provided advice on issues relating to the estimation of gamma value, focussing on conceptual matters and the use of taxation statistics in estimating theta (Handley advice).<sup>1002</sup> The Handley advice states the AER's approach of using both a dividend drop-off based and a taxation statistics based estimate of theta is appropriate.<sup>1003</sup>

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995 JGN, *Initial response to the draft decision*, March 2010, p. 141.

996 NERA, *New gamma issues raised by AER expert consultants*, May 2010.

997 M. McKenzie and G. Partington, *Report to the AER, Evidence and submissions on gamma*, March 2010 (McKenzie and Partington, *Evidence and submissions on gamma*, March 2010).

998 EMRF, *AER draft decision, a response by the Energy Markets Reform Forum*, April 2010, pp. 4, 58–59 (EMRF, *Submission to the AER*, April 2010).

999 M. McKenzie and G. Partington, *Report to the AER, Evidence and submissions on gamma*, March 2010 (McKenzie and Partington, *Evidence and submissions on gamma*, March 2010).

1000 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, pp. 4–5.

1001 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 4.

1002 J.C. Handley, *Report prepared for the Australian Energy Regulator on the estimation of gamma*, March 2010 (Handley, *Report on gamma*, March 2010).

1003 Handley, *Report on gamma*, March 2010, p. 32.

## 6.5 AER's analysis and considerations

### 6.5.1 Estimation of taxation and opening taxation asset base

The transition to a post-taxation framework requires a taxation asset base to be established. JGN proposes to establish its taxation asset base as at 1 July 1999.<sup>1004</sup> JGN proposes to roll this taxation asset base forward to 1 July 2010.<sup>1005</sup> The estimation of the opening taxation asset base requires an estimation of taxation depreciation.

Amendments 6.7–6.11 and 6.13 of the draft decision require JGN to use the straight line method to estimate taxation depreciation.<sup>1006</sup> However, the revised access arrangement proposal uses the diminishing value method to estimate taxation depreciation.<sup>1007</sup>

The draft decision requires the use of the straight line depreciation method as a uniform taxation rate over different access arrangement periods necessarily implies the use of a straight line depreciation method. The draft decision considers that the IPART's use of the corporate taxation rate over two access arrangement periods implies a uniform taxation rate.<sup>1008</sup>

The revised access arrangement proposal submits that the diminishing value method should be used for a number of reasons, including:

- the IPART's reasoning for the use of the corporate taxation rate does not support the draft decision<sup>1009</sup>
- the draft decision's taxation analysis is not based on any analysis<sup>1010</sup>
- taxation analysis in the revised access arrangement proposal comes to a different conclusion from the draft decision.<sup>1011</sup>

The AER does not accept that the draft decision's taxation analysis is not based on any analysis and notes that it has engaged in an analysis of the transition from pre-taxation to post-taxation frameworks.<sup>1012</sup> The result of this analysis does not show a strong preference for either the diminishing value or straight line depreciation

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1004 JGN, *Access arrangement information*, August 2009, appendix 9.3, p. 6.

1005 JGN, *Access arrangement information*, August 2009, appendix 9.3, p. 7.

1006 AER, *Draft decision*, February 2010, pp. 161–165.

1007 JGN, *Initial response to the draft decision*, March 2010, p. 132.

1008 AER, *Draft decision*, February 2010, p. 149.

1009 JGN, *Initial response to the draft decision*, March 2010, p. 135.

1010 JGN, *Initial response to the draft decision*, March 2010, pp. 135–136.

1011 JGN, *Initial response to the draft decision*, March 2010, pp. 135–136.

1012 AER, *Electricity distribution network service providers transition of energy businesses from pre-tax to post-tax regulation*, June 2007 and Ernst and Young, *Application of Tax Depreciation to Regulated Energy Entities for the period 1992 to 1 November 2006, Consultancy Report by Ernst & Young for the AER*, November 2006.

methods when calculating the opening taxation asset base.<sup>1013</sup> The AER considers that the draft decision is consistent with this analysis.

The AER acknowledges that the IPART's reasoning for the use of the corporate taxation rate does not appear to be related to the use of either the straight line or diminishing value approaches to depreciation.<sup>1014</sup> However, the AER maintains the view that an equal effective taxation rate between two access arrangement periods is more likely to occur using the straight line approach to depreciation rather than the diminishing value approach.<sup>1015</sup> The AER considers that an estimate of the effective taxation rate is unlikely to be equal to the corporate taxation rate.

The revised access arrangement proposal and the draft decision come to different conclusions on the cause of equal effective taxation rates between access arrangement periods.<sup>1016</sup> The revised access arrangement proposal uses an algebraic example to show that equal effective taxation rates between access arrangement periods requires certain conditions to be true and that these conditions are unlikely to hold in reality.<sup>1017</sup> The AER considers that the conditions outlined in the algebraic example are incorrect. The AER's analysis shows that effective taxation rates will be the same across two access arrangement periods where:

$$\frac{\text{Pre - taxation cash flows to equity}_1}{\text{Pre - taxation cash flows to equity}_2} = \frac{\text{taxation payable}_1}{\text{taxation payable}_2}$$

The AER considers that models which use certain assumptions can be constructed where this relationship holds. One of the assumptions required is that the model covers a period of time less than the assets remaining life. As discussed in the draft decision, the AER considers that correctly estimating the effective taxation rate requires modelling over the full life of the asset.<sup>1018</sup> The AER therefore considers this to be an unsatisfactory assumption.

Notwithstanding the above, the AER accepts the use of the diminishing value approach in the revised access arrangement proposal to estimate the opening taxation asset base as it considers that it is arrived at on a reasonable basis.<sup>1019</sup>

However, the AER notes that the estimated cost of corporate income taxation is estimated with reference to the other total revenue building blocks. This means that amendments required by the AER to capital and operating expenditure result in subsequent changes to the estimate of the opening taxation asset base and the cost of corporate income taxation. The estimated value of the opening taxation asset base and the cost of corporate income taxation need to be updated by the AER to provide the

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1013 AER, *Electricity distribution network service providers transition of energy businesses from pre-tax to post-tax regulation*, June 2007, p. 60.

1014 IPART, *Final decision access arrangement for AGL gas networks limited natural gas system in NSW*, July 2000, p. 66.

1015 AER, *Draft decision*, February 2010, p. 149.

1016 JGN, *Initial response to the draft decision*, March 2010, pp. 135–136.

1017 JGN, *Initial response to the draft decision*, March 2010, appendix 6.2 Effective tax rates (confidential).

1018 AER, *Draft decision*, February 2010, pp. 146–147.

1019 NGR, r. 74(2)(a).

best forecast possible in the circumstances.<sup>1020</sup> Therefore, the AER proposes the revisions set out in chapter 10.

## **6.5.2 Assumed value of imputation credits (gamma)**

### **6.5.2.1 Definition of gamma as a market wide parameter**

As noted in the draft decision, the AER considers that gamma should be estimated as a market wide parameter consistent with the approach taken in the final decision on the review of the weighted average cost of capital (WACC) parameters for electricity transmission and distribution network service providers (WACC review).<sup>1021</sup> The revised access arrangement proposal accepts this approach.<sup>1022</sup>

The EMRF submits that a gamma of one should be used. The EMRF states that JGN's revenue should be assessed as a notional (energy) business. The EMRF submits that the majority of regulated Australian energy business' assets are either government owned or held by Australian resident tax payers. The EMRF submits that, as a result, most investors in Australian energy transport businesses are able to fully utilise imputation credits.<sup>1023</sup>

The AER considers that it is difficult to determine the specific circumstances of energy network businesses in relation to imputation credits as distinct from the Australian market as a whole. This is due to the differing ownership structures of energy network businesses operating in Australia. The AER also notes the recent Queensland and South Australian electricity distribution determinations estimate gamma as a market wide parameter.<sup>1024</sup>

Given the difficulty in estimating the value of imputation credits for a notional energy network business and in the interest of maintaining regulatory consistency, the AER considers it appropriate to estimate gamma as a market wide parameter. This approach is consistent with the draft decision and the WACC review.<sup>1025</sup>

### **6.5.2.2 Market practice in relation to gamma**

The AER notes that the 2010 NERA report on gamma is provided in response to the Queensland and South Australian final determinations which refer to the McKenzie and Partington advice on the 2008 Truong, Partington and Peat study. This decision refers to the 2010 NERA report on gamma which raises issues arising from the McKenzie and Partington advice on the 2008 Truong, Partington and Peat study.<sup>1026</sup>

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1020 NGR, r. 74(2)(b).

1021 AER, *Draft decision*, February 2010, p. 149 and AER, *Final decision: WACC review*, May 2009, p. 394 (AER, *Final decision: WACC review*, May 2009).

1022 JGN, *Revised access arrangement proposal*, March 2010, p. 137.

1023 EMRF, *Submission to the AER*, April 2010, p. 59.

1024 AER, *Final decision: South Australia Distribution Determination*, May 2010; AER, *Final decision: Queensland Distribution Determination*, May 2010.

1025 AER, *Draft decision*, February 2010, pp. 145–160; AER, *Final decision: WACC review*, May 2009, pp. 393–466.

1026 AER, *Final decision: South Australia distribution determination*, May 2010, pp. 148–160; AER, *Final decision: Queensland Distribution Determination*, May 2010, pp. 214–226.

The 2010 NERA report on gamma submits that the 2008 Truong, Partington and Peat study<sup>1027</sup> indicates that market practitioners do not typically incorporate a value for gamma in valuations. The 2010 NERA report on gamma submits that this is probably because market practitioners consider that gamma is close to zero.<sup>1028</sup> The McKenzie and Partington advice notes the 2008 Truong, Partington and Peat study found that the 60 out of 73 survey respondents set the value of imputation credits to zero.<sup>1029</sup> However, the McKenzie and Partington advice also notes only 6 of the respondents who set gamma to zero did so because they considered imputation credits have no market value.<sup>1030</sup> This is illustrated in table 6.1.

The 2010 NERA report on gamma submits that, although the majority of respondents in the 2008 Truong, Partington and Peat study did not explicitly state that they consider imputation credits to be worthless, the survey responses do not provide support for a gamma of 0.65.<sup>1031</sup> The 2010 NERA report on gamma further suggests that by contacting the survey respondents it would be possible to determine what value they place on a dollar of imputation credits.<sup>1032</sup>

The AER considers that the 2008 Truong, Partington and Peat study indicates that, although many market practitioners may set a value for gamma of zero, this is not because they consider the value of imputation credits to be zero. As illustrated in table 6.1, many respondents stated that it was difficult to determine an appropriate value for gamma. For this reason, the AER does not consider that it would be reliable to solely rely on survey responses to estimate a value for gamma.

The AER also notes the 0.65 estimate of gamma from the draft decision and the WACC review was estimated using empirical studies, and was not estimated using the survey responses in the 2008 Truong, Partington and Peat study.<sup>1033</sup> Consistent with the draft decision and the WACC review, the AER considers a reasonable basis for determining the best estimate or forecast for gamma is to use estimates from reliable empirical studies.

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1027 Truong, Partington and Peat, 'Cost of capital estimation and capital budgeting practice in Australia,' *Australian Journal of Management*, 2008, p. 115.

1028 NERA, *New gamma issues raised by AER expert consultants*, May 2010, p. iv.

1029 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, pp. 27–28.

1030 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 28.

1031 NERA, *New gamma issues raised by AER expert consultants*, May 2010, p. 6.

1032 NERA, *New gamma issues raised by AER expert consultants*, May 2010, p. 6.

1033 AER, *Draft decision*, February 2010, p. 160 and AER, *WACC review*, May 2009, pp. 467–468.



**Table 6.1: Reasons for not accounting for imputation credits in project valuation**

| Reason   | Number of responses |
|--|---------------------|
| It's difficult to set an appropriate tax credit value for all investors  | 22                  |
| Imputation credit should have a very small impact on evaluation result   | 15                  |
| The market already adjusts stock prices, therefore imputation credit is already taken into account in cost of capital estimate already | 14                  |
| It is too complicated  | 11                  |
| Other  | 11                  |
| Imputation credits are irrelevant to overseas shareholders   | 10                  |
| Credits have zero market value   | 6                   |

Source: Truong, Partington and Peat, 'Cost of capital estimation and capital budgeting practice in Australia,' *Australian Journal of Management*, 2008, p. 115.

The Handley advice sets out how the Officer WACC framework modifies the standard Sharpe–Lintner capital asset pricing model (CAPM) within an imputation taxation system so that the cost of equity can be expressed as an after company taxation basis, but before all personal taxation.<sup>1034</sup>

The 2010 NERA report on gamma submits that, if market practitioners placed value on imputation credits, the standard assumptions of the Sharpe–Lintner CAPM would not hold.<sup>1035</sup> The 2010 NERA report submits, if market practitioners considered imputation credits had value, they could use the Officer WACC framework to estimate the cost of equity expressed as after company taxation, but before all personal tax.<sup>1036</sup>

However, the Handley advice states that it is possible for imputation credits to be implicitly incorporated into the rate of return using the standard Sharpe–Lintner CAPM without estimating a value for gamma. Under an imputation taxation system, this would represent an after company and after (partially) personal taxation cost of equity. This is because imputation credits can be thought of as representing some personal taxation collected by a company out of dividend earnings, on behalf of shareholders.

Importantly, although the standard Sharpe–Lintner CAPM does not explicitly take into account imputation credits, it is easier to implement because it does not require the estimation of gamma. As discussed above, the 2008 Truong, Partington and Peat study indicates that most market practitioners do not incorporate a value for gamma in company valuations because it is difficult to incorporate a value for gamma.

1034 Handley, *Gamma report*, March 2010, pp. 6–10.

1035 NERA, *New gamma issues raised by AER expert consultants*, May 2010, p. 18.

1036 NERA, *New gamma issues raised by AER expert consultants*, May 2010, pp. 18–19.

As noted in the WACC review, the consistent approach by regulators of gas and electricity distribution networks has been to use the Officer WACC framework.<sup>1037</sup> Under this approach, the regulatory practice has been to explicitly incorporate a value for gamma in determining the cost of equity and taxation. The AER notes that the revised access arrangement proposal uses a post-taxation framework which explicitly incorporates a value for gamma as part of the estimate for taxation.

The AER's consideration of the components used in the revised access arrangement to estimate gamma is discussed further below.

### 6.5.2.3 Estimating the payout ratio

As outlined above, the payout ratio is a component in estimating gamma. It represents imputation credits distributed to shareholders as a percentage of the total imputation credits generated by a company. The payout ratio is multiplied by the utilisation rate of imputation credits (theta) to provide an estimate of gamma. This section outlines the AER's analysis and consideration of the payout ratio submitted in the revised access arrangement proposal.

#### Revised access arrangement proposal and submissions

The revised access arrangement proposal proposes a payout ratio of 68 per cent based on a report by NERA (2010 NERA report on the payout ratio).<sup>1038</sup> The revised access arrangement proposal submits that this payout ratio estimate is consistent with estimates in the 2004 Hathaway and Officer paper, and the 2009 Synergies report.<sup>1039</sup>

The revised access arrangement proposal submits a report by Officer (Officer report), which states that the Officer WACC framework<sup>1040</sup> says nothing about the payout ratio.<sup>1041</sup> The revised access arrangement proposal also submits a report by Associate Professor Martin Lally from 2000 (2000 Lally report) to support the view that the Officer WACC framework assumes the payout ratio is variable.<sup>1042</sup>

The 2010 NERA report on gamma submits that there is no evidence that in aggregate, firms distribute retained imputation credits and that the cumulative ratio of imputation credits from the Australian Taxation Office's taxation statistics (ATO taxation statistics) is 69 per cent.<sup>1043</sup> The 2010 NERA report on gamma submits the ATO

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1037 AER, *Final decision: WACC review*, May 2009, pp. 98–101.

1038 JGN, *Initial response to the draft decision*, March 2010, pp. 137–138 and NERA, *Payout ratio of regulated firms*, 5 January 2010.

1039 JGN, *Initial response to the draft decision*, March 2010, p. 138; N. Hathaway and R.R. Officer, *The value of imputation tax credits—Update 2004*, Capital Research Pty Ltd, November 2004; Synergies, *Gamma: New analysis using tax statistics*, 28 May 2009; NERA, *Payout ratio of an average firm in the market: a report for Gilbert and Tobin*, 5 January 2010, pp. 2, 4–6.

1040 The Officer WACC framework is set out in R.R. Officer, 'The cost of capital under an imputation tax system', *Accounting and Finance*, vol. 34, 1994.

1041 R.R. Officer, *Estimating the distribution rate of imputation tax credits: Questions raised by ETSA's Advisers*, 23 June 2009.

1042 M. Lally, 'Valuation of companies and projects under differential personal taxation', *Pacific-Basin Financial Journal*, vol. 8, pp. 115–133.

1043 NERA, *New gamma issues raised by AER expert consultants*, May 2010, pp. 7–9.

taxation statistics are consistent with an immediate payout ratio of 17 per cent and the remaining 83 per cent of imputation credits are distributed after 5 years.<sup>1044</sup>

### **AER's analysis and considerations**

As noted in the draft decision, the WACC review concluded the 71 per cent estimate of the payout ratio in the 2004 Hathaway and Officer paper was a reasonable estimate of the immediate payout ratio for imputation credits.<sup>1045</sup> The AER notes a NERA report prepared for the WACC review (2009 NERA report on the payout ratio) agreed with this point by applying time value considerations to the remaining 29 per cent of imputation credits retained on average each year.<sup>1046</sup>

### ***The value of retained imputation credits***

The AER notes the 68 per cent payout ratio estimate in the 2010 NERA report on the payout ratio actually estimates the payout ratio in any one year—it is the ratio of imputation credits created in one year to imputation credits distributed in that year. As a result, the payout ratio of 68 per cent is an estimate of the *immediate* payout ratio, and conclusions about the approximately 30 per cent of imputation credits retained each year (which contribute to the overall payout ratio) cannot be drawn from this figure. This is consistent with the Handley advice.<sup>1047</sup>

The 2010 NERA report on gamma submits the cumulative payout ratio from taxation statistics is 69 per cent. The 2010 NERA report on gamma also suggests, if it is assumed that retained imputation credits are distributed, the immediate payout ratio could be as low as 17 per cent. The AER notes that the general consensus has been that the annual payout ratio as indicated by taxation statistics is approximately 70 per cent. The AER also notes that it is uncertain whether conclusions can be drawn about the distribution of retained imputation credits from the cumulative payout ratio.

This is particularly true because, as noted above, the 2009 NERA report on the payout ratio states that approximately 70 per cent of imputation credits are distributed each year and this should be interpreted as the payout ratio because retained imputation credits are unlikely to have any value.<sup>1048</sup> As noted in the 2010 NERA report on gamma, the assumption of an approximately 70 per cent annual (or immediate) payout ratio is also supported by Hathaway and Officer, Officer and SFG.<sup>1049</sup>

The 2010 NERA report on gamma submits there is no evidence that on aggregate retained imputation credits are distributed. However, as noted in the WACC review, firms are able to distribute imputation credits to investors through dividend

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1044 NERA, *New gamma issues raised by AER expert consultants*, May 2010, pp. 19–21.

1045 AER, *Draft decision*, February 2010, p. 150.

1046 See AER, *Final decision: WACC review*, May 2009, pp. 410–413.

1047 Handley, *Report on gamma*, March 2010, pp. 36–37.

1048 NERA, AER's proposed WACC statement—gamma, A report for the Joint Industry Associations, January 2009, pp. 3–7, available at <<http://www.aer.gov.au/content/index.phtml/itemId/726698>>.

1049 NERA, *New gamma issues raised by AER expert consultants*, May 2010, p. 8.

reinvestment plans, off-market share buy backs and special dividends throughout the life of a firm.<sup>1050</sup>

The AER also notes that a recent report by Coleman, Maheswaran and Pinder (Coleman et. al. 2010) on corporate finance decisions indicates the level of retained imputation credits available for distribution is an important factor influencing dividend reinvestment plans and off-market share buy backs.<sup>1051</sup>

The 2010 NERA report on the payout ratio submits the appropriate discount rate for retained imputation credits is the cost of equity.<sup>1052</sup> The 2010 NERA report on the payout ratio also submits that the ATO taxation statistics do not support an assumption that retained imputation credits are distributed within five years from when the credits are created.<sup>1053</sup>

The Handley advice outlines that retained imputation credits have already been earned and are readily available for distribution from a firm's franking account balance.<sup>1054</sup> As a result, retained imputation credits do not have the same level of risk as future cash flows that have not been earned and therefore have a discount rate that is lower than the cost of equity. The Handley advice notes the discount rate for retained imputation credits may be above the risk-free rate because of the risk of bankruptcy faced by the average firm.<sup>1055</sup>

The AER agrees with the Handley advice and, as noted in the WACC review, considers that the appropriate discount rate for retained imputation credits is somewhere between the risk-free rate and the cost of equity.<sup>1056</sup>

The AER notes that it is uncertain exactly how long firms are likely to retain imputation credits. This is consistent with the Handley advice, which states that it is not clear on what basis a retention period can be reasonably estimated.<sup>1057</sup> The Handley advice notes that considerable assumptions need to be made to estimate the exact value of retained imputation credits.<sup>1058</sup>

The AER is not aware of any reliable empirical research on the retention period for retained imputation credits or the value of retained imputation credits for Australian companies. However, the McKenzie and Partington advice states that companies are

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1050 AER, *Draft decision*, November 2009, p. 257 and AER, *Final decision, WACC parameters*, May 2009, pp. 412, 418.

1051 L. Coleman, K. Maheswaran, S. Pinder, 'Narratives in managers' corporate finance decisions,' *Accounting and Finance*, 2010, pp. 28–29.

1052 NERA, *Payout ratio of an average firm in the market: a report for Gilbert and Tobin*, 5 January 2010, p. 4.

1053 NERA, *Payout ratio of an average firm in the market: a report for Gilbert and Tobin*, 5 January 2010, pp. 4–6.

1054 Handley, *Report on gamma*, March 2010, p. 37.

1055 If a firm became bankrupt, retained imputation credits could not be attached to cash flows and therefore the retained credits could not be distributed.

1056 AER, *Final decision: WACC Review*, May 2009, p. 419.

1057 Handley, *Report on gamma*, March 2010, p. 37.

1058 Handley, *Report on gamma*, March 2010, p. 37.

likely to try to distribute these credits to maximise shareholder wealth.<sup>1059</sup> In addition to this, the Handley advice states it is unreasonable to assume valuable imputation credits accumulate over time and are never paid out.<sup>1060</sup>

The AER considers that retained imputation credits are likely to be valuable to investors and therefore the exact payout ratio is likely to lie between 70 per cent (the estimated immediate payout ratio) and 100 per cent. This is consistent with the McKenzie and Partington advice, and the Handley advice.<sup>1061</sup> However, the draft decision and the WACC review did not rely on this alone to conclude that a payout ratio of 100 per cent was appropriate.

#### ***Consistency with the Officer WACC framework***

The draft decision notes the assumption of a 100 per cent payout ratio is consistent with the Officer WACC framework, which is a perpetuity based framework.<sup>1062</sup>

The Officer report attached to the revised access arrangement proposal states the 1994 Officer paper that sets out the Officer WACC framework says nothing about the payout ratio.<sup>1063</sup> The AER notes that the Handley advice states the Officer WACC framework is a perpetuity framework since all cash flows (including dividends) and associated imputation credits generated in a period are distributed at the end of the period.<sup>1064</sup> The AER also notes the Officer report provided as part of the revised access arrangement proposal states the Officer WACC framework is consistent with the immediate or full payout of earnings or a delayed payment.<sup>1065</sup>

The 2000 Lally report submitted with the revised access arrangement proposal states the Officer WACC framework assumes that empirical approaches will determine the extent of the utilisation of imputation credits.<sup>1066</sup> The revised access arrangement proposal states this includes a variable payout ratio.<sup>1067</sup> However, the AER notes the 2000 Lally report only refers to the utilisation rate of imputation credits (i.e. theta)—not the payout ratio—being estimated through empirical approaches within the Officer WACC framework.<sup>1068</sup> A report by Lally prepared for the Australian, Competition and Consumer Commission in 2002 (2002 Lally report) clearly outlines

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1059 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 26.

1060 Handley, *Report on gamma*, March 2010, p. 37.

1061 Handley, *Report on gamma*, March 2010, p. 38 and McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 44.

1062 AER, *Draft decision*, February 2010, p. 151.

1063 R.R. Officer, *Estimating the distribution rate of imputation tax credits: Questions raised by ETSA's Advisers*, 23 June 2009.

1064 Handley, *Report on gamma*, March 2010, p. 40.

1065 R.R. Officer, *Estimating the distribution rate of imputation tax credits: Questions raised by ETSA's Advisers*, 23 June 2009, p. 6.

1066 M. Lally, 'Valuation of companies and projects under differential personal taxation', *Pacific-Basin Financial Journal*, vol. 8, 2000, p. 117.

1067 JGN, *Initial response to the draft decision*, March 2010, footnote 198, p. 137.

1068 M. Lally, 'Valuation of companies and projects under differential personal taxation', *Pacific-Basin Financial Journal*, vol. 8, 2000, p. 117.

that the assumption of a 100 per cent payout ratio is consistent with the Officer WACC framework, which assumes a perpetuity scenario.<sup>1069</sup>

#### ***Consistency with the post-taxation framework***

The AER considers the assumption of a 100 per cent payout ratio is consistent with the post-taxation framework applied in the revised access arrangement proposal.<sup>1070</sup> This framework accounts for the estimated cost of corporate taxation within the regulated firm's cash flows.<sup>1071</sup> The AER also notes that this framework assumes perpetuity of cash flows and thus assumes the full distribution of free cash flow each period.

#### ***Conclusion on the payout ratio***

The AER considers the assumption of a 100 per cent ratio as outlined in the draft decision remains appropriate because it:

- is consistent with the Officer WACC framework, which clearly assumes a perpetuity scenario
- simplifies the framework for estimating gamma, which is particularly important due to the difficulty associated with reliably estimating the value of retained imputation credits
- is consistent with the post-taxation framework proposed by JGN, which assumes a perpetuity scenario and thus the full distribution of free cash flow each period.

Based on all the factors discussed above, the AER considers that it remains appropriate to assume a 100 per cent payout ratio, consistent with the draft decision and the WACC review.<sup>1072</sup>

#### **6.5.2.4 Estimating the utilisation rate (theta) using market prices**

As outlined above, the utilisation rate of imputation credits (theta) is the other component used in estimating gamma. Under the Australian imputation taxation system, not all investors can utilise distributed imputation credits. Therefore, theta represents the average value of a distributed imputation credit to an average investor and is estimated as a market-wide utilisation rate for Australia.

#### **Revised access arrangement proposal and submissions**

The revised access arrangement proposal submits the best estimate of theta is the 0.23 estimate in the May 2009 SFG study. The revised access arrangement proposal submits this estimate is supported by the August 2009 report from Skeels (2009 Skeels report).<sup>1073</sup> The revised access arrangement proposal also submits the

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1069 M. Lally, *The cost of capital under dividend imputation*, June 2002, pp. 7–8, available at <<http://www.aer.gov.au/content/index.phtml?itemId=679397>>.

1070 JGN, *Initial response to the draft decision*, March 2010, p. 132.

1071 JGN, *Initial response to the draft decision*, March 2010, p. 132.

1072 AER, *Draft decision*, February 2010, p. 153 and AER, *Final decision: WACC review*, May 2009, pp. 420–421.

1073 Skeels, *A Review of the SFG Dividend Drop-Off Study*, 28 August 2009.

issues raised in the draft decision with regard to multicollinearity, data filtering an economically implausible results in the May 2009 SFG study are addressed by the January 2010 report from Skeels (2010 Skeels report), the January 2010 report from SFG (January 2010 SFG report), and the February 2010 report from SFG (February 2010 SFG report).<sup>1074</sup>

The 2010 NERA report on gamma submits that multicollinearity is not a problem for the May 2009 SFG study's estimate of theta.<sup>1075</sup>

### **AER's analysis and considerations**

#### ***Multicollinearity***

The 2010 Skeels report submits there is no evidence that multicollinearity is an issue for the 2006 Beggs and Skeels study or the May 2009 SFG study estimates of theta.<sup>1076</sup>

The AER notes the McKenzie and Partington advice outlines that imputation credits are a monotonic transformation of cash dividends—theoretically cash dividends and imputation credits are perfectly correlated.<sup>1077</sup> Perfect correlation between two independent variables in a regression equation makes it impossible to reliably estimate the separate value of each independent variable (known as perfect multicollinearity).<sup>1078</sup> The AER notes that, as a result, multicollinearity is a significant issue for dividend drop-off studies. The McKenzie and Partington advice and the January 2010 SFG report both note the only reason perfect multicollinearity does not occur when using the May 2009 SFG study's data set is because of the impact of changes in corporate taxation rates and regimes on the results.<sup>1079</sup>

The AER notes the McKenzie and Partington advice states that the coefficient of correlation between cash dividends and imputation credits is 0.70 after the 0.03 per cent size filter is applied in the May 2009 SFG study's data set. The McKenzie and Partington advice notes that the coefficient of correlation is 0.9899 for the 2052 observations in the May 2009 SFG study's unfiltered data set where dividends are fully franked.<sup>1080</sup> The AER considers this high degree of correlation in the data indicates that the May 2009 SFG study's results are prone to near perfect multicollinearity.

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1074 JGN, *Initial response to the draft decision*, February 2010, pp. 139–140; Skeels, *Response to Australian Energy Regulator draft determination*, 13 January 2010; SFG, *Response to AER draft determination in relation to gamma*, 13 January 2010; SFG, *Further analysis in response to AER draft determination in relation to gamma*, 4 February 2010.

1075 NERA, *New gamma issues raised by AER expert consultants*, May 2010.

1076 Skeels, *Response to Australian Energy Regulator draft determination*, 13 January 2010, p. 18.

1077 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 44.

1078 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 44.

1079 Tax rate and regime changes over time are the only reason that cash dividends and imputation credits are not perfectly correlated in SFG's data set. See McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 46 and SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, p. 5.

1080 This is 2052 out of SFG's unfiltered sample of 5646 observations.

The 2010 NERA report on gamma suggests the coefficient of correlation of 0.70 between cash dividends and imputation credits in the May 2009 SFG study would not typically be viewed as giving rise to a multicollinearity problem.<sup>1081</sup> However, the AER notes that the 2010 NERA report on gamma does not substantiate this submission.

Notwithstanding this, the AER notes a report by Assistant Professor Aylin Alin (Alin report), which states a high degree of correlation indicates multicollinearity.<sup>1082</sup> The Alin report also notes that multicollinearity may exist even if the coefficient of correlation is low.<sup>1083</sup> The AER notes, that in addition to a high degree of correlation between cash dividends and imputation credits, there are numerous other factors (including the theoretical perfect correlation between cash dividends and imputation credits) that suggest multicollinearity is a problem for the May 2009 SFG study.

The AER notes the McKenzie and Partington advice states indicators of multicollinearity in dividend drop-off studies include large standard errors and estimates of theta that are statistically insignificant from zero.<sup>1084</sup> The 2010 Skeels report also notes that indicators of near perfect multicollinearity include large standard errors and insignificant coefficient estimates.<sup>1085</sup>

The AER notes the May 2009 SFG study's estimate of theta in the 1 July 2000 to 10 May 2004 subsample period is not statistically significant from zero. In addition to this, in the same period, the May 2009 SFG study's estimate of the value of cash dividends is greater than one, which is implausible. The AER considers this indicates the presence of multicollinearity in the May 2009 SFG study's results.

In comparison, the AER notes that the 2006 Beggs and Skeels study's estimate of theta for the same period is statistically significant from zero. The 2006 Beggs and Skeels study's estimate of the value of a dollar of cash dividend is economically plausible and, as noted in the McKenzie and Partington advice, is consistent with the Australian evidence from dividend drop-off studies.<sup>1086</sup>

The 2009 Skeels report and the 2010 Skeels report submit that, although the May 2009 SFG study's estimate of theta for the period 1 July 2000 to 10 May 2004 is not statistically significant from zero, the estimate of the value of cash dividends is. The 2009 Skeels report and the 2010 Skeels report submit this simply indicates that the majority of the stock price drop-off is likely to be due to the value of cash dividends and that theta is no different to zero.<sup>1087</sup> The AER notes the McKenzie and Partington advice outlines that comparing stock price changes on ex-dividend day against the cash dividend and the imputation credit shows a clustering of both to zero

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1081 NERA, New gamma issues raised by AER expert consultants, May 2010, p. 12.

1082 A Alin, 'Multicollinearity,' *Wiley interdisciplinary reviews: computational statistics*, 2010, viewed 21 May 2010, <<http://www3.interscience.wiley.com/cgi-bin/fulltext/123315386/PDFSTART>>.

1083 Alin notes that the existence of multicollinearity can be diagnose using the variance inflation factor.

1084 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 45.

1085 Skeels, *Response to Australian Energy Regulator draft determination*, 13 January 2010, p. 17.

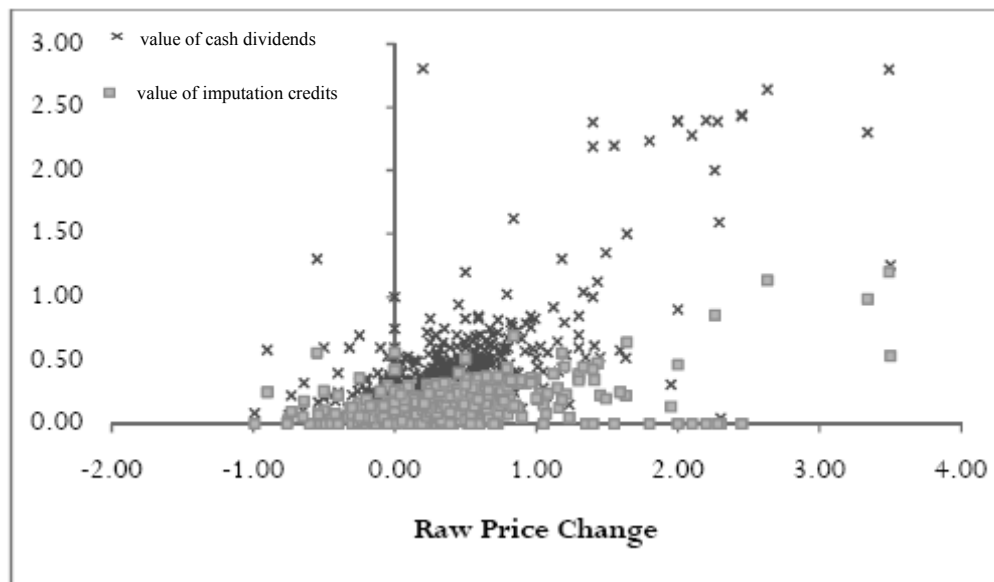
1086 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, pp. 30–31.

1087 Skeels, *A review of the SFG dividend drop-off study*, 28 August 2009, pp. 18–19 and Skeels, *Response to Australian Energy Regulator draft determination*, 13 January 2010, p.18.



in the May 2009 SFG study's data set.<sup>1088</sup> However, cash dividends exhibit a more significant positive slope than imputation credits in the May 2009 SFG study's data set. This is illustrated in figure 6.1.

**Figure 6.1: Raw stock price change against cash dividends and imputation credits**



Source: McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 48.

Note: The stock price change is graphed along the x-axis; the value of cash dividends and imputation credits paid is graphed on the y-axis.

The McKenzie and Partington advice states:<sup>1089</sup>

Given the inability of the estimation technique to reliably decompose the partial effect of cash dividends and franking credits due to multicollinearity, it is not surprising that the cash dividend dominates in the estimation process.

The AER considers the analysis outlined in the McKenzie and Partington advice demonstrates the May 2009 SFG study's regression results are likely to be affected by multicollinearity. The AER considers that, as a result, the value of imputation credits is likely to be understated. Therefore, the AER considers the May 2009 SFG study's estimates of the value of a dollar of cash dividend and the value of theta is likely to be unreliable.

The 2010 NERA report on gamma submits that the effects of multicollinearity can be addressed simply by using more data.<sup>1090</sup> The AER does not consider this will necessarily be the case. The AER notes that if a high degree of correlation exists in an expanded data set, as is seen in the May 2009 SFG study's data, this will not address the issue of multicollinearity. The AER also notes other issues regarding the reliability of the May 2009 SFG study's data, which are outlined below.

<sup>1088</sup> McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 48.

<sup>1089</sup> McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 48.

<sup>1090</sup> NERA, *New gamma issues raised by AER expert consultants*, May 2010, pp. 14–15.

### ***Joint confidence intervals***

The 2010 SFG report submits the issue of multicollinearity in dividend drop-off studies can be addressed through the use of a joint confidence interval.<sup>1091</sup> The 2010 SFG report contains a graph that shows the possible combinations of cash dividend and franking credit values that fit the market data used in its study. Based on this graph, the 2010 SFG report submits that the May 2009 SFG study's regression estimates of the value of cash dividends and imputation credits (0.98 and 0.23 respectively) fall within the same joint confidence interval as the 2006 Beggs and Skeels study's estimates (0.80 and 0.57 respectively).<sup>1092</sup>

The AER notes the McKenzie and Partington advice states the joint confidence interval in the January 2010 SFG report actually displays the extent to which multicollinearity affects dividend drop-off based estimates of the value of cash dividends and franking credits.<sup>1093</sup> The AER also notes the Handley advice states the joint confidence interval analysis submitted in the January 2010 SFG report acknowledges the imprecision in the theta estimates from the dividend drop-off studies.<sup>1094</sup>

The 2010 NERA report on gamma submits that the joint confidence interval in the January 2010 SFG report indicates the May 2009 SFG study's estimates of the value of cash dividends and imputation credits are individually significant but jointly insignificant.<sup>1095</sup> The AER notes that the joint confidence interval actually shows that there is large variance in the individual estimates of the value of cash dividends and imputation credits as well as the possible sets of estimates indicated by the May 2009 SFG study's data.

The AER considers the January 2010 SFG report's analysis of joint confidence intervals does not in any way address the issue of multicollinearity, nor does it give any indication of which set of results for the value for imputation credits and cash dividends is most reliable. The AER considers that the breadth of results possible within the January 2010 SFG report's joint confidence interval simply highlights large standard errors and the likely impact of multicollinearity on coefficient estimates from dividend drop-off studies. This was noted in the WACC review.<sup>1096</sup>

### ***Consistency issues***

The January 2010 SFG report submits the value of a dollar of cash dividend should be set to 100 cents when estimating the value of franking credits using dividend drop-off studies because this maintains consistency with the capital asset pricing model (CAPM). The January 2010 SFG report states it is appropriate to set the value of a dollar of cash dividend in this manner because the relevant and important dividend

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1091 SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, pp. 5–8.

1092 SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, p. 7.

1093 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, pp. 45–47.

1094 Handley, *Report on gamma*, March 2010, pp. 30–31. Handley uses the example of a set of estimates (0.72, 0.78) for the value of cash dividends and imputation credits respectively to demonstrate that SFG's joint confidence interval simply indicates the high variability in possible estimates based on the data.

1095 NERA, *New gamma issues raised by AER expert consultants*, May 2010, pp. 12–14.

1096 AER *Draft decision*, February 2009, p. 272 and AER, *Final decision: WACC parameters*, May 2009, p. 437.

drop-off studies that examine unfranked dividends estimate the value of a dollar of cash dividend is 100 cents.<sup>1097</sup>

The AER notes the McKenzie and Partington advice states that placing restrictions on parameters may bias the least squares estimate unless the restrictions are true.<sup>1098</sup> To this end the AER does not consider it appropriate to set the value of a dollar of cash dividends at 100 cents in the context of estimating theta using dividend drop-off studies. As discussed above, dividend drop-off based estimates of theta are subject to considerable imprecision due to issues such as multicollinearity. For this reason, the AER considers the independent statistical significance of the estimate of theta and the estimate for the value of cash dividends takes precedence over other considerations.

The AER also considers that, in the presence of multicollinearity, setting the value of a dollar of cash dividend at 100 cents will bias the estimate of theta downwards. This is because unconstrained estimates provide a value for a dollar of cash dividend below 100 cents. This is illustrated in the January 2010 SFG report which shows that, for each set of estimates of the value of a dollar of cash dividend and the value of imputation credits, the higher the value of cash dividends adopted the lower the value of franking credits.<sup>1099</sup>

The January 2010 SFG report states relevant and important dividend drop-off studies estimate the value of a dollar of cash dividend to be 100 cents.<sup>1100</sup> The AER notes the January 2010 SFG report does not refer to any specific dividend drop-off studies that estimate the value of a dollar of cash dividend to be 100 cents. However, the January 2010 SFG report does refer to a February 2009 SFG report that was considered by the AER as part of the WACC review.<sup>1101</sup> The February 2009 SFG report refers to a 1994 paper by Boyd and Jagannathan and a 2003 paper by Graham, Michaely and Roberts as dividend drop-off studies that estimate the value of a dollar of cash dividends to be 100 cents.<sup>1102</sup>

The AER notes the Handley advice states that most of the empirical evidence from the dividend drop-off studies supports a value for a dollar of cash dividend of less than 100 cents.<sup>1103</sup> The Handley advice further notes that:<sup>1104</sup>

- the 1994 paper by Boyd and Jagannathan relies substantially on arbitrage arguments (in addition to equilibrium considerations) and therefore the results of the paper should be interpreted with caution
- only a small subset (5 per cent) of stocks analysed in the 2003 paper by Graham, Michaely and Roberts provides an estimate where a dollar of cash dividends is

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1097 SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, pp. 7–8.

1098 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 46.

1099 SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, p. 7.

1100 SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, pp. 7–8.

1101 SFG, *The consistency of estimates of the value of cash dividends*, 1 February 2009, available at <<http://www.aer.gov.au/content/index.phtml?itemId=726698>>.

1102 SFG, *The consistency of estimates of the value of cash dividends*, 1 February 2009, pp. 10–13.

1103 Handley, *Report on gamma*, March 2010, p. 27.

1104 Handley, *Report on gamma*, March 2010, pp. 26–28.

valued at 100 cents. When the full sample of stocks is used, a dollar of cash dividend is valued at less than 100 cents.

Taking account of the Handley advice, the AER also considers that most of the empirical evidence from the dividend drop-off studies supports a value for a dollar of cash dividends that is less than 100 cents.

The 2010 NERA report on gamma supports the use of the May 2009 SFG study results because they are consistent with United States (US) dividend yield studies that estimate the value of a dollar of cash dividend to be 100 cents.<sup>1105</sup>

The AER notes the Handley advice, which states that dividend drop-off studies estimate the value of a dollar of cash dividend to be less than 100 cents because dividend drop-off study results incorporate the effect of differential taxes. However, dividend yield studies estimate the value of a dollar of cash dividend to be 100 cents because dividend yield study results do not incorporate the effect of differential taxes on prices. The Handley advice further states that in the context of estimating gamma it is appropriate to use the results of dividend drop-off studies.<sup>1106</sup>

Based on Handley's advice, the AER considers that it is appropriate to rely on dividend drop-off study results rather than dividend yield study results. As discussed above, the AER does not consider it appropriate to constrain the value of a dollar of cash dividend to be 100 cents.

The January 2010 SFG report also submits that estimates of theta where a dollar of cash dividend is constrained to be valued at 100 cents fall within the joint confidence interval illustrated in the January 2010 SFG report.<sup>1107</sup> The AER considers, as discussed above, the joint confidence interval in the January 2010 SFG report cannot be used to determine whether estimates of theta and the value of cash dividends are reasonable or not.<sup>1108</sup>

#### ***Reliability of SFG data based on Dr. John Field's methodology***

The revised access arrangement proposal submits the January 2010 SFG report presents an analysis of 150 observations within the May 2009 SFG study's data set based on a report by Dr. John Field (Field report).<sup>1109</sup> The revised access arrangement proposal submits this analysis has a negligible affect on the May 2009 SFG study's results.<sup>1110</sup>

The January 2010 SFG report includes the Field report as an appendix.<sup>1111</sup> The Field report sets out a procedure to determine the likely number of unacceptable observations in the May 2009 SFG study's data set based on an examination of a

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1105 NERA, *New gamma issues raised by AER expert consultants*, May 2010, pp. 22–23.

1106 Handley, *Gamma report*, March 2010, pp. 24–25.

1107 SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, pp. 7–8.

1108 The joint confidence interval only shows that the data may produce such a result, regardless of whether the coefficients are separately statistically significant or not.

1109 JGN, *Initial response to the draft decision*, March 2010, p. 139.

1110 JGN, *Initial response to the draft decision*, March 2010, p. 139.

1111 J. Field, *Reliability of data used in dividend drop-off study*, 5 January 2010.

sample within the May 2009 SFG study's data set. The Field report identifies a random sample of 150 observations from the May 2009 SFG study's data set of 3201 observations to be analysed for this purpose.<sup>1112</sup>

The January 2010 SFG report analyses the random sample of 150 observations identified in the Field report from the May 2009 SFG study's data set of 3201 and finds:<sup>1113</sup>

- 14 observations to be excluded due to price sensitive announcements being made in relation to them
- 2 observations that had to be modified because they understated dividends.

Therefore, the January 2010 SFG report identifies 16 observations that are considered unreliable, which is an unacceptability rate of 10.7 per cent in the random sample of 150 observations. Therefore 6.2 to 16.7 per cent of observations in the May 2009 SFG study's full data set are likely to be unacceptable according to the Field report's analysis.<sup>1114</sup> This is illustrated in table 6.2, along with other examples of binomial confidence intervals provided in the Field report.

**Table 6.2: Unacceptability rate in SFG's data set (units as stated)**

| Sample size | Number of unacceptable observations | Unacceptability rate in sample (%) | 95% confident that unacceptability rate in whole dataset lies between (%): |
|-------------|-------------------------------------|------------------------------------|--|
| 150         | 16                                  | 10.7                               | 6.2– 16.7  |
| 160         | 8                                   | 5                                  | 2.2– 9.6   |
| 150         | 3                                   | 2                                  | 0.4 – 5.7  |
| 150         | 0                                   | 0                                  | 0 – 2.4  |

Source: AER analysis and J. Field, *Reliability of data used in dividend drop-off study*, 5 January 2010, pp. 3–5.

Note: The figures above assume that there is a binomial distribution of unacceptable observations in SFG's data set.

The AER notes that, rather than applying this analysis, the January 2010 SFG report updates the May 2009 SFG study estimates after excluding the 14 unreliable observations and correcting two dividends that were found to be understated. However, the Field report's analysis suggests that between 198 and 530 observations are unreliable and should be excluded from the May 2009 SFG study's data set. This indicates a high level of unreliability within the May 2009 SFG study's whole data set

1112 J. Field, *Reliability of data used in dividend drop-off study*, 5 January 2010, p. 5. The AER notes Field stated that he chose 150 random observation from SFG's sample of 1386 (i. e. the sub-sample for the period 1 July 2000–10 May 2004). However, it appears that the 150 observations were chosen at random from the total data set of 3201 for companies with a market capitalisation greater than 0.03 per cent.

1113 SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, p. 16.

1114 This is at the 95 per cent level of confidence using exact binomial confidence limits.

of 3201 observations. The AER notes that re-estimating the regression results after analysing only 150 observations does not mitigate this problem. This is consistent with the McKenzie and Partington advice, which states that auditing a random sample of observations does not serve a useful purpose.<sup>1115</sup>

### *Filtering of outliers*

The May 2009 SFG study uses Cook's D-statistic to identify the 1 per cent of observations in its data set that were considered unreliable and then analysed these to determine economic reliability. Based on this analysis, the May 2009 SFG study excludes 20 influential data points considered unreliable.<sup>1116</sup> The January 2010 SFG report states that removal of these data points improves the reliability of the results in the May 2009 SFG study.<sup>1117</sup>

The AER notes the McKenzie and Partington advice states the use of Cook's D-statistic may introduce a bias into the May 2009 SFG study's analysis because it only excludes individually influential observations that are economically unreliable. This process does not identify groups of observations that are jointly significant.<sup>1118</sup>

The McKenzie and Partington advice also notes that identifying the most influential 1 per cent of observations is completely arbitrary and that only one of the observations in the May 2009 SFG study's data set of 3201 had a Cook's D-statistic of greater than one, which is generally regarded as the cut-off point.<sup>1119</sup>

The AER considers this is important because the results based on filtered data may reflect the filtering process rather than the true underlying value of the parameters of interest. This is consistent with the McKenzie and Partington advice.<sup>1120</sup> The McKenzie and Partington advice also notes that before filtering the May 2009 SFG study's data set estimates the combined value of cash dividends and imputation credits to be between -60 and 575 dollars and after filtering the range is between -60 to 55 dollars.<sup>1121</sup>

The AER notes in comparison, the 2006 Beggs and Skeels study filters data ex ante using economic criteria.<sup>1122</sup> The McKenzie and Partington advice states this is more appropriate than identifying individually influential observations and only analysing those observations.<sup>1123</sup>

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1115 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 33.

1116 Skeels, *A review of the SFG dividend drop-off study*, 28 August 2009, p. 35.

1117 SFG, *Response to the AER draft determination in relation to gamma*, 13 January 2010, p. 13.

1118 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 50.

1119 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 50.

1120 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 22.

1121 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 15.

1122 Beggs and Skeels (2006) identified and excluded special dividends, data where information was missing, data where the basis of quotation had changed 5 days either side of the ex-dividend day, as well as data from the volatile month of October 1987. Beggs and Skeels (2006) excluded this data based on economic justifications, see Beggs and Skeels, 'Market arbitrage of cash dividends and franking credits', *The Economic Record*, vol. 82, no. 258, p. 252.

1123 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 50.

Based on the McKenzie and Partington advice, the AER considers that the use of Cook's D-statistic is less reliable than the methodology used in the 2006 Beggs and Skeels study to filter outliers and may likely bias the results of the May 2009 SFG study.

#### ***Exclusion of intercept term***

The AER notes the McKenzie and Partington advice states replication of the May 2009 SFG study's results shows a statistically significant intercept term that is not reported in the May 2009 SFG study.<sup>1124</sup> The AER notes the combined value of cash dividends and imputation credits may therefore be underestimated by the coefficient estimates in the May 2009 SFG study. In comparison, the 2006 Beggs and Skeels study reports insignificant intercept coefficients.<sup>1125</sup> This confirms the issues about the reliability of the May 2009 SFG study.<sup>1126</sup>

#### ***Miscellaneous data issues***

The AER notes the May 2009 SFG's data set contains a large number of zero drop-offs, which are masked by the market adjustment.<sup>1127</sup> The McKenzie and Partington advice notes that in the May 2009 SFG study's unfiltered data set, 526 out of 5646 observations are zero observations. In the May 2009 SFG study's filtered data set, 177 out of 3201 observations are zero observations.<sup>1128</sup> The McKenzie and Partington advice states this is an abnormally high number of zero observations.<sup>1129</sup>

The AER also notes the combined number of negative and zero observations in the May 2009 SFG study's filtered data set is high. The McKenzie and Partington advice states almost 20 per cent of the May 2009 SFG study's filtered data set comprises zero or negative observations.<sup>1130</sup>

These data issues contribute to the issues about the reliability of the May 2009 SFG study. Therefore, the AER confirms the draft decision that the 2006 Beggs and Skeels study provides the most reliable estimate of theta from market prices.<sup>1131</sup>

The McKenzie and Partington advice states that a number of other data issues affect dividend drop-off studies, including:

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1124 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 50.

1125 Beggs and Skeels, 'Market arbitrage of cash dividends and franking credits', *The Economic Record*, vol. 82, no. 258, p. 243.

1126 AER, *Draft decision*, February 2010, pp. 154–158.

1127 SFG adjusts all observations by aggregate movements in the all ordinaries share price index to reduce the effect of general market movements.

1128 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010. The AER notes that zero observations are likely to indicate that a stock is thinly traded, which would mean that they do reflect market information on how investors value either the cash dividends or the attached franking credits.

1129 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 18.

1130 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 38. The AER notes that negative observations are theoretically implausible in the context of a dividend drop-off study. Once shares go ex-dividend, they do not confer the benefit of the cash dividend or the franking credit on a purchaser. Therefore, for negative observations, it is likely that factors other than the ex-dividend event are contributing to the share price behaviour, which reduces the accuracy of dividend drop-off results.

1131 AER, *Draft decision*, February 2010, p. 158.

- dividend announcements across firms tend to be clustered in time, which introduces a bias into the estimation process<sup>1132</sup>
- thinly traded stocks included in a data set may reduce the accuracy of the dividend drop-off study estimates because they may not fully reflect market valuation<sup>1133</sup>
- the bid-ask spread of stocks in a data set may affect the ability of a dividend drop-off study to extrapolate the value assigned to cash dividends and franking credits. For example, if the bid-ask spread on a stock is larger than the cash dividend this task is very difficult<sup>1134</sup>
- price sensitive information may be released around the ex-dividend date for a stock and therefore alter the stock price to incorporate this information in addition to reflecting the value that investors place on cash dividends and franking credits.<sup>1135</sup>

Given these issues with dividend drop-off studies, the AER considers it appropriate to maintain the approach set out in the draft decision, which uses estimates based on both market prices as well as the ATO taxation statistics. The AER notes the McKenzie and Partington advice states it is preferable to consider results based on both the ATO taxation statistics and market prices rather than to rely on one type of study or the other.<sup>1136</sup>

***Additional SFG report addressing earlier data concerns***

The revised access arrangement proposal also submits the February 2010 SFG report.<sup>1137</sup> The February 2010 SFG report outlines additional analysis that responds to issues raised by the AER in the South Australian electricity draft distribution determination<sup>1138</sup> regarding the following:<sup>1139</sup>

- special dividends
- stock splits and bonus issues
- contemporaneous price sensitive announcements
- missing observations

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1132 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, pp. 23, 42.

1133 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 39.

1134 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, pp. 39–42.

1135 McKenzie and Partington set out the significant effect that noise may have on dividend drop-off studies by demonstrating significantly less variable stock price drop-offs where the cum-dividend and ex-dividend prices are measured no more than 1 minute. See McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, pp. 15–17, 36.

1136 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 10.

1137 SFG, *Further analysis in response to AER draft determination in relation to gamma*, 4 February 2010.

1138 AER, *Draft decision: South Australian electricity distribution determination*, November 2009.

1139 SFG, *Further analysis in response to AER draft determination in relation to gamma*, 4 February 2010, pp. 3–4.



- thin trading.

The February 2010 SFG report updates the May 2009 SFG study's estimation results based on this further analysis. The AER notes the February 2010 SFG report's analysis does not address the issues outlined above regarding the effect of multicollinearity on the May 2009 SFG study's estimation results, the reliability of the May 2009 SFG's data set based on the Field report, the May 2009 SFG study's filtering of outliers, as well as other data issues noted in the McKenzie and Partington advice.

The AER also notes that the February 2010 SFG report may not fully address the issue of thin trading. The February 2010 SFG report states the May 2009 SFG study's data set comprises only those observations where a trade can be identified on the ex-dividend day. However, the McKenzie and Partington advice notes that the May 2009 SFG study does not identify if any attempt is made to ensure that the cum-dividend price observation is current.<sup>1140</sup> The McKenzie and Partington advice also notes that if a cum-dividend price is not current the change observed over the ex-dividend date could incorporate other information in addition to the drop-off due specifically to the payment of a dividend, thus diluting estimation results.<sup>1141</sup>

#### **6.5.2.5 Estimating the utilisation rate (theta) using taxation statistics**

##### **Revised access arrangement proposal and submissions**

The revised access arrangement proposal submits that the most reliable and accurate method for estimating theta is to use a dividend drop-off study.<sup>1142</sup> The revised access arrangement proposal submits this is supported by the 2010 Skeels report.<sup>1143</sup>

The 2010 Skeels report submits the AER's estimate of theta is upward biased by construction.<sup>1144</sup> The 2010 Skeels report states the draft decision acknowledges that labelling the 2006 Beggs and Skeels study's estimate of theta a lower bound estimate was inappropriate and not intended to carry the meaning in a statistical sense.<sup>1145</sup> The 2010 Skeels report states the 2008 Handley and Maheswaran study's estimate of theta from tax statistics, however, is an upper bound for the value of theta.<sup>1146</sup>

The 2010 NERA report on gamma submits the 2008 Handley and Maheswaran taxation statistics study provides an upper bound on the estimate of theta and that this is supported by the Handley advice.<sup>1147</sup>

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1140 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 39.

1141 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 39.

1142 JGN, *Initial response to the draft decision*, March 2010, p. 140.

1143 JGN, *Initial response to the draft decision*, March 2010, p. 140.

1144 Skeels, *Response to Australian Energy Regulator draft determination*, 13 January 2010, p. 10–12.

1145 Skeels, *Response to Australian Energy Regulator draft determination*, 13 January 2010, p. 10–12.

1146 Skeels, *Response to Australian Energy Regulator draft determination*, 13 January 2010, p. 10–12.

1147 NERA, *New gamma issues raised by AER expert consultants*, May 2010.

## AER's analysis and considerations

The AER notes the draft decision acknowledges that labelling the 2006 Beggs and Skeels study as a lower bound estimate of theta was inappropriate and was not intended to carry the meaning in the statistical sense.<sup>1148</sup> The AER considers that neither the 2006 Beggs and Skeels study's estimate of theta, nor the 2008 Handley and Maheswaran study's estimate of theta provide statistical bounds on the value of theta. The AER considers, as noted in the WACC review, reasonable point estimates for theta based on market prices and tax statistics are 0.57 and 0.74 respectively.<sup>1149</sup> The average of these point estimates, 0.65, was adopted in the WACC review. The AER considers this remains the most reasonable estimate of theta based on the available evidence.<sup>1150</sup>

The AER notes the Handley advice stated that the 0.70–0.80 range for gamma from the 2008 Handley and Maheswaran study can be interpreted as a reasonable upper bound on the value of 'gamma' not 'theta' as suggested by NERA.<sup>1151</sup> Furthermore, the AER notes that the gamma estimate of 0.65 in the draft decision is below the upper bound for gamma recommended in the Handley advice.<sup>1152</sup>

The revised access arrangement proposal also states dividend drop-off study based estimates better satisfy rules 74 and 87 of the NGR because they reflect the 'true' market or economic value of imputation credits. The AER notes that the revised access arrangement proposal is referring to the whether market based estimates of theta such as those from dividend drop-off studies are observable.

The AER notes the McKenzie and Partington advice states that dividend drop-off based estimates of theta do not rely on observability alone but are in fact dependent on the assumptions of the model chosen.<sup>1153</sup> As discussed above, the AER also considers that dividend drop-off studies are subject to a range of data and methodological limitations. As noted above, the McKenzie and Partington advice states it is preferable to consider results from both tax statistics and market prices rather than to rely on one type of study alone.<sup>1154</sup>

Based on the McKenzie and Partington advice, the Handley advice, and for the reasons outlined above, the AER considers that relying on both tax statistics studies and dividend drop-off studies will provide a more reasonable basis for estimating theta than relying on dividend drop-off studies alone. Therefore, the AER considers the theta estimate of 0.65 based on estimates from the 2006 Beggs and Skeels

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1148 AER, *Draft decision*, February 2010, p. 159 and AER, *Final decision*, *WACC review*, May 2009, p. 456.

1149 The AER notes the WACC review considered that a reasonable range of estimates for theta for the post July 2000 period based on tax statistics is 0.67 to 0.81 and a point estimate of 0.74 is a reasonable point estimate for theta based on tax statistics. See AER, *Final decision*, *WACC parameters*, May 2009, pp. 448, 456, 466, 467.

1150 AER, *Final decision*, *WACC review*, May 2009, pp. 466–468.

1151 The range can be interpreted as an upper bound on 'gamma' because it inherently assumes that all imputation credits created are distributed and can be utilised by investors (i. e. the method assumes a 100 per cent payout ratio).

1152 AER, *Draft decision*, February 2010, pp. 159–160, 216.

1153 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 14.

1154 McKenzie and Partington, *Evidence and submissions on gamma*, March 2010, p. 4.

dividend drop-off study and the 2008 Handley and Maheswaran tax statistics study is the best estimate of theta possible in the circumstances and is arrived at on a reasonable basis as required by r. 74 of the NGR.

## 6.6 Conclusion

The AER considers that as a result of changes to other total revenue building blocks, the proposed estimate of the opening taxation asset base and the cost of corporate income taxation are no longer the best possible estimate in the circumstances.

The AER considers that 0.65 is the best estimate of gamma arrived at on a reasonable basis currently available, as required by rule 74 of the NGR. This is based on an assumed payout ratio of 100 per cent and a theta estimate of 0.65. In reaching this conclusion the AER has considered the information submitted by JGN as part of its revised access arrangement proposal, as well as the advice of the AER's consultants. In summary, the AER considers:

- an assumption of a 100 per cent payout is appropriate as it is consistent with the Officer WACC framework as well as the post-taxation framework employed in the revised access arrangement proposal
- it is more appropriate to rely on estimates of theta from both the 2006 Beggs and Skeels dividend drop-off study and the 2008 Handley and Maheswaran tax statistics study, rather than relying on a dividend drop-off study alone. For the reasons outlined above the AER considers that the May 2009 SFG study's estimate of theta and the updated estimate of theta provided in the January 2010 SFG report remain unreliable.

The AER considers that the adoption of a gamma of 0.65 is consistent with the revenue and pricing principles set out in section 24 of the NGL and will or is likely to contribute to the achievement of the National Gas Objective (NGO) in section 23 of the NGL.

## 6.7 Revisions

The AER proposes the following revisions:

**Revision 6.1:** amend the revised access arrangement information to delete all references to a gamma of 0.2 and replace them with a gamma of 0.65.

**Revision 6.2:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revision 6.1.

## 7 Incentive mechanisms

### 7.1 Introduction

This chapter sets out the proposed incentive mechanism in the revised access arrangement proposal, the market expansion mechanism (MEM), and the AER's analysis and consideration of the proposed incentive mechanism.

### 7.2 Revised access arrangement proposal

The revised access arrangement proposal does not accept amendments 7.1 and 7.2 of the draft decision to remove the MEM.<sup>1155</sup> JGN proposes to modify the MEM so that market expansion capital expenditure does not form part of the covered pipeline for a period of at least five years after construction. JGN proposes the following process for the MEM:

- it allows for certain capital expenditure projects as to be covered by the MEM
- it states that MEM expansions will not, for a period of at least five years after construction, form part of the covered pipeline as they will be excluded from the extensions and expansions policy
- it states that capital expenditure on MEM expansions will be placed in a market expansion expenditure account which will be increased by JGN annually by the weighted average cost of capital (WACC)
- it states that services provided through and tariffs charged for MEM expansions will be the same as those applying to reference services in adjacent areas in the network
- it provides that JGN will exclude quantities and revenues from MEM expansions from the quantity forecast for and revenue derived from reference services for the period while the expansion remains in the market expansion expenditure account
- after five years the market expansion capital expenditure will be assessed by JGN against the new capital expenditure criteria in r. 79 of the NGR and, if found to conform and subject to the AER's approval, rolled into the capital base.<sup>1156</sup>

### 7.3 Submissions

The Energy Markets Reform Forum (EMRF) submits that:

- exposing JGN to the risks and rewards of market expansion has merits but it accepts that the NGR do not readily allow such a scheme<sup>1157</sup>
- having no incentive mechanism in an access arrangement is a shortcoming<sup>1158</sup>

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1155 JGN, *Initial response to the draft decision*, March 2010, pp. 145.

1156 JGN, *Initial response to the draft decision*, March 2010, pp. 148–149.

1157 EMRF, *Submission to the AER*, April 2010, p. 44.

- an incentive mechanism like the efficiency benefit sharing scheme for electricity distribution should be included in the access arrangement<sup>1159</sup>
- the NGR provide an implicit incentive for JGN to underspend the allowed operating expenditure and capital expenditure<sup>1160</sup>
- there is an incentive for JGN to overspend on capital and operating expenditure in the fourth year of an access arrangement period if the AER uses the fourth year as the base from which to forecast future costs.<sup>1161</sup>

## 7.4 AER's analysis and considerations

The MEM is a mechanism for excluding certain market expansion related capital expenditure projects from the regulatory requirements applying to a scheme pipeline. The MEM is intended to provide an opportunity to achieve a rate of return on these assets which exceeds the rate of return consistent with the NGR. The mechanism is intended to provide JGN with an added incentive to undertake expansion of the network. The proposal however does not provide clear criteria for determining which projects would be designated MEM projects.

The MEM does not function within the framework established for capital expenditure and the capital base in the NGR. Conforming capital expenditure<sup>1162</sup> can be included in the capital base in one of two ways: (i) the opening capital base; or (ii) the projected capital base. Conforming capital expenditure incurred in the earlier access arrangement period can be included in the opening capital base.<sup>1163</sup> Capital expenditure projected for the access arrangement period can be included in the projected capital base.<sup>1164</sup> If a service provider is concerned that a projected market expansion project might not conform with r. 79 of the NGR it can apply to the AER and have that project assessed under r. 80 of the NGR.

Non-conforming capital expenditure may be recovered via one of two means:

1. with the AER's approval the service provider can levy a surcharge in addition to the reference tariff<sup>1165</sup> or
2. a speculative capital expenditure account is used.<sup>1166</sup> Regardless of when it is incurred, capital expenditure in the account which becomes conforming in nature can be withdrawn from the speculative capital expenditure account and rolled into the opening capital base at the commencement of the next access

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1158 EMRF, *Submission to the AER*, April 2010, p. 43.

1159 EMRF, *Submission to the AER*, April 2010, p. 43.

1160 EMRF, *Submission to the AER*, April 2010, p. 43.

1161 EMRF, *Submission to the AER*, April 2010, pp. 43–44.

1162 NGR, r. 79.

1163 NGR, r. 77.

1164 NGR, r. 78.

1165 NGR, r. 83.

1166 NGR, r. 84.

arrangement period.<sup>1167</sup> Non-conforming capital expenditure cannot be rolled into the opening capital base except by means of the speculative capital expenditure account.

The AER considers that the MEM is inconsistent with the NGR framework<sup>1168</sup> To the extent that any MEM capital expenditure conforms, the NGR requires that it enters either the opening capital base<sup>1169</sup> or the projected capital base.<sup>1170</sup> This means that MEM capital expenditure incurred in an earlier access arrangement period must form a part of the opening capital base.<sup>1171</sup> However, the MEM requires that the capital expenditure be placed in the MEM expansion expenditure account for a period of five years. The AER considers this to be inconsistent with the treatment of conforming capital expenditure under the NGR.

In relation to non-conforming capital, the AER considers that the NGR do not allow amounts to enter the capital base unless they are maintained in a speculative capital expenditure account. The revised access arrangement proposal outlines that after capital expenditure has been in the MEM capital expenditure account for a period of at least five years, it will be assessed as conforming or non-conforming. If the capital expenditure is assessed as conforming<sup>1172</sup> JGN will roll it into the capital base in accordance with r. 77(2) of the NGR.<sup>1173</sup> Considering how the MEM amounts may be considered under r. 77(2) of the NGR:

- rule 77(2)(a): amounts moved out of the MEM capital expenditure account are not an adjustment for any difference between estimated and actual capital expenditure included in the opening capital base and so this rule is not applicable
- rule 77(2)(b): amounts moved out of the MEM capital expenditure account will have been made more than five years ago and will not fall within the earlier access arrangement period. This rule therefore does not apply
- rule 77(2)(c) –(f): amounts moved out of the MEM capital expenditure account do not fall under any of the categories described and so these rules do not apply.

The MEM is therefore inconsistent with how non-conforming capital expenditure which may become conforming is to be rolled into the opening capital base under the NGR.

The AER also considers that the lack of criteria for determining what capital expenditure will be classified as MEM capital expenditure will impact the effective administration of the access arrangement. The AER considers that the difficulty associated with distinguishing MEM and non-MEM capital expenditure may lead to

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1167 NGR, r. 77(2)(c).

1168 NGR, r. 77 to r. 79 and r. 83 to r. 84.

1169 NGR, r. 77(2).

1170 NGR, r. 78(b)

1171 NGR, r. 77(2).

1172 NGR, r. 79.

1173 JGN, *Initial response to the draft decision*, March 2010, pp. 148–149.

inefficient provision of services by the service provider and may result in reference tariffs for users which are not set on an efficient basis.<sup>1174</sup> This is because the AER may not be able to clearly distinguish forecast market expansion capital expenditure included in the projected capital base from projects which are designated as MEM projects. In these circumstances there is the potential for reference tariffs to incorporate the value of project capital projects which are non conforming capital under the MEM.

The EMRF makes a submission about the inclusion an incentive mechanism like the efficiency benefit scheme under the National Electricity Rules (NER).<sup>1175</sup> Under r. 98 of the NGR, the AER may require a full access arrangement proposal to include an incentive mechanism, but it has not in this case. Further, no operating expenditure incentive mechanism (similar to the EBSS in electricity) has been proposed by JGN. The AER notes that, even if a formal incentive mechanism is not included in the access arrangement, the framework of the NGR includes incentives for service providers to improve efficiency. The AER therefore agrees with the EMRF's submission that there exist incentives for JGN to underspend its forecast capital and operating expenditure.<sup>1176</sup> The AER considers that underspending of the forecast capital expenditure and operating expenditure may be desirable in cases where underspending reflects improved efficiency. However, as illustrated in relation to marketing expenditure in the earlier access arrangement period, the reason for the underspending in discretionary categories may need to be examined before the underspending can be attributed to an efficiency gain. The AER also notes that the EMRF's submission outlines that there is an incentive for JGN to overspend on capital and operating expenditure in the fourth year of an access arrangement period if this is the year used by the AER to forecast future capital and operating expenditure.<sup>1177</sup> The final decision assesses the actual operating expenditure in 2008–09 (year four of the earlier access arrangement period) for compliance with r. 91 of the NGR, as outlined in chapter nine. The draft decision also outlines that there are certain criteria that the AER examines in reviewing the base year costs. These are that the base year cost should not include substantial one-off expenditure, the operating expenditure should reflect actual rather than forecast or unrealised expenditure and that the base year generally should be as close as possible to the forecast period.<sup>1178</sup> The final decision approves these base year costs with reference to these criteria with adjustments for costs that do not comply with r. 91 of the NGR. Therefore as outlined in chapter nine, if these base year costs comply with r. 91 of the NGR and the above criteria, then this should address the issues outlined in the EMRF's submission.

In relation to capital expenditure, the revised access arrangement proposal does not propose a base year roll forward of the fourth year of the capital expenditure except for a small proportion of overhead costs. Further the AER is required to assess whether the capital expenditure is conforming under r. 77(2)(b) before it is included in the opening capital base in the next access arrangement period. While the AER does not

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1174 NGR, r. 98(1).

1175 AER, *Draft decision*, February 2010, p. 168.

1176 EMRF, *Submission to the AER*, April 2010, p. 43.

1177 EMRF, *Submission to the AER*, April 2010, pp. 43–44.

1178 AER, *Draft decision*, February 2010, p. 186.

consider the EMRF submission is relevant to the consideration of capital expenditure, its issues are somewhat addressed by the operation of r. 77(2)(c) to the opening capital base.

For the above reasons the AER considers that the MEM does not function within the framework established for capital expenditure and the opening capital base in the NGR and that, as described, administration of the MEM may lead to inefficient provision of services by the service provider.

## **7.5 Conclusion**

The AER does not approve the revised MEM as it is not consistent with r. 77 and r. 78 of the NGR and it does not encourage efficiency in the provision of services by the service provider as required by r. 98(1) of the NGR.

## **7.6 Revisions**

The AER proposes the following revisions:

**Revision 7.1:** amend the revised access arrangement information to delete chapter 10.

**Revision 7.2:** amend the revised access arrangement proposal to delete section 5.

**Revision 7.3:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revisions 7.1 to 7.2.



## 8 Fixed principles

### 8.1 Introduction

This chapter sets out the AER's analysis and consideration of the fixed principles in the revised access arrangement proposal.

### 8.2 Revised access arrangement proposal

The revised access arrangement proposal does not accept amendment 8.1 of the draft decision requiring the deletion of the fixed principles in the access arrangement proposal relating to cross-period pricing factors and the proposed market expansion incentive mechanism.<sup>1179</sup> The revised access arrangement proposal proposes to retain clauses 10.2 and 10.3 of the access arrangement proposal, which comprise clauses 11.2 and 11.3 in the revised access arrangement proposal.<sup>1180</sup>

### 8.3 AER's analysis and considerations

As discussed in chapter 13 of the final decision, the AER does not approve the annual weather variation adjustment, the annual unaccounted for gas (UAG) adjustment, the licence fee event adjustment and the other events adjustment as annual tariff adjustments for the access arrangement period. As a result, the AER does not consider that clause 11.2 of the revised access arrangement proposal should apply as a fixed principle for the access arrangement period and the next access arrangement period.

As discussed in chapter 7 of the final decision, the AER does not approve the revised market expansion incentive mechanism proposed by JGN in section 5 of the revised access arrangement proposal. As a result, the AER does not consider that clause 11.3 of the revised access arrangement proposal should apply as a fixed principle for the access arrangement period and the next access arrangement period.

### 8.4 Conclusion

The AER does not approve clauses 11.2 and 11.3 of the revised access arrangement proposal as fixed principles because a preferable alternative exists that complies with r. 40(3) of the NGR and is consistent with applicable criteria prescribed by the NGL and NGR.

### 8.5 Revisions

The AER proposes the following revision:

**Revision 8.1:** amend the revised access arrangement proposal to delete clauses 11.2 and 11.3.

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1179 JGN, *Initial response to the draft decision*, March 2010, pp. 150–152.

1180 JGN, *Initial response to the draft decision*, March 2010, p. 152 and JGN, *Revised access arrangement proposal*, March 2010, pp. 44–45.

**Revision 8.2:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revision 8.1.

## 9 Operating expenditure

### 9.1 Introduction

This chapter considers the proposed operating expenditure set out in the revised access arrangement proposal.<sup>1181</sup> The AER's analysis and consideration of the access arrangement proposal relating to forecast operating expenditure is set out in chapter 9 of the draft decision.<sup>1182</sup>

The amendments in relation to operating expenditure are set out in the draft decision.<sup>1183</sup> The revised access arrangement proposal does not incorporate the draft decision amendments in full.<sup>1184</sup> Amendments 9.1 and 9.3 of the draft decision set out the operating expenditure escalation factors to be applied to JGN's operating expenditure categories. The revised access arrangement proposal does not accept these amendments and the consequence of these amendments on its operating expenditure. Amendment 9.4 of the draft decision sets out the operating expenditure forecasts and requires JGN to apply these forecasts throughout its access arrangement proposal. JGN does not accept this amendment in full.<sup>1185</sup>

The revised access arrangement proposal removes the direct costs related to the introduction of the carbon pollution reduction scheme (CPRS) from its access arrangement proposal (amendments 9.2 and 9.5 of the draft decision) but it does not accept the removal of the secondary effects of carbon costs through the proposed cost escalators. JGN has accepted amendment 9.6 of the draft decision which requires JGN to remove site remediation costs from its access arrangement proposal.<sup>1186</sup>

The revised access arrangement proposal does not accept amendments 9.7 and 9.8 of the draft decision which require JGN to create, maintain and keep a 'statement of costs' in order to obtain detailed information on the costs incurred from Jemena Asset Management (JAM) in the access arrangement period. This also includes details of JGN's assessment of the performance of JAM.<sup>1187</sup>

### 9.2 Revised access arrangement proposal

The revised access arrangement proposal contains an operating expenditure forecast of \$727.2 million (\$2009–10) over the access arrangement period.<sup>1188</sup> This is an increase of \$114.7 million (\$2009–10) or 18.7 per cent from the draft decision.<sup>1189</sup>

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1181 JGN, *Revised access arrangement information*, March 2010, pp. 16–18 and JGN, *Initial response to the draft decision*, March 2010, pp. 153–193.

1182 AER, *Draft decision*, February 2010, pp. 172–226.

1183 AER, *Draft decision*, February 2010, pp. 223–226.

1184 JGN, *Initial response to the draft decision*, March 2010, pp. 158, 175–177.

1185 JGN, *Initial response to the draft decision*, March 2010, pp. 158, 175–177.

1186 JGN, *Initial response to the draft decision*, March 2010, pp. 175–177 and AER, *Draft decision*, February 2010, pp. 223–225.

1187 JGN, *Initial response to the draft decision*, March 2010, pp. 13–15, 158 and AER, *Draft decision*, February 2010, pp. 225–226.

1188 JGN, *Revised access arrangement information*, March 2010, p. 16.

1189 JGN, *Revised access arrangement information*, March 2010, p. 16 and AER, *Draft decision*, February 2010, p. 225.

Most of this increase is attributed to increases in the operating and maintenance and administration and overheads cost categories. The revised access arrangement proposal also includes higher operating expenditure for self insurance, marketing and debt raising costs than that approved for in the draft decision.<sup>1190</sup>

The revised access arrangement proposal applies different real cost escalators to its operating expenditure to those required in amendment 9.3 of the draft decision.<sup>1191</sup> JGN provides a confidential submission on the cost escalators for plastics.<sup>1192</sup> The revised forecast operating expenditure for the access arrangement period is set out in table 9.1.

**Table 9.1: JGN's forecast operating expenditure (\$m, real, 2009–10)**

|                              | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|------------------------------|---------|---------|---------|---------|---------|-------|
| Controllable costs           |         |         |         |         |         |       |
| Operating and maintenance    | 85.3    | 87.4    | 91.5    | 94.1    | 97.9    | 456.3 |
| Administration and overheads | 26.0    | 26.4    | 27.3    | 28.4    | 29.4    | 137.6 |
| Marketing                    | 6.8     | 6.8     | 6.8     | 6.8     | 6.8     | 33.8  |
| Sub total                    | 118.0   | 120.6   | 125.6   | 129.3   | 134.1   | 627.6 |
| Non-controllable costs       |         |         |         |         |         |       |
| Government levies            | 3.1     | 3.1     | 3.1     | 3.1     | 3.1     | 15.4  |
| Unaccounted for gas          | 13.4    | 13.4    | 13.0    | 12.8    | 12.6    | 65.2  |
| Self insurance costs         | 2.4     | 2.4     | 2.4     | 2.4     | 2.4     | 12.1  |
| Debt raising costs           | 1.3     | 1.4     | 1.4     | 1.4     | 1.5     | 7.0   |
| Sub total                    | 20.2    | 20.3    | 19.9    | 19.7    | 19.6    | 99.6  |
| Total operating expenditure  | 138.2   | 140.9   | 145.5   | 149.0   | 153.6   | 727.2 |

Source: JGN, *Revised access arrangement information*, 19 March 2010, pp. 16–17.

Note: JGN categorises its forecast operating expenditure into the major categories of operating and maintenance and non-operating and maintenance costs. The AER has classified JGN's forecast operating expenditure categories into controllable and non-controllable costs.

1190 JGN, *Revised access arrangement information*, March 2010, pp. 16–17 and AER, *Draft decision*, February 2010, p. 225.

1191 JGN, *Initial response to the draft decision*, March 2010, pp. 182–183.

1192 JGN, *Further response to the draft decision*, April 2010 attachment 2 (confidential) (JGN, *Submission to the AER*, April 2010, attachment 2).

### 9.3 Consultant's report

The AER engaged Wilson Cook & Co, to review the revised operating expenditure (the 2010 Wilson Cook report).<sup>1193</sup> This report should be read in conjunction with the 2009 Wilson Cook report<sup>1194</sup> referred to in the draft decision.<sup>1195</sup> In relation to operating expenditure the 2010 Wilson Cook report retains the conclusions of the 2009 Wilson Cook report.

### 9.4 Submissions

The AER received several submissions on the revised access arrangement proposal and the draft decision relevant to operating expenditure. These submissions are outlined briefly below.

The Energy Markets Reform Forum (EMRF)<sup>1196</sup> submits that the AER is correct in not approving many of the step changes proposed and the proposed outsourcing expenditure are very disconcerting because of the absence of a tendering process and an arms-length approach to O&M and the employment of JAM.<sup>1197</sup> Also, the EMRF objects to the AER's approach with cost escalators in allowing larger adjustments than the consumer price index (CPI) for materials based on estimates and it considers that this increases the regulatory risk faced by consumers.<sup>1198</sup> The EMRF notes that the draft decision does not provide the financial/efficiency driver for JGN to reduce its operating expenditure over the access arrangement period for the benefit of consumers.<sup>1199</sup> Further, the EMRF considers that based on comparative analysis to date, JGN could not yet be considered as being at the 'efficient' performance level and that the AER should provide in the operating expenditure an explicit amount for future improvement in productivity.<sup>1200</sup> With regards to unaccounted for gas (UAG), the EMRF suggests that there should be an incentive program for JGN to further reduce its level of UAG and to drive UAG costs to the most efficient level.<sup>1201</sup>

The Energy Users Association of Australia (EUAA)<sup>1202</sup> submits that the reduction in the proposed operating expenditure as outlined in the draft decision, combined with the decreasing trend in operating expenditure since 1999, gives users a degree of comfort about the level of operating expenditure over the coming period.<sup>1203</sup> The EUAA does not agree with the AER's approach to setting the UAG costs using a UAG factor of 2.34 per cent based on historical levels. It considers that this UAG

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1193 Wilson Cook, *Review of expenditure of ACT & NSW gas distributors, Jemena gas networks (NSW) Ltd*, April 2010 (Wilson Cook Report 2010).

1194 Wilson Cook, *Review of expenditure of ACT & NSW gas distributors, Jemena gas networks (NSW) Ltd*, December 2009 (Wilson Cook Report 2009).

1195 AER, *Draft decision*, February 2010, p. 175.

1196 EMRF, *Submission to the AER*, April 2010.

1197 EMRF, *Submission to the AER*, April 2010, p. 4.

1198 EMRF, *Submission to the AER*, April 2010, p. 4.

1199 EMRF, *Submission to the AER*, April 2010, p. 7.

1200 EMRF, *Submission to the AER*, April 2010, pp. 22–23.

1201 EMRF, *Submission to the AER*, April 2010, p. 26.

1202 EUAA, *Submission to the AER*, April 2010.

1203 EUAA, *Submission to the AER*, April 2010, p. 14.

level does not reflect efficient practice nor does it provide an incentive to minimise this cost. The EUAA considers that this issue is compounded by the draft decision to allow a UAG cost pass through that permits inefficient variations in the level of UAG to be passed through to users.<sup>1204</sup>

The Energy Networks Association Ltd (ENA) provides a submission on the required 'statement of costs'. The ENA considers that direct information collection powers provided for this purpose under the NGL should be utilised. This would be consistent with the AER's approach in its final decision for the ActewAGL Distribution (ActewAGL) gas network access arrangement where the AER reassesses its requirement for a 'statement of costs'.<sup>1205</sup>

## 9.5 AER's analysis and considerations

The revised access arrangement proposal does not incorporate the draft decision amendments in full.<sup>1206</sup> The AER's analysis and considerations of these differences are set out below.

### 9.5.1 Forecasting methodology

The revised access arrangement proposal forecasts the operating expenditure for the access arrangement period using:

- a base year roll forward approach which is applied to the majority of its recurrent operating expenditure and
- specific year-by-year forecasts for some specific cost components.<sup>1207</sup>

Forecast O&M costs also include margin on the base cost rolled forward. The margin is discussed in section 9.5.3.2.

The draft decision approves this forecasting methodology for establishing the operating expenditure base but does not consider that the forecast operating expenditure is consistent with that incurred by a prudent service provider, acting efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of delivering pipeline services.<sup>1208</sup> The draft decision outlines that the use of detailed bottom up costing, including reporting of existing activity levels and costs measured against future requirements for the particular network, could be used to demonstrate that the operating expenditure is consistent with r. 91 of the NGR.<sup>1209</sup> A detailed bottom up analysis is also supported in the 2009 Wilson Cook report as a basis to review all operating expenditure elements.<sup>1210</sup>

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1204 EUAA, *Submission to the AER*, April 2010, p. 15.

1205 ENA, *Submission to the AER*, April 2010, pp. 6–7.

1206 JGN, *Initial response to the draft decision*, March 2010, pp. 158, 175–177.

1207 JGN, *Initial response to the draft decision*, March 2010, pp. 153–155.

1208 AER, *Draft decision*, February 2010, p. 181.

1209 AER, *Draft decision*, February 2010, p. 189.

1210 Wilson Cook report 2009, p. 28.

The revised access arrangement proposal does not accept the bottom up analysis approach to arrive at operating expenditure forecasts.<sup>1211</sup> JGN submits that if such an approach were adopted it would have to provide the AER with a very large amount of detailed information and the AER and its consultant would need extensive expertise and experience in relation to JGN's business to assess it. Also it submits that the AER would need to take considerable steps to avoid regulatory error and that it could not be expected to prepare and provide this information in the time period allowed to submit the revised access arrangement proposal. Further, JGN submits that because it does not employ a bottom up approach to its own business budgeting, JGN does not have this information readily available and would have to invest considerable time and effort to generate a bottom up forecast.<sup>1212</sup>

The revised access arrangement proposal includes a report by Farrier Swier Consulting (the Farrier Swier report)<sup>1213</sup> which identifies and evaluates three methodologies for forecasting operating expenditure forecasts that are submitted to be consistent with the requirements of r. 91 of the NGR.<sup>1214</sup> The three methodologies for forecasting operating expenditure are:

- a revealed efficient cost method (referred to as the 'base year roll forward method' in the access arrangement proposal)
- a bottom up method (defined as an independently derived bottom up review of base year costs)
- a forecasting method as adopted by the AER in the draft decision.<sup>1215</sup>

The Farrier Swier report considers that the key feature of the revealed efficient cost methodology is that the base year (actual) costs are verified and assumed to be efficient as a result of the incentive regime operating in the earlier access arrangement period.<sup>1216</sup> The issue about whether the actual base year costs are efficient is considered in section 9.5.2.3.

While the AER agrees that in some circumstances revealed costs may be reflective of efficient costs, this cannot necessarily be ascertained without an analysis of those costs. The arrangements for delivery of services and the relationship between parties may also need to be considered in establishing the efficiency of costs. As outlined in the draft decision, one way that actual costs may be verified as efficient costs is by undertaking a bottom-up analysis.<sup>1217</sup> The AER notes that the ownership of the JGN pipeline changed during the course of the earlier access arrangement period and that records are not necessarily presented on an entirely consistent basis.

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1211 JGN, *Initial response to the draft decision*, March 2010, pp. 159–164.

1212 JGN, *Initial response to the draft decision*, March 2010, p. 164.

1213 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1.

1214 JGN, *Initial response to the draft decision*, March 2010, p. 160.

1215 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1, p. 2.

1216 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1, p. 2.

1217 AER, *Draft decision*, February 2010, p. 189.

The AER agrees with the Farrier Swier report about the benefits of the revealed efficient cost approach and accepts the use of this methodology in the draft decision.<sup>1218</sup> However, the AER notes that the revised access arrangement proposal does not include an incentive mechanism for operating expenditure (such as an operating expenditure incentive mechanism approved under r. 98 of the NGR) where benefits gained through efficiencies are shared directly with users.<sup>1219</sup> The Farrier Swier report outlines that the incentive mechanism operating in the earlier access arrangement infers that the base year costs are efficient under r.71 of the NGR.<sup>1220</sup> The AER notes that in JGN's case cost savings were not delivered in most operating expenditure categories and where they were, this was the result of a reduction in discretionary spending rather than a cost saving. Further the AER notes that there is significant incentive to overspend under the current operating model because a large part of the operating expenditure activity is contracted to a related party.<sup>1221</sup> Such a structure may provide an incentive to spend more rather than less than the approved regulatory expenditure in the base year in order to justify higher forecast expenditure during the access arrangement period. While the AER notes that JGN submits it has achieved efficiencies during the earlier access arrangement period,<sup>1222</sup> once windfall gains from marketing underspends are removed (see discussion in section 9.4.2.3), JGN does not deliver the productivity gains built into the IPART approved operating expenditure. The AER further notes that r. 71 of the NGR provides the AER with discretion to infer that operating expenditure complies with r. 91 of the NGR without a detailed investigation, but that it is still open to the AER to undertake a detailed investigation.

The revised access arrangement proposal states that JGN endorses and concurs with the conclusion in the Farrier Swier report that the revealed efficient cost approach is superior to the other two approaches considered.<sup>1223</sup> However, the AER notes that the Farrier Swier report makes no such conclusion. The report provides an assessment of the strengths and weaknesses of the approaches considered against the law and rules that govern the AER's decision on the operating expenditure forecast.<sup>1224</sup> It does not make a conclusion on which approach is superior for this task.

In the draft decision the AER notes that the incurred expenditure includes the proposed margin.<sup>1225</sup> In response to the AER's question on the [c-i-c]

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1218 AER, *Draft decision*, February 2010, p. 189.

1219 [c-i-c]

1220 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1, p. 3.

1221 JGN, email to the AER, *AER 02 Dec 09 questions –JGN tranche 2 response*, 11 December 2009, attachment, JGN, *Response to AER 2 December 2009 questions*, 11 December 2009, p. 4 and JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, pp. 13–14 (confidential).

1222 JGN, *Revised access arrangement information*, March 2010, p. 11 and JGN, *Initial response to the draft decision*, March 2010, p. 184.

1223 JGN, *Initial response to the draft decision*, March 2010, p. 163.

1224 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1, p. 2.

1225 JGN, *Access arrangement information*, August 2009, Forecast data model (confidential).



,<sup>1226</sup> JGN submits that its base year roll forward forecast for O&M expenditure relies upon the revealed underlying costs of JAM. This means it does not roll forward from the [c-i-c] and that [c-i-c] is necessary in the forecast data model.<sup>1227</sup> As discussed in section 9.4.3.2, JGN proposes that a margin flowing from the asset management agreement (AMA) be applied to its forecast O&M expenditure.<sup>1228</sup>

In the draft decision, the AER also requires the forecast operating expenditure to exclude the margin because JGN does not substantiate its proposed expenditure with detailed information that clearly supports its submission that the margin and the underlying cost meet the requirements of r. 91 of the NGR.<sup>1229</sup>

As outlined in the draft decision, the AER accepts the base year roll forward approach (the revealed efficient cost approach) as proposed by JGN for forecasting its operating expenditure.<sup>1230</sup>

The AER's consideration of relevant elements of the base year roll forward approach is discussed below.

### 9.5.2 Base year costs

JGN submits that its 2008–09 base year costs have been updated and have been independently validated in an audit report by PricewaterhouseCoopers (the PwC audit report).<sup>1231</sup> The PwC audit report<sup>1232</sup> verifies that:

- the costs have been sourced from the accounting systems of the relevant entities
- the whole of business cost allocation (WOBICA) has been applied using the same methodology that PwC previously reviewed and is consistently applied across all JGN assets and other JAM clients
- transaction testing confirms there are no 'concealed profits' between entities.<sup>1233</sup>

The AER notes that as a result of the revised 2008–09 base year costs, total operating expenditure for this year has increased by 4.8 per cent.<sup>1234</sup> Most of this increase

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1226 [c-i-c]

1227 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 7 (confidential).

1228 JGN, *Revised access arrangement information*, March 2010, p. 17.

1229 AER, *Draft decision*, February 2010, p. 191.

1230 AER, *Draft decision*, February 2010, p. 189.

1231 JGN, *Initial response to the draft decision*, March 2010, p. 178.

1232 JGN, *Initial response to the draft decision*, March 2010, appendix 9.2 (confidential).

1233 JGN, *Initial response to the draft decision*, March 2010, p. 178.

1234 JGN, *Access arrangement information*, August 2009, p. 47 and JGN, *Revised access arrangement information*, March 2010, pp. 10–11.

occurs in the O&M cost category which has increased by 9.2 per cent.<sup>1235</sup> For the reasons set out in the following sections, the AER considers that there are two primary causes of this increase in base costs:

- errors and omissions in the access arrangement proposal
- use of actual base year expenditure for 2008–09 in the revised access arrangement proposal, which is substantially higher than estimated in the access arrangement proposal.

#### **9.5.2.1 Errors and omissions in the access arrangement proposal**

As discussed in the draft decision, the AER notes a number of errors and omissions in the access arrangement information submitted in August 2009.<sup>1236</sup> On 18 December 2009, JGN sought to correct its access arrangement information and increase its base year O&M costs by \$5.64 million (\$2008) and to add an additional \$40.3 million (\$2009–10) to the operating expenditure forecast stated in the access arrangement proposal submitted in August 2009.<sup>1237</sup>

JGN submits that the omissions arise from the manner in which different cost elements are represented for regulatory reporting and forecasting purposes. JGN also submits that its revised access arrangement proposal now includes a specific accountability and sign-off for the manner in which its input costs are used for forecasting purposes. JGN submits that the efficiency of these additional costs can be inferred for the same reasons as the original base year costs.<sup>1238</sup>

JGN also submits that the draft decision does not rely on corrected information even though JGN explained and corrected the omissions in correspondence to the AER on 18 December 2009. JGN also submits that the AER's decision not to consider this submission in the draft decision contrasts with the practice in other price reviews.<sup>1239</sup>

As outlined in the draft decision, while the AER acknowledged that this information was submitted, it did not assess or review this information because the 18 December 2009 correspondence indicated that at that time the information was yet to be verified. In this correspondence JGN indicates it is currently working to complete the collation and external validation of its actual base year costs and will have this information available in the first quarter of 2010.<sup>1240</sup> The draft decision's assessment of operating expenditure is based on an analysis of the documents accompanying the access arrangement proposal submitted in August 2009<sup>1241</sup> (and where relevant models).<sup>1242</sup>

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1235 JGN, *Access arrangement information*, August 2009, p. 47 and JGN, *Revised access arrangement information*, March 2010, pp. 10–11.

1236 AER, *Draft decision*, February 2010, p. 178.

1237 JGN, email to the AER, *JGN response to AER 10 Dec 09 questions*, 18 December 2009, attachment, JGN, *Response to AER 11 December 2009 questions*, 18 December 2009, p. 8.

1238 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, pp. 1–2(confidential).

1239 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 2.(confidential).

1240 JGN, email to the AER, *JGN response to AER 10 Dec 09 questions*, 18 December 2009, attachment, JGN, *Response to AER 11 December 2009 questions*, 18 December 2009, p. 9.

1241 AER, *Draft decision*, February 2010, pp. 179–223.

The draft decision explains that this is because at the time of drafting of the draft decision, JGN had not provided updated and externally verified information regarding the actual base year expenditure.<sup>1243</sup> Notwithstanding JGN's submission that efficiency can be inferred for the same reasons as regarding the original base year costs, the AER notes that there was no opportunity for this new information to be reviewed by third parties in a public consultation process prior to the draft decision being released.

The AER considers the additional costs proposed by JGN in the revised access arrangement proposal arising from omissions and errors in its consideration of the base year costs.

#### **9.5.2.2 Actual base year costs**

The revised access arrangement proposal updates the 2008–09 base year costs with actual costs for the full year. These were not available when the access arrangement proposal was submitted in August 2009.<sup>1244</sup>

The AER notes that the actual base year costs have increased by a further \$2.5 million or 2 per cent when compared to the corrected costs submitted to the AER on 18 December 2009.<sup>1245</sup> To support the accuracy of these costs, the PwC audit report<sup>1246</sup> examines the variances between the estimated 2008–09 base year cost inputs and the actual 2008–09 costs. JGN submits that the variances are largely attributed to increases in the WOBCA costs for actual information technology (IT) costs (\$3 million (\$2009) which is allocated to JGN) not previously included in the forecast. This increase in IT costs is partially offset by the reclassification of information services costs (\$1.5 million (\$2009)) which is allocated to JGN) as capital.<sup>1247</sup>

The AER considers the updated actual costs for 2008–09 as part of its consideration of the base year costs in the revised access arrangement proposal as discussed in section 9.5.2.6.

#### **9.5.2.3 Efficiency of base year costs**

To support the efficiency of its revealed base year costs, JGN states that:

JGN and its asset manager have faced significant incentives in the past which provide assurance that its revealed costs will be efficient. The effectiveness of

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1242 The AER notes that JGN states that 'for the draft decision, the AER explicitly excluded examination of JGN's models which contained extensive detail and reconciliation to JGN's forecast. Wilson Cook then took the view that JGN had not provided such information.' (JGN, *Initial response to the draft decision*, March 2010, p. 181). The draft decision refers to the fact that the AER has examined JGN's models, which were provided on 25 August 2009. (AER, *Draft decision*, February 2010, pp. 178, 179, 190, 191).

1243 JGN, email to the AER, *JGN response to AER 10 Dec 09 questions*, 18 December 2009, attachment, JGN, *Response to AER 11 December 2009 questions*, 18 December 2009, p. 9.

1244 JGN, *Initial response to the draft decision*, March 2010, p. 178.

1245 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 3 (confidential).

1246 JGN, *Initial response to the draft decision*, March 2010, appendix 9.2, pp. 18–20 (confidential).

1247 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 5 (confidential).

these incentives is evidenced by the comprehensive benchmarking analysis that JGN has previously provided to the AER.<sup>1248</sup>

JGN submits that the following factors demonstrate the efficiency of the revealed base year costs:

- past incentives and performance
- current performance
- a review of operating expenditure forecasts.<sup>1249</sup>

With regard to past incentives and performance, JGN submits that in earlier access arrangement periods the IPART regulatory framework included a fixed operating expenditure which provided an incentive for JGN to become more efficient. There was also an efficiency target which was reduced over time in recognition of JGN's maturity as a business. JGN submits it had a strong incentive to reduce costs because of significantly lower demand than forecast in the earlier access arrangement period.<sup>1250</sup>

In considering its current performance, JGN submits that the AMA it has negotiated with JAM provides incentives to JAM to perform in a way to achieve the lowest sustainable cost and service quality. JGN submits that it benefits from the procurement policy of JAM which provides for sound competitive tendering and from the economies of scale and scope of JAM. It also submits that benchmarking and total factor productivity reports demonstrate that its operating costs compare favourably with those of its peers.<sup>1251</sup>

Finally in reviewing operating expenditure forecasts, JGN submits that it has used independent expert reports to support its escalation and demand forecasts and has used detailed modelling to escalate for volume scale. JGN also submits that it has used detailed activity planning and expert evidence for specific year-by-year forecasts of some costs.<sup>1252</sup>

The revised access arrangement proposal outlines that JGN achieved operating efficiencies in each year of the earlier access arrangement period.<sup>1253</sup>

In relation to past incentives and performance, the AER notes that when compared to the IPART approved expenditure for O&M costs which form a large part of total operating expenditure (66 per cent in 2008–09), JGN has consistently overspent its approved expenditure in four of the five years of the earlier access arrangement

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1248 JGN, *Initial response to the draft decision*, March 2010, p. 184.

1249 JGN, *Initial response to the draft decision*, March 2010, pp. 184–185.

1250 JGN, *Initial response to the draft decision*, March 2010, pp. 184–185.

1251 JGN, *Initial response to the draft decision*, March 2010, p. 185.

1252 JGN, *Initial response to the draft decision*, March 2010, p. 185.

1253 JGN, *Revised access arrangement information*, March 2010, p. 11.

period.<sup>1254</sup> For the base year 2008–09, JGN has overspent its approved expenditure for O&M costs by \$2.6 million (\$2009–10) or 3.2 per cent. It has also overspent its approved expenditure for administration and overheads costs for this year by \$0.5 million (\$2009–10) or 2.3 per cent. The AER also notes that JGN expects to significantly overspend the IPART approved expenditure for administration and overheads costs for 2009–10.<sup>1255</sup> As discussed in the draft decision, the AER considers that the efficiencies in costs derived in the earlier access arrangement period relate to the change in scope and scale of one discretionary item. JGN significantly underspent the approved marketing expenditure.<sup>1256</sup> JGN submits that it changed its marketing strategy from an incentive based approach targeted at NSW retailers, to the generic promotion of the use of natural gas, because the earlier approach was becoming less effective.<sup>1257</sup> The AER notes that if marketing costs are excluded from the operating expenditure, then JGN has overspent its approved operating expenditure over the earlier access arrangement period. For example in 2008–09, excluding marketing costs, JGN has overspent its operating expenditure by \$5.1 million (\$2009–10) or 4.3 per cent.<sup>1258</sup>

The EMRF submission outlines that JGN has not yet achieved efficient performance levels.<sup>1259</sup> JGN submits that under its previous outsourcing arrangement with Agility Management Pty Ltd (Agility), which has been superseded by the AMA, Agility had every incentive to drive costs down to their lowest sustainable levels because it was able to capture cost savings.<sup>1260</sup> In regards to the IPART approved productivity targets for the current access arrangement period, the AER notes that excluding the windfall gain JGN received from marketing (which is considered an item of discretionary expenditure) it did not meet the operating expenditure and the efficiency targets approved by the IPART<sup>1261</sup> but instead overspent its approved operating expenditure across every other cost category except for government levies. The AER also notes that JGN submits that it has achieved rates of operating expenditure productivity growth that exceed those of its peers in Victoria<sup>1262</sup> and that JGN has proposed an implicit efficiency target by assuming indirect costs will not grow as a result of increased gas consumption or customer connections.<sup>1263</sup> JGN submits that it has factored in a significant productivity increase in its forecast operating expenditure because it has made no allowance for network growth effects in its corporate overheads.<sup>1264</sup>

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1254 Operating and maintenance costs now include retail contestability costs which were previously determined by the IPART in the earlier access arrangement period to be uncontrollable costs. (JGN, *Access arrangement information*, August 2009, p. 46).

1255 JGN, *Revised access arrangement information*, March 2010, pp. 10–11.

1256 AER, *Draft decision*, February 2010, p. 206.

1257 JGN, *Access arrangement information*, August 2009, p. 87.

1258 JGN, *Revised access arrangement information*, March 2010, pp. 10–11.

1259 EMRF, *Submission to the AER*, April 2010, p. 22.

1260 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A, p. 10 (confidential).

1261 JGN, *Access arrangement information*, August 2009, p. 97.

1262 JGN, *Access arrangement information*, August 2009, pp. 98–99.

1263 JGN, *Access arrangement information*, August 2009, p. 81.

1264 JGN, email to the AER, *JGN submission on new issues raised on public submissions published by the AER on 4 May 2010*, 18 May 2010, attachment, JGN letter to the AER, *JGN access arrangement revision*

The AER is mindful that the presence of discretionary expenditure, such as marketing, has the potential to undermine the credibility, as advocated in the Farrier Swier report, of the revealed cost approach where actual expenditure is assumed to be efficient because of the incentive regime in the earlier access arrangement period.<sup>1265</sup> This is because the incentive to reduce costs may be compromised by the incentive to inflate future expenditure forecasts, particularly where these costs are controllable and discretionary, such as marketing expenditure.

In relation to its performance in benchmarking analysis, the AER notes that these benchmarking studies rely on older estimates for forecast operating expenditure and as they have not been updated to include the revised operating expenditure, the conclusions and inferences drawn from the studies are further removed from the revised forecast operating expenditure. Even so, as discussed in the draft decision,<sup>1266</sup> in the absence of detailed underlying cost information, the access arrangement proposal seeks to rely on a number of benchmarking and partial factor productivity studies.<sup>1267</sup> As discussed in the draft decision,<sup>1268</sup> neither Wilson Cook nor the AER considers that the studies are adequate to demonstrate that the proposed operating expenditure is consistent with the requirements of r. 91 of the NGR.<sup>1269</sup> The report prepared by Wilson Cook, dated May 2010 (2010 Wilson Cook report) agrees with the Farrier Swier report that benchmarking studies are not sufficiently reliable to use as a forecasting approach on their own but are more useful as a separate check on other forecasting approaches.<sup>1270</sup> JGN submits that it does not support a mechanistic application of benchmarking to set operating expenditure and that a forecast produced solely on this basis would be unlikely to be consistent with the requirements of r. 74 of the NGR.<sup>1271</sup>

The AER notes that as the AMA has only been in effect since 1 August 2009,<sup>1272</sup> the AER considers that the inference that can be drawn about the effectiveness of the AMA and the current level of performance of JGN in this regard is limited. Also, the AER considers that the fact that JGN has provided expert evidence and reports supporting elements of its operating expenditure does not mean that these elements of the expenditure or the total operating expenditure are considered by the AER to be efficient and are consistent with the requirements of r. 91 of the NGR.

The AER does not agree that the past performance of JGN exhibits operational efficiencies when incurred expenditure is measured against the IPART approved

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*proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, attachment 3, p. 22.

1265 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1, p. 2.

1266 AER, *Draft decision*, February 2010, p. 189.

1267 Benchmarking and total factor productivity studies are considered in the draft decision pp. 217–218.

1268 AER, *Draft decision*, February 2010, pp. 217–218.

1269 Wilson Cook report 2009, pp. 18–20.

1270 Wilson Cook report 2010, p. 16.

1271 JGN, email to the AER, JGN submission on new issues raised on public submissions published by the AER on 4 May 2010, 18 May 2010, attachment, JGN letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 2.

1272 JGN, *Access arrangement information*, August 2009, appendix 6.1, p. 26.

expenditure. The AER notes that JGN was unable to achieve the productivity target set by the IPART (excluding the marketing windfall gain) for the earlier access arrangement period. As noted above, the AER does not consider that the benchmarking studies provided with the access arrangement proposal demonstrate that JGN's base year expenditure represents the lowest sustainable cost. However, the AER notes that JGN has not had an incentive to spend more than the operating expenditure approved by IPART.

Notwithstanding the past and current performance of JGN and in the absence of detailed bottom-up information, the AER considers that the approach of using actual costs for the purposes of establishing forecast operating expenditure (the base year roll forward approach) is the best feasible approach. The AER considers that in the circumstances the best proxy of efficient costs is actual verified costs for the base year 2008–09.

#### 9.5.2.4 Corporate costs – relevance to pipeline services

The AER notes that the base year operating expenditure includes a number of corporate costs for the enterprise support function (ESF) that are allocated to JGN using WOBCA methodology.<sup>1273</sup> The WOBCA methodology is outlined in detail in the access arrangement proposal<sup>1274</sup> and the draft decision.<sup>1275</sup>

The AER provided JGN with an opportunity to provide further information regarding the inclusion and breakdown of certain costs in JGN's forecast operating expenditure.<sup>1276</sup> In particular, the AER sought further information from JGN about how the following corporate costs relate to the delivery of pipeline services:

- [c-i-c] management fee
- financial strategy
- investment analysis
- energy investments.<sup>1277</sup>

JGN responds to the information requests<sup>1278</sup> and submits that the Jemena Group<sup>1279</sup> incurs these costs at a corporate level in order to manage a portfolio of assets which relate to activities that contribute to the Jemena Group providing a range of services to

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1273 JGN, *Access arrangement information*, August 2009, appendix 6.1, pp. 13–14 (confidential).

1274 JGN, *Access arrangement information*, August 2009, appendix 6.1, pp. 11–12.

1275 AER, *Draft decision*, February 2010, pp. 182–183.

1276 AER, email to JGN, *initial questions on revised proposal*, 31 March 2010; AER, email to JGN, *further questions*, 23 April 2010.

1277 JGN, *Access arrangement information*, August 2009, appendix 6.1, pp. 13–14 (confidential).

1278 JGN, email to the AER, JGN AA –Response to AER 31 Mar 10 questions, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, pp.8–12 (confidential); JGN, email to the AER, AER 23 Apr 10 questions-capex-q10 q3, 30 April 2010, attachment, JGN, *Response to AER questions received on 23 April 2010*, 30 April 2010, pp. 6–7 (confidential).

1279 The Jemena Group includes all entities that are wholly or partially owned by SPI (Australia) Assets Pty Ltd, which is a wholly owned subsidiary of Singapore Power International Limited Pte Ltd., AER, *Draft decision*, February 2010, p. 397.

JGN and other Jemena Group entities. These services support the day-to-day operations of JGN and enable it to provide the regulated pipeline services.<sup>1280</sup>

The 2010 Wilson Cook does not undertake a detailed reconciliation of the WOBCA cost categories and notes a further assumption to be confirmed is that all the expenditure relates to the provision of pipeline services.<sup>1281</sup> Likewise, while the AER has examined some of the corporate cost categories, it has not examined in detail all cost pools under the WOBCA methodology to determine if all of the activities within these cost pools relate solely to the delivery of pipeline services. The AER considers that such a detailed analysis is outside the scope of this access arrangement review, but there may be scope in future reviews to undertake a more detailed analysis to establish whether these cost pools relate to the delivery of pipeline services. The AER may seek further information to assist such reviews when collecting the cost information it requires for future access arrangement proposals. The process of collecting cost information for the next access arrangement proposal is discussed in section 9.5.4.7.

In the Essential Services Commission's gas access arrangement review 2008–12 final decision (ESC final decision 2008) that considered the allocation of similar costs for the Multinet gas distribution network in Victoria, certain management costs that form part of the ESFs were removed.<sup>1282</sup> The ESC final decision 2008 did not approve the allocation of costs for the Chief Executive Officer (CEO), Chief Financial Officer (CFO), Finance Control and Treasury, Investor Relations and Corporate Communications cost pools to the Multinet gas distribution network assets.<sup>1283</sup> These were removed for two reasons. First, the ESC issue that there was a duplication of management costs being allocated given the split ownership, operation and management of the business. Second, these cost pools were considered not to be related to the provision of pipeline reference services.<sup>1284</sup> The ESC noted that it was not clear that other group and shareholder costs had not been allocated to the operation and management of the pipeline. It considered that shareholder management costs that are not related to the provision of pipeline services be excluded from corporate overhead costs.<sup>1285</sup> This decision was not appealed by the service provider.

In considering the corporate services provided by the Jemena Group management in Australia and by the [c-i-c]

, the AER notes two issues arising from the ESC decision.

First, the AER considers the relevant stewardship or strategic management costs of the JGN assets are the Australian management costs. By accepting the [c-i-c] management fee and other corporate costs charged down from the Jemena Group under the WOBCA methodology, the AER considers there is potential duplication of management costs for these assets. This is because JAM and JGN also have additional

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1280 JGN, email to the AER, JGN AA –Response to AER 31 Mar 10 questions, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 10 (confidential).

1281 Wilson Cook report 2010, p. 22.

1282 ESC, *Final decision: gas access arrangement review 2008–12*, 7 March 2008, p. 127.

1283 ESC, *Final decision: gas access arrangement review 2008–12*, 7 March 2008, p. 127.

1284 ESC, *Final decision: gas access arrangement review 2008–12*, 7 March 2008, p. 127.

1285 ESC, *Final decision: gas access arrangement review 2008–12*, 7 March 2008, pp. 124–125.



management structures to manage the assets and the servicing of the JGN assets. In relation to the [c-i-c] management fee the following section outlines the issue that the management services provided by [c-i-c] are not sufficiently distinguished from the Australian management services and because of this there may be a duplication of management costs. Also the AER considers that JGN has not established the direct relevance of the services provided under the [c-i-c] management fee to the JGN NSW gas network assets. While beyond the scope of this access arrangement review, given the structure of the Jemena Group the AER considers that the extent of overlay and duplication of management costs within the Jemena Group may need to be investigated in future reviews.

Second, in the case of the revised access arrangement proposal, the AER has not undertaken a detailed analysis as to whether the activities of the CEO, CFO and other cost pools relate to the delivery of pipeline services or are instead related to stewardship or shareholder activities. The AER's working assumption is that there are some activities undertaken by the CEO and CFO that relate to the delivery of pipeline services and that some allocation of costs is appropriate. This working assumption is not without support, for example, the AER is aware of certain issues in relation to this access arrangement review that were considered by the Australian management and Board of the Jemena Group. Also the AER considers that the relevant management costs associated with the delivery of pipeline services are more likely to be the Australian management costs (Jemena Group) than the [c-i-c] costs. As outlined below the AER considers that the services provided by the [c-i-c] are not pipeline services. That said, the AER considers there is an opportunity in future access arrangement reviews to investigate the appropriateness and extent of what ESF costs including the CEO and CFO activities (and costs) are relevant to the delivery of pipeline services, can be distinguished from the services provided by the JGN and JAM management and are not a duplication of these management costs.

Certain specific cost pools under the WOBCA methodology are considered in more detail below.

#### **[c-i-c] management fee**

The [c-i-c] management fee is charged to JGN by [c-i-c] the Jemena Group for management services provided [c-i-c]. JGN submits that the [c-i-c] management fee relates to [c-i-c] strategic support within the Jemena Group ESF streams, including:

- strategic group finance advice
- group corporate governance and compliance
- strategic advice regarding management of regulatory matters.<sup>1286</sup>

The AER notes that the fee relates to services provided to JGN by [c-i-c]. The AER considers that while this may be of benefit to the Australian management and the strategic and corporate functions of the Jemena Group, the AER

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<sup>1286</sup> JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 10 (confidential).

has concerns about the direct relevance of this management fee to the provision of pipeline services. Following further inquiry, JGN still has not provided the AER with detailed information regarding how the services provided [c-i-c]

relate to the delivery of pipeline services.<sup>1287</sup> Based on the information provided,<sup>1288</sup> the AER considers that the services provided under the [c-i-c] management fee are strategic in nature and relate to the corporate strategy and direction from the ultimate parent. These services are provided to the Australian management team and corporate head office and for their benefit and the benefit of shareholders. As discussed above, the AER does not consider the [c-i-c] management services are sufficiently connected to the delivery of pipeline services and more likely relate to services that benefit shareholders than users.

Further as outlined above, the AER has concerns about the overlay of [c-i-c] management costs charged to JGN particularly given that Australian management costs are also charged to JGN. The services provided by [c-i-c] are not sufficiently distinguished from the Australian management costs. In this way the AER considers there is a duplication of management costs charged to JGN.

The AER notes that the Australian Competition and Consumer Commission's (ACCC) decision not to approve a similar management fee payable to Agility by the East Australian Pipeline Limited in relation to the Moomba to Sydney Pipeline.<sup>1289</sup> In its final decision, the ACCC noted that while Agility charges separately for various services performed under the pipeline management agreement, the management fee however is not for any particular service. For this reason, the ACCC considered the management fee was a cost that would not be incurred by a prudent service provider, acting efficiently, in accordance with accepted and good industry practice to achieve the lowest sustainable cost of delivering the reference service as required by s. 8.37 of the Code.<sup>1290</sup> The AER notes that the requirements under s. 8.37 of the Code to the criteria governing operating expenditure are substantially similar to those set out in r. 91 of the NGR.

The AER further notes that the PwC audit report does not confirm either the basis on which the fee is calculated or whether there is a link between the management services provided [c-i-c] and the services provided to JGN. The PwC audit report states that:

[c-i-c]

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1287 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, pp. 10–11 (confidential).

1288 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, pp. 10–11 (confidential).

1289 ACCC, *Final decision: East Australian Pipeline Limited access arrangement for the Moomba to Sydney Pipeline System*, 2 October 2003, p. 153.

1290 ACCC, *Final decision: East Australian Pipeline Limited access arrangement for the Moomba to Sydney Pipeline System*, 2 October 2003, p. 153.

The above mentioned issues are reinforced by the observation in the PwC audit report<sup>1292</sup> about the lack of information concerning the connection between the [c-i-c] management services provided to the Australian management of the Jemena Group which are of a strategic nature and not directly relevant to the delivery of pipeline services by JGN. In light of these concerns, the AER considers that the operating expenditure related to the [c-i-c] management fee does not meet the requirements of the NGL<sup>1293</sup> and the NGR.<sup>1294</sup>

Given the above considerations, the AER does not approve expenditure for the [c-i-c] management fee to be included in the base year costs and forecast operating expenditure.

### ***Financial strategy***

JGN submits that it needs to ensure it has access to operational and fully supported financial systems in order for it to conduct its operations. It also submits that it requires financial analysis support for the projects that it undertakes.<sup>1295</sup> The services provided by the financial strategy unit include:

- the provision of support and integrity for key finance systems focusing on the general ledger<sup>1296</sup>
- finance support for key commercial and strategic initiatives of the business.<sup>1297</sup>

As noted in connection with the [c-i-c] management fee, the AER considers that services of a strategic nature may not be sufficiently connected to the provision of pipeline services and are more likely to be connected with owners' interests and benefits. The AER considers that in relation to finance support there seems to be activities directed to strategic initiatives of the business. JGN provides insufficient information on the nature of these costs for the AER to determine whether these costs are directly related to the provision of pipeline services or activities that benefit owners of the business. The AER notes that in response to a question on this matter, JGN submits that it cannot provide the cost data disaggregated into the form requested

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1291 [c-i-c]

1292 JGN, *Initial response to the draft decision*, March 2010, appendix 9.2, appendix H, p. 6 (confidential).

1293 NGL, s. 2 and s. 23.

1294 NGR, r. 69 and r. 91.

1295 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 11 (confidential).

1296 This is the same as the finance systems WOBCA cost category which is assessed in the PwC audit report (JGN, email to the AER, *AER 23 Apr 10 questions-capex-q10 q3*, 30 April 2010, attachment, JGN, *Response to AER questions received on 23 April 2010*, 30 April 2010, pp. 6–7 (confidential)).

1297 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 11 (confidential).

by the AER because the relevant Jemena Group accounting systems do not capture these specific activities individually for each of the ESF business units by cost.<sup>1298</sup>

Notwithstanding the lack of information provided to the AER, it considers that some areas of activity such as support for the finance systems could potentially be appropriate activities as they relate to the delivery of pipeline services. However, this is uncertain and the AER considers that the activities of the financial strategy unit are not related to the delivery of pipeline services. The AER acknowledges that while some costs in this category may relate to the delivery of pipeline services, the AER has no way of determining what these costs are, based on the information provided by JGN. For these reasons the AER considers that financial strategy costs do not meet the requirements of the NGL<sup>1299</sup> and NGR.<sup>1300</sup>

Given the above considerations, the AER does not approve expenditure related to financial strategy to be included in the base year costs and forecast operating expenditure.

### ***Investment analysis***

JGN submits that it must undertake budgeting, forecasting and financial modelling in order for it to conduct its operations.<sup>1301</sup> The services provided by the investment analysis unit include:

- group budgeting and forecasting
- ownership of the corporate model and long term forecast
- financial modelling and project support.<sup>1302</sup>

JGN submits that budgets and forecasts prepared by the business units are consolidated into a group budget and forecast which is used by the executive leadership, SPI (Australia) Assets Pty Ltd's (SPIAA) board and Singapore Power International Pty Ltd (SPI) to make strategic business decisions including decisions on the capital structure and to update stakeholders.<sup>1303</sup>

JGN also submits that the corporate model is used by the business and SPI to support strategic decision making. This includes decisions on the most efficient capital structure for the business and for supporting the carrying value of the group's assets. Further, JGN submits that modelling support is provided for specific projects

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1298 JGN, email to the AER, *AER 23 Apr 10 questions-capex-q10 q3*, 30 April 2010, attachment, JGN, *Response to AER questions received on 23 April 2010*, 30 April 2010, p. 6 (confidential)

1299 NGL, s. 2 and s. 23.

1300 NGR, r. 69 and r. 91.

1301 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 11 (confidential).

1302 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 11 (confidential).

1303 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 11 (confidential).

throughout the business, including development projects and regulatory determinations.<sup>1304</sup>

While the AER acknowledges that budgeting and forecasting and financial modelling are integral to the provision of pipeline services, the AER considers that the primary purpose for the investment analysis activities is not for the benefit of users of pipeline services delivered on the JGN network. As outlined above, the purpose of the budgets and forecasts prepared by the business units into consolidated accounts, is to provide information for the executive management to make strategic decisions for investment opportunities, decisions on capital structure and to update the owners of the Jemena Group's businesses. The AER notes that JGN provides no specific examples of modelling support provided for specific projects in relation to its access arrangement proposal.

The AER considers that JGN has provided insufficient information on the nature of the investment analysis costs for it to determine whether these costs are directly related to the provision of pipeline services. The AER notes that in response to a question on this matter, JGN submits that it cannot provide the cost data disaggregated into the form requested by the AER because the relevant Jemena Group accounting systems do not capture these specific activities individually for each of the ESF business units by cost.<sup>1305</sup> Notwithstanding this the AER notes that several of these activities, such as corporate modelling and forecasting, can be considered to relate to the corporate group and are not used for the provision of pipeline services.

On the basis of the information available, the AER considers that the activities of the investment analysis unit are not related to the delivery of pipeline services. The AER acknowledges that while some costs in this category may relate to the delivery of pipeline services, the AER has no way of determining what these costs are. For these reasons the AER considers that investment analysis costs do not meet the requirements of the NGL<sup>1306</sup> and NGR.<sup>1307</sup>

Given the above considerations, the AER does not approve expenditure related to investment analysis to be included in the base year costs and forecast operating expenditure.

### ***Energy investments***

JGN submits that its energy investment unit serves to maximise the financial returns from Jemena Group's equity investment in wholly-owned or partially owned assets.<sup>1308</sup> It submits that this is achieved by:

- protecting and creating incremental value in the asset businesses

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1304 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, pp. 11–12 (confidential).

1305 JGN, email to the AER, *AER 23 Apr 10 questions-capex-q10 q3*, 30 April 2010, attachment, JGN, *Response to AER questions received on 23 April 2010*, 30 April 2010, p. 6 (confidential)

1306 NGL s. 2 and s 23.

1307 NGR r. 69 and r. 91.

1308 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 12 (confidential).

- effective management of regulatory matters
- effective asset control
- effective management of government relations.<sup>1309</sup>

The AER considers that the primary function of the energy investment unit is to increase shareholder return by 'maximising the financial returns from the Jemena Group's equity investment'. The AER notes the energy investment unit's activities relate to the corporate strategy, external liaison (with government and regulatory bodies) and protection of shareholder value.<sup>1310</sup> The AER does not consider that these activities support the provision of pipeline services but instead benefit the owners of JGN. Given the nature of the energy investment activities undertaken, the AER considers that costs related to energy investments do not meet the requirements of the NGL<sup>1311</sup> and NGR.<sup>1312</sup>

For these reasons, the AER does not approve expenditure related to energy investments to be included in the base year costs and forecast operating expenditure.

#### **9.5.2.5 Consultant's recommendation on base year's expenditure**

As discussed in the draft decision,<sup>1313</sup> the 2009 Wilson Cook report recommends that the most robust approach to determining the efficient level of the base year's expenditure and in turn forecast expenditure, in the circumstances, is to take the lowest of:

- the level of expenditure considered prudent and reasonable by the IPART in its review<sup>1314</sup>
- the level of expenditure incurred in the base year by JGN
- the level of expenditure proposed by JGN as the starting point for the access arrangement period.<sup>1315</sup>

The 2010 Wilson Cook report applies the same approach to determine the efficient level of the base year's expenditure and concludes that the level of expenditure approved by the IPART<sup>1316</sup> is the lowest level.<sup>1317</sup>

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1309 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 12 (confidential).

1310 JGN, email to the AER, *JGN AA –Response to AER 31 Mar 10 questions*, 9 April 2010, attachment, JGN, *Response to AER 31 March 2010 questions*, 9 April 2010, p. 12 (confidential).

1311 NGL s. 2 and s 23.

1312 NGR r. 69 and r. 91.

1313 AER, *Draft decision*, February 2010, p. 188.

1314 The AER notes that Wilson Cook report is referring to the IPART review that determined the operating expenditure allowed during the earlier access arrangement period.

1315 Wilson Cook report 2009, p. 27.

1316 The AER notes that in comparing the revised base year cost proposed by JGN with the expenditure approved by the IPART, the Wilson Cook report has included the margin, and one-off events in the revised proposed base year cost (Wilson Cook report 2010, p. 22).

#### 9.5.2.6 AER's consideration of base year's expenditure

Notwithstanding the conclusion reached in the May 2010 Wilson Cook report and the lack of detailed information provided by JGN to support the base year expenditure, the AER considers that for the reasons discussed in the draft decision,<sup>1318</sup> recent actual expenditure provides a more appropriate basis for forecasting operating expenditure. Therefore, the AER approves the proposed base year expenditure less one-off costs, and adjustments made to corporate costs and considers that the resulting level of actual expenditure incurred in the base year 2008–09 meets the requirements of r. 91 of the NGR.

The AER notes that any adjustments required to the proposed step change costs and to the JAM margin as discussed and considered in section 9.5.3, are to be applied following approval of the base year costs.

### 9.5.3 Base year roll forward forecasts

#### 9.5.3.1 Step changes

The draft decision applies the criteria proposed in the 2009 Wilson Cook report to determine whether a step change should be accepted and states that these are an effective means by which the proposed step changes can be tested against the requirements of r. 91 of the NGR.<sup>1319</sup>

The draft decision also notes that the 2009 Wilson Cook report considers JGN provides no evidence to demonstrate that:

- the additional employees are needed exclusively for tasks related to step changes
- it is not possible for the work to be undertaken by existing staff by re-prioritisation or re-allocating their tasks
- the proposed additional staff will not fill other unstated functions as well.<sup>1320</sup>

The revised access arrangement proposal states that JGN accepts the 2009 Wilson Cook report's high level observations and criteria. In particular, JGN accepts that:

- costs should only be accepted by the AER if there is a benefit to customers, in terms of the product delivered, or to the business, in terms of efficiency
- ordinary variations that occur in operating expenditure from year to year ought not to form the basis of a proposal for a step change
- criteria should be applied to ensure that the AER's decision on step changes reflects the requirements of the NGR.<sup>1321</sup>

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1317 Wilson Cook report 2010, p. 22.

1318 AER, *Draft decision*, February 2010, pp. 186–187, 191.

1319 AER, *Draft decision*, February 2010, p. 194.

1320 AER, *Draft decision*, February 2010, p. 194.

In regards to the addition of FTEs in certain step changes, the revised access arrangement proposal states that additional staff resources will be required to deliver the additional functions and outputs associated with each step change.<sup>1322</sup>

JGN submits that it has carefully reviewed its original submission and provides further information and amended forecasts to address the concerns expressed in the draft decision. JGN also submits that in providing further substantiation it has applied the criteria developed by the 2009 Wilson Cook report.<sup>1323</sup>

The AER notes that the draft decision accepts the proposed step changes for inspection of exposed mains, and repair of exposed mains.<sup>1324</sup> The revised access arrangement proposal incorporates the draft decision requirements for the following step changes:

- safety management studies for primary mains and trunks
- network effects of upstream changes in pipeline, shipper, and producer actions
- 'gas make whole' project
- mains encroachment
- pressure vessel repairs
- additional telecom costs associated with increased volume of special reads.<sup>1325</sup>

The revised access arrangement proposal does not incorporate the draft decision amendments for the following step changes:

- formal safety assessments
- increase in staff training
- implementation of the short term trading market (STTM)
- painting (re-coating) of receiving, regulating and off-take stations
- water bath heating
- compliance with new NGR data requirements
- AMA contract management.<sup>1326</sup>

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1321 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 2.

1322 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 3.

1323 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 3.

1324 AER, *Draft decision*, February 2010, p. 196.

1325 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 4.

1326 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 4–6.



These step changes, together with the step changes approved in the draft decision, sum to \$2.3 million (\$2009–10) in the proposed administration and overheads costs<sup>1327</sup> and \$12.8 million (\$2009–10) in the proposed O&M costs.<sup>1328</sup> The AER's consideration of each of the step changes in the revised access arrangement proposal are discussed below.

### **Formal safety assessments**

The AER assesses the additional information and analysis on formal safety assessments provided in the revised access arrangement proposal.<sup>1329</sup> The AER notes that the revised access arrangement proposal sets out one-off implementation activities totalling \$43 360 (\$2009) and an ongoing program of work totalling \$326 080 (\$2009) per annum.<sup>1330</sup>

The AER has reviewed the additional information provided in the revised access arrangement proposal and is satisfied that the detailed cost estimates and the proposed incremental costs relating to this step change are reasonable. The AER also notes the response from JGN to the issue raised in the 2009 Wilson Cook report that the additional work could be undertaken by existing staff through re-prioritisation or re-allocation of their tasks.<sup>1331</sup>

The AER approves the revised forecast operating expenditure for formal safety assessments and considers it meets the requirements of r. 74 and r. 91 of the NGR.

### **Increase in staff training**

The AER assesses the additional information and analysis on the increase in staff training step change provided in the revised access arrangement proposal.<sup>1332</sup> The AER notes that JGN has clarified that the increase in training is not on a temporary basis<sup>1333</sup> and that it provides a detailed composition of the proposed scope of the training and the costs associated with the proposed step change.<sup>1334</sup> The AER is satisfied that the additional information demonstrates that both the scope of the training and the detailed cost estimates are reasonable.

The AER further notes that JGN has applied the step change criteria as developed by the 2009 Wilson Cook report.<sup>1335</sup> The AER is satisfied that JGN has demonstrated that the proposed step change will provide benefits for customers and the business will continue to operate efficiently despite the cost increase. In light of this the AER considers that the step change for the increase in staff training is in line with the criteria proposed in the 2009 Wilson Cook report.

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1327 JGN, *Initial revised access arrangement information*, March 2010, p. 16.

1328 JGN, *Initial revised access arrangement information*, March 2010, p. 17.

1329 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 6–10.

1330 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 8–9.

1331 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 10.

1332 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 10–17.

1333 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 13.

1334 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 14–16.

1335 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 11.

The AER approves the revised forecast operating expenditure for increase in staff training and considers it meets the requirements of r. 74 and r. 91 of the NGR.

### **Implementation of the STTM**

The AER assesses the additional information and analysis on the implementation of an STTM step change provided in the revised access arrangement proposal.<sup>1336</sup> The AER is satisfied that JGN has provided sufficient detail in the revised access arrangement proposal regarding the new activities to be undertaken and the substantiation for the requirement of an additional full time employee FTE. The AER considers that the relevant labour cost proposed is reasonable and notes that JGN states that this labour cost is in addition to those already included in its operating expenditure forecasts.<sup>1337</sup>

The AER approves the revised forecast operating expenditure for implementation of a STTM and considers it meets the requirements of r. 74 and r. 91 of the NGR.

### **Painting (re-coating) of trunk receiving, primary regulation and packaged off-take stations**

The AER assesses the additional information and analysis on the painting of receiving, regulating and off-take stations step change provided in the revised access arrangement proposal.<sup>1338</sup> The revised access arrangement proposal states that the average cost of the planned works is \$433 000 (\$2009) per annum. The AER notes that JGN has removed the \$6 000 (\$2009) per annum cost of the spot repair programme, which is accounted for in the base year operating costs, to derive a total estimated step change of \$427 000 (\$2009).<sup>1339</sup>

The AER considers that JGN provides a sufficiently detailed breakdown and analysis of the costs that will be incurred for this step change and regarding the scope of the step change.<sup>1340</sup> The AER also notes that JGN states the step change amounts relate only to direct costs and therefore are not included in any WOBCA calculation<sup>1341</sup> and also that costs of the spot repair programme have been deducted from the total cost of the planned works.<sup>1342</sup> On this basis the AER considers that the amended cost estimates are arrived at on a reasonable basis.

The AER accepts that JGN demonstrates that the painting of receiving, regulating and off-take stations step change is the result of external drivers and therefore acceptable against the step change criteria.<sup>1343</sup>

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1336 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 18–20.

1337 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 19–20.

1338 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 21–27.

1339 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 26.

1340 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 24–26.

1341 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 23.

1342 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 26.

1343 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 22–23.

The AER approves the revised forecast operating expenditure for painting (re-coating) of trunk receiving, primary regulation and packaged off-take stations and considers it meets the requirements of r. 74 and r. 91 of the NGR.

#### **Water bath heaters overhauls**

The AER assesses the additional information and analysis on the water bath heaters (WBHs) overhauls step change provided in the revised access arrangement proposal.<sup>1344</sup> The revised access arrangement proposal states that the annual average cost of the planned inspection and maintenance of WBHs over the access arrangement period is \$130 800 (\$2009). The AER notes that JGN has deducted the overhaul costs of approximately \$6 000 (\$2009) per annum, already included in the base year costs, to derive a total annual step change net cost of \$125 000 (\$2009).<sup>1345</sup>

The AER notes that JGN states that the resulting change in inspection costs arises from external factors, namely the increase in the maximum allowed operating pressure in transmission pipelines.<sup>1346</sup> Therefore the AER is satisfied that this step change is the result of external factors.

The AER notes that JGN has provided additional information on the scope of the activities to be undertaken and a detailed analysis of the incurred costs relating to the inspection and maintenance activities. The AER is also satisfied that JGN has taken appropriate steps to remove costs of inspecting and maintaining these assets from the base year operating expenditure.<sup>1347</sup> On this basis the AER considers that the amended cost estimates are arrived at on a reasonable basis.

The AER approves the revised forecast operating expenditure for the overhaul of WBHs and considers it meets the requirements of r. 74 and r. 91 of the NGR.

#### **Compliance with new data requirements in the NGR**

##### *Costs incurred by JGN*

The 2009 Wilson Cook report outlines an issue regarding additional FTE's and the nature of these step changes.<sup>1348</sup>

In the draft decision, the AER considers that the requirements for preparing and maintaining regulatory accounts for each covered pipeline and reporting ring fencing obligations have not changed markedly between the Code and the NGL. The draft decision also notes that any augmentation by the AER for the reporting of information during the access arrangement period would likely reduce compliance and regulatory costs as information would be maintained throughout the access arrangement period to meet the requirements of the next access arrangement revision proposal, therefore reducing the preparation costs of future access arrangement revision proposals.<sup>1349</sup>

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1344 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 27–31.

1345 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 30.

1346 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 28.

1347 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 29–30.

1348 AER, *Draft decision*, February 2010, p. 199.

1349 AER, *Draft decision*, February 2010, p. 199.

The revised access arrangement proposal states that the primary driver of this step change is the requirement for JGN to produce annual regulatory accounts for each year of the access arrangement period. JGN submits that under the current access arrangement JGN is not required to file audited regulatory accounts and therefore the costs associated with this activity are not included in the proposed base year costs.<sup>1350</sup>

JGN submits that, based on the costs incurred by Jemena Electricity Networks in the production of audited regulatory accounts, JGN estimates that three man-months of labour will be required to prepare regulatory accounts. JGN also notes that this estimate takes into account the timing differences between the statutory reporting period (ending in March) and the regulatory reporting period (ending in June). It also includes additional costs incurred in the preparation of the regulatory accounts in a form that can be used for audit, a minimum of twelve man-weeks of JGN resources in providing information to the auditor and addressing audit queries, and one man-month required for supervision, verification, final signoff by JGN management, and ongoing liaison with the AER.<sup>1351</sup>

The revised access arrangement proposal sets out a detailed internal and external cost breakdown for this step change, with the total internal labour plus external audit costs estimated to total \$152 100 (\$2009–10) per annum. JGN submits that this amount includes expenditure of \$10 000 (\$2009–10) for one-off set up costs which is amortised over the access arrangement period.<sup>1352</sup>

JGN also submits that the proposed step change satisfies the criteria proposed in the 2009 Wilson Cook report as:

- the step change is attributable to the imposition of new or changed obligations due to external factors, namely the production of audited annual regulatory accounts
- the business will continue to operate efficiently as a whole, despite the cost increase.<sup>1353</sup>

On this basis, the revised access arrangement proposal includes operating expenditure of \$152 100 (\$2009–10) per annum for the step change costs that will be incurred within JGN for the production of audited annual regulatory accounts.<sup>1354</sup>

#### *Costs incurred by JAM*

The revised access arrangement proposal states that for additional activities related to the 'statement of costs', JGN will require additional information that relates to activities undertaken by JAM. JGN submits that in the short timeframe available it has not been possible to undertake the necessary level of analysis to determine the increase in FTE and activities and additional cost that would be incurred by JAM. As a result, JGN submits that an estimate provided by JAM of \$50 000 (\$2009–10) per

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1350 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 32.

1351 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 32.

1352 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 32–33.

1353 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 33.

1354 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 34.

annum represents the lowest sustainable incremental cost of this additional activity.<sup>1355</sup>

JGN submits that this proposed step change satisfies the criteria proposed in the 2009 Wilson Cook report as:

- the step change is attributable to the imposition of new or changed obligations due to external factors, namely the production of audited annual regulatory accounts
- the business will continue to operate efficiently as a whole, despite the cost increase.<sup>1356</sup>

On this basis, the revised access arrangement proposal includes operating expenditure of \$50 000 (\$2009–10) per annum for the step change costs that will be incurred within JAM for the production of audited annual regulatory accounts.<sup>1357</sup>

#### *Summary of AER's assessment*

The AER has assessed the additional information and analysis of the step change related to the compliance with new NGR data requirements in the NGR which is provided in the revised access arrangement proposal.<sup>1358</sup>

#### *Costs incurred by JGN*

The AER accepts that JGN may be required to prepare and provide additional information as outlined in section 9.5.4.7. The AER considers that the additional information is similar to information JGN currently maintains and reports for the management of the JGN NSW pipelines.

The revised access arrangement proposal assumes that the AER will require the regulatory accounts to be audited. However, the draft decision does not state that these accounts must be audited. These audit costs represent \$134 900 (\$2009–10) per annum of the proposed step change,<sup>1359</sup> thus the step change is reduced by this amount.

The AER accepts that there are set-up costs involved in changing systems to derive new financial outputs. Although the AER considers that these costs of \$10 000 (\$2009–10) are incurred in the first year of set-up and not continually throughout the access arrangement period, the AER approves the revised access arrangement proposal to amortise these costs over five years.

Given the AER does not accept the proposed step changes for audit costs, the AER does not approve the revised forecast operating expenditure for costs incurred by JGN relating to compliance with new data requirements in the NGR, as it does not comply with r. 91 of the NGR. The AER considers that an amount of \$17 200 (\$2009–10) per annum over the proposed access arrangement period represents a step change amount

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1355 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 34.

1356 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 34.

1357 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 35.

1358 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 31–35.

1359 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 33.

for compliance with new data requirements in the NGR (costs incurred by JGN) that is consistent with r. 91 of the NGR.

#### *Costs incurred by JAM*

The AER accepts that JAM may be required to prepare and provide additional information as outlined in section 9.5.4.7. However the AER considers that any additional information required to be maintained under the NGR should be similar to the information JAM currently maintains for the management of the assets and that it is required to maintain for group consolidation purposes. The AER acknowledges that there are set-up costs involved in changing systems' outputs to derive new financial outputs. Based on the estimate of these costs of \$10 000 (\$2009–10) for itself, the AER considers it reasonable to provide JAM with an equivalent amount for set up costs. The AER approves a step change for the reduced amount of \$10 000 (\$2009–10) for step up costs to be amortised over the five year period.

On this basis, the AER does not approve the revised forecast operating expenditure for costs incurred by JAM relating to compliance with new data requirements in the NGR and does not consider it meets the requirements of r. 91 of the NGR. The AER considers that an amount of \$2 000 (\$2009–10) per annum over the proposed access arrangement period represents a step change amount for compliance with new data requirements in the NGR (costs incurred by JAM) does meet the requirements of r. 91 of the NGR.

#### **Contract management**

The AER assesses the additional information and analysis on the contract management step change provided in the revised access arrangement proposal.<sup>1360</sup>

The AER considers that while the previous outsourcing arrangements with JAM would have required resources and management time, it also accepts that the new AMA may require additional resources. Additional expected activities relate to matters such as risk sharing, service targets and performance reporting, and incentive provisions.

The AER notes that JGN's management conducted a service model project to establish the AMA during 2009.<sup>1361</sup> In its assessment of the contract management step change, the AER has assumed that any costs relating to undertaking this service model project have been excluded from the base year expenditure.

The AER notes that the revised access arrangement proposal sets out a more detailed analysis of the proposed step change for contract management than was available at the time of drafting of the draft decision. The AER notes that JGN submits that the proposed step change is in accordance with the criteria proposed in the 2009 Wilson Cook report for accepting a step change,<sup>1362</sup> and notes the intent of JGN is that the proposed step change should ultimately result in benefits or cost savings for customers, and that JGN will continue to operate efficiently as a whole despite the

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1360 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, pp. 35–37.

1361 JGN, *Access arrangement information*, August 2009, p. 29.

1362 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 36.

cost increase. The AER will review to ensure that cost savings arising from the AMA are passed through to customers in future reviews.

The AER further notes that JGN submits that the additional resources are fully utilised in the delivery of reference services.<sup>1363</sup> The AER therefore considers that the costs relate to the delivery of pipeline services.

The AER approves the revised forecast operating expenditure for contract management and considers it meets the requirements of r. 74 and r. 91 of the NGR.

#### **9.5.3.2 JAM margin**

##### **Asset management agreement (AMA)**

As discussed in chapter 3 and in the draft decision,<sup>1364</sup> the O&M activities are undertaken by JAM, a related entity of JGN, under the AMA.<sup>1365</sup> JAM does not undertake all of the O&M activities but outsources some of these activities to other parties.

As also outlined earlier, JGN is required to pay JAM a fee which includes the costs it incurs in delivering the services<sup>1366</sup> plus a margin.<sup>1367</sup> The margin is made up of two components: (i) a base margin; and (ii) a smaller performance margin that is [c-i-c]<sup>1368</sup> In relation to the operating expenditure, the margin is applied to the O&M expenditure component. The margin is applied regardless of whether JAM undertakes the O&M activity itself or it contracts another party to perform the O&M services on its behalf. [c-i-c]

<sup>1369</sup> The AER notes that as some of the suppliers are also related parties and that while these arrangements have not been investigated as part of this review the AER considers that these arrangements including the fees charged for these services is an appropriate line of inquiry for future reviews.

##### **AMA incentive structure**

[c-i-c]

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1363 JGN, *Initial response to the draft decision*, March 2010, appendix 9.5, p. 36.

1364 AER, *Draft decision*, February 2010, p. 180.

1365 JGN, *Access arrangement information*, August 2009, p. 77.

1366 This includes services directly undertaken by JAM and services JAM performs in administering third party contracts.

1367 JGN, *Revised access arrangement information*, March 2010, p. 17.

1368 [c-i-c]

1369 JGN, email to the AER, *Response to AER 2 December 2009 questions*, 11 December 2009, p. 4.

1370 [c-i-c]

### Draft decision

The draft decision removes the margin from the O&M operating expenditure because JGN did not demonstrate that the underlying cost and margin meet the requirements of r. 91 of the NGR.<sup>1372</sup> The draft decision cites the 2009 Wilson Cook report which suggests that JGN had not provided sufficient information to substantiate its overhead costs, operating costs and margins. The draft decision also notes the view presented in the 2009 Wilson Cook report that JGN should be required to demonstrate that these costs are not duplicated or recouped elsewhere in its operating expenditure forecasts.<sup>1373</sup>

The draft decision also notes that:<sup>1374</sup>

In principle, the AER does not consider that margins on services provided by external providers are incompatible with r. 91 of the NGR. However, in order for the requirements of r. 91 of the NGR to be met, the AER must be able to verify that the total cost proposed, including any margin applied to a cost base, represents the lowest sustainable cost of providing the service. ... Jemena has not demonstrated that the margin it has negotiated with JAM is efficient or consistent with the lowest sustainable cost. The AER also considers that applying a margin where the underlying activity is not undertaken by the party that is charging a margin, is inconsistent with the requirements of r. 91 of the NGR. The AER does not consider that such cost structures can be demonstrated to be cost efficient.

### Revised access arrangement proposal

The revised access arrangement proposal outlines that the draft decision did not set out an analysis of the AER's approach to enable it to determine that a forecast margin is compliant with the rules. JGN provides a framework for assessing an outsourcing margin.<sup>1375</sup> JGN also submits its application of this framework for assessing its outsourcing margin with JAM.<sup>1376</sup> JGN makes the following points to support its submission that the proposed margin is consistent with the lowest sustainable cost of providing the services:

- the AMA was drafted in such a way that it could [c-i-c]  
     . Further, the parties were aware that the agreement would be subject to regulatory scrutiny and potentially deemed inconsistent with the capital

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1371 [c-i-c]

1372 AER, *Draft decision*, February 2010, p. 191.

1373 AER, *Draft decision*, February 2010, pp. 184–185.

1374 AER, *Draft decision*, February 2010, p. 185.

1375 JGN, *Initial response to the draft decision*, March 2010, pp. 164–170.

1376 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A (confidential).



and operating expenditure provisions of the NGR. Therefore, JGN submits that the incentives that the parties may have faced to use the AMA as a vehicle for transfer pricing were muted.<sup>1377</sup>

- governance for AMA negotiations – [c-i-c] 1378
- under the prior [c-i-c] outsourcing contract entered into by AGL Gas Networks and Agility in 2000 which operated until it was superseded by the AMA, Agility had incentive to drive costs down to their lowest sustainable levels [c-i-c]. JGN submits that it drew comfort from the incentives as they relate to the revealed costs<sup>1379</sup>
- the parties regard to various studies on margins which included the following:<sup>1380</sup>
  - Evans and Peck (2003) which indicated a range of 8.5 per cent to 12.5 per cent for O&M services and 5.0 per cent to 10.0 per cent for construction services<sup>1381</sup>
  - NERA Economic Consulting (NERA) (2007) which indicated a mean of 8.2 per cent for distribution businesses and a range of 3.9 per cent to 7.1 per cent across all infrastructure considered<sup>1382</sup>
  - [c-i-c]
- [c-i-c]

1383

- JGN submits that it was concerned that if a cost pass through pricing structure were adopted then JAM would have no incentive to pursue productive or dynamic efficiency. Therefore, an incentive mechanism was introduced to ensure JAM has an incentive to pursue cost reductions and pass these on to JGN and JGN's

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1377 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A, p. 7, (confidential).

1378 [c-i-c]

1379 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A, p. 10, (confidential).

1380 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A), pp. 11–12, (confidential); JGN also submitted a report by Napier & Blakeley which suggests that the profit margin is within the 'acceptable average range of margins that are evident within the construction and engineering industries. See JGN, *Initial response to the draft decision*, March 2010, appendix 3b.2, p. 14, (confidential).

1381 The AER notes that a different study by Evans and Peck (31 March 2009) was cited in JGN's original access arrangement information (page 38) as supporting a profit margin of [c-i-c]. (JGN, *Access arrangement information*, August 2009, appendix 3.2 (confidential)).

1382 The AER notes that JGN cited a range of 4.3 to 6.7 per cent on the basis of this study in its original access arrangement information (page 38).

1383 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A, p. 12, (confidential); [c-i-c]

. Source: JGN, email to the AER, JGN response to AER 10 May 10 question 1 – margin, 11 May 2011, attachment, JAM letter to JGN, *Confidential advice: Margins and unit rates JAM applies to non-related parties*, 11 May 2010 (confidential).

customers at the next regulatory reset.<sup>1384</sup> Related to this issue, the Farrier Swier report submitted by JGN states that if the AER were not to ‘accept any margin in the final decision, a possible outcome is to make outsourcing arrangements commercially unviable at least where they have not been competitively bid’.<sup>1385</sup>

- while JGN is unable to directly compare the AMA margin and the benefits expected to arise from economies of scope, scale and other synergies offered by JAM, it submits that the margin is likely to be less than the benefits.<sup>1386</sup>

On this basis, JGN submits that the contract price which includes the margin is lower than the in-house cost of provision and is therefore consistent with the operating and capital expenditure requirements of the NGR.<sup>1387</sup>

### **Consultant’s recommendation on JAM margin**

Consistent with the recommendation made previously, the 2010 Wilson Cook report recommends that the proposed margin be removed from forecast operating and capital expenditure.<sup>1388</sup> While further information was provided by JGN after the draft decision, the 2010 Wilson Cook report notes that insufficient information has been provided to determine that the proposed operating forecast including the JAM margin is efficient.<sup>1389</sup>

Cost efficiency is not demonstrable unless the costs are of measurable inputs struck at market prices, contain an appropriate level of market testing, do not include additional cost allocations or margins other than those that are demonstrated to be appropriate and reasonable, and can be related to measurable or observable outputs. ... However, the new information received is insufficient to substantiate the efficiency of the expenditure in the base year from a “bottom-up” standpoint.

Further the AER notes that the 2009 Wilson Cook report considers that:<sup>1390</sup>

in determining the reasonableness of the profit margins in the AMA in the next period...the question would remain: “How many of the costs (including ...such a margin) would find their way into the regulatory accounts of the regulated business if the intermediate company did not exist?”...any regulated business could increase its reported costs by introducing an intermediate company or a chain of them, if the [this] test...was not applied.

### **AER’s analysis and considerations**

As outlined in the draft decision the AER does not consider that margins on services provided by external providers are incompatible with r. 91 of the NGR. However, in order for the requirements of r. 91 of the NGR to be met, the AER must be able to verify that the total cost proposed, including any margin applied to a cost base,

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1384 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A, pp. 13–14, (confidential).

1385 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1, Farrier Swier Report, p.21.

1386 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A, p. 15, (confidential).

1387 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A, p. 15, (confidential).

1388 Wilson Cook report 2010, pp 2, 22, 29–30.

1389 Wilson Cook report 2010, p. 20.

1390 Wilson Cook report 2009, p. 26.

represents and supports incentive arrangements to achieve the lowest sustainable cost of providing the service.

*Draft decision removal of margin*

The Farrier Swier report states that the basis for removing the margin because inadequate information was supplied lacks logic and is inconsistent with the normal approaches to forecasting.<sup>1391</sup> JGN outlines in the revised access arrangement proposal that it agrees with the Farrier Swier report.<sup>1392</sup>

The AER does not accept this criticism for the reasons discussed below.

The AER maintains that operating expenditure (including a margin) needs to represent the lowest sustainable cost of providing the service to meet the requirements of r. 91 of the NGR. As outlined in the draft decision,<sup>1393</sup> this may be demonstrated if the operating expenditure (including a margin) for providing services is the result of a competitive tender process. However, the AMA is not the outcome of a competitive tender process and is negotiated between two related parties, JGN and JAM. In the absence of a competitive tender process, JGN has not provided detailed bottom-up cost analysis or robust benchmarking to demonstrate that the margin in addition to the underlying base costs is consistent with the requirements of r. 91 of the NGR.<sup>1394</sup> The draft decision notes the 2009 Wilson Cook report that benchmarking is likely to be less robust if the margins of entities that are not similar in character are compared, or if related party transactions are involved.<sup>1395</sup> In any case, JGN also states that it agrees with the AER and Wilson Cook that benchmarking has its limitations and cannot alone be used to assess whether operating or capital expenditure complies with the NGR.<sup>1396</sup>

***Final decision analysis***

The AER notes the additional information provided in the revised access arrangement proposal concerning the AMA margin. The AER's assessment of this information is set out below.

*Are services directly provided by the related party?*

The AER notes that the revised access arrangement proposal outlines that the margin is applied to the forecast O&M activities<sup>1397</sup> because JAM needs to be rewarded for the activities it does in arranging third party contracts and that a margin is justified on these outsourced costs.<sup>1398</sup> The AER acknowledges that JAM may be rewarded with a margin, but under the NGR this requires that the cost and the margin are the lowest sustainable cost of providing the service. However, as outlined in the draft decision,

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1391 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1, p. 5.

1392 JGN, *Initial response to the draft decision*, March 2010, p. 164.

1393 AER, *Draft decision*, February 2010, pp. 185, 189.

1394 AER, *Draft decision*, February 2010, p. 185.

1395 AER, *Draft decision*, February 2010, p. 218.

1396 JGN, *Initial response to the draft decision*, March 2010, p. 170.

1397 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A p. 16 (confidential) and JGN, *Access arrangement information*, August 2009, p. 39 (confidential).

1398 The AER notes that JGN refer to the margin as a commercial mark-up (JGN, *Access arrangement information*, August 2009, p. 38).

the AER considers that providing a margin to a service provider that does not undertake the activity cannot be substantiated as consistent with the lowest sustainable cost.<sup>1399</sup> This is because the lowest sustainable cost of that outsourced activity is the third party contract price as the service provider has not performed any value adding activity to earn that margin.<sup>1400</sup> The AER also recognises that, to the extent a margin is justified, the party that should earn the margin on those outsourced activities is the third party performing those activities. Thus in circumstances where JAM outsources an activity to another party and it applies a margin on the outsourced costs, the lowest sustainable cost for that activity is the outsourced cost incurred.

As discussed above, in relation to the activities JAM undertakes directly for JGN in delivering the pipeline services, a fee which includes a margin and the incurred cost for JAM may not be inconsistent with r. 91 of the NGR. JGN submits that JAM should earn a margin or be rewarded for the activities it does in arranging and managing the third party contracts and that a margin should apply to the third party or outsourced costs.<sup>1401</sup> The AER agrees that JAM should be rewarded for the activities related to the arranging and managing of the contracts. The AER considers that the relevant costs to which the margin for these services should apply is JAM's costs for arranging and managing the outsourced contracts, not as JGN submits the outsourced contract costs. This is because applying JAM's margin to the third party costs would be applying a JAM margin on the third party margin that is implicit in the contract price. Applying a margin on a margin would amount to double counting of margins. Thus the AER considers consistent with r. 91 of the NGR, that the lowest sustainable cost may include a margin on JAM's costs but not on third party costs.

The AER notes that the operating and maintenance services can be broken down by source between those delivered directly by JAM and services outsourced by competitive tender or some other means such as selectively awarded contracts and restoration works that JAM is required to procure from local governments.<sup>1402</sup> For the 2008–09 base year [c-i-c] . For the reasons outlined above, the JAM margin should be removed from those O&M costs where JAM is not directly undertaking the activity – [c-i-c]

<sup>1403</sup> As

also outlined above, the AER has assumed that these outsourcing arrangements to third parties, to the extent warranted, include margins in the contract price and therefore should not have an additional margin added by JAM as the addition of the JAM margin is not consistent with the lowest sustainable cost of delivering the service.

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1399 AER, *Draft decision*, February 2010, p. 185.

1400 The AER notes that costs JAM incurs in relation to arranging contracts with third parties would be recovered through the WOBICA methodology.

1401 The AER notes that JGN refer to the margin as a commercial mark-up (JGN, *Access arrangement information*, August 2009, p. 38).

1402 JGN, email to the AER, *AER 02 Dec 09 questions –JGN tranche 2 response*, 11 December 2009, attachment, JGN, *Response to AER 2 December 2009 questions*, 11 December 2009, p. 4.

1403 [c-i-c]

JGN submits that it is not whether the margin is a percentage of costs directly incurred by JAM or on total O&M expenditure, but rather that what is relevant is that the dollar value of the margin does not exceed that which would be incurred by a prudent service provider acting efficiently, in accordance with good industry practice to achieve the lowest sustainable cost.<sup>1404</sup> The measurement or method of calculation is critical when relying on benchmarking to support the proposed margin rate. This is particularly the case with benchmarking that relies on the consistency of the underlying cost measure. For example, the AER notes that while the AMA refers to a margin of [c-i-c], this is proposed to apply to the total O&M cost category. [c-i-c]<sup>1405</sup>

This margin is clearly inconsistent with the benchmarking material that JGN submits that it has had regard to.

*Implicit margin – revealed costs*

The access arrangement proposal refers to an [c-i-c] that has historically been paid to JAM. The AER sought confirmation of the amount of the [c-i-c] that was payable for the base year. JGN informed the AER in its response that the fee was [c-i-c]

<sup>1406</sup> This equates to a [c-i-c]  
in the base year (2008–09).<sup>1407</sup>

The Farrier Swier report suggests one of the key benefits of the revealed efficient cost or base year cost methodology is that if the base year revealed costs are verified these can be assumed to be efficient as a result of the incentive regime operating in the previous regulatory period.<sup>1408</sup> As outlined in section 9.4.1 this is subject to qualification.<sup>1409</sup> The AER notes that the [c-i-c]<sup>1410</sup> is removed from the proposed base year roll forward and replaced with the AMA margin. While the Farrier Swier report suggests that revealed costs can be considered consistent with r. 91 of the NGR, the AER notes that [c-i-c]

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1404 JGN, *Initial response to the draft decision*, March 2010, appendix 9.4A, p. 16 (confidential).

1405 [c-i-c]

1406 [c-i-c]

1407 As discussed, JAM contracts most of the O&M expenditure to other related and unrelated parties.

1408 [c-i-c]

1409 Consideration needs to be given to the presence of related parties, incentive structures and incurred expenditure compared to forecast.

1410 [c-i-c]

The 2010 Wilson Cook report considers that insufficient information was provided to verify the efficiency of the proposed base year expenditure, instead it recommends that the lowest of the IPART approved operating expenditure and actual base year costs be adopted for establishing forecast operating expenditure.<sup>1411</sup> In these circumstances, the AER considers that the removal of the [c-i-c] in favour of a higher margin has not been demonstrated to be consistent with the lowest sustainable cost of providing the services.

#### *Benchmarking of margins*

The AER has also had regard to the various benchmarking studies referred to as part of the access arrangement proposal and revised access arrangement proposal cited above. The range of benchmarking outcomes extends from around 3 per cent to more than 12 per cent. The AER notes that there are difficulties associated with comparing margins across different service providers. This is because of the consistency or comparability of the benchmarking analysis particularly in relation to the nature of the service provider's costs that underlie these margins and the diverse nature of the service providers and even the industries within which they operate. These and indeed other factors may all have a bearing on the margin identified in these benchmarking analyses and the margin that should apply to the services provided by JAM to JGN.

This view was confirmed in a letter from JAM to JGN which stated that [c-i-c] because they arise from commercial negotiation and are affected by a range of factors including the nature and mix of services to be provided and the performance and commercial risk to be borne by JAM.<sup>1412</sup>

The AER also notes a recent study undertaken by Impaq Consulting (Impaq) at the AER's request.<sup>1413</sup> The Impaq study is directly concerned with alternative control services to be provided by Victorian electricity distribution businesses. However, the observations may also apply to the AMA. The Impaq study cites a range of EBIT profit margins from 3 to 8 percent and suggests that given lower risk revenues such as those earned by distribution businesses, a margin at the lower end of the range is appropriate.<sup>1414</sup>

The AER considers that the [c-i-c] is consistent with the benchmarking evidence notwithstanding the limitations of this analysis as set out above.

#### *Comparability of margins and underlying unit costs*

The revised access arrangement proposal provides limited information concerning unit costs and the AER is unable to make a direct comparison between JAM's internal and external unit costs, nor test these costs against industry benchmarks.<sup>1415</sup>

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1411 Wilson Cook report 2010, pp. 20–22.

1412 [c-i-c]

1413 Impaq consulting, *Review of proposed rates in proposed ACS charges*, 29 March 2010.

1414 Impaq consulting, *Review of proposed rates in proposed ACS charges*, 29 March 2010, p. 35.

1415 Wilson Cook report 2010, p. 21.

The revised access arrangement proposal provides evidence that the size of the [c-i-c] is in line with equivalent externally provided services, taking into account the risk to which JAM is exposed under the AMA.<sup>1416</sup> The AER notes that in subsequent correspondence, JAM does not distinguish between the [c-i-c], simply stating that the ‘margin payable by JGN under the AMA is in line with those that JAM has with its other clients’.<sup>1417</sup> The fact that the same phrase was used while implying two different numbers indicates to the AER that caution is required when making comparisons between various JAM contracts. This is not intended to be a criticism of JGN or JAM, but recognition by the AER that there are many factors that may influence the comparability of margins in general.

The AER sought further information from JGN concerning the comparability of the unit costs to apply under the AMA and unit costs applied by JAM when providing services to external clients. In response JGN provided a letter from JAM that explicitly states that [c-i-c]

The response also noted that [c-i-c]

<sup>1418</sup> However on the basis of the response from JAM, the AER considers that there is likely to be a high degree of variability of unit costs which limits the ability to benchmark associated profit margins between JAM contracts.

#### *Comparability of incentive structures*

The contracts that underlie the various margin benchmarking studies are unlikely to include incentive structures that are comparable to those under the AMA. However, the AER does not consider that JGN has demonstrated that the incentive structure in the AMA provides sufficient benefits to users so as to warrant [c-i-c]

and in turn operating expenditure over the access arrangement period. While the performance standards are submitted to be [c-i-c]

The AER notes that as outlined above, one of the objectives of establishing the AMA may reflect commercial strategy rather than being aligned to the National Gas Objective (NGO) and the long term interests of consumers.<sup>1419</sup> [c-i-c]

<sup>1420</sup>

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<sup>1416</sup> [c-i-c]

<sup>1417</sup> [c-i-c]

<sup>1418</sup> [c-i-c]

<sup>1419</sup> NGL, s. 23.

<sup>1420</sup> [c-i-c]

It could also be argued that the incentive structure in the AMA provides a lower incentive to reduce costs than if JGN was able to provide the services itself or if an approved incentive mechanism similar to the efficiency benefit sharing scheme under the National Electricity Rules (NER) was in place. This is because [c-i-c]

Conversely, if JGN was able to provide the services, it would retain the benefits of efficiency gains for the duration of the regulatory period. If an efficiency benefit scheme was in place, the benefits would be held even longer, creating stronger incentives to pursue efficiency gains.

From a Jemena Group perspective, the incentive arrangements in the AMA net out in that the costs or benefits are shared only between JGN and JAM during the regulatory period. With or without the operation of the AMA, the Jemena Group will benefit from the efficiencies achieved for the duration of the access arrangement period.

The AER also notes that JGN submits that the IPART productivity factor was lowered from 3 per cent to 1.5 per cent 'in recognition of JGN's maturity as a business and its proximity to the efficiency frontier.'<sup>1421</sup> Further, the revised access arrangement information states that 'JGN is a mature business whose [operating expenditure] is highly recurrent.'<sup>1422</sup> The AER considers it appropriate for a prudent service provider to pursue efficiency gains in the context of the NGR which requires the lowest sustainable cost of providing the service. In this context, the cost of pursuing efficiency gains must be outweighed by the expected efficiency gains. Given the statements by JGN above, and its performance against the productivity factors set by IPART,<sup>1423</sup> the AER does not consider that the incentive structure in the AMA warrants higher costs to be paid by customers in the form of a higher margin than implicit in the base year. The AER also notes that to the extent efficiency gains are realised during the access arrangement period, JGN will be the beneficiary of such gains until the next access arrangement review, when customers may benefit from the revealed efficient costs.

The AER notes that one of the benefits of the AMA that is expected to flow through to JGN's customers is the provision of better information. The AER will use the information gained through the operation of the AMA to improve the rigour of its assessment of forecast operating expenditure at future reviews. In particular the information will be used to consider the lowest sustainable costs in meeting the requirements of r. 91 of the NGR. This information will also be useful in considering the introduction of an incentive mechanism<sup>1424</sup> along the lines of the efficiency benefit sharing scheme under the NER, which has stronger incentives for realising efficiency

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1421 JGN, *Initial response to the draft decision*, March 2010, p. 184.

1422 JGN, *Initial response to the draft decision*, March 2010, p. 164.

1423 The AER notes that once the windfall gains of marketing underspends are removed, JGN overspent the IPART's forecast operating expenditure.

1424 NGR, r. 98.



gains with benefits to the firm in the medium term and later to be shared with customers.

### **Conclusion on margins**

The AER has reviewed the proposed JAM margin and considers that the proposed margin [c-i-c] is not consistent with the requirements of the NGR. As set out above, the AER considers:

- the proposed margin is applied to all O&M costs which inappropriately includes a margin on activities that are not undertaken by JAM
- the proposed [c-i-c] exceeds the revealed cost from base year expenditure. A total [c-i-c], is consistent with the [c-i-c]. The AER considers, in this instance, that a margin of [c-i-c] is appropriate.
- relevant benchmarking studies do not justify a margin higher than [c-i-c] in the circumstances. These circumstances include:
  - JGN considers that there is limited scope for efficiency gains – as submitted by JGN, it is a mature business with largely recurrent expenditure and declining potential for efficiency gains due to its proximity to the efficiency frontier. Further, JGN did not achieve operating efficiencies in the earlier access arrangement period to cover the productivity factor that was built into the forecasts approved by the IPART
  - The AER does not consider that the underlying activity associated with JGN's capital and operating programs are of a high risk nature given the stability of cash flows and the fact that the network is subject to economic regulation.

In order for the margin to be consistent with the requirements of the NGR, the AER requires JGN to adjust the forecast dollar value of the margin included in forecast operating expenditure so that it is:

- applied only to the activity undertaken directly by JAM, [c-i-c]
- calculated using a rate of [c-i-c]

The AER requires JGN to amend its forecast operating expenditure as outlined in revision 9.1 to take into the adjustments made to the JAM margin set out above. The AER considers that the margin to apply to the operating expenditure, as approved in the this decision, meets the requirements of r. 91 of the NGR.

### **9.5.3.3 Cost escalators**

In relation to forecast operating expenditure, JGN proposes updated cost escalators for labour, aluminium, steel, polyethylene, concrete and the CPRS in the revised access arrangement proposal.<sup>1425</sup> The proposed cost escalators are also relevant to forecast

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1425 JGN, *Initial response to the draft decision*, March 2010, p. 182.

capital expenditure. For the reasons discussed in chapter 3, the AER approves the proposed cost escalators for labour, aluminium and steel but does not approve the proposed cost escalators for concrete, polyethylene and the CPRS. The AER approves the application of the cost escalators (except for concrete, polyethylene and the CPRS) to the forecast operating expenditure as set out in the revised access arrangement proposal.

## **9.5.4 Specific year by year forecasts**

### **9.5.4.1 Marketing**

The draft decision requires JGN to reduce its proposed marketing expenditure to the level of the estimated expenditure incurred in 2008–09 (i.e. \$6.5 million (\$2009–10)) for each year over the access arrangement period.<sup>1426</sup> The revised access arrangement proposal partially accepts the draft decision's requirement by reducing its forecast marketing expenditure to \$6.75 million (\$2009–10) per annum.<sup>1427</sup> The forecast marketing expenditure reflects slightly lower actual expenditure in 2008–09<sup>1428</sup> and an adjustment to correct for the abnormally small number of incentive claims made in 2008–09.<sup>1429</sup> JGN submits that it has made a one-off adjustment to its base year marketing costs to ensure that it provides a representative level of expenditure that is consistent with previous years' expenditure and current performance for the 2009–10 year to date.<sup>1430</sup>

The AER considers that JGN has adequately substantiated its base year marketing cost and the adjustment made to this cost. Therefore the AER considers that the forecast marketing expenditure has been arrived at on a reasonable basis and represents the best forecast or estimate possible in the circumstances as required by r. 74(2) of the NGR.

The AER approves the revised forecast operating expenditure for marketing expenditure and considers it meets the requirements of r. 91 of the NGR.

### **9.5.4.2 Unaccounted for gas**

The revised access arrangement proposal accepts the draft decision's forecast level of UAG of 2.34 per cent and has applied this to the revised National Institute of Economic and Industry Research (NIEIR) demand forecast.<sup>1431</sup> As discussed in chapter 11, JGN does not accept the draft decision's demand forecast but instead proposes a revised demand forecast from the NIEIR. JGN submits that the draft decision makes an error in estimating the forecast operating expenditure for UAG.<sup>1432</sup> The error is that the draft decision assumes that the total demand forecast includes

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1426 AER, *Draft decision*, February 2010, p. 222.

1427 JGN, *Revised access arrangement information*, March 2010, p. 16.

1428 Actual marketing expenditure for 2008-09 is \$0.42 million (\$nominal) lower than estimated. (JGN, *Initial response to the draft decision*, March 2010, p. 187).

1429 JGN, *Initial response to the draft decision*, March 2010, p. 186.

1430 JGN, *Initial response to the draft decision*, March 2010, p. 187.

1431 JGN, *Initial response to the draft decision*, March 2010, p. 189.

1432 JGN, *Initial response to the draft decision*, March 2010, p. 10.

UAG.<sup>1433</sup> This results in the understatement of total demand and forecast UAG costs.<sup>1434</sup>

For reasons discussed in chapter 11, the AER does not approve the revised demand forecast which impacts the forecast quantity of UAG. Instead the AER approves the demand forecast set out in chapter 11 of the final decision. The AER acknowledges the error in the estimation of UAG costs in the draft decision<sup>1435</sup> and the final decision corrects this by excluding UAG from the total demand forecast. This revision affects the estimation of the forecast operating expenditure for UAG as this estimate is based on a percentage of forecast demand. Given this revision, the AER considers the estimate for UAG costs set out in table 9.2 are arrived at on a reasonable basis and represent the best estimate or forecast possible in the circumstances.

**Table 9.2: Unaccounted for gas (units as stated)**

|   | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total   |
|---|---------|---------|---------|---------|---------|---------|
| Total demand forecast excluding UAG (TJ)  | 100 637 | 101 878 | 100 959 | 98 856  | 98 856  | 501 184 |
| Total demand forecast including UAG (TJ)  | 103 048 | 104 319 | 103 378 | 101 225 | 101 225 | 513 195 |
| Forecast UAG (%)  | 2.34    | 2.34    | 2.34    | 2.34    | 2.34    |         |
| UAG quantity (TJ) = Total system demand (incl. UAG) x forecast UAG              | 2411    | 2441    | 2419    | 2369    | 2369    | 12 009  |
| Delivered gas price (\$/GJ) (\$2009–10)   | 5.54    | 5.50    | 5.48    | 5.49    | 5.51    | na      |
| Total UAG costs (\$m, real 2009–10) = UAG quantity x delivered gas price / 1000 | 13.4    | 13.4    | 13.3    | 13.0    | 13.1    | 66.1    |

Source: Table 11.10 in chapter 11, p. 328; AER, *Draft decision*, February 2010, p. 210; For new CCGT NCEN, ACIL, Fuel resource, new entry and generation costs in the NEM, Final report, April 2009, p. 69.

The AER requires JGN to amend its forecast operating expenditure as outlined in revision 9.1 to take into adjustments made to UAG.

#### 9.5.4.3 Self insurance

The draft decision notes that JGN has not adequately specified the relevance of the risks to its business or provided for a self insurance premium arrived at on a

1433 JGN, email to the AER, *JGN AA –JGN letter to AER regarding errors in the draft decision*, 3 March 2010, attachment, Letter to the AER, *JGN access arrangement revision proposal: notification of identified AER errors in draft decision*, 3 March 2010, p. 4.

1434 JGN, email to the AER, *JGN AA –JGN letter to AER regarding errors in the draft decision*, 3 March 2010, attachment, Letter to the AER, *JGN access arrangement revision proposal: notification of identified AER errors in draft decision*, 3 March 2010, p. 4.

1435 AER, *Draft decision*, February 2010, p. 210.

reasonable basis and representing the best forecast or estimate possible.<sup>1436</sup> The draft decision does not approve the self insurance operating expenditure in the access arrangement proposal.<sup>1437</sup>

The revised access arrangement proposal outlines that the AER's analysis reflects a misunderstanding of the rigour behind the self insurance forecast and the business commitment to this level of risk incidence. As such JGN has not incorporated the draft decision's requirements in relation to self insurance.<sup>1438</sup>

JGN states that it does not accept the draft decision's conclusion that its self insurance events for key asset damage and public liability are not clearly defined. JGN notes that these events have been sufficiently defined to enable expert quantification by Marsh Risk Consulting (MRC).<sup>1439</sup>

JGN also disagrees with the draft decision that regulatory cost pass throughs are a viable alternative to the proposed self insurance in all identified instances because:

- the self insurance values and several of the total event values fall under the AER's proposed pass through threshold of 1 per cent of annual revenue
- amendment 13.1 of the draft decision requires that pass through costs are building block components of total revenue yet the AER states with respect to self insurance that the AER does not consider that lost revenue is a building block component of total revenue.<sup>1440</sup>

JGN states that with regard to site remediation costs there was no double counting between this event and the forecast for known sites in the proposed operating expenditure. JGN also states that it has incorporated the draft decision requirement to reject these forecast costs in the revised access arrangement proposal.<sup>1441</sup>

Regarding the allocation of risk and liability under the AMA, JGN agrees that it is prudent to seek a level of indemnity through outsourcing contracts with well defined allocation of risks to the parties who can best manage these risks. JGN also agrees that this is achieved for some of the environmental contamination events MRC identified. JGN states that the draft decision rejects the margin payable to JAM under the AMA and as such JAM has no commercial compensation for bearing this risk.<sup>1442</sup>

The AER notes that although JGN submits it does not agree with the draft decision's conclusion that certain events were not clearly defined,<sup>1443</sup> the AER has not received further information in regards to the relevance of the risks to JGN's business. The AER also notes that JGN has not provided it with further information demonstrating

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1436 AER, *Draft decision*, February 2010, p. 212.

1437 AER, *Draft decision*, February 2010, p. 225.

1438 JGN, *Initial response to the draft decision*, March 2010, pp. 189–190.

1439 JGN, *Initial response to the draft decision*, March 2010, p. 190.

1440 JGN, *Initial response to the draft decision*, March 2010, pp. 190–191.

1441 JGN, *Initial response to the draft decision*, March 2010, p. 191.

1442 JGN, *Initial response to the draft decision*, March 2010, pp. 191–192.

1443 JGN, *Initial response to the draft decision*, March 2010, p. 190.

that self insurance premiums are arrived at on a reasonable basis reflecting the best forecast or estimate possible.<sup>1444</sup>

The AER agrees that approved cost pass through expenditure must be consistent with the relevant total revenue building block criteria in the NGR. For example, if the cost pass through relates to operating expenditure, the cost pass through amount must be consistent with the expenditure that would be incurred by a prudent service provider acting efficiently as required by r. 91 of the NGR.

The AER notes that the proposal for the environmental contamination self insurance event is made up of two separate components—known sites and unknown sites.<sup>1445</sup> While JGN states that it has incorporated the draft decision in respect of site remediation costs,<sup>1446</sup> the AER notes that the revised access arrangement proposal still includes the original proposed amount for site remediation of known sites. As JGN has removed all other site remediation costs from the revised access arrangement proposal, the AER considers the self insurance costs for these sites should also be removed from the revised access arrangement proposal.

In regard to the margin payable to JAM under the AMA,<sup>1447</sup> the AER notes that as discussed in section 9.5.3.2 the AER approves a margin in this decision, and therefore JGN's statement that JAM receives no commercial compensation for bearing risk<sup>1448</sup> is no longer valid.

The AER further considers the above issues and sets out a detailed response of its analysis and conclusions on each of the proposed self insurance events in appendix A.

### **Conclusion**

For the reasons discussed above and outlined in appendix A, after consideration of the revised access arrangement proposal, the AER does not approve the forecast operating expenditure for self insurance in the revised access arrangement proposal and considers it does not meet the requirements of r. 91 of the NGR.

#### **9.5.4.4 Debt raising costs**

The draft decision rejects the access arrangement proposal debt raising costs of 12.5 basis points per annum (bppa) as an unsupported estimate.<sup>1449</sup> Instead, the draft decision estimates these costs based on a report by the Allen Consulting Group (ACG),<sup>1450</sup> updated for recent data and with a nominal vanilla weighted average cost of capital (WACC) of 10.19 per cent, which results in an indicative debt raising cost benchmark rate of 9.2 bppa.<sup>1451</sup>

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1444 NGR, r. 94(2).

1445 JGN, *Access arrangement information*, August 2009, appendix 6.5, p. 37 (confidential).

1446 JGN, *Initial response to the draft decision*, March 2010, p. 191.

1447 JGN, *Initial response to the draft decision*, March 2010, p. 191.

1448 JGN, *Initial response to the draft decision*, March 2010, pp. 191–192.

1449 AER, *Draft decision*, February 2010, pp. 213–215.

1450 ACG, *Debt and equity raising costs: Final report to the ACCC*, December 2004.

1451 AER, *Draft decision*, February 2010, p. 214.

The revised access arrangement proposal incorporates this indicative benchmark of 9.2 bppa to estimate the proposed debt raising costs.<sup>1452</sup>

Consistent with the draft decision and in accordance with the approach based on the ACG methodology, the AER updates the benchmark debt raising costs using the nominal vanilla WACC to amortise up-front costs of 9.69 per cent. The AER has also updated the size of the benchmark bond issue to correctly equal the median domestic bond issue size of the five year rolling window. This reduces the benchmark bond issue from \$263 million (\$2009–10) to \$250 million (\$2010).

This results in the debt raising costs shown in table 9.3.

**Table 9.3: Direct debt raising costs with a nominal vanilla WACC of 9.69 per cent (\$, real, 2009–10)**

| Fee                    | Explanation  | 1 Issue | 2 Issues | 4 Issues  | 6 Issues  | 10 Issues |
|------------------------|--|---------|----------|-----------|-----------|-----------|
| Amount Raised          | Multiples of median MTN (\$250m)                     | \$250 m | \$500 m  | \$1 000 m | \$1 500 m | \$2 500 m |
| Gross underwriting fee | Median gross underwriting spread, up front per issue | 7.24    | 7.24     | 7.24      | 7.24      | 7.24      |
| Legal and roadshow     | \$115 000 upfront per issue                          | 0.74    | 0.74     | 0.74      | 0.74      | 0.74      |
| Company credit rating  | \$50 000 per annum                                   | 2.00    | 1.00     | 0.50      | 0.33      | 0.20      |
| Issue credit rating    | 4 basis points up front per issue                    | 0.64    | 0.64     | 0.64      | 0.64      | 0.64      |
| Registry fees          | \$3 500p front per issue                             | 0.14    | 0.14     | 0.14      | 0.14      | 0.14      |
| Paying fees            | \$4 per million per annum                            | 0.04    | 0.04     | 0.04      | 0.04      | 0.04      |
| Total                  | Basis points per annum                               | 10.8    | 9.8      | 9.3       | 9.1       | 9.0       |

Source: ACG; Bloomberg; AER analysis.

JGN has an opening capital base of \$2.3 billion (\$2009–10). On the basis of the assumed benchmark gearing ratio of 60:40, the notional debt component of JGN's opening capital base is around \$1.4 billion (\$2009–10). Based on the ACG methodology, this debt size would require around 6 bond issues. As such, the AER considers that an allowance of 9.1 basis points per annum (bppa) for debt raising costs is a reasonable benchmark for JGN. Using the post-taxation revenue model (PTRM), this benchmark is multiplied by the debt component of the capital base to derive an average debt raising cost of \$1.3 million per annum (\$2009–10). The year by year breakdown is shown in table 9.4.

<sup>1452</sup> JGN, *Initial response to the draft decision*, March 2010, p. 192.

**Table 9.4: Debt raising costs (\$m, real, 2009–10)**

|                                     | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|-------------------------------------|---------|---------|---------|---------|---------|-------|
| Revised access arrangement proposal | 1.31    | 1.35    | 1.39    | 1.43    | 1.47    | 6.95  |
| Final decision                      | 1.27    | 1.31    | 1.33    | 1.36    | 1.39    | 6.65  |

Source: JGN, *Revised access arrangement information*, March 2010, p. 17 and AER analysis.

### **Conclusion**

For the reasons discussed above, after consideration of the revised access arrangement proposal, the AER does not approve the forecast operating expenditure for debt raising costs in the revised access arrangement proposal and considers it does not meet the requirements of r. 91 of the NGR. The AER considers that the debt raising cost shown in table 9.4 are consistent with the expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with r. 91 of the NGR, and requires JGN to amend its debt raising costs as outlined in amendment 9.4.

#### **9.5.4.5 Equity raising costs**

In the draft decision, the AER accepts JGN's submission that in the context of its expected capital expenditure program and other cash flows, benchmark equity raising costs are expected to be immaterial. This is because the proposed capital program is expected to be funded through retained earnings.<sup>1453</sup>

However, the revised access arrangement proposal submits—based on a new forecast cost of service, equity raising cost assumptions and capital expenditure—it will not be able to cover its equity raising requirements through retained earnings alone and so includes a proposal for equity raising costs.<sup>1454</sup> These proposed equity raising costs are considered in section 3.5.2.3.

#### **9.5.4.6 Certain expenditure items not deemed capital**

In the draft decision the AER requires JGN to include expenditure for integrity digs and pigging, and for ad hoc mains and service renewals in the forecast operating expenditure (rather than as proposed in the forecast capital expenditure).<sup>1455</sup> The revised access arrangement proposal does not accept that these costs are operating expenditure and considers that these costs are capital in nature. The revised access arrangement proposal includes a report by Ernst & Young<sup>1456</sup> to support this submission.<sup>1457</sup>

As discussed in chapter 3, the AER considers that certain costs associated with the proposed overhead costs, mine subsidence, integrity digs, pigging and ad hoc mains

<sup>1453</sup> AER, *Draft decision*, February 2010, p. 216.

<sup>1454</sup> JGN, *Initial response to the draft decision*, March 2010, p. 192.

<sup>1455</sup> AER, *Draft decision*, February 2010, p. 222.

<sup>1456</sup> JGN, *Initial response to the draft decision*, March 2010, appendix 3.b4 (confidential).

<sup>1457</sup> JGN, *Initial response to the draft decision*, March 2010, p. 192.

and services renewals are not capital expenditure but are operating expenditure. These costs are set out in table 9.3.

**Table 9.5: Expenditure not deemed capital (\$m, real, 2009–10)**

|                                    | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 | Total |
|------------------------------------|---------|---------|---------|---------|---------|-------|
| ESF costs                          | 5.3     | 5.4     | 5.6     | 5.8     | 6.0     | 28.1  |
| Mine subsidence                    | 1.1     | -2.7    | 4.6     | 0.0     | 0.0     | 3.1   |
| Integrity digs                     | 2.0     | 4.1     | 3.7     | 3.0     | 2.1     | 15.0  |
| Pigging                            | 0.2     | 0.0     | 0.3     | 1.0     | 0.4     | 1.9   |
| Ad hoc mains and services renewals | 1.6     | 1.6     | 1.7     | 1.7     | 1.7     | 8.3   |
| Total                              | 10.3    | 8.5     | 15.9    | 11.6    | 10.3    | 56.5  |

Source: JGN, email to the AER, Material sent through today, 8 June 2010, JGN, attachment, *Further table from the AER 7 June 2010 (Final).xls*.

Note: The costs in table 9.3 have been escalated by the relevant cost category escalators: 'JGN ESF costs (via JAM)' for ESF costs and 'direct JAM costs' for integrity digs, pigging, mine subsistence and ad hoc mains and services renewals.

#### 9.5.4.7 Statement of costs

Amendment 9.7 of the draft decision requires JGN to amend its access arrangement proposal to include a new section titled 'statement of costs'. This proposed new section of the access arrangement sets out a requirement for JGN to maintain records of specific costs incurred for each 12 month period ending on 30 June during the access arrangement period.<sup>1458</sup> Amendment 9.8 of the draft decision<sup>1459</sup> requires JGN to amend its access arrangement to include a new schedule as set out in appendix D of the draft decision<sup>1460</sup> which contains the specific costs that JGN is required to report on. Amendment 9.7 of the draft decision additionally requires JGN to provide details of its assessment of the performance of JAM including:

- details of efficiency targets
- actual costs achieved against budgets
- any overruns authorised by JGN
- details of performance in regards to the risk and benefit sharing mechanism (RBSM)
- the basis on which the performance margin is calculated and applied.<sup>1461</sup>

<sup>1458</sup> AER, *Draft decision*, February 2010, p. 225.

<sup>1459</sup> AER, *Draft decision*, February 2010, appendix D, p. 226.

<sup>1460</sup> AER, *Draft decision*, February 2010, appendix D, pp. 374–378.

<sup>1461</sup> AER, *Draft decision*, February 2010, p. 221.



The revised access arrangement proposal outlines that it is inappropriate and unnecessary for the AER to establish new information gathering powers that are not subject to appropriate checks and balances. JGN further submits states that the access arrangement is a commercial offering to the market, and the information and approval powers are better located in the NGL and the NGR as a matter of regulatory policy.<sup>1462</sup>

JGN also submits that the NGL already provides the AER with powers to gather information.<sup>1463</sup>

As outlined in the draft decision, the enhanced level of detail the 'statement of costs' would provide is necessary to make an informed assessment under the NGR, particularly given the business model under which JGN operates.<sup>1464</sup>

The AER notes that JGN has previously been required to maintain certain information as part of its access arrangement, but it acknowledges this was under the Code prior to the introduction of the information gather powers under s. 48 of the NGL.

The 'statement of costs' requires that costs arising from third parties and routed through JAM, are separately identified and documented. This will allow the AER to ensure that margins are applied correctly and also to identify if costs are the result of a competitive tender or whether another form of substantiation is required to demonstrate that the proposed costs are efficient and consistent with r. 91 of the NGR.<sup>1465</sup>

The draft decision outlines that the 'statement of costs' will also detail and identify costs subcontracted by JGN.<sup>1466</sup> This is necessary to enable the AER to identify all costs that relate to the provision of JGN's pipeline services as defined in s. 2 of the NGL, and to verify that costs that are not associated with the provision of pipeline services are excluded from operating expenditure forecasts.<sup>1467</sup>

The draft decision further outlines that the 'statement of costs' is necessary to assess JGN's compliance with its obligations under r. 93(2) of the NGR to allocate costs between reference and other services. As JGN currently has non-reference services, it is necessary for the AER to verify that the costs associated with non-reference services are separately identified and maintained from the costs related to reference services. The 'statement of costs' will allow the AER to do this.<sup>1468</sup>

The AER acknowledges that the information provided in the proposed 'statement of costs' can be collected by the AER under the AER's information gathering powers as set out in the NGL. As outlined above and in the draft decision, the AER considers that it is important that specific information related to the JGN costs be kept and

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1462 JGN, *Initial response to the draft decision*, March 2010, p. 13.

1463 JGN, *Initial response to the draft decision*, March 2010, p. 14.

1464 AER, *Draft decision*, February 2010, p. 220.

1465 AER, *Draft decision*, February 2010, p. 220.

1466 AER, *Draft decision*, February 2010, p. 220.

1467 AER, *Draft decision*, February 2010, p. 220.

1468 AER, *Draft decision*, February 2010, p. 220.

maintained over the access arrangement period and then provided to the AER as part of the access arrangement proposal for the next access arrangement period.

Further, as outlined in section 9.5.3.2 the AER considers that as the AMA provides for a sharing of cost savings between JGN and JAM and not users, that the 'statement of costs' can also be used to identify the revealed costs of both JGN and JAM. The revealed costs are considered by the Farrier Swier report to be the relevant costs for compliance with r. 71 and r. 91 of the NGR.<sup>1469</sup> In order to indentify JAM's revealed costs, the extent of cost overruns or savings under the AMA the AER considers that certain cost information relevant to the AMA will be required to be maintained. As also outlined earlier, this information may inform the AER as to whether an incentive mechanism should be required in future access arrangement periods.

The AER also notes that if JGN cannot provide the level of detail required under a regulatory information notice, the AER may consider alternative means to obtain this information from JAM directly. If the AER were to serve a regulatory information notice on JGN, the AER would consult with JGN about the type and form of information, to consider the business needs of JGN and that the information sought achieves the requirement of the AER for additional and more detailed cost information about the operating expenditure. The AER has provided JGN and JAM with a step change to cover certain system set-up costs and other costs in relation to these new requirements (refer to section 9.5.3.1 for details).

### **Conclusion**

For the reasons discussed above, the proposed amendments 9.7 and 9.8 in the draft decision are no longer required in the revised access arrangement.

### **9.5.5 Conclusion**

The AER does not consider that the forecast operating expenditure in the revised access arrangement proposal complies with r. 91 of the NGR and accordingly the AER proposes to make revisions to:

- use actual expenditure incurred in the identified base year, 2008–09 (less identified one-off costs and adjustments made to corporate costs) as a basis for forecasting the operating expenditure
- JAM to make it consistent with revealed cost in the base year
- reduce the proposed total recurring step change annual cost to \$1 790 100 (\$2009–10)<sup>1470</sup> as detailed in section 9.5.3.1
- apply the AER determined real cost escalators in place of those applied by JGN

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1469 JGN, *Initial response to the draft decision*, March 2010, appendix 9.1, p. 25.

1470 The AER does not approve the proposed step change forecast in the revised access arrangement proposal of \$152 100 (\$2009–10) per annum for compliance with new data requirements in the NGR, but instead approves \$17 200 (\$2009–10) per annum for compliance costs incurred by JGN and \$2 000 (\$2009–10) per annum for compliance costs incurred by JAM. The AER approves those step changes which are expected to vary over access arrangement period.

- include expenditure for integrity digs and pigging, and JAM overheads in the forecast operating expenditure (rather than as proposed in the forecast capital expenditure)
- apply the AER determined forecast of UAG cost based on a different demand forecast
- remove the forecast operating expenditure for self insurance.

## 9.6 Revisions

The AER proposes the following revisions:

**Revision 9.1:** amend the revised access arrangement information to delete Tables 5.1, 5.2, 5.3 and 5.4 and replace them with the following:

**Table 9.6: Forecast operating expenditure (\$m, real, 2009–10)**

|  |                                    |         | AA period |         |         |         |         |
|--|------------------------------------|---------|-----------|---------|---------|---------|---------|
|  | 2008–09<br>(adjusted<br>base year) | 2009–10 | 2010–11   | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
| Non-O&M                                    | 40.2                               | 41.8    | 42.9      | 43.3    | 43.8    | 44.4    | 45.1    |
| O&M  | 83.4                               | 82.4    | 90.4      | 90.6    | 101.8   | 99.8    | 102.1   |
| <b>Total<br/>operating<br/>expenditure</b> | 123.6                              | 124.2   | 133.3     | 133.9   | 145.6   | 144.2   | 147.3   |

**Table 9.7: Forecast non-O&M expenditure (\$m, real, 2009–10)**

|   |                                       |         | AA period |         |         |         |         |
|---|---------------------------------------|---------|-----------|---------|---------|---------|---------|
|   | 2008–09<br>(adjusted<br>base<br>year) | 2009–10 | 2010–11   | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
| Administration<br>and overhead                |                                       |         |           |         |         |         |         |
| Base cost                                     | 19.7                                  | 18.3    | 18.5      | 18.9    | 19.5    | 20.3    | 21.0    |
| One-off events                                | -1.7                                  | 0.0     | 0.0       | 0.0     | 0.0     | 0.0     | 0.0     |
| Step changes                                  | 0.0                                   | 0.0     | 0.0       | 0.0     | 0.0     | 0.0     | 0.0     |
| Government<br>levies                          | 3.1                                   | 3.1     | 3.1       | 3.1     | 3.1     | 3.1     | 3.1     |
| Marketing                                     | 6.2                                   | 6.7     | 6.7       | 6.7     | 6.7     | 6.7     | 6.7     |
| Unaccounted<br>for gas<br>(UAG) <sup>a</sup>  | 12.9                                  | 13.8    | 13.4      | 13.4    | 13.3    | 13.0    | 13.1    |
| Carbon costs                                  | 0.0                                   | 0.0     | 0.0       | 0.0     | 0.0     | 0.0     | 0.0     |
| Self insurance                                | 0.0                                   | 0.0     | 0.0       | 0.0     | 0.0     | 0.0     | 0.0     |
| Debt raising                                  | 0.0                                   | 0.0     | 1.3       | 1.3     | 1.3     | 1.4     | 1.4     |
| <b>Total non-<br/>O&amp;M<br/>expenditure</b> | 40.2                                  | 41.8    | 42.9      | 43.3    | 43.8    | 44.4    | 45.1    |

a: The UAG target for the access arrangement period is 2.34 per cent.

**Table 9.8: KPIs: operating cost per metre and cost per customer site (\$, real, 2009–10)**

|                                     | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|-------------------------------------|---------|---------|---------|---------|---------|
| Operating cost per<br>metre         | 4.5     | 4.6     | 5.2     | 5.3     | 5.5     |
| Operating cost per<br>customer site | 100.6   | 100.7   | 111.2   | 109.3   | 110.9   |

**Revision 9.2:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revision 9.1.

# 10 Total revenue

## 10.1 Introduction

This chapter sets out the AER's estimation of annual total revenue requirements for JGN for the provision of pipeline services for each year of the access arrangement period. This chapter also sets out the X factors applied to the reference tariffs as part of the annual tariff variation formula mechanism.

## 10.2 Revised access arrangement proposal

The revised access arrangement proposal does not accept the draft decision amendment 10.1 that revises the total revenue.<sup>1471</sup>

The revised access arrangement proposal proposes the total revenue requirement for each year of the access arrangement period and X factors set out in table 10.1.<sup>1472</sup>

**Table 10.1: Revised total revenue and X factors (\$m, real, 2009–10 unless otherwise stated)**

|  | 2010–11            | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|--|--------------------|---------|---------|---------|---------|
| <b>Total revenue building blocks</b>       |                    |         |         |         |         |
| Return on capital                          | 258.2              | 266.3   | 273.4   | 280.9   | 289.3   |
| Depreciation                               | 25.9               | 32.1    | 37.9    | 44.9    | 53.0    |
| Operating and maintenance                  | 138.2              | 140.9   | 145.5   | 149.0   | 153.6   |
| Corporate income taxation                  | 21.8               | 24.4    | 26.0    | 29.5    | 33.4    |
| Incentive mechanism payments               | na                 | na      | na      | na      | na      |
| Total                                      | 444.1              | 463.7   | 482.8   | 504.2   | 529.3   |
| <b>X factor tariff revenue<sup>a</sup></b> |                    |         |         |         |         |
| Haulage reference services (%)             | –30.0 <sup>b</sup> | 0.0     | 0.0     | 0.0     | 0.0     |
| Meter data service (%)                     | –29.3 <sup>b</sup> | 0.0     | 0.0     | 0.0     | 0.0     |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 43; JGN, *Response to the draft decision*, March 2010 (appendix 12.5 (confidential)); JGN, *Revised access arrangement proposal*, March 2010, p. 21.

na: Not applicable.

a: Negative values for X indicate real price increases under the CPI–X formula.

b: The 2010–11 X factor is the initial real change in tariffs (P<sub>0</sub> adjustment).

1471 JGN, *Revised access arrangement information*, March 2010, p. 43.

1472 JGN, *Revised access arrangement information*, March 2010, pp. 43; JGN, *Initial response to the draft decision*, March 2010, appendix 12.5 (confidential); JGN, *Revised access arrangement proposal*, March 2010, p. 21.

## 10.3 Submissions

The AER received submissions from the Origin, the Public Interest Advocacy Centre Ltd (PIAC) and Weston Aluminium concerning the total revenue submitted in the revised access arrangement proposal.

### 10.3.1 Origin

Origin Energy Retail Ltd (Origin) submits that the draft decision addresses issues it raised on the access arrangement proposal regarding the presentation of X factors in the access arrangement information.<sup>1473</sup>

Origin notes that JGN has not provided X factors in the format depicted in the draft decision.<sup>1474</sup> Origin submits that JGN should present the X factors as outlined in the draft decision.<sup>1475</sup>

### 10.3.2 PIAC

The Public Interest Advocacy Centre Ltd (PIAC) notes that JGN have revised their estimates for total revenue.<sup>1476</sup> The PIAC submits that these revised estimates are significantly higher than those made in the draft decision.<sup>1477</sup> The PIAC submits that this could result in a significant increase in gas bills for retail customers.

### 10.3.3 Weston Aluminium

Weston Aluminium submits that the costs approved must ensure a continuing reliable supply, but the costs should be efficient.<sup>1478</sup>

## 10.4 AER's analysis and considerations

The total revenue building blocks proposed by JGN are addressed in the AER's analysis and considerations sections of the chapters in Part A of the final decision. The AER notes the submission from Weston Aluminium which is concerned that underlying costs for delivering the pipeline services are efficient. These matters are considered in detail in Part A of the final decision. In relation to the PIAC, the AER notes that total revenue has declined from \$2424.0 million<sup>1479</sup> (\$2009–10) to \$2071.6 million (\$2009–10) which is a 14.5 per cent reduction in the total revenue proposed by JGN in the revised access arrangement proposal.

The P0 adjustment indicates the increase in the total revenue requirement in the first year of the access arrangement period, while the X factors indicate changes in real tariffs, in subsequent years of the access arrangement period.

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1473 Origin, *Submission to the AER*, April 2010, p. 1.

1474 Origin, *Submission to the AER*, April 2010, p. 2.

1475 Origin, *Submission to the AER*, April 2010, p. 2.

1476 PIAC, *Submission to the AER*, April 2010, p. 4.

1477 PIAC, *Submissions to the AER*, April 2010, p. 4.

1478 Weston Aluminium, *AER review of electricity distribution prices in NSW and gas distribution prices for Jemena Gas Networks in NSW*, 15 February 2010, p. 1 (Weston Aluminium, *Submission to the AER*, 15 February 2010).

1479 This figure is the total submitted in the revised access arrangement proposal.

The AER estimates total revenue, P0 adjustment and X factors based on its analysis and consideration of the building block components discussed in the chapters in Part A of the final decision. The AER outlines its considerations of the X factors relevant for tariff setting in section 13.2.1.3. Relevant to Origin's submission on X factors, the X factors are outlined in table 10.2.

The final decision results in a total revenue requirement over the access arrangement period of \$2071.6 million (\$2009–10), compared to \$2424.0 million<sup>1480</sup> (\$2009–10)<sup>1481</sup> proposed in the revised access arrangement information.<sup>1482</sup> The main reasons for this difference reflect:

- lower weighted average cost of capital (WACC) because of the removal of the Fama-French three-factor model (FFM), additional risk factors to determine the cost of equity and a lower debt risk premium than proposed in the revised access arrangement proposal
- a gamma value of 0.65 rather than a 0.2 gamma value proposed in the revised access arrangement proposal
- forecast capital expenditure of \$764.3 million (\$2009–10), including equity raising costs, which is 14.5 per cent less than proposed in the revised access arrangement proposal
- forecast operating expenditure of \$704.3 million (\$2009–10) which is only slightly lower by 3.1 per cent than in the revised access arrangement proposal. This is because the reductions in base year costs including reduction in the Jemena Asset Management (JAM) margin and corporate costs and reduction in step changes and self insurance are offset by the reclassification of proposed capital expenditure as operating expenditure.

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1480 This figure is the total submitted in the revised access arrangement proposal.

1481 JGN, *Revised access arrangement information*, March 2010, p. 43.

1482 JGN, *Revised access arrangement information*, March 2010, p. 43.

**Table 10.2: Annual total revenue requirements and X factors (\$m, real, 2009–10 unless otherwise stated)**

|  | 2010–11             | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|--|---------------------|---------|---------|---------|---------|
| Return on capital                          | 224.8               | 231.6   | 236.1   | 240.7   | 246.3   |
| Depreciation                               | 11.7                | 25.1    | 30.4    | 36.8    | 43.5    |
| Operating and maintenance                  | 133.6               | 134.2   | 145.9   | 144.5   | 147.6   |
| Corporate income taxation                  | 5.0                 | 6.7     | 7.8     | 9.0     | 10.2    |
| Incentive mechanism payments               | na                  | na      | na      | na      | na      |
| Total                                      | 375.2               | 397.6   | 420.1   | 431.0   | 447.7   |
| <b>X factor tariff revenue<sup>a</sup></b> |                     |         |         |         |         |
| Haulage reference services (%)             | -5.31 <sup>b</sup>  | -1.96   | -1.96   | -1.96   | -1.96   |
| Meter data service (%)                     | -29.69 <sup>b</sup> | 0.00    | 0.00    | 0.00    | 0.00    |

Source: Table 10.2 is based on information from Part A of the final decision.

na: Not available

a: Negative values for X indicate real price increases under the CPI–X formula.

b: The 2010–11 X factor is the initial real change in tariffs (P0 adjustment)

The approved X factors for revenue indicate an increase in volume haulage reference service tariffs of 5.3 per cent in the first year of the access arrangement period and a real increase in tariffs of 1.96 per cent each year of the access arrangement period.

## 10.5 Conclusion

The AER does not approve the revised total revenue for each regulatory year of the access arrangement period as this does not comply with r. 76 of the NGR.

## 10.6 Revisions

The AER proposes the following revisions:

**Revision 10.1:** amend the revised access arrangement information to delete Table 11.1 and replace it with the following:



**Table 10.3: Total revenue requirement (\$m, real, 2009–10, unless otherwise stated)**

|  | 2010–11             | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|--|---------------------|---------|---------|---------|---------|
| Return on capital                          | 224.8               | 231.6   | 236.1   | 240.7   | 246.3   |
| Depreciation                               | 11.7                | 25.1    | 30.4    | 36.8    | 43.5    |
| Operating and maintenance                  | 133.6               | 134.2   | 145.9   | 144.5   | 147.6   |
| Corporate income taxation                  | 5.0                 | 6.7     | 7.8     | 9.0     | 10.2    |
| Incentive mechanism payments               | na                  | na      | na      | na      | na      |
| Total                                      | 375.2               | 397.6   | 420.1   | 431.0   | 447.7   |
| <b>X factor tariff revenue<sup>a</sup></b> |                     |         |         |         |         |
| Haulage reference services (%)             | -5.31 <sup>b</sup>  | -1.96   | -1.96   | -1.96   | -1.96   |
| Meter data service (%)                     | -29.69 <sup>b</sup> | 0.00    | 0.00    | 0.00    | 0.00    |

na: not applicable

a: Negative values for X indicate real price increases under the CPI–X formula.

b: The 2010–11 X factor is the initial real change in tariffs ( $P_0$  adjustment).

**Revision 10.2:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revision 10.1.

## **Part B—Tariffs**

# 11 Demand forecasts

## 11.1 Introduction

This chapter outlines the AER's analysis and considerations of the demand forecasts in the revised access arrangement proposal.

The AER's analysis and consideration of the access arrangement proposal relating to demand forecasts are located in chapter 11 of the draft decision.<sup>1483</sup>

## 11.2 Revised access arrangement proposal

The revised access arrangement proposal does not accept amendment 11.1 of the draft decision. This amendment revises the demand forecasts for volume customers (small customers)<sup>1484</sup> and demand customers (large customers).<sup>1485</sup>

### 11.2.1 Customer numbers and new connections

The revised access arrangement proposal forecasts the number of customers to grow to 1 265 211<sup>1486</sup> in 2014–15 compared with the forecast of 1 256 090 (a 0.7 per cent increase) in the access arrangement proposal.<sup>1487</sup>

The revised access arrangement proposal forecasts new connections of 187 933,<sup>1488</sup> compared with 185 596 (a 1.3 per cent increase from the access arrangement proposal).<sup>1489</sup>

### 11.2.2 Demand forecasts

While the demand forecasts in the revised access arrangement proposal are on average 2.3 per cent higher per annum over the access arrangement period than the demand forecasts submitted in the access arrangement proposal,<sup>1490</sup> they are 4.5 per cent per annum lower than those set out in the draft decision.<sup>1491</sup> The revised demand forecasts are set out in table 11.1.

To support the revised demand forecasts, JGN submits a report by the National Institute of Economic and Industry Research (the revised NIEIR report) that updates the assumptions previously used in its April 2009 forecasts. The revised NIEIR report provides independent demand forecasts incorporating actual gas consumption and

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1483 AER, *Draft decision*, February 2010, pp. 232–252.

1484 Small customers consume less than 10 TJ per annum.

1485 Large customers consumer more than 10 TJ per annum.

1486 JGN, *Revised access arrangement proposal*, March 2010, p. 14

1487 JGN, *Access arrangement information*, August, 2009, p. 69

1488 JGN, *Revised access arrangement proposal*, March 2010, p. 14

1489 JGN, *Access arrangement information*, August, 2009, p. 69

1490 JGN, *Access arrangement information*, August 2009, p. 69.

1491 AER, *Draft decision*, February 2010, pp. 232–252.

customer data to January 2010 as well as updated assumptions about economic drivers and policy impacts to support the revised demand forecasts.<sup>1492</sup>

The revised access arrangement proposal outlines that the forecasts in the access arrangement proposal are almost one year old and need to be updated.<sup>1493</sup>

### **11.2.3 Consumption per customer**

The revised access arrangement proposal forecasts a decline in average consumption for small customers from 31.2 gigajoules (GJ) per customer in 2010–11 to 27.3 GJ per customer in 2014–15, which represents an annual average reduction of 0.98 GJ per customer. This decline is much steeper than forecast in August 2009 in the access arrangement proposal,<sup>1494</sup> where the average consumption for small customers was forecast to decline from 29.3 GJ per customer in 2010–11 to 27.7 GJ in 2014–15, an annual average reduction of 0.4 GJ per customer.

### **11.2.4 Revised demand forecasts**

The revised access arrangement proposal submits that external factors such as updated inputs and the recovery of the economic growth in the New South Wales (NSW) economy have contributed to the revising of forecasts since the access arrangement proposal.<sup>1495</sup>

The revised forecasts incorporate updated inputs including actual data for 2008–09 and updated data for 2009–10.<sup>1496</sup> The revised forecasts also take into account the revised growth forecasts for NSW. The revised access arrangement proposal notes that the impact of the global financial crisis (GFC) on the NSW economy has not been as severe as first expected.<sup>1497</sup>

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1492 JGN, *Initial response to the draft decision*, March 2010, appendix 11.1, pp. 197, 213.

1493 JGN, *Initial response to the draft decision*, March 2010, pp. 205–6.

1494 JGN, *Access arrangement information*, August, 2009, p. 69.

1495 JGN, *Revised access arrangement information*, March, 2010, p. 215.

1496 JGN, *Initial response to the draft decision*, March 2010, p. 206.

1497 JGN, *Initial response to the draft decision*, March 2010, p. 214.

**Table 11.1: Revised total gas forecast (units as stated)**

|   | 2008–09   | 2009–10   | 2010–11   | 2011–12   | 2012–13   | 2013–14   | 2014–15   |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Total load (TJ)</b>                              |           |           |           |           |           |           |           |
| Residential   | 21 310    | 22 518    | 22 553    | 22 335    | 22 055    | 22 105    | 24 474    |
| Business  | 11 753    | 12 039    | 12 148    | 12 359    | 12 296    | 12 004    | 11 991    |
| Total small customers                               | 33 063    | 34 557    | 34 700    | 34 694    | 34 351    | 34 110    | 34 466    |
| Large customers                                     | 64 675    | 64 643    | 65 936    | 67 183    | 64 765    | 62 942    | 60 969    |
| Total load  | 97 738    | 99 200    | 100 637   | 101 878   | 99 116    | 97 052    | 95 436    |
| <b>Customer numbers</b>                             |           |           |           |           |           |           |           |
| Residential   | 1 022 084 | 1 052 085 | 1 082 658 | 1 115 918 | 1 148 907 | 1 189 233 | 1 233 758 |
| Business  | 29 750    | 30 210    | 30 469    | 30 961    | 31 082    | 30 911    | 31 045    |
| Total small customers                               | 1 051 834 | 1 082 295 | 1 113 154 | 1 146 879 | 1 179 989 | 1 220 144 | 1 264 802 |
| Large customers                                     | 414       | 411       | 412       | 412       | 410       | 409       | 409       |
| <b>New network connections</b>                      |           |           |           |           |           |           |           |
| New estates and high rise                           | 18 197    | 22 945    | 24 306    | 26 067    | 26 016    | 33 554    | 37 956    |
| Electricity to gas                                  | 6332      | 7056      | 6267      | 7193      | 6973      | 6772      | 6568      |
| Total new residential                               | 24 529    | 30 001    | 30 573    | 33 260    | 32 989    | 40 326    | 44 524    |
| Small business                                      | 888       | 975       | 1075      | 1175      | 1251      | 1335      | 1410      |
| Large customers                                     | 6         | 3         | 3         | 3         | 3         | 3         | 3         |
| <b>HDD index standard</b>                           |           |           |           |           |           |           |           |
| HDD index   | 496       | 490       | 484       | 479       | 473       | 468       | 462       |
| <b>Average residential load per year (GJ)</b>       |           |           |           |           |           |           |           |
| Existing customers                                  | 20.4      | 21.5      | 20.9      | 20.1      | 19.2      | 18.5      | 18.2      |
| New estates and high rise                           | 18.1      | 17.0      | 16.7      | 16.1      | 15.3      | 14.7      | 14.3      |
| Electricity to gas                                  | 14.6      | 14.6      | 15.7      | 14.8      | 14.1      | 13.6      | 13.3      |
| Average load all residential                        | 20.8      | 21.3      | 20.7      | 19.7      | 18.8      | 18.1      | 17.7      |
| <b>Maximum daily quantity large customers (MDQ)</b> |           |           |           |           |           |           |           |
| MDQ large customers                                 | 331       | 318       | 326       | 331       | 322       | 316       | 308       |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 14–15.

### 11.3 Consultant's report

The AER engaged ACIL Tasman Pty Ltd to provide a report (the ACIL Tasman report) to assess the reasonableness of the revised demand forecasts.

The ACIL Tasman report reflects a desktop review of the methodology, data and parameters and the assumptions used by JGN and its consultants NIEIR.<sup>1498</sup>

For the access arrangement period the ACIL Tasman report concludes that:

- the NIEIR's use of key indicators is appropriate for the purpose of developing demand forecasts<sup>1499</sup>
- the assumptions relating to specific demand drivers and their impacts on demand including the overly pessimistic outlook adopted in the NIEIR's NSW Gross State Product (GSP) forecasts<sup>1500</sup>
- the revised NIEIR forecasts were prepared prior to the announcement of the deferral of the commencement date of the carbon pollution reduction scheme (CPRS)<sup>1501</sup>
- the revised forecasts for small customers are not statistically unreasonable, whereas the revised forecasts for large customers are not statistically reasonable.<sup>1502</sup>

#### *Linear extrapolation*

The ACIL Tasman report notes the revised access arrangement proposal was critical of the use of linear trend extrapolation for forecasting the draft decision demand forecasts. The ACIL Tasman report outlines that forecasting on the basis of extrapolation of historical trends involves a risk of overlooking changes in market drivers that could result in future trends differing from historical trends.<sup>1503</sup> However, the ACIL Tasman report outlines that a sound methodology alone does not ensure that the forecasts produced by application of that methodology are reasonable.<sup>1504</sup>

The ACIL Tasman report outlines that the NIEIR methodology takes into consideration the key drivers affecting future gas demand and factors that may cause future gas demand growth to follow a different trajectory from past experience.<sup>1505</sup>

The ACIL Tasman report notes that statistical analysis of historical trends provides a valuable cross-check on the reasonableness of the forecasts generated using the

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1498 JGN, *Initial response to the draft decision*, March 2010, appendix 11.1.

1499 ACIL, *Demand forecast report*, June 2010, p. 21.

1500 ACIL, *Demand forecast report*, June 2010, p. 21.

1501 ACIL, *Demand forecast report*, June 2010, p. 13.

1502 ACIL, *Demand forecast report*, June 2010, p. 41.

1503 ACIL, *Demand forecast report*, June 2010, p. 25.

1504 ACIL, *Demand forecast report*, June 2010, p. 25.

1505 ACIL, *Demand forecast report*, June 2010, p. 25.

NIEIR methodology, and has adopted this approach in its review of the revised NIEIR forecasts.<sup>1506</sup>

### ***Small customers***

The ACIL Tasman report notes that government policies and initiatives related to energy use and consumption are driving the demand forecasts of small customers.<sup>1507</sup>

The ACIL Tasman report notes that the revised access arrangement proposal projects customer numbers to grow at an average of about 35 500 customers or 3.1 per cent per annum over the access arrangement period.<sup>1508</sup>

The ACIL Tasman report outlines that the amount of gas delivered to the small customer segment is forecast to remain almost flat, ranging between 34.1–34.7 PJ per annum over the access arrangement period.<sup>1509</sup>

The ACIL Tasman report notes the revised demand forecasts for the small customer segment no longer show a significant step change from historical trends.<sup>1510</sup> It also notes that forecasts for total and average annual consumption fall below the raw historical trends (before weather adjustment) and lie outside the lower limit of the 90 per cent confidence interval.<sup>1511</sup>

The ACIL Tasman report also outlines that forecast demand levels based on weather normalised historical data are initially slightly above the trend line and then fall below the trend but remain within the 90 per cent confidence interval.<sup>1512</sup>

### ***Large customers***

The ACIL Tasman report notes that macroeconomic indicators, in particular growth forecasts for NSW GSP are driving the demand forecasts for large customers.<sup>1513</sup>

The ACIL Tasman report outlines that for large customers, gas consumption is initially in line with the historical trend, but then falls rapidly after 2012, with the results for 2014 and 2015 sitting close to the lower bound of the 90 per cent confidence interval.<sup>1514</sup>

The ACIL Tasman report outlines that the pattern of growth through to 2012, followed by declining consumption over the period 2013 to 2015, is consistent with NIEIR's macroeconomic forecast assumptions for the Australian and NSW economies.<sup>1515</sup> These assumptions predict strong growth in the Australian Gross

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1506 ACIL, *Demand forecast report*, June 2010, p. 21.

1507 ACIL, *Demand forecast report*, June 2010, p. 23.

1508 ACIL, *Demand forecast report*, June 2010, p. 40.

1509 ACIL, *Demand forecast report*, June 2010, p. 41.

1510 ACIL, *Demand forecast report*, June 2010, p. 34.

1511 ACIL, *Demand forecast report*, June 2010, p. 34.

AER notes that a confidence interval is used to indicate a range of values within which the true value of an estimate is thought to lie, with a given degree of confidence, in this case 90 per cent.

1512 ACIL, *Demand forecast report*, June 2010, p. 24.

1513 ACIL, *Demand forecast report*, June 2010, p. 25.

1514 ACIL, *Demand forecast report*, June 2010, p. 36.

1515 ACIL, *Demand forecast report*, June 2010, p. 34.

Domestic Product (GDP) and NSW GSP and private consumption peaking in 2012, followed by a period of much lower growth.<sup>1516</sup>

The ACIL Tasman report, notes however that large customer load forecasts are overly pessimistic, particularly for the last two years of the access arrangement period.<sup>1517</sup>

## **11.4 Submissions**

The AER received submissions from the Energy Markets Reform Forum (EMRF), the Energy Users Association of Australia (EUAA) and AGL Energy Ltd (AGL) concerning the demand forecasts in the revised access arrangement proposal.

### **11.4.1 Energy Market Reform Forum**

The EMRF notes that demand forecasts developed for the access arrangement proposal are underestimated.<sup>1518</sup> The EMRF submits that the underestimated forecasts could lead to some bias as distribution businesses have an incentive to understate growth in consumption.<sup>1519</sup>

The EMRF submits that the ACIL Tasman report and the AER's assessment of the forecast growth in consumption in the draft decision are well developed and reflect the gas usage in the earlier access arrangement period.<sup>1520</sup>

#### ***Small customers***

The EMRF submits that residential customers are using less gas per annum than in the past due to the reduction of observed heating degree days (HDD).<sup>1521</sup> The EMRF notes the disparity in the average annual growth rate in new connections over the access arrangement period compared to forecast average demand growth.<sup>1522</sup>

#### ***Large customers***

The EMRF notes the forecast demand for large customers in the draft decision is relatively constant and rises by an average of around 0.6 per cent over the access arrangement period.<sup>1523</sup>

### **11.4.2 Energy Users Association of Australia**

The EUAA submits that analyses conducted by the AER and found in the ACIL Tasman report appear to be robust and are a sound basis on which to set the revenue and prices for the access arrangement period.<sup>1524</sup>

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1516 ACIL, *Demand forecast report*, June 2010, p. 36.

1517 ACIL, *Demand forecast report*, June 2010, p. 36.

1518 EMRF, *Submission to the AER*, April 2010, p. 60.

1519 EMRF, *Submission to the AER*, April 2010, p. 60.

1520 EMRF, *Submission to the AER*, April 2010, p. 60.

1521 EMRF, *Submission to the AER*, April 2010, p. 60.

1522 EMRF, *Submission to the AER*, April 2010, p. 60.

1523 EMRF, *Submission to the AER*, April 2010, p. 61.

1524 EUAA, *Submission to the AER*, April 2010, p. 9.



### 11.4.3 AGL

AGL submits that the revised forecasts submitted in the revised access arrangement proposal fail to take account of AGL's previous submission.<sup>1525</sup>

AGL further submits that the revised forecasts do not reflect the improved economic outlook and changes to government programs and policy that would translate into increased gas volumes in NSW.<sup>1526</sup> AGL notes the following changes since the forecasts submitted in the access arrangement proposal:

- improved economic conditions
- increased use per residential customer
- increased trends of residential usage which contradicts the projected decline
- the delayed (or cancelled) CPRS and home insulation schemes.<sup>1527</sup>

#### *Small customers*

AGL submits that the demand forecasts submitted in the revised access arrangement proposal decline over the access arrangement period.<sup>1528</sup> AGL notes that the forecasts submitted in the access arrangement proposal decline by 2.2 per cent per annum, whereas the revised forecasts decline at a rate of 3.1 per cent per annum.<sup>1529</sup> AGL submits that it does not see any justification for the decline in demand forecasts over the access arrangement period.<sup>1530</sup>

AGL queries the inclusion of the home insulation scheme as a driver for reduced residential usage in the revised forecasts as this scheme has been cancelled. AGL submits that the cancellation of this scheme should increase residential use of gas.<sup>1531</sup>

AGL submits that the increases in gas prices in the revised access arrangement proposal are no longer credible as the introduction of the CPRS has been delayed.<sup>1532</sup>

#### *Large customers*

AGL notes that the revised access arrangement proposal assumes a better economic performance than expected in the access arrangement proposal in 2009–10 to 2010–11 and economic growth in NSW has been revised upwards in those years.<sup>1533</sup> However, AGL also submits that forecasts for NSW GSP have been revised downwards in 2012–13 and 2013–14.<sup>1534</sup> AGL notes that the overall forecast growth

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1525 AGL, *Submission to the AER*, April 2010, p. 5.

1526 AGL, *Submission to the AER*, April 2010, p. 5.

1527 AGL, *Submission to the AER*, April 2010, p. 5.

1528 AGL, *Submission to the AER*, April 2010, p. 5.

1529 AGL, *Submission to the AER*, April 2010, p. 5.

1530 AGL, *Submission to the AER*, April 2010, p. 5.

1531 AGL, *Submission to the AER*, April 2010, p. 5.

1532 AGL, *Submission to the AER*, April 2010, p. 6.

1533 AGL, *Submission to the AER*, 28 April 2010, p. 6.

1534 AGL, *Submission to the AER*, 28 April 2010, p. 6.

in NSW GSP is on average 2 per cent per annum. Given the positive economic outlook, AGL submits that it is surprised not to see a significant revision upwards in overall gas demand, rather than the declining trend of 0.8 per cent per annum contained in the revised access arrangement proposal.<sup>1535</sup>

AGL notes the revised NIEIR report continues to exclude any gas-powered generation (GPG) from being factored into the revised forecasts.<sup>1536</sup> While AGL notes the difficulty in forecasting non-base load GPG use, it also submits that GPG is a large source of gas consumption in the network and should be included in overall demand forecasts.<sup>1537</sup>

## **11.5 AER's analysis and considerations**

### **11.5.1 Basis for forecasts**

#### **11.5.1.1 Forecasting methodology**

The revised access arrangement proposal outlines that the demand forecasts in the draft decision are based on a linear trend extrapolation methodology. The revised access arrangement proposal states that a simple linear extrapolation of historical trends is not a reasonable basis for arriving at demand forecasts and may produce inaccurate forecasts and is likely to be problematic.<sup>1538</sup> The revised access arrangement proposal outlines that the revised forecasts are within a 90 per cent confidence band around the extrapolated regression line in every year of the forecasts in the draft decision.<sup>1539</sup> The AER notes that the revised forecasts are at the lower end of the 90 per cent confidence band. The AER also notes that the demand forecasts for 2010–11 to 2011–12 are closer to the linear trend than those in the remainder of the access arrangement period.

The revised access arrangement proposal further outlines that if trend extrapolation was considered acceptable, for small customers the methodology should be applied at a disaggregated level into three distinct components, which have different characteristics and drivers:

- existing residential customers
- new residential customers, comprising transfers from electricity to gas and new homes
- business customers.<sup>1540</sup>

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1535 AGL, *Submission to the AER*, 28 April 2010, p. 6.

1536 AGL, *Submission to the AER*, 28 April 2010, p. 6.

1537 AGL, *Submission to the AER*, 28 April 2010, p. 6.

1538 JGN, *Initial response to the draft decision*, March 2010, p. 206.

1539 JGN, *Initial response to the draft decision*, March 2010, p. 208.

1540 JGN, *Initial response to the draft decision*, March 2010, p. 208.

Overall, the ACIL Tasman report considers the NIEIR methodology for the small customer forecasts are based on a well-established and sound methodology and the volume forecasts are not unreasonable.<sup>1541</sup>

The ACIL Tasman report outlines that there is some issue about the assumptions used in relation to gas consumption falling steeply in 2014 and 2015. The ACIL Tasman report concludes that these assumptions are open to question and that collectively are likely to have resulted in forecast gas demand being understated.<sup>1542</sup> Further, the forecasts for the large customer maximum daily quantity (MDQ) lie within the 90 per cent confidence interval around the historical trend, with the final year (2015), lying just below the lower bound of the confidence interval.<sup>1543</sup>

### **Conclusion**

The AER considers that the forecasting methodology in the NIEIR report provides forecasts that are statistically significant. That said, the AER outlines the issues in relation to the assumptions which are relied on by JGN to derive these forecasts below. These assumptions are discussed below.

#### **11.5.1.2 Assumptions underlying the revised demand forecasts**

The AER notes the issues raised in the ACIL Tasman report regarding the assumptions underpinning the revised demand forecasts for both small and large customers. These concerns are the inclusion of the impact of the CPRS in demand forecasts and the use of overly pessimistic NSW GSP forecasts.

### **CPRS impacts**

The access arrangement proposal submits that the introduction of the CPRS will alter energy price relativities and this may, on balance, significantly reduce demand for natural gas.<sup>1544</sup> The revised access arrangement proposal submits that the assessment of the impacts of the CPRS remain the same as proposed in the access arrangement proposal.<sup>1545</sup>

However, the AER notes that on 27 April 2010 the Australian Government announced the deferral of the commencement date of the CPRS.<sup>1546</sup> The CPRS was originally scheduled to commence in July 2011, but it is now expected that the CPRS will not be introduced until after 2012.<sup>1547</sup>

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1541 ACIL, *Demand forecast report*, June 2010, p. 34.

1542 ACIL, *Demand forecast report*, June 2010, p. 40.

1543 ACIL, *Demand forecast report*, June 2010, pp. 38–39.

1544 JGN, *Access arrangement proposal*, August 2009, p. 18.

1545 JGN, *Initial response to the draft decision*, March 2010, p. 214.

1546 Department of Climate Change and Energy Efficiency, *Carbon Pollution Reduction Scheme*, 05 May 2010 viewed 10 May 2010, <<http://www.climatechange.gov.au/en/media/whats-new/cprs-delayed.aspx>>.

1547 Department of Climate Change and Energy Efficiency, *Carbon Pollution Reduction Scheme*, 05 May 2010 viewed 10 May 2010, <<http://www.climatechange.gov.au/en/media/whats-new/cprs-delayed.aspx>>.

The Australian government notes that it will not introduce the CPRS until after 2012. The Australian Government notes that this is when the current commitment period of the Kyoto protocol is scheduled to end.

The ACIL Tasman report outlines that the revised NIEIR forecasts were prepared prior to the announcement of the deferral of the commencement date of the CPRS.<sup>1548</sup> The principal way in which the revised NIEIR report accounts for the impact of the CPRS is through price and income effects that influence overall demand.<sup>1549</sup>

The ACIL Tasman report also outlines that impacts of the CPRS on gas prices should occur at the wholesale level and is therefore unlikely that introduction of CPRS would lead to the large increases in delivered gas costs.<sup>1550</sup> The ACIL Tasman report outlines that the CPRS White Paper found that residential gas prices would rise by only 12 per cent as a result of carbon prices consistent with a 5 per cent reduction in emissions below 2000 levels by 2020.<sup>1551</sup>

The ACIL Tasman report outlines that the revised NIEIR report's forecast increases in delivered gas prices attributed to the CPRS, \$3.20 per GJ for small business customers and \$6 per GJ for residential customers within three years of the CPRS commencement, are significantly overstated.<sup>1552</sup> The ACIL Tasman report outlines that the impact in percentage terms on residential gas prices is more than twice that estimated by Treasury in the CPRS White Paper.<sup>1553</sup>

As outlined, the ACIL Tasman report also notes that any impacts on gas prices arising from CPRS or a similar carbon pricing scheme will be delayed.<sup>1554</sup>

The ACIL Tasman report concludes that overstating the increase in gas prices for small customers caused by CPRS during the access arrangement period would result in the underestimation of gas demand.<sup>1555</sup>

The AER notes that AGL also submits that the commencement date of the CPRS has been deferred, which has implications for demand.<sup>1556</sup> AGL submits that price increases in the revised access arrangement proposal which are attributed to the CPRS are no longer credible.<sup>1557</sup>

In light of the deferral of the commencement date of the CPRS, the AER requested the removal of the effects of the CPRS from the demand forecasts. However, JGN submits in later correspondence (contrary to the revised access arrangement proposal)<sup>1558</sup> that the deferral of the commencement date of the CPRS will have

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1548 ACIL, *Demand forecast report*, June 2010, p. 19.

1549 ACIL, *Demand forecast report*, June 2010, p. 11.

1550 ACIL, *Demand forecast report*, June 2010, p. 13.

1551 ACIL, *Demand forecast report*, June 2010, p. 13.

1552 ACIL, *Demand forecast report*, June 2010, p. 13.

1553 ACIL, *Demand forecast report*, June 2010, p. 13.

1554 ACIL, *Demand forecast report*, June 2010, p. 14.

1555 ACIL, *Demand forecast report*, June 2010, p. 23.

1556 AGL, *Submission to the AER*, April 2010, p. 5.

1557 AGL, *Submission to the AER*, April 2010, pp. 5–6. AGL submits that the price increases in the revised access arrangement proposal attributable to the CPRS are 28.1 per cent for residential customers and 38.8 per cent for business customers.

1558 JGN, *Initial response to the draft decision*, March 2010, p. 214 and JGN, *Access arrangement information*, August 2009, p. 66.

limited impact on demand.<sup>1559</sup> The AER notes this inconsistency, and while it did not seek the remodeling of the NIEIR forecasts to remove the CPRS effects from the NIEIR forecasts, the AER does consider that the deferral will likely result in higher total demand than forecast in the access arrangement period.

### NSW GSP

The revised access arrangement proposal outlines that the forecasts take into account the economic climate and in particular expectations for the general growth of the NSW economy over the access arrangement period.<sup>1560</sup> Table 11.2 compares the difference between expectations for NSW GSP between the access arrangement proposal and the revised access arrangement proposal. Table 11.2 shows that NSW GSP is significantly lower in the latter years of the access arrangement period in the revised access arrangement proposal compared with the expectations for NSW GSP outlined in the access arrangement proposal.

**Table 11.2: NSW GSP (%)**

|         | Access arrangement proposal | Revised access arrangement proposal |
|---------|-----------------------------|-------------------------------------|
| 2010–11 | 0.3                         | 1.4                                 |
| 2011–12 | 4.6                         | 4.9                                 |
| 2012–13 | 3.5                         | 2.2                                 |
| 2013–14 | 2.9                         | 0.9                                 |
| 2014–15 | 2.4                         | 0.5                                 |

Source: JGN, *Initial response to the draft decision*, March 2010, appendix 11.1 and JGN, *Access arrangement information*, August 2009, appendix 5.2.  
na Not available

The revised access arrangement proposal outlines that NSW GSP will grow at an average of 2.0 per cent per annum between 2010–11 and 2014–15 compared with 2.7 per cent per annum in the access arrangement proposal.<sup>1561</sup> The revised NIEIR report expects the recovery in economic growth in NSW to begin in 2010–11 before accelerating considerably in 2011–12.<sup>1562</sup> However, the revised access arrangement proposal outlines that the unwinding of the Commonwealth Government's fiscal stimulus and a reversal of expansionary monetary policy are expected to significantly slow economic growth in NSW from 2011–12 to 2013–14. Economic growth is not expected to recover again until after 2014–15.<sup>1563</sup>

1559 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 13.

1560 JGN, *Initial response to the draft decision*, March 2010, pp. 205–6.

1561 JGN, *Initial response to the draft decision*, March 2010, p. 214.

1562 JGN, *Initial response to the draft decision*, March 2010, pp. 205–6.

1563 JGN, *Initial response to the draft decision*, March 2010, pp. 205–6.

The ACIL Tasman report notes the economic outlook for Australia and NSW in the revised NIEIR report. The revised NIEIR report produced in February 2010 is based on data as at 31 December 2009. The ACIL Tasman report notes that by this time the effects of the GFC in Australia had not been as severe as forecast originally.<sup>1564</sup>

The ACIL Tasman report also notes that the revised NIEIR report is forecasting a tightening of economic conditions in the last two years of the access arrangement period. The ACIL Tasman report notes that this is based on the following assumptions:

- growth in consumption expenditure relative to income will be constrained by a need to stabilise average household savings ratios, debt to income ratios, and household debt service ratios
- consumption expenditure growth will slow after 2012 as interest rates rise and the fiscal stimulus is withdrawn.<sup>1565</sup>

The ACIL Tasman report notes the forecasts for large customer load are not reasonable and are overly pessimistic in the last two years of the access arrangement period.<sup>1566</sup>

The ACIL Tasman report also outlines that the revised forecast shows weather normalised demand consumption for large customers starting out on the historical trend, but then falling rapidly with the results for 2014–15 sitting close to the lower bound of the 90 per cent confidence interval.<sup>1567</sup> The ACIL Tasman report notes that the demand forecasts are consistent with the revised NIEIR report's macroeconomic forecasts for the Australian and NSW economies.<sup>1568</sup>

Further the forecasts for large customer MDQ lie within the 90 per cent confidence interval around the historical trend, with the final year (2015) lying just below the lower bound of the confidence interval.<sup>1569</sup>

The ACIL Tasman report outlines that the NIEIR modelling suggests that gas consumption is expected to fall below the previous slow growth trend, and decline by 6.2 PJ or around nine per cent over the period 2012–2015 as result of macroeconomic conditions.<sup>1570</sup> The ACIL Tasman report considers that a decline of this magnitude raises serious questions as to whether the assumptions that have been made in applying the NIEIR's methodology are overly pessimistic.<sup>1571</sup>

The AER notes that AGL also submits that despite an improved economic outlook, the forecasts for NSW GSP have been revised downwards in 2012–13 and 2013–

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1564 ACIL, *Demand forecast report*, June 2010, p. 20.

1565 ACIL, *Demand forecast report*, June 2010, p. 20.

1566 ACIL, *Demand forecast report*, June 2010, p. 37.

1567 ACIL, *Demand forecast report*, June 2010, p. 36.

1568 ACIL, *Demand forecast report*, June 2010, p. 36.

1569 ACIL, *Demand forecast report*, June 2010, p. 38.

1570 ACIL, *Demand forecast report*, June 2010, p. 36.

1571 ACIL, *Demand forecast report*, June 2010, p. 36.

14.<sup>1572</sup> The AER also notes AGL's submission that the total gas demand declines over the access arrangement period.<sup>1573</sup>

Table 11.3 compares NSW GSP forecasts submitted in the revised NIEIR report to other forecasts for NSW GSP forecasts. The BIS Shrapnel forecasts are of particular relevance as they are used to support the assumptions for real labour cost escalators in the revised access arrangement proposal. Access Economics and the NSW Treasury forecasts are used as other examples of forecasts for NSW GSP during the access arrangement period.

**Table 11.3: Alternative NSW GSP (%)**

|         | NIEIR<br>(March 2010) | BIS Shrapnel<br>(May 2009) | BIS Shrapnel<br>(Dec 2009) | Access<br>Economics<br>(May 2010) | NSW<br>Treasury (Dec<br>2009) |
|---------|-----------------------|----------------------------|----------------------------|-----------------------------------|-------------------------------|
| 2010–11 | 1.4                   | 3.5                        | 3.7                        | 2.1                               | 2.5                           |
| 2011–12 | 4.9                   | 4.2                        | 4.3                        | 2.7                               | 3.8                           |
| 2012–13 | 2.2                   | 4.2                        | 3.5                        | 3.1                               | 3.8                           |
| 2013–14 | 0.9                   | 2.6                        | 2.2                        | 2.8                               | 3.8                           |
| 2014–15 | 0.5                   | 3.2                        | 3.7                        | 2.9                               | 3.8                           |

Source: JGN, *Initial response to the draft decision*, March 2010, appendix 11.1; JGN, *Access arrangement information*, August 2009, appendix 6.4; BIS Shrapnel, *Update of Wages Outlook for the Electricity, Gas and water Sector in New South Wales*, December 2009, p. 4; Access Economics, NSW GSP forecasts to 2019–20; Email to AER, May 2010; NSW Treasury, *Half-Yearly Review 2009–10 New South Wales*, 9 December 2009, pp. 23–26.

Table 11.3 illustrates that NSW GSP forecasts provided by the NIEIR are inconsistent with the other forecasts for NSW GSP throughout the access arrangement period.

In 2010–11 the NSW GSP forecast in the revised NIEIR report is lower than all the alternative forecasts, whereas in 2011–12 the NSW GSP forecast in the revised NIEIR report is higher. Again, in contrast to the alternative forecasts in table 11.3, from 2012–13 the revised NIEIR report forecasts lower NSW GSP, and as outlined in the ACIL Tasman report, is overly pessimistic in 2013–14 and 2014–15. From 2012–13, the revised NIEIR report forecasts in each year are lower than the previous year.

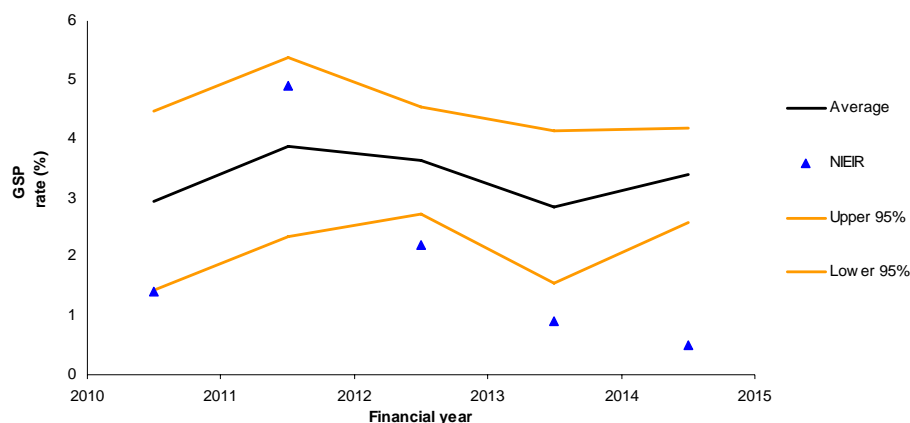
Figure 11.1 illustrates these inconsistencies. The average trend line in figure 11.1 comprises the BIS Shrapnel forecasts for NSW GSP in May 2009 and December 2009, NSW GSP forecasts of Access Economics and the NSW Treasury. When the NIEIR forecasts are compared against these other forecasts they sit well below the average trend line and outside the 95 per cent confidence interval after 2011–12.

<sup>1572</sup> AGL, *Submission to the AER*, April 2010, p. 6.

<sup>1573</sup> AGL, *Submission to the AER*, April 2010, p. 6.

Based on these observations, the NIEIR forecasts appear to be outliers in four of the five years of the access arrangement compared with other GSP forecasts. Moreover, the forecasts in the revised NIEIR report are inconsistent with NSW GSP figures in the revised access arrangement proposal for labour forecasts, which are based on the BIS Shrapnel report updated in December 2009 (the December 2009 BIS Shrapnel report).<sup>1574</sup>

**Figure 11:1: NIEIR forecasts compared with an average of the alternative forecasts (%)**



Note: The average is derived from the alternative forecasts in table 11.3.

Source: JGN, *Initial response to the draft decision*, March 2010; appendix 11.1, JGN, *Access arrangement information*, August 2009, appendix 6.4; BIS Shrapnel, *Update of Wages Outlook for the Electricity, Gas and water Sector in New South Wales*, December 2009, p. 4; Access Economics, *NSW GSP forecasts to 2019–20*, Email to AER, 4 May 2010; NSW Treasury, *Half-Yearly Review 2009–10 New South Wales*, 9 December 2009, pp. 23–26.

The AER has compared the NIEIR NSW GSP forecasts with the December 2009 BIS Shrapnel report, which are used to derive the real labour cost escalators in the revised access arrangement proposal.

In light of the overly pessimistic NSW GSP forecasts used in the revised NIEIR report compared with alternative forecasts, including those used elsewhere in the revised access arrangement proposal,<sup>1575</sup> the AER requested JGN to update the demand forecasts. The AER requested that the demand forecasts in the revised access arrangement proposal are updated using the assumptions of NSW GSP contained in the December 2009 BIS Shrapnel report used to forecast the real labour cost escalators.<sup>1576</sup> However, JGN submits that the AER's request is not appropriate and rather than seek the NIEIR to amend its forecast, JGN has submitted a sensitivity analysis on NSW GSP assumptions, which is discussed below.<sup>1577</sup>

<sup>1574</sup> Wages outlook for Electricity, Gas and Water Sector in NSW report BIS Shrapnel report updated in December 2009) (The December 2009 BIS Shrapnel report).

<sup>1575</sup> The December 2009 BIS Shrapnel report is used to derive the revised labour cost escalators proposed in the revised access arrangement proposal.

<sup>1576</sup> AER, email to JGN, *Macromonitor and BIS Shrapnel reports*, 4 May 2010.

<sup>1577</sup> JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010.



*Sensitivity analysis on NSW GSP assumptions*

The AER requested the revised demand forecasts be updated based on the forecast NSW GSP contained in the December 2009 BIS Shrapnel report.<sup>1578</sup> The AER requested this because the revised NIEIR report's assumptions for NSW GSP are inconsistent with the December 2009 BIS Shrapnel report used to escalate labour cost forecasts for the total revenue building blocks. However, JGN submits that it does not consider that it is appropriate to seek the NIEIR to amend the demand forecasts,<sup>1579</sup> because of the sensitivity analysis provided by the NIEIR about the impacts of NSW GSP on the small and large customer demand.<sup>1580</sup> The sensitivity analysis shows that for a one per cent increase in NSW GSP, gas demand for small customers will increase by 0.33 per cent and 0.69 per cent for large customers, while MDQ will increase by a corresponding 0.57 per cent.<sup>1581</sup>

The AER observes that the sensitivity analysis submitted by JGN does not show that NSW GSP is a strong driver of demand forecasts. Applying the sensitivity analysis to NSW GSP forecasts in the December 2009 BIS Shrapnel report results in a 0.83 per cent increase in total demand.

*Conclusion on underlying assumptions*

The revised access arrangement proposal outlines that the introduction of the CPRS and lower forecast NSW GSP will result in lower total demand forecast for gas in the access arrangement period. In contrast, more recent information submitted by JGN outlines that the assumptions about the CPRS impact and the overly pessimistic forecasts for NSW GSP used in the revised NIEIR report compared with other forecasts do not have a significant impact on the overall total demand forecast.<sup>1582</sup>

In light of these submissions and the assumptions used, while the AER considers that the revised NIEIR report's forecasting model may provide a reasonable basis to determine the best forecasts for demand,<sup>1583</sup> it has concerns about whether in the circumstances it does. For these reasons, the AER considers that the demand forecasts in the revised NIEIR report do not result in the best estimates or forecasts for demand possible in the circumstances.<sup>1584</sup> The following section outlines the AER's approach to determining the best estimates or forecasts for total demand.

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1578 AER, email to JGN, *Macromoniter and BIS Shrapnel reports*, 4 May 2010.

1579 JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010.

1580 JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010.

1581 JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010, attachment, NIEIR, letter dated from Mr A O'Dwyer addressed to Mr P Harcus, Manager Gas Network Development, Jemena, 13 May 2010.

1582 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 13 and JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010, attachment, NIEIR, letter dated from Mr A O'Dwyer addressed to Mr P Harcus, Manager Gas Network Development, Jemena, 13 May 2010.

1583 NGR, r. 74(2).

1584 NGR, r. 74(2).

## 11.5.2 Total demand forecasts

### 11.5.2.1 Demand forecasts in the revised access arrangement proposal

The load forecasts for small customers in the revised access arrangement proposal are 3.3 per cent higher than the demand forecasts in the access arrangement proposal and 6.0 per cent lower than those set out in the draft decision.<sup>1585</sup> The load forecasts for large customers are 1.8 per cent higher than the demand forecasts in the access arrangement proposal<sup>1586</sup> and 3.6 per cent lower than those set out in the draft decision.<sup>1587</sup>

Figure 11.2 compares the total load forecasts in the revised access arrangement proposal with the draft decision and the access arrangement proposal and demonstrates:

- the revised forecasts are on average 2.3 per cent per annum higher than the forecasts proposed in the access arrangement proposal
- the revised forecasts are on average 4.5 per cent per annum lower than the forecasts stated in the draft decision
- the revised total forecasts for 2012–13 are 2.8 per cent lower than in 2011–12 and are forecast to continue to decline
- the revised forecasts in the first two years of the access arrangement period are close to the forecasts set out in the draft decision. However, the forecasts begin to decline from 2012–13 until the end of the access arrangement period when they are 6.8 per cent lower than the highest point in 2011–12.<sup>1588</sup>

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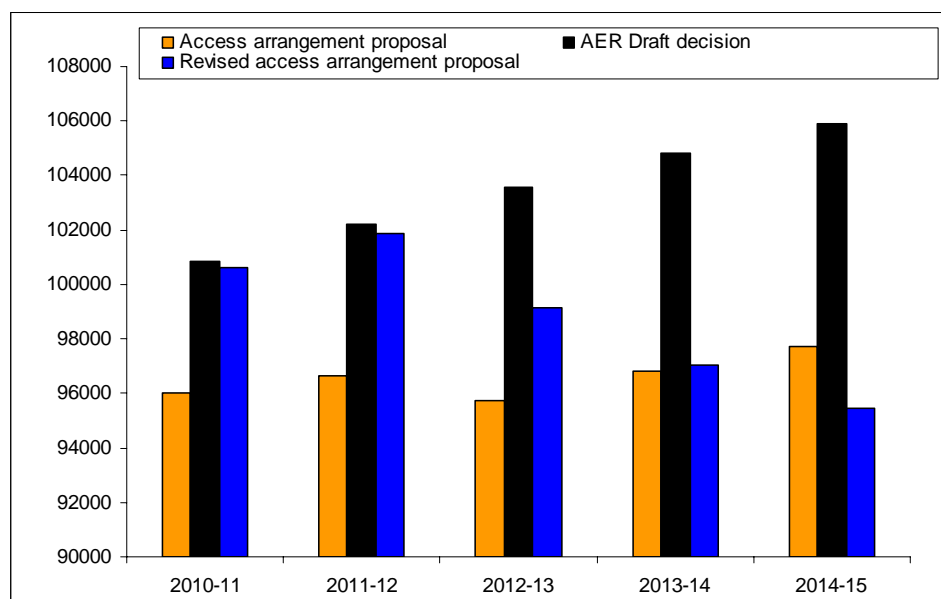
1585 AER, *Draft decision*, February 2010, pp. 232–252.

1586 JGN, *Access arrangement information*, August 2009, p. 69.

1587 AER, *Draft decision*, February 2010, pp. 232–252.

1588 JGN, *Revised access arrangement information*, March 2010, pp. 14–15.

**Figure 11.2: Demand load forecasts (TJ)**



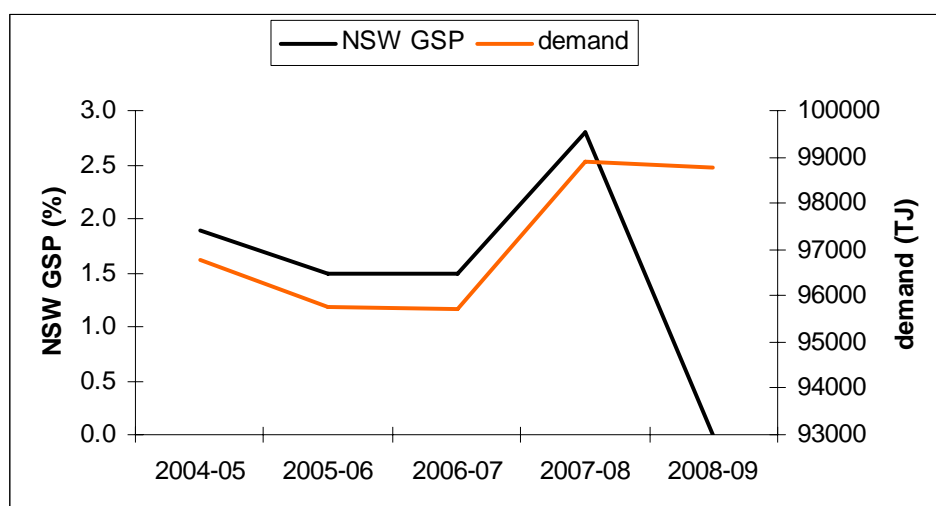
Source: JGN, *Revised access arrangement information*, March, pp. 14–15; AER, *Draft decision*, February 2010, pp. 232–252; JGN, *Access arrangement information*, August 2009, p. 69.

As outlined above, the AER considers about the assumptions and therefore the demand forecasts after 2011–12 may not be reasonable. These concerns are reinforced by the ACIL Tasman report, and the comparison of the alternative NSW GSP forecasts and the NIEIR demand NSW GSP forecasts that are said in various documents to underlie the total demand forecasts.<sup>1589</sup>

The relationship between NSW demand for gas and NSW GSP is illustrated in figure 11.3.

<sup>1589</sup> JGN, *Access arrangement information*, August 2009, p. 69 and JGN, *Revised access arrangement information*, March, pp. 14–15.

**Figure 11.3: Comparison of NSW GSP with demand**



Source: JGN, *Initial response to the draft decision*, March 2010; appendix 11.1 and JGN, *Revised access arrangement information*, March 2010, p. 14.

Figure 11.3 shows that for most of the earlier access arrangement period, NSW gas demand moved consistently with NSW GSP. In 2008–09, despite a fall in NSW GSP, demand for gas remained stable at around 100 605 TJ. Notwithstanding the inconsistent submissions from JGN about the relationship between gas demand and NSW GSP,<sup>1590</sup> the AER considers NSW GSP provides a suitable proxy for movements in gas demand in the access arrangement period.

The AER outlines the consequences of the relationship between NSW GSP and total demand below.

#### 11.5.2.2 Demand forecasts for 2010–2011 and 2011–12

In 2010–11 to 2011–12, the revised access arrangement proposal forecasts total load to increase from 100 637 to a maximum of 101 878 TJ in the access arrangement period. The AER notes that the demand forecasts set out in the revised access arrangement proposal for 2010–11 and 2011–12 are not significantly different to the demand forecasts approved in the draft decision.

The increase in total gas demand from 2010–11 to 2011–12 is also in line with the changes in the forecast of NSW GSP, as shown in table 11.3. As outlined in 11.5.1.2, the AER considers that the movements in NSW GSP provide a reasonable basis for establishing total demand forecasts in the access arrangement period. On this basis the AER considers the forecasts for 2010–11 and 2011–12 in the revised access arrangement proposal are arrived at on a reasonable basis, using reasonable assumptions to represent the best forecasts possible in the circumstances.<sup>1591</sup>

<sup>1590</sup> JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010, attachment NIEIR, letter dated from Mr A O'Dwyer addressed to Mr P Harcus, Manager Gas Network Development, Jemena, 13 May 2010.

<sup>1591</sup> NGR, r. 74(2).

### 11.5.2.3 Demand forecasts for 2012–13 to 2014–15

The revised access arrangement proposal proposes a relatively large fall in total demand from 2011–12. While the movement in total demand reflects a lower rate NSW GSP growth, the AER considers that the fall in total demand is not reasonable based on the assumptions of NSW GSP that underlie these forecasts. This is because the NIEIR forecasts for NSW GSP (which are assumed to be a driver of total demand)<sup>1592</sup> are considered overly pessimistic according to the ACIL Tasman report, when compared with alternative forecasts of NSW GSP.<sup>1593</sup>

For these reasons the AER does not consider that the underlying assumptions of NSW GSP used in the revised NIEIR report that underlie total demand forecasts provide a reasonable basis for establishing those forecasts.<sup>1594</sup> The AER does not consider that JGN provides adequate support or consistent reasons for the extent of the decline in gas demand, particularly in light of its recent submission that the CPRS and NSW GSP assumptions do not have a significant impact on the overall demand forecast.<sup>1595</sup>

The AER's considerations of the demand forecasts for each of the years 2012–13 to 2014–15 are set out below.

#### Total demand forecast for 2012–13

For the reasons set out above, the AER uses the change in the forecast for NSW GSP as a reference point for the change in total demand. The AER notes that both the revised NIEIR report and the December 2009 BIS Shrapnel report forecast lower NSW GSP in 2012–13 than in 2011–12. However, the revised NIEIR report is forecasting significantly lower NSW GSP at 2.2 per cent compared with its forecast for 2011–12 (4.9 per cent) and with the alternative forecasts outlined in table 11.3. For example, the December 2009 BIS Shrapnel report forecasts NSW GSP of 3.5 per cent in 2012–13, compared with 4.3 per cent in 2011–12.

The AER considers that JGN has not substantiated the proposed 2.2 per cent NSW GSP particularly in light of the NSW GSP forecast used to forecast real labour cost escalators. Further, the proposed forecasts for NSW GSP are significantly different to the alternative forecasts outlined in table 11.3. As a consequence the AER considers a decline in forecast total demand is not unreasonable between 2011–12 and 2012–13. However, the AER considers that it should reflect a higher forecast NSW GSP than proposed in the revised access arrangement proposal, consistent with the outlook for NSW GSP in alternative forecasts as shown in table 11.3.

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1592 JGN, *Access arrangement information*, August 2009, pp. 61–62 and JGN, *Initial response to the draft decision*, March, pp. 214–215.

1593 ACIL, *Demand forecast report*, June 2010, p. 36. Refer also to table 11.3 for a comparison of the NIEIR report forecasts and alternative forecasts, especially those in the December 2009 BIS Shrapnel report used to derive labour cost escalators.

1594 NGR, r. 74(2).

1595 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 13. and JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010, attachment, NIEIR, letter dated from Mr A O'Dwyer addressed to Mr P Harcus, Manager Gas Network Development, Jemena, 13 May 2010.

The lower NSW GSP forecast in 2012–13 also results in a decline in the demand forecasts set out in the revised access arrangement proposal from 2011–12 to 2012–13 of 2.7 per cent. This compares with a decline of only 0.9 per cent in the access arrangement proposal. The AER does not consider that JGN has justified the extent of this fall in total gas demand in the revised access arrangement proposal.

Therefore to derive lower total demand forecasts for 2012–13 to reflect slower NSW GSP growth than expected or forecast to occur in 2011–12, the AER considers the proposed decline in total demand in the access arrangement proposal of 0.9 per cent is an appropriate reference point.

As a consequence, the AER forecasts higher total demand of 100 959 TJ for 2012–13 than 99 116 TJ proposed in the revised access arrangement proposal. The AER considers that the higher total demand forecast for 2012–13 proposed by the AER is appropriate with reference to the alternative forecasts of NSW GSP in 2012–13. These alternative forecasts provide for more optimistic growth in NSW GSP forecast than proposed in the revised NIEIR report. The higher total demand also reflects the decline in total demand proposed in the access arrangement proposal, which is also consistent with these alternative forecasts for NSW GSP.

#### **Total demand forecast for 2013–14**

For the reasons set out above, the AER again uses the change in the forecast for NSW GSP as a reference point for the change in total demand. The AER notes that the revised NIEIR report, the December 2009 BIS Shrapnel report and Access Economics forecast lower but positive NSW GSP in 2013–14 compared with 2012–13. The AER again notes that the revised NIEIR report is forecasting significantly lower NSW GSP compared with alternative forecasts, as shown in table 11.3.

The AER considers a decline in forecast total demand is not unreasonable between 2012–13 and 2013–14, but that total demand should reflect a higher forecast NSW GSP than proposed in the revised access arrangement proposal, consistent with the outlook for NSW GSP in alternative forecasts as shown in table 11.3. To derive lower total demand forecasts for 2013–14 than 2012–13 to reflect slower NSW GSP growth, the AER considers the decline in the revised access arrangement proposal of 2.1 per cent is an appropriate reference point.

As a consequence, the AER forecasts higher total demand of 98 856 TJ for 2013–14 than 97 052 TJ proposed in the revised access arrangement proposal. The AER considers that the higher total demand forecast for 2013–14 proposed by the AER is appropriate with reference to the alternative forecasts of NSW GSP in 2013–14 which provide for more optimistic growth in NSW GSP than proposed in the revised NIEIR report forecasts. The AER's forecasts also use the decline in total demand in the revised access arrangement as a reference point, consistent with these alternative forecasts for NSW GSP.

#### **Total demand forecast for 2014–15**

For the reasons set out above, the AER again uses the change in the forecast for NSW GSP as a reference point for the change in total demand. The AER notes that as with the previous two years the revised NIEIR report forecasts significantly lower NSW GSP of 0.5 per cent in 2014–15 (falling from 0.9 per cent in 2014–15). This forecast

is at odds with other alternative forecasts, which show higher or stable NSW GSP growth between 2013–14 and 2014–15.

On this basis the AER considers that it is reasonable to assume that there is no change in NSW GSP in 2014–15.

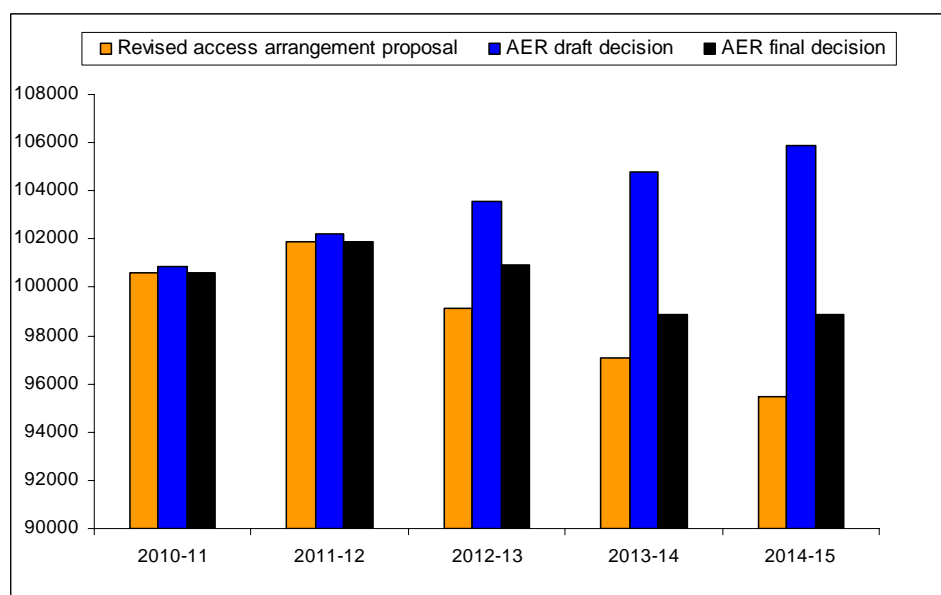
As a consequence, the AER forecasts no change in demand from 2013–14 to 2014–15. The AER forecasts higher total demand of 98 856 TJ for 2014–15 compared with 95 436 TJ proposed in the revised access arrangement proposal. The AER considers that the higher total demand forecast for 2014–15 proposed by the AER is appropriate with reference to the alternative forecasts of NSW GSP in table 11.3.

## Conclusion

The AER approves the revised access arrangement proposal's total demand forecasts for 2010–11 and 2011–12. As outlined above, the AER does not consider, however, that the revised access arrangement proposal's forecasts for 2013–14 to 2014–15 are arrived at on a reasonable basis and represent the best forecasts possible in the circumstances.<sup>1596</sup> In arriving at this conclusion the AER notes that the forecast level of demand for the last two years of the access arrangement period, 98 856 TJ, is at the lower end of the annual forecasts for the access arrangement period. It is also lower than the revised access arrangement proposal's forecast for 2009–10 and only about 1 100 TJ higher than actual volumes for 2008–09 (97 738 TJ).<sup>1597</sup> The AER considers this level of forecast demand is conservative.

The total demand forecasts approved by the AER compared with the forecasts submitted in the revised access arrangement proposal and the draft decision forecasts are illustrated in figure 11.4.

**Figure 11.4: Total demand forecasts (TJ)**



<sup>1596</sup> NGL, r. 74(2).

<sup>1597</sup> JGN, *Revised access arrangement information*, March 2010, p. 221.

Source: JGN, *Revised access arrangement information*, March 2010, pp. 14–15; JGN, *Access arrangement information*, August 2009, p. 69; AER, *draft decision*, February 2010; AER analysis.

Table 11.4 compares the total demand forecasts approved by the AER with the demand forecasts set out in the revised access arrangement proposal.

**Table 11.4: Total demand forecasts (units as stated)**

|         | Revised access arrangement proposal (TJ) | AER final decision (TJ) | Difference (%) |
|---------|--|-------------------------|----------------|
| 2010–11 | 100637                                   | 100637                  | 0              |
| 2011–12 | 101878                                   | 101878                  | 0              |
| 2012–13 | 99116                                    | 100959                  | 1.9            |
| 2013–14 | 97052                                    | 98856                   | 1.9            |
| 2014–15 | 95436                                    | 98856                   | 3.6            |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 14–15; JGN, *Access arrangement information*, August 2009, p. 69; AER analysis.

Based on the revision of the total demand forecasts for the access arrangement period, the AER considers the impacts on the demand forecasts for large and small customers in the next two sections.

### 11.5.3 Demand forecasts for large customers

#### 11.5.3.1 Demand forecasts in the revised access arrangement proposal

The access arrangement proposal forecasts large customer load to decline significantly in 2009–10 to 60 690 PJ per annum due to the effects of the GFC.<sup>1598</sup> The load was expected to decline by 0.7 per cent per annum over the access arrangement period.<sup>1599</sup>

The AER sought further information from JGN to explain this decline in forecast demand in 2009–10.<sup>1600</sup> The AER requested further information regarding actual load and customer numbers for 2008–09 and revised demand customer load forecasts for 2009–10.<sup>1601</sup> JGN provided updated data on actual gas consumption for large customer consumption for the six months ended 31 December 2009.<sup>1602</sup>

<sup>1598</sup> AER, *Draft decision*, February 2010, pp. 232–252.

<sup>1599</sup> JGN, *Access arrangement information*, August 2009, p. 69.

<sup>1600</sup> JGN, email to the AER, *Update and clarification of questions from the AER sent on the 30 October 2009*, 6 November 2009, attachment, NIEIR, Letter from NIEIR to Jemena, 20 October 2009.

<sup>1601</sup> JGN, email to the AER, *Clarification in response to information request of 8 December 2009*, 13 January 2010, attachment, *Response to AER 08 December 2009 questions*, 13 January 2010.

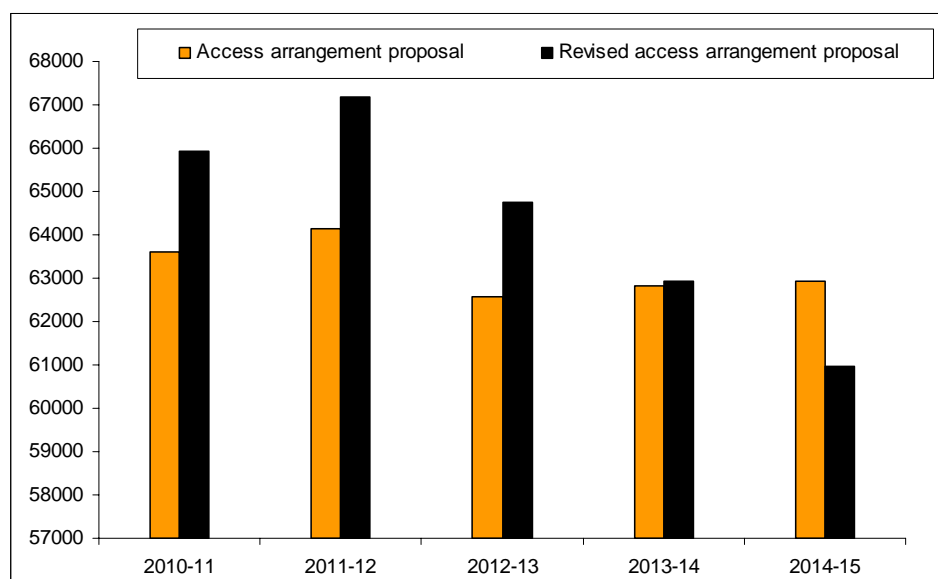
<sup>1602</sup> ACIL, *Demand forecast report*, February 2010, p. 36.



The revised access arrangement proposal revises estimated demand for large customers in 2009–10 from 60 690 PJ in the access arrangement proposal<sup>1603</sup> to 64 643 PJ. The basis for this revision is the higher actual customer load for the six months to 31 December 2009 of 32 813 PJ.<sup>1604</sup>

Consequently, the demand forecasts for large customers in the revised access arrangement proposal for the first three years of the access arrangement period have been revised upwards. The demand forecast for large customers in 2013–14 is close to that proposed in the access arrangement proposal, but it is much lower in 2014–15. Figure 11.5 compares the demand forecasts in the revised access arrangement proposal with those in the access arrangement proposal.

**Figure 11.5: Demand forecasts for large customers (TJ)**



Source: JGN, *Revised access arrangement information*, March 2010, pp. 14–15; AER, *Draft decision*, February 2010, pp. 232–252; JGN, *Access arrangement information*, August 2009, p. 69.

### 11.5.3.2 AER's demand forecasts for large customers

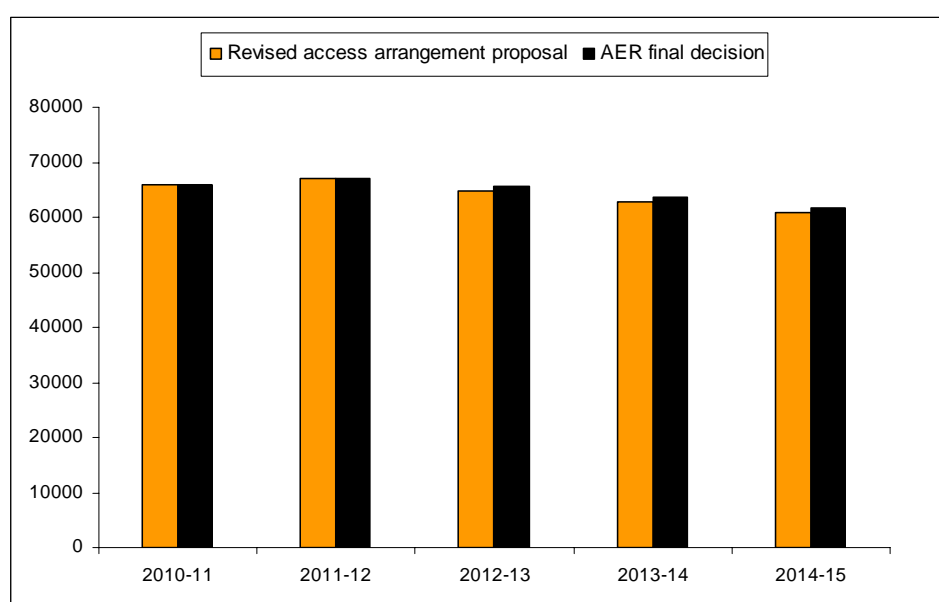
The AER notes the ACIL Tasman report's conclusion that the revised access arrangement proposal's demand forecasts for large customers are not reasonable.<sup>1605</sup> To forecast demand for large customers the AER adopts a similar approach to that outlined in section 11.5.2 for total demand. The AER's approved forecasts compared with those contained in the revised access arrangement proposal are shown in figure 11.6.

1603 JGN, *Access arrangement information*, August 2009, p. 69.

1604 ACIL, *Demand forecast report*, February 2010, p. 36.

1605 ACIL, *Demand forecast report*, February 2010, p. 37.

**Figure 11.6: Comparison of demand forecasts for large customers (TJ)**



Source: JGN, *Revised access arrangement information*, March 2010, p. 13 and AER analysis.

The AER notes that demand forecasts for large customers comprise approximately two thirds of the total demand forecast load. In light of this, having established the profile for total demand forecasts over the access arrangement period, the AER would expect a similar profile for demand forecasts for large customers.

The approved demand forecast of 65 529 TJ in 2012–13 is approximately 65 per cent of the total load of 100 959 TJ. The AER also notes that the approved demand forecasts for large customers in 2013–14 and 2014–15 of 63 685 TJ are approximately 64 per cent of the total load of 98 856 TJ.

#### *Demand forecasts for large customers in 2010–11 to 2011–12*

In 2010–11 to 2011–12, the revised access arrangement proposal forecasts large customers to increase from 65 936 TJ to a maximum of 67 183 TJ in the access arrangement period. The revised forecasts for the first two years of the access arrangement period for large customers are not significantly different to those approved in the draft decision. The AER considers that these forecasts are arrived at on a reasonable basis and represent the best forecasts possible in the circumstances and so approves them.<sup>1606</sup>

As outlined in 11.5.2.2 for total demand, the increase in gas demand for large customers from 2010–11 to 2011–12 is also in line with the changes in the forecast of NSW GSP, as shown in table 11.3.

#### *Demand forecasts for large customers in 2012–13 to 2014–15*

For similar reasons set out in section 11.5.2.3 for total demand forecasts the AER considers the demand forecasts for large customers from 2012–13 proposed in the

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<sup>1606</sup> NGR, r. 74(2).

revised access arrangement proposal are not arrived at a reasonable basis.<sup>1607</sup> To derive the demand forecasts for the last three years of the access arrangement period:

- the AER approves a forecast demand of 65 529 TJ for 2012–13, which is 1.2 per cent higher than proposed in the revised access arrangement proposal. The AER’s approved forecast for 2012–13 declines from 2011–12 at the same rate as the forecast demand for large customers in the access arrangement proposal (2.5 per cent)
- the AER approves a forecast demand of 63 685 for 2013–14, which is 1.2 per cent higher than proposed in the revised access arrangement proposal. The AER’s approved forecast for 2013–14 declines from 2012–13 at the same rate as the forecast demand for large customers in the revised access arrangement proposal (2.8 per cent)
- the AER approves a forecast demand of 63 685 TJ for 2014–15, which is the same as the approved forecast in 2013–14. The approved forecast for 2014–15 is 4.5 per cent higher than proposed in the revised access arrangement proposal.

The AER considers that the demand forecasts it approves for 2012–13 to 2014–15 are also in line with the NSW GSP forecasts as outlined in table 11.3.

***Conclusion on demand forecasts for large customers***

As outlined above, the AER considers that the demand forecasts set out in the revised access arrangement proposal for large customers for 2010–11 and 2011–12 of the access arrangement period are arrived at on a reasonable basis and represent the best forecasts possible in the circumstances,<sup>1608</sup> but the forecasts for the remaining three years are not. Table 11.6 shows the AER’s approved demand forecasts for large customers compared with the revised access arrangement proposal over the access arrangement period.

**Table 11.6: Final decision demand forecasts for large customers (units as stated)**

|         | Revised access arrangement proposal (TJ) | Final decision (TJ) | Difference (%) |
|---------|--|---------------------|----------------|
| 2010–11 | 65 936                                   | 65 936              | 0.0            |
| 2011–12 | 67 183                                   | 67 183              | 0.0            |
| 2012–13 | 64 765                                   | 65 529              | 1.2            |
| 2013–14 | 62 942                                   | 63 685              | 1.2            |
| 2014–15 | 60 969                                   | 63 685              | 4.5            |

Source: JGN, *Revised access arrangement information*, March 2010, p. 15 and AER analysis.

<sup>1607</sup> NGR, r.74(2).

<sup>1608</sup> NGR, r. 74(2).

### ***Maximum Daily Quantity***

A relevant consideration for the AER in relation to the demand for large customers is the MDQ for large customers. This is because the tariff for demand customers is a capacity charge based on the ninth highest maximum demand in any one day over any 12 month period. The AER notes that in contrast, tariffs for small customers are based on the volume of gas used.

The ACIL Tasman report outlines that the forecast decline in MDQ after 2012 reflects the assumptions by NIEIR regarding NSW economic growth that are overly pessimistic compared with other reputable forecasts.<sup>1609</sup> The ACIL Tasman report further outlines that the impact of the CPRS is overstated.<sup>1610</sup> In light of this, the ACIL Tasman report does not consider the forecast MDQ is reasonable.<sup>1611</sup>

The sensitivity analysis submitted by JGN shows that for a one per cent increase in NSW GSP, MDQ will increase by a corresponding 0.57 per cent.<sup>1612</sup> Therefore, the sensitivity analysis submitted by JGN does not show that NSW GSP is a strong driver of MDQ forecasts.<sup>1613</sup> As outlined in section 11.5.1.2, there is inconsistency in this submission compared with the information provided in the revised access arrangement proposal and the access arrangement proposal that NSW GSP is a driver of total demand and in particular large customer demand.<sup>1614</sup>

The AER notes that the forecast demand for large customers and the forecast MDQ are both developed on an industry basis.<sup>1615</sup> Figure 11.7 indicates a strong linear correlation between the forecast demand for large customers and the forecast MDQ in the revised access arrangement proposal with an R-squared value of 0.9995.

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1609 ACIL, *Demand forecast report*, June 2010, p. 39.

1610 ACIL, *Demand forecast report*, June 2010, p. 39.

1611 ACIL, *Demand forecast report*, June 2010, p. 39.

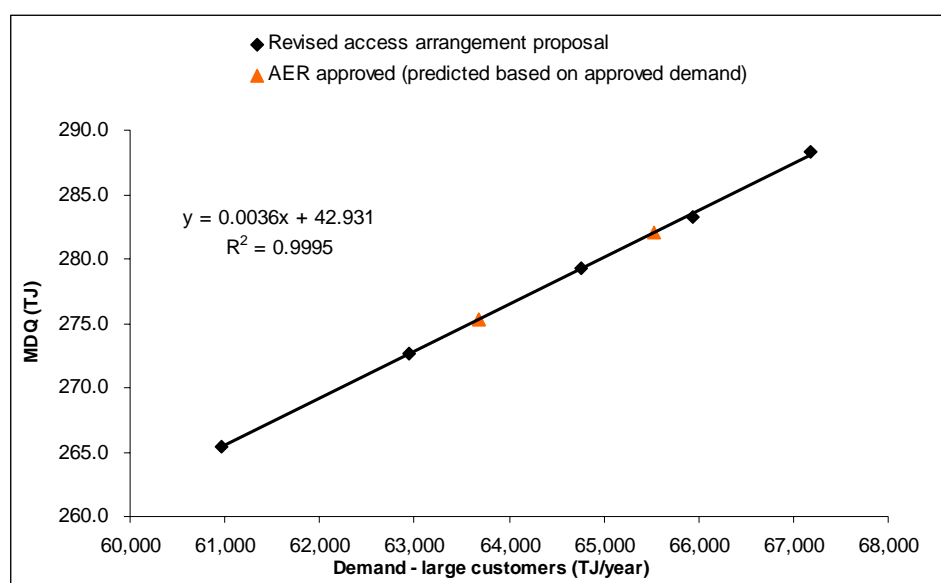
1612 JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010, attachment, NIEIR, letter dated from Mr A O'Dwyer addressed to Mr P Harcus, Manager Gas Network Development, Jemena, 13 May 2010.

1613 JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010, attachment, NIEIR, letter dated from Mr A O'Dwyer addressed to Mr P Harcus, Manager Gas Network Development, Jemena, 13 May 2010.

1614 JGN, letter to the AER, *NIEIR, demand forecast sensitivity analysis*, 14 May 2010, attachment, NIEIR, letter dated from Mr A O'Dwyer addressed to Mr P Harcus, Manager Gas Network Development, Jemena, 13 May 2010.

1615 JGN, *Initial response to the draft decision*, March 2010, appendix 11.1, p. 30.

**Figure 11.7: Regression analysis of demand and MDQ as proposed in the revised access arrangement proposal (units as stated)**



Source: JGN, *Initial response to the draft decision*, March 2010, pp. 217, 221 and AER analysis.

Note: The two data points for the *AER approved* for 2013–14 and 2014–15 are equal and so appear as one data point on the above graph. For the AER approved MDQ, only the data points for 2012–13 to 2014–15 appear on this graph. This is because the AER approves MDQ for the years 2010–11 and 2011–12 as proposed in the revised access arrangement proposal.

#### *Method to adjust forecast MDQ*

The relationship shown in figure 11.7 is used to forecast MDQ which is in line with the forecast demand approved by the AER in the last three years of the access arrangement period. The function described in figure 11.7 is derived by estimating the linear regression coefficients (slope and intercept) between the forecast demand for large customers and forecast MDQ as contained in the revised access arrangement proposal. The AER notes that the relationship between MDQ and demand is close to linear and therefore the AER concludes that linear regression is an appropriate approach to forecasting MDQ.

As the final decision accepts the forecast demand for large customers for 2010–11 and 2011–12, the AER approves the MDQ forecast for 2010–11 and 2011–12 as contained in the revised access arrangement proposal. The method to adjust forecast MDQ using the relationship shown in figure 11.7 is not relevant for the MDQ forecast approved by the AER for 2010–11 and 2011–12.

In light of the demand forecasts for large customers approved by the AER in 2012–13 to 2014–15, the AER revises the MDQ based on the equation:

$$Y = 0.0036 X + 42.931$$

where 'X' is forecast demand and 'Y' is forecast MDQ for large customers.

#### *Forecast MDQ 2010–11 to 2011–12*

As the final decision accepts the forecast demand for large customers for 2010–11 and 2011–12, the AER approves the MDQ forecast for 2010–11 and 2011–12 as contained in the revised access arrangement proposal. The AER considers that the forecast MDQ for 2010–11 and 2011–12 is arrived at on a reasonable basis<sup>1616</sup> and represents the best forecast possible in the circumstances.<sup>1617</sup>

#### *Forecast MDQ 2012–13 to 2014–15*

In light of the adjustments made to the demand forecasts for large customers in 2012–13 to 2014–15 and noting the linear correlation between MDQ and the total demand forecasts for large customers in the revised access arrangement proposal, the AER considers that the forecast MDQ in 2012–13 to 2014–15 does not represent the best forecast possible as required by r. 74(2)(b) of the NGR.

Based on a linear regression of MDQ and demand for large customers in the revised access arrangement proposal (and removing the effects of a new large customer), the AER revises the forecast MDQ for the period 2012–13 to 2014–15 using the approved demand forecasts for large customers as an input into the regression model.<sup>1618</sup> The AER assumes the forecast load attributable to a new large customer<sup>1619</sup> is unchanged and adds this amount to the MDQ output<sup>1620</sup> of the regression model. The forecast MDQ contained in the revised access arrangement proposal and the approved forecast MDQ for the access arrangement period are set out in table 11.7. The AER considers the forecast MDQ approved by the AER as set out in table 11.7 is arrived at on a reasonable basis<sup>1621</sup> and represents the best forecast possible in the circumstances.<sup>1622</sup>

**Table 11.7: Final decision on MDQ for large customers (units as stated)**

|         | <b>Revised access<br/>arrangement proposal (TJ)</b> | <b>Final decision (TJ)</b> | <b>Difference (%)</b> |
|---------|---|----------------------------|-----------------------|
| 2010–11 | 326   | 326                        | 0                     |
| 2011–12 | 331   | 331                        | 0                     |
| 2012–13 | 322   | 325                        | 0.9                   |
| 2013–14 | 316   | 318                        | 0.6                   |
| 2014–15 | 308   | 318                        | 3.2                   |

Source: JGN, *Revised access arrangement information*, March 2010 p. 15 and AER analysis.

<sup>1616</sup> NGR, r. 74(2)(a).

<sup>1617</sup> NGR, r. 74(2)(b).

<sup>1618</sup> The revised forecast MDQ is calculated based on linear regression coefficients resultant from the linear relationship shown at figure 11.7.

<sup>1619</sup> JGN, *Initial response to the draft decision*, March 2010, p. 217.

<sup>1620</sup> This approach is similar to that adopted in the revised access arrangement proposal in which the MDQ of the new large customer is added to the MDQ forecasts in the revised NIEIR report. JGN, *Initial response to the draft decision*, March 2010, pp. 216–217.

<sup>1621</sup> NGR, r. 74(2)(a).

<sup>1622</sup> NGR, r. 74(2)(b).

#### *Conclusion on MDQ forecasts*

As the AER approves the forecast demand for large customers in 2010–11 and 2011–12, the AER considers that the forecast MDQ for large customers in 2010–11 and 2011–12 is arrived at on a reasonable basis<sup>1623</sup> and represents the best forecasts possible in the circumstances.<sup>1624</sup>

In light of changes to the forecast demand for large customers in 2012–13 to 2014–15 and given that the demand for large customers and MDQ are both forecast on an industry basis, the AER considers that the forecast MDQ for large customers in 2012–13 to 2014–15 does not represent the best forecast possible as required by r. 74(2)(b) of the NGR.

#### *Other issues*

##### *Gas-powered generation*

The AER notes AGL's submission that demand associated with GPG has not been factored into the projections.<sup>1625</sup> While the revised NIEIR report excludes GPG<sup>1626</sup> the AER confirms the adjustments made by JGN to the revised NIEIR forecasts include GPG.<sup>1627</sup>

#### **11.5.4 Demand forecasts for small customers**

The demand forecasts for small customers in the access arrangement proposal were forecast to grow on average by 1.7 per cent per annum over the access arrangement period. However, the revised access arrangement proposal shows a declining trend at an average rate of 0.1 per cent per annum over the access arrangement period. This is illustrated in figure 11.8.

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1623 NGR, r. 74(2)(a).

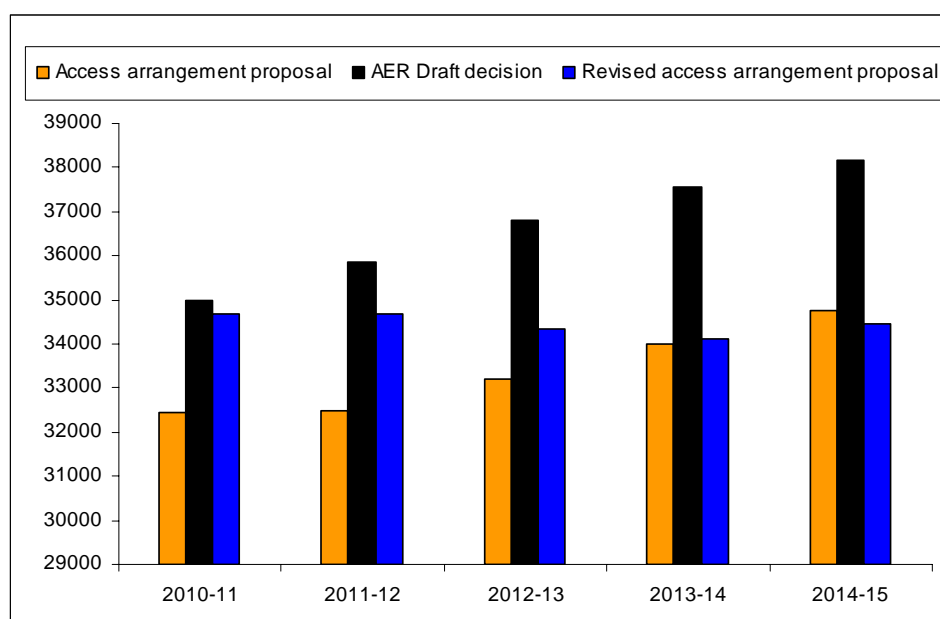
1624 NGR, r. 74(2)(b).

1625 AGL, *Submission to the AER*, April 2010, p. 6.

1626 JGN, *Revised access arrangement information*, March, 2010, appendix 11.1, p. 52.

1627 JGN, *Access arrangement information*, August 2009, p. 69.

**Figure 11.8: Demand forecasts for small customers (TJ)**



Source: JGN, *Revised access arrangement information*, March, pp. 14–15; AER, *Draft decision*, February 2010, pp. 232–252; JGN, *Access arrangement information*, August 2009, p. 69.

This downward trend in demand forecasts is not explained in detail in the revised access arrangement proposal. JGN submits that the demand forecasts for small customers take into account government policies and initiatives related to energy use and consumption.<sup>1628</sup> The revised NIEIR report notes that the Energy Efficient Homes initiative was forecast to have a 50 per cent up take up in 2009–10 in uninsulated gas heated dwellings.<sup>1629</sup> The revised NIEIR report forecasts that the gas use for existing dwellings falls by around 0.3 GJ per annum over 2010–12.<sup>1630</sup> However, the annual take-up is forecast to decrease given uncertainty surrounding the future of the scheme from 2010.<sup>1631</sup>

This is in addition to a recent submission made to the AER where JGN submits that the impacts of the insulation scheme are currently not evident in historical consumption trends.<sup>1632</sup> The AER notes AGL’s submission questioning the inclusion of the home insulation scheme as a driver for reduced residential usage in the revised forecasts as this scheme has been cancelled.<sup>1633</sup> However, JGN submits that the cancellation of the scheme does not eliminate the energy savings that will result in the dwellings where insulation was installed.<sup>1634</sup> JGN submits that the scheme had an

1628 JGN, *Initial response to the draft decision*, March 2010, pp. 205–6.

1629 JGN, *Revised access arrangement information*, March 2010, pp. 14–15.

1630 JGN, *Revised access arrangement information*, March 2010, pp. 14–15.

1631 JGN, *Initial response to the draft decision*, March 2010, pp. 205–6.

1632 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 13.

1633 AGL, *Submission to the AER*, April 2010, p. 5.

1634 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions*



extraordinary uptake in the short time it was in operation and as result, JGN submits that it expects reduced gas consumption to be evident over the course of the access arrangement period.<sup>1635</sup>

The ACIL Tasman report outlines that the forecasts for both total consumption and average annual consumption fall below the raw historical trends (before weather adjustment) and fall below the lower limit of the 90 per cent confidence interval for the access arrangement period.<sup>1636</sup> The ACIL Tasman report notes the revised NIEIR report, which submits that the break from the trend is a result of significant changes in energy efficiency policies.<sup>1637</sup>

The ACIL Tasman report also outlines that the access arrangement proposal proposed a significant step change decrease in 2009–10 for average gas consumption for a small customer when compared with historical average consumption.<sup>1638</sup> However, the revised forecasts no longer show a step change from historical trends. The ACIL Tasman report outlines that before weather normalisation, the average gas consumption for a small customer falls more rapidly than the historical trend in the period 2013–2015 which sits at the lower bound of the 90 per cent confidence interval.<sup>1639</sup>

The ACIL Tasman report outlines that after weather normalisation the forecast demand levels are initially slightly above the historical trend and then fall below this trend. However, they remain within the 90 per cent confidence interval over the access arrangement period.<sup>1640</sup>

The ACIL Tasman report considers this could be a result of the combination of policy measures relating to improved energy efficiency<sup>1641</sup> and concludes that the demand forecasts for small customers are not statistically unreasonable, noting that the forecasts are at the lower bound of the 90 per cent confidence interval.<sup>1642</sup>

The AER notes the impact of the assumptions underlying the revised demand forecasts on small customers is discussed in section 11.5.4.2 and section 11.5.4.2 below.

#### **11.5.4.1 Customer numbers and new connections**

The revised forecast for average annual customer growth for the access arrangement period is 2.9 per cent which is slightly higher than 2.8 per cent over the access arrangement period as set out in the draft decision.<sup>1643</sup>

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*on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 13.

1635 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 13.

1636 ACIL, *Demand forecast report*, June 2010, p. 33.

1637 ACIL, *Demand forecast report*, June 2010, p. 33.

1638 ACIL, *Demand forecast report*, June 2010, p. 32.

1639 ACIL, *Demand forecast report*, June 2010, p. 33.

1640 ACIL, *Demand forecast report*, June 2010, p. 33.

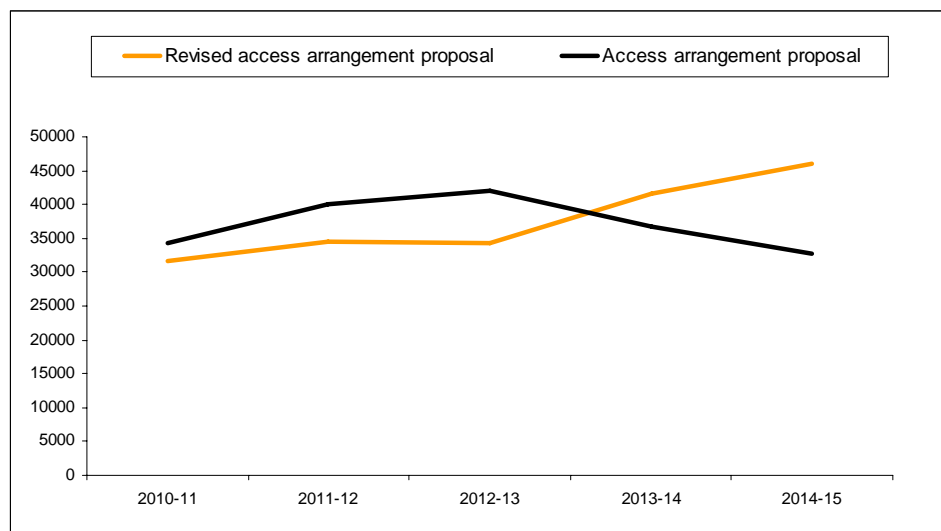
1641 ACIL, *Demand forecast report*, June 2010, p. 36.

1642 ACIL, *Demand forecast report*, June 2010, p. 34.

1643 AER, *Draft decision*, February 2010, pp. 232–252.

The revised access arrangement proposal submits revised forecasts for new network connections for small customers. Figure 11.9 compares forecasts new connections in the revised access arrangement proposal with the access arrangement proposal. New network connections are forecast to increase over the access arrangement period by, on average, 7.4 per cent per annum, reaching a peak growth rate of 22 per cent in 2013–14.<sup>1644</sup>

**Figure 11.9: New network connections for small customers**



Source: JGN, *Revised access arrangement information*, March 2010, pp. 14–15 and AER, *Draft decision*, February 2010, pp. 232–252.

JGN submits that the steep increase of 22 per cent in new connections from 34 240 in 2012–13 to 41 664 in 2013–14 is driven by the cyclic upturn in NSW dwelling construction.<sup>1645</sup> The revised access arrangement proposal outlines that there have been fewer new dwellings constructed than the underlying demand for housing over the earlier access arrangement period. As a consequence, JGN submits that a significant increase in new dwelling construction is forecast in the access arrangement period as access to capital for housing construction improves.<sup>1646</sup>

JGN also submits that the forecast increase in new connections is based on the changed economic conditions and future projections of the NSW economic activity.<sup>1647</sup> JGN notes that as employment begins to grow strongly over 2011–12 and 2012–13, housing can be expected to grow sharply given the underlying housing

<sup>1644</sup> JGN, *Revised access arrangement information*, March 2010, pp. 14–15.

<sup>1645</sup> JGN, email to the AER, *Response to AER 31 March 2010 questions*, 9 April 2010, attachment, Response to AER questions received on 31 March 2010, 9 April p. 25.

<sup>1646</sup> JGN, email to the AER, *Response to AER 31 March 2010 questions*, 9 April 2010, attachment, Response to AER questions received on 31 March 2010, 9 April p. 25.

<sup>1647</sup> JGN, email to the AER, *Response to AER 31 March 2010 questions*, 9 April 2010, attachment, Response to AER questions received on 31 March 2010, 9 April p. 25.

stock shortage.<sup>1648</sup> JGN submits that private dwelling investment is anticipated to rise by 1.0 per cent in 2009–10.<sup>1649</sup>

The ACIL Tasman report, while considering that the forecast number of new connections is not statistically unreasonable, considers that a fundamental tension exists with a forecast overall rate of growth in volume customer numbers that significantly exceeds the forecast decrease in demand. The ACIL Tasman report notes that the forecast new connections are at the higher bound of the 90 per cent confidence interval in contrast with the forecast demand which is at the lower bound.

The ACIL Tasman report notes that in light of the forecast new connections submitted in the revised access arrangement period, the average gas consumption per customer is forecast to decline at an average rate of 0.9 GJ per annum. This is significantly higher than the weather-normalised historical trend reduction of 0.4 GJ per annum. The ACIL Tasman report considers that, although JGN has not provided persuasive evidence to support such a steep decline in average consumption, the forecast average gas consumption per customer is not statistically unreasonable. The AER agrees with the ACIL Tasman report and considers that JGN has not provided any evidence to support its change in position from the access arrangement proposal to the revised access arrangement proposal.

For the reasons above, the AER considers that the forecasts for customer numbers and new connections set out in the revised access arrangement proposal are arrived at on a reasonable basis and represent the best forecasts possible in the circumstances.<sup>1650</sup> However, the AER does not consider that the forecasts of average gas consumption per customer set out in the revised access arrangement proposal are arrived at on a reasonable basis and represent the best forecasts possible in the circumstances.<sup>1651</sup>

As a consequence the AER does not consider that the revised access arrangement proposal demand forecasts for small customers are arrived at on a reasonable basis and represent the best estimate possible in the circumstances.<sup>1652</sup> This is the subject of the next section.

#### **11.5.4.2 The AER's demand forecasts for small customers**

Figure 11.10 shows the demand forecasts approved by the AER for small customers compared with the demand forecasts set out in the revised access arrangement proposal. The forecasts have been estimated as the total demand forecasts less forecast demand for large customers.

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1648 JGN, *Revised access arrangement information*, March, 2010, appendix 11.1, pp. 6, 14.

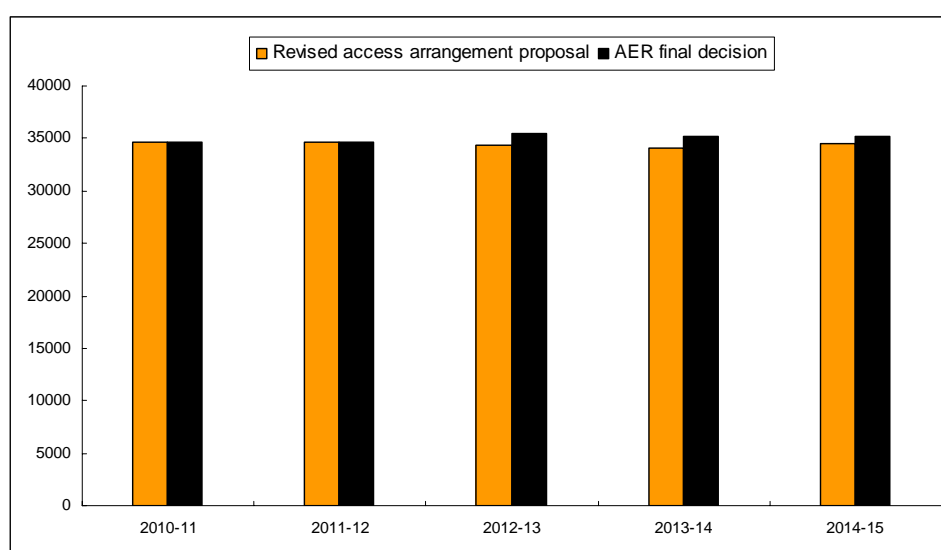
1649 JGN, *Revised access arrangement information*, March, 2010, appendix 11.1, p. 25.

1650 NGR, r. 74(2).

1651 NGR, r. 74(2).

1652 NGR, r. 74(2).

**Figure 11.10: Comparison of demand forecasts for small customers (TJ)**



Source: JGN, *Revised access arrangement information*, March 2010, p. 13 and AER analysis.

*Demand forecasts for small customers in 2010–11 to 2011–12*

The revised forecasts for the first two years of the access arrangement period for small customers are not significantly different to those approved in the draft decision. The AER considers these are arrived at on a reasonable basis and represent the best forecasts possible in the circumstances and so approves them.<sup>1653</sup>

*Demand forecasts for small customers in 2012–13 to 2014–15*

The AER's approved forecasts compared with those contained in the revised access arrangement proposal are shown in figure 11.10.

The AER approved demand forecast for small customers of 35 430 TJ in 2012–13 is 3.1 per cent higher than the forecast for the small customers in the revised access arrangement proposal. The AER approved forecasts are 35 171 TJ in 2013–14 and are 1.4 per cent higher than the forecasts in the revised access arrangement proposal. The AER approved demand forecasts for in 2014–15 are 1 per cent higher than in the revised access arrangement proposal.

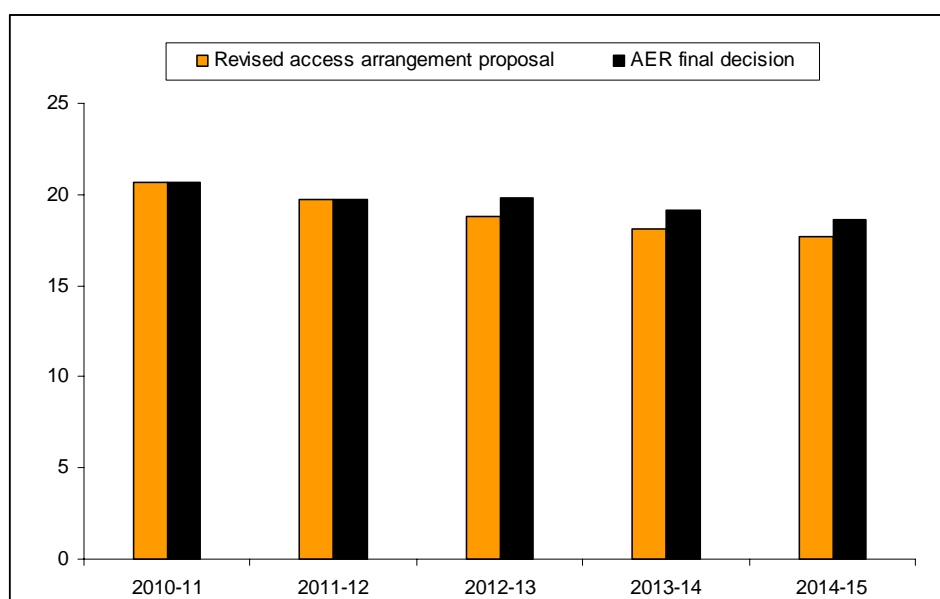
The AER considers that the forecast increase in demand in the later years of the access arrangement period is consistent with the revised access arrangement proposal's forecast new connections over this period. The increasing trend reflects the AER's view that the revised access arrangement's proposed rate of decline in average consumption per customer is overstated. The demand forecasts approved by the AER lead to average consumption per residential customer for new customers in 2012–13 of 19.8 GJ compared with 18.8 GJ submitted in the revised access arrangement proposal. The corresponding approved forecasts for 2013–14 are 19.2 GJ and 2014–

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<sup>1653</sup> NGR, r. 74(2).

15 are 18.5 GJ compared with 18.1 GJ<sup>1654</sup> and 17.7 GJ<sup>1655</sup> proposed in the revised access arrangement proposal.<sup>1656</sup> These are illustrated in figure 11.11.

**Figure 11.11: Average consumption per residential customer (GJ)**



Source: JGN, *Revised access arrangement information*, March 2010, p. 14 and AER analysis.

The AER does not consider that the higher forecast demand approved by the AER will result in higher connections than those forecast in the revised access arrangement proposal. The AER also considers that the basis for lower average consumption per customer submitted in the revised access arrangement proposal no longer applies. This is because the government policies that were relied on to derive the demand forecasts for small customers have been changed, (for example, the home insulation scheme has been discontinued and the commencement date of the CPRS has been deferred. In addition, other energy efficiency schemes have been in place for a long period of time and would be reflected in current average consumption per customer). The AER therefore notes that these effects would be largely reflected in average consumption per residential customer of 20.8 GJ in 2008–09.

#### ***Conclusion on forecast demand for small customers***

The AER considers that the demand forecasts set out in the revised access arrangement proposal for small customers for 2010–11 and 2011–12 of the access arrangement period are arrived at on a reasonable basis and represent the best forecasts possible in the circumstances but the forecasts for the remaining three years are not.<sup>1657</sup> Table 11.7 shows the AER’s approved demand forecasts for small customers compared with the revised access arrangement proposal over the access arrangement period.

1654 JGN, *Revised access arrangement information*, March 2010, p. 14

1655 JGN, *Revised access arrangement information*, March 2010, p. 14

1656 JGN, *Revised access arrangement information*, March 2010, p. 14 and AER analysis.

1657 NGR, r. 74(2).

**Table 11.8: Final decision demand forecasts for small customers (units as stated)**

|         | Revised access<br>arrangement proposal (TJ) | Final decision (TJ) | Difference (%) |
|---------|---|---------------------|----------------|
| 2010–11 | 34 700                                      | 34 701              | 0.0            |
| 2011–12 | 34 694                                      | 34 695              | 0.0            |
| 2012–13 | 34 351                                      | 35 429              | 3.1            |
| 2013–14 | 34 110                                      | 35 171              | 3.1            |
| 2014–15 | 34 466                                      | 35 171              | 2.0            |

Source: JGN, *Revised access arrangement information*, March 2010, pp. 14–15 and AER analysis.

### **11.5.5 Implications of the revised demand forecasts for capital expenditure**

As outlined above the AER accepts the forecast demand in the first two years, but revises total demand (and large and small customer demand as a consequence) in the last three years of the access arrangement period. This revised demand is higher than proposed in the revised access arrangement proposal. The AER therefore considers the implications of the revised demand forecasts for the forecast capital expenditure in this section.

#### **11.5.5.1 Capacity and development capital expenditure**

The AER notes that the JGN NSW network is not a capacity constrained network. As the revised demand forecasts in the last three years of the access arrangement do not increase above the maximum forecast demand, and similarly for MDQ in 2011–12, the AER considers that there is no justification to support an increase in capital expenditure for capacity development in these years, notwithstanding the higher level of demand forecasts approved by the AER.

#### **11.5.5.2 Market expansion capital expenditure**

The AER notes the EMRF's submission that overstating the expected growth in new connections gives credence to a large increase in growth-related capital expenditure.

As noted above, the AER does not agree with the revised access arrangement proposal's rate of reduction in average consumption per customer. In relation to new connections, which is driving market expansion capital expenditure, while the AER accepts that new customers may demand less than existing customers, there is no explanation why the average consumption for new residential customers falls from 16.7 GJ per annum<sup>1658</sup> to 14.3 GJ per annum<sup>1659</sup> over the access arrangement period, particularly given that new residential customer demand was 18.1 GJ per annum in

<sup>1658</sup> JGN, *Revised access arrangement proposal*, March 2010, p. 15

<sup>1659</sup> JGN, *Revised access arrangement proposal*, March 2010, p. 15

2008–09. The AER does not consider that the forecast average load per annum for new residential customers will be realised and is arrived at on a reasonable basis.<sup>1660</sup>

The AER approves the proposed number of new connections in the revised access arrangement proposal and considers that the average consumption per customer will be higher than forecast. However, since market expansion capital expenditure is dependent on the number of new connections rather than on average demand per connection, the forecast capital expenditure does not need to be increased, notwithstanding the higher level of demand forecasts approved by the AER.

## 11.6 Conclusion

The AER does not approve the revised demand forecasts as they do not comply with r. 74(2) of the NGR. The AER’s proposed revision 11.1 is set out below. .

## 11.7 Revisions

The AER proposes the following revisions:

**Revision 11.1:** delete Tables 4.2 to 4.4 of the revised access arrangement information and replace it with the following:

**Table 11.9: Average load volume and demand customers next access arrangement period and MDQ demand customers (TJ)**

|                             | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|-----------------------------|---------|---------|---------|---------|---------|
| <b>Small customers</b>      | 95.1    | 95.1    | 97.1    | 96.4    | 96.4    |
| <b>Large customers</b>      | 213.9   | 217.9   | 213.6   | 207.7   | 208.8   |
| <b>Total average load</b>   | 275.7   | 279.1   | 276.6   | 270.8   | 270.8   |
| <b>MDQ demand customers</b> | 326     | 331     | 325     | 318     | 318     |

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<sup>1660</sup> NGR, r. 74(2).

**Table 11.10: Load by customer type and tariff for next access arrangement period (TJ)**

| Service                            | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|------------------------------------|---------|---------|---------|---------|---------|
| <b>Residential</b>                 | 22 553  | 22 336  | 22 747  | 22 793  | 22 934  |
| <b>Small business</b>              | 12 148  | 12 359  | 12 682  | 12 378  | 12 237  |
| <b>Total load volume customers</b> | 34 701  | 34 695  | 35 429  | 35 171  | 35 171  |
| <b>Large customers</b>             | 65 936  | 67 183  | 65 529  | 63 685  | 63 685  |
| <b>Total load all customers</b>    | 100 637 | 101 878 | 100 959 | 98 856  | 98 856  |



**Table 11.11: Total gas forecast 2008–09 to 2014–15**

|   | 2008–09   | 2009–10   | 2010–11   | 2011–12   | 2012–13   | 2013–14   | 2014–15   |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Total load (TJ)</b>                              |           |           |           |           |           |           |           |
| Residential   | 21 310    | 22 518    | 22 553    | 22 336    | 22 747    | 22 793    | 22 934    |
| Small Business                                      | 11 753    | 12 039    | 12 148    | 12 359    | 12 682    | 12 378    | 12 237    |
| Total small customers                               | 33 063    | 34 557    | 34 701    | 34 695    | 35 429    | 35 171    | 35 171    |
| Large customers                                     | 64 675    | 64 643    | 65 936    | 67 183    | 65 529    | 63 685    | 63 685    |
| Total load  | 97 738    | 99 200    | 100 637   | 101 878   | 100 959   | 98 856    | 98 856    |
| <b>Customer numbers</b>                             |           |           |           |           |           |           |           |
| Residential   | 1 022 084 | 1 052 085 | 1 082 658 | 1 115 918 | 1 148 907 | 1 189 233 | 1 233 758 |
| Small Business                                      | 29 750    | 30 210    | 30 496    | 30 961    | 31 082    | 30 911    | 31 045    |
| Total small customers                               | 1 051 834 | 1 082 295 | 1 113 154 | 1 146 879 | 1 179 989 | 1 220 144 | 1 264 802 |
| Large customers                                     | 414       | 411       | 412       | 412       | 410       | 409       | 409       |
| <b>New network connections</b>                      |           |           |           |           |           |           |           |
| New estates and high rise                           | 18 197    | 22 945    | 24 306    | 26 067    | 26 016    | 33 554    | 37 956    |
| Electricity to gas                                  | 6332      | 7056      | 6267      | 7193      | 6973      | 6772      | 6568      |
| Total new residential                               | 24 529    | 30 001    | 30 573    | 33 260    | 32 989    | 40 326    | 44 524    |
| Small business                                      | 888       | 975       | 1075      | 1175      | 1251      | 1335      | 1410      |
| Large customers                                     | 6         | 3         | 3         | 3         | 3         | 3         | 3         |
| <b>HDD index standard</b>                           |           |           |           |           |           |           |           |
| HDD index   | 496       | 490       | 484       | 479       | 473       | 468       | 462       |
| <b>Average residential load per year (GJ)</b>       |           |           |           |           |           |           |           |
| Existing customers                                  | 20.4      | 21.5      | 20.9      | 20.1      | 19.9      | 19.3      | 18.7      |
| New estates and high rise                           | 18.1      | 17.0      | 16.7      | 16.1      | 15.8      | 15.2      | 14.6      |
| Electricity to gas                                  | 14.6      | 14.6      | 15.7      | 14.8      | 14.5      | 14.0      | 13.6      |
| Average load all residential                        | 20.8      | 21.3      | 20.7      | 19.7      | 19.8      | 19.2      | 18.6      |
| <b>Maximum daily quantity large customers (MDQ)</b> |           |           |           |           |           |           |           |
| MDQ large customers                                 | 331       | 318       | 326       | 331       | 325       | 318       | 318       |

## 12 Reference tariffs

### 12.1 Introduction

This chapter sets out the AER's consideration of issues that arise from the revised access arrangement proposal in relation to tariffs.

The AER's analysis and consideration of the access arrangement proposal in relation to the allocation of costs and tariff setting is set out in chapter 12 of the draft decision.

The AER notes that the revised access arrangement proposal incorporates in full amendment 12.4 and 12.5 of the draft decision. The revised access arrangement proposal does not incorporate amendment 12.1 and 12.2 and partly incorporates amendment 12.3. This chapter only deals with the amendments that the revised access arrangement proposal did not incorporate.

### 12.2 Tariffs

#### 12.2.1 Revised access arrangement proposal

The draft decision considers the access arrangement proposal tariff classes and tariffs are consistent with r. 93 and r. 94 of the NGR. However, since the revised access arrangement proposal introduces new tariff classes and revised the total revenue and demand forecast, the final decision reassesses the tariff classes and tariffs compliance with r. 93 and r. 94 of the NGR.

The revised access arrangement proposal proposes 36 tariff classes: two volume tariff classes (coastal and country) and 34 demand tariff classes (one country tariff class, one demand throughput tariff class, 11 coastal capacity tariff classes plus an additional 11 demand first response tariff classes (one for each coastal tariff class) and 10 new tariff classes for large Sydney users).<sup>1661</sup> Volume tariff classes apply to small customers consuming 10 TJ or less per year. The demand tariff classes apply to large customers that are likely to consume more than 10 TJ per year.<sup>1662</sup>

Table 12.1 shows revised expected revenue for a select number of tariff classes is between avoidable and stand alone costs. The revised access arrangement proposal updates stand alone cost and avoidable cost estimates for ancillary activities which are reclassified as reference services in the revised access arrangement proposal.

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<sup>1661</sup> JGN, *Revised access arrangement information*, March 2010, pp. 47–48.

<sup>1662</sup> JGN, *Revised access arrangement information*, March 2010, p. 47.

**Table 12.1: Stand alone costs compared to expected revenue (\$2009–10, real)**

| Tariff class                   | Avoidable estimate | Expected revenue | Stand alone estimate |
|--------------------------------|--------------------|------------------|----------------------|
| Haulage: Demand market segment |                    |                  |                      |
| DC – 1 (Sydney 1)              | 287 000            | 3 385 000        | 37 580 000           |
| DC – 2 (Sydney 2)              | 640 000            | 6 042 000        | 42 790 000           |
| DC – 3 (Sydney 3)              | 765 000            | 9 040 000        | 45 637 000           |
| DC – 4 (Sydney 4)              | 316 000            | 6 345 000        | 42 758 000           |
| DC – 5 (Sydney 5)              | 81 000             | 1 805 000        | 35 406 000           |
| DC – 6 (Newcastle 1)           | 213 000            | 3 102 000        | 45 191 000           |
| DC – 7 (Newcastle 2)           | 177 000            | 2 615 000        | 50 836 000           |
| DC – 8 (Newcastle 3)           | 29 000             | 577 000          | 32 103 000           |
| DC – 9 (Wollongong 1)          | c-i-c              | c-i-c            | c-i-c                |
| DC – 10 (Wollongong 2)         | 7 000              | 788 000          | 22 976 000           |
| DC – 11 (Wollongong 3)         | Not provided       | Not provided     | Not provided         |
| DC Country                     | c-i-c              | c-i-c            | c-i-c                |
| Haulage: Volume market segment |                    |                  |                      |
| Coast                          | 229 753 000        | 385 676 000      | 661 113 000          |
| Country                        | 18 300 0000        | 43 471 000       | 81 296 000           |
| Meter Data Service             |                    |                  |                      |
| Volume                         | 3 353 000          | 5 248 000        | 14 677 000           |
| Demand                         | 856 000            | 866 000          | 454 424 000          |

Source: JGN, *Response to the draft decision*, March 2010, appendix 12.2, pp. 4–6.

The revised access arrangement outlines that the long run marginal costs (LRMC) for the proposed volume tariffs has been considered. In order to estimate the LRMC, JGN has relied on forecasts from the capacity development capital program, Jemena Asset Management's (JAM) forecast of direct operating and maintenance (O&M) costs and the National Institute of Economic and Industry Research (NIEIR) demand forecasts. JGN estimates the LRMC for the volume tariff classes to be \$4.66/GJ for country

customers and \$7.00/GJ for coastal customers for the period 2009–2010 to 2029–30.<sup>1663</sup>

The revised access arrangement proposal outlines that the transaction costs such as transportation costs, metering charges and administrative costs have been considered when determining tariffs and tariff classes. For instance, JGN considers that to be charged on a capacity basis would require more sophisticated daily metering.<sup>1664</sup> JGN submits that its tariffs and tariff classes provide the correct balance between minimising transaction costs and ensuring that customers have incentives to respond to price signals.<sup>1665</sup>

### 12.2.2 Submissions

EnergyAdvice Pty Ltd (EnergyAdvice) submits that JGN needs to update the assignment of delivery point locations on the basis of current postcode boundaries in order to provide absolute transparency for customers.<sup>1666</sup>

The Energy Markets Reform Forum (EMRF) submits that the draft decision does not discuss why the earlier tariff structure was established under the decision of the IPART.<sup>1667</sup> The EMRF submits that the tariffs should reasonably reflect the LRMC as required by r. 94(4)(a) of the NGR. The EMRF submits that the implication of the draft decision is that JGN has decided to reduce the number of tariffs. This results in the requirement of cost reflectivity (resulting from application of LRMC) only applying to the new grouping of customers as decided by JGN.<sup>1668</sup> The EMRF submits that r. 94(4) of the NGR clearly requires the tariffs to be cost reflective. Further, the EMRF submits that r. 93 of the NGR requires costs directly attributable to reference services to be allocated to those services.<sup>1669</sup>

EnergyAdvice submits that the merging of the trunk and local network services for demand customers should be cost reflective for customers in all zones.<sup>1670</sup>

The Energy Users Association of Australia (EUAA) submits that the proposed trunk pricing structure may adversely impact the price reflectivity of the tariffs.<sup>1671</sup> The EUAA submits that the removal of the location price signal is concerning as it runs counter to the principle of cost reflective pricing.<sup>1672</sup> The EUAA submits that the AER states that the new pricing structure is consistent with r. 94(2) of the NGR and the EUAA submits that the AER has not correctly and consistently applied the rules.<sup>1673</sup> The EUAA submits that tariffs can never exactly reflect the cost of service to each

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1663 JGN, *Revised access arrangement information*, March 2010, pp. 52–53.

1664 JGN, *Revised access arrangement information*, March 2010, p. 49.

1665 JGN, *Revised access arrangement information*, March 2010, p. 50.

1666 EnergyAdvice, *Submission to the AER*, April 2010, p. 7.

1667 EMRF, *Submission to the AER*, April 2010, p. 8.

1668 EMRF, *Submission to the AER*, April 2010, p. 9.

1669 EMRF, *Submission to the AER*, April 2010, p. 63.

1670 EnergyAdvice, *Submission to the AER*, April 2010, p. 2.

1671 EUAA, *Submission to the AER*, April 2010, p. 5.

1672 EUAA, *Submission to the AER*, April 2010, p. 5.

1673 EUAA, *Submission to the AER*, April 2010, pp. 5–6.

customer. However, efficient pricing implies the need to get as close to this as possible taking into account available information and administrative transaction costs.<sup>1674</sup> The EUAA submits the gap between stand alone and avoidable costs are large and will allow almost any tariff structure.<sup>1675</sup>

### 12.2.3 AER's analysis and considerations

Rule 93 of the NGR requires that the total costs of the pipeline are allocated between reference and other services.<sup>1676</sup> The AER has reviewed the allocation of total revenue in which JGN has subtracted non reference revenues and allocated the remaining revenue to the haulage reference service, meter data reference service and ancillary reference services.<sup>1677</sup> Based on the information provided, the AER considers that the proposed cost allocation methodology is consistent with r. 93 of the NGR.

The revised access arrangement proposal divides customers into tariff classes. As a result the AER considers the revised access arrangement proposal satisfies r. 94(1) of the NGR. All of the tariff classes are part of three reference service which are haulage reference services, meter data services and ancillary reference services.<sup>1678</sup>

The revised access arrangement proposal takes into consideration the transaction costs such as transportation costs, metering charges and administrative costs when determining its tariffs and tariff classes.<sup>1679</sup> For instance, volume customers avoid high metering costs by being charged on a throughput basis. Further, transaction costs are saved by not charging volume customers on their zonal location. The AER considers that the volume tariff classes are fundamentally the same as those for the earlier access arrangement. Further, the AER notes that demand tariff classes are based on the same 12 location zones as in the earlier access arrangement. As a result the AER considers that the tariff classes group customers of reference services together on an economically efficient basis and avoid unnecessary transaction costs.<sup>1680</sup>

The EUAA submits that it is concerned that the AER has not applied r. 94(2) of the NGR.<sup>1681</sup> The AER notes that r. 94(2) of the NGR relates to how the tariff classes are to be constructed. The AER considers that the tariff classes are consistent with r. 94(2) of the NGR.<sup>1682</sup> The AER considers that besides the addition of the new demand first response tariff classes and large Sydney user tariff throughput tariff classes, the tariff classes have remained unchanged from the earlier access arrangement period.<sup>1683</sup>

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1674 EUAA, *Submission to the AER*, April 2010, p. 6.

1675 EUAA, *Submission to the AER*, April 2010, p. 6.

1676 NGR, r. 93.

1677 JGN, *Revised access arrangement information*, March 2010, p. 44.

1678 JGN, *Revised access arrangement proposal*, March 2010, pp. 63–74.

1679 JGN, *Revised access arrangement information*, March 2010, p. 49.

1680 NGR, r. 94(2).

1681 EUAA, *Submission to the AER*, April 2010, p. 6.

1682 EUAA, *Submission to the AER*, April 2010, p. 6.

1683 JGN, *Revised access arrangement proposal*, March 2010, pp. 63–64.

EnergyAdvice submits that the assignment criteria of delivery point locations needs to be updated for the current postcode boundaries in order to provide absolute transparency for customers.<sup>1684</sup> The AER considers that the assignment criteria of delivery point locations is transparent. The revised access arrangement proposal states that delivery point classification is based on the 1997 Australian postcode boundaries. JGN submits that when a new postcode is added, JGN will allocate a location identifier to the new postcode, which is comparable with the existing postcodes.<sup>1685</sup> Further, the AER considers that since tariff classes are determined with regard to r. 97(1) and r. 97(2) of the NGR the postcode matter is outside the rule requirements.

Rule 94(3) requires that the expected revenue for each tariff class must lie between an upper bound of standalone costs and lower bound of avoidable costs. The AER notes that JGN only demonstrates compliance with r. 94(3) of the NGR for 14 tariff classes (two volume tariff classes, one country capacity tariff class, one demand throughput tariff class and 11 coastal capacity tariff classes) of the total 36 tariff classes. JGN does not demonstrate compliance with r. 94(3) of the NGR for the other 22 tariff classes (11 demand first response tariff classes, one demand throughput tariff class and the 10 new tariff classes for large Sydney users). However, the AER considers that since the 14 tariff classes are compliant with r. 94(3), the remaining 22 tariff classes are likely to comply due to the following:

- the avoidable cost of offering the 22 tariff classes being negligible.<sup>1686</sup> For this reason, the AER considers it is highly likely that the expected revenue of each of the 22 tariff classes is higher than the avoidable costs of providing those tariff classes
- the AER considers the expected revenue from the 22 tariff classes will be less than stand alone costs.

For the reasons outlined above, the AER considers that the revised access arrangement proposal complies with r. 94(3) of the NGR as JGN demonstrates for both volume and demand tariff classes that expected revenue is between stand alone and avoidable costs.<sup>1687</sup>

The revised access arrangement proposal provides information to demonstrate that LRMC for volume customers has been taken into consideration.<sup>1688</sup> The AER notes that JGN has not provided LRMC for demand customers due to the effects of capital contributions on LRMC and because total revenue takes into consideration LRMC. Further, JGN has demonstrated that it has taken into consideration transaction costs

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<sup>1684</sup> EnergyAdvice, *Submission to the AER*, April 2010, p. 7.

<sup>1685</sup> JGN, *Revised access arrangement proposal*, March 2010, pp. 61–62.

<sup>1686</sup> The 22 tariff classes (11 demand first response tariff classes, 1 tariff through put tariff class and 10 new tariff classes for large Sydney users) complement and geographically overlap with the 14 tariff classes (2 volume throughput tariff classes, 11 demand coastal capacity tariff classes and 1 demand country tariff class) and therefore the avoidable costs associated with the 22 tariff classes is negligible. For instance, the costs saved by not offering a demand first response tariff class for each demand coastal tariff class is just the administrative cost saved by not offering demand first response tariff classes.

<sup>1687</sup> JGN, *Revised access arrangement information*, March 2010, pp. 51–52.

<sup>1688</sup> NGR, r. 94(4)(a).

and customers' responses to price signals when determining each charging parameter of each tariff class.<sup>1689</sup>

The AER notes that some submissions<sup>1690</sup> state that tariffs should be cost reflective and efficient. However, as outlined in the draft decision, the requirement about cost reflectivity in the code is different to the requirement of cost reflectivity for tariffs in the NGR which deal with tariffs. The NGR recognises that there is a range of efficient costs and tariffs that do not need to be set to the cost of service as was the case in the code.<sup>1691</sup> Under the NGR the tariff expected revenue should lie between an upper bound of stand alone costs and a lower bound of avoidable costs.<sup>1692</sup> The NGR also requires tariffs and charging parameters take into account long run marginal costs and must be determined with regards to transaction costs and price signals.<sup>1693</sup> Further, the efficiency of the operating expenditure and capital expenditure are discussed in chapters 3 and 9.

#### **12.2.4 Conclusion**

The AER approves the methodology for allocating costs and setting reference tariffs as it complies with r. 93 and r. 94 of the NGR.

### **12.3 Trunk pipeline pricing**

#### **12.3.1 Revised access arrangement proposal**

In the earlier access arrangement there was a separate trunk charge for customers in the coastal part of the network.<sup>1694</sup> The trunk charge in the earlier access arrangement took into consideration the user's location within the network by charging the users for the length of the trunk they used and the volume transported.<sup>1695</sup>

JGN submits that one of the key ways it has sought to accommodate the movement towards the short term trading market (STTM) is to establish charges that reflect the new hub nature of the NSW coastal network, and which do not discriminate between different sources of gas in the network.<sup>1696</sup> JGN outlines that there is no need to maintain a separate trunk charge, because of the introduction of the STTM.<sup>1697</sup> The STTM will mean that it is no longer possible to identify where the gas enters and exists the trunk for a particular user or a particular delivery point.<sup>1698</sup> The trunk charge that is blended into the capacity is the same for all demand customers irrespective of the customer location within the network. In this way, there is one tariff that combines

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1689 JGN, *Revised access arrangement information*, March 2010, pp. 49–50.

1690 EMRF, *Submission to the AER*, April 2010, p. 63; EnergyAdvice, *Submission to the AER*, April 2010, p. 2, EUAA, *Submission to the AER*, April 2010, p. 5; Weston Aluminium, *Submission to the AER*, 15 February 2010, p. 1.

1691 AER, *Draft decision*, February 2010, p. 270.

1692 NGR, r. 94(3).

1693 NGR, r. 94(4).

1694 JGN, *Jemena's NSW Gas Networks access arrangement 1 July 2005 to 30 June 2010*, 7 March 2007, p. 50.

1695 JGN, *Jemena's NSW Gas Networks access arrangement 1 July 2005 to 30 June 2010*, 7 March 2007, p. 50.

1696 JGN, *Initial response to the draft decision*, March 2010, p. 227.

1697 JGN, *Access arrangement information*, August 2009, appendix 15.1, p. 7 (confidential).

1698 JGN, *Access arrangement information*, August 2009, appendix 15.1, p. 7 (confidential).

the charge for the network and the trunk. This is called the hub price. The trunk charge is established by dividing the 2009–10 demand trunk revenue by the 2009–10 demand gas quantities to provide a block tariff based on tranches of gas consumed.<sup>1699</sup>

JGN submits that it welcomes the draft decision to approve the STTM facilitating network tariff restructure.<sup>1700</sup>

### 12.3.2 Submissions

The EMRF submits that some large users will incur significant increases in tariffs, while others will see large reductions.<sup>1701</sup> The EMRF supports the inclusion of the Wollongong-Newcastle trunk line into the overall tariff base as this is essential to make the STTM effectively independent of where gas is injected.<sup>1702</sup> The EMRF submits that the cost of the trunk line needs to be effectively amortised over all gas customers in proportion to the total maximum daily quantity (MDQ) booked by users.<sup>1703</sup> The EMRF submits that the demand customers should only pay for the costs they incur in using the services and those costs associated with volume customers should not be averaged across all customers.<sup>1704</sup> The EMRF questions how the inclusion of the trunk line into the current tariffs can result in such a wide swing in tariffs.<sup>1705</sup>

The EMRF considers that the increase in tariffs might encourage large users to bypass the network and connect directly to the trunk.<sup>1706</sup> However, the EMRF submits that the existence of the STTM with no separate trunk charges indicates that withdrawing gas at any point along the trunk line would imply direct withdrawal of gas from the STTM. Therefore, any party withdrawing gas directly from the trunk line would be considered to be bypassing the entire JGN network and would not be subject to any JGN network requirements.<sup>1707</sup> The EMRF submits that the AER should make it clear that JGN is required to allow customers to connect directly to its trunk and, if they do so, what the import of such connection results in.<sup>1708</sup>

EnergyAdvice submits that JGN should continue to offer a continuation of the trunk negotiated service.<sup>1709</sup>

The EUAA submits that having an additional seven charging parameters for the trunk will not pose a large administrative cost.<sup>1710</sup> The EUAA submits that the STTM need not have any impact on the cost reflectivity of distribution pricing. The EUAA states

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1699 JGN, *Access arrangement information*, August 2009, appendix 15.1, pp. 7–18 (confidential).

1700 JGN, *Initial response to the draft decision*, March 2010, p. 227.

1701 EMRF, *Submission to the AER*, April 2010, p. 8.

1702 EMRF, *Submission to the AER*, April 2010, p. 63.

1703 EMRF, *Submission to the AER*, April 2010, p. 64.

1704 EMRF, *Submission to the AER*, April 2010, p. 65.

1705 EMRF, *Submission to the AER*, April 2010, p. 65.

1706 EMRF, *Submission to the AER*, April 2010, p. 68.

1707 EMRF, *Submission to the AER*, April 2010, p. 68.

1708 EMRF, *Submission to the AER*, April 2010, p. 68.

1709 EnergyAdvice, *Submission to the AER*, April 2010, p. 2.

1710 EUAA, *Submission to the AER*, April 2010, p. 6.



that the STTM was designed to make sure wholesale gas purchasers are not disadvantaged with respect to which injection point and which transmission line the gas is shipped on.<sup>1711</sup>

Boral Limited (Boral) submits that its regulated gas network charges will increase by 26 per cent. Boral submits that given JGN's industrial revenue is reducing overall, an increase to Boral will only imply gains to certain customers.<sup>1712</sup>

### 12.3.3 AER's analysis and considerations

As outlined in the draft decision, the allocation of the trunk cost is based on a customer level of chargeable demand.<sup>1713</sup> Previously both capacity and customer location on the trunk determined the trunk charge. This means that trunk costs no longer depend on location of the customer. The impact of blending the trunk tariff into the network block structure means that Sydney users will bear a larger proportion of the trunk charge than in the earlier access arrangement period. The blending of the trunk charge is based on deriving a notional trunk charge based on 2009–10 trunk revenues and quantities for demand users across the coastal part of the network divided into the five tranches or blocks of gas consumed. As outlined in the draft decision, as a result of the location-independent trunk charge, some demand coastal users will experience tariff increases of more than the P0 adjustment (initial price adjustment), while other demand coastal users experience tariff increases of less than the P0 adjustment or even tariff decreases.<sup>1714</sup>

The AER has reviewed the appropriateness of the trunk costs that are blended into the local network charges. JGN has provided information to the AER on the historical trunk revenue and quantities.<sup>1715</sup> The AER is satisfied that the trunk charge that is incorporated into the local network charge is consistent with historical actual data.<sup>1716</sup>

The EUAA states that the STTM is designed to make sure wholesale gas purchasers are not disadvantaged with respect to which injection point gas enters the hub.<sup>1717</sup> The EUAA also submits that having an additional 7 charging parameters for the trunk will not pose a large administrative cost on users.<sup>1718</sup> The AER considers that the 7 charging parameters for the trunk are not consistent with the intent of the STTM because they are dependent on where gas is injected into the coastal part of the JGN NSW gas network. The AER considers that if the 7 charging parameters for the trunk are retained, customers would not be indifferent with respect to which injection point and which transmission line the gas is shipped on.

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1711 EUAA, *Submission to the AER*, April 2010, p. 6.

1712 Boral Limited, *AER Access arrangement draft decision: Jemena's NSW Gas Networks*, April 2010, p. 1 (confidential) (Boral, *Submission to the AER*, April 2010 (confidential)).

1713 JGN, *Access arrangement information*, August 2009, appendix 15.1, pp. 7–9 (confidential).

1714 AER, *Draft decision*, February 2010, pp. 268–217.

1715 JGN, *Response to AER questions received on 13 April 2010 (and amended on 16 April 2010)*, 23 April 2010.

1716 JGN, *Response to AER questions received on 13 April 2010 (and amended on 16 April 2010)*, 23 April 2010.

1717 EUAA, *Submission to the AER*, April 2010, p. 6.

1718 EUAA, *Submission to the AER*, April 2010, p. 6.

The EMRF submits that the cost of the trunk line needs to be effectively amortised over all gas users in proportion to the total MDQ booked by them.<sup>1719</sup> The AER considers that the trunk charge is amortised over all gas users in proportion to the total MDQ booked by all users. The only difference from the earlier access arrangement period is that the trunk charge is now not dependent on the location of the users.

The EMRF<sup>1720</sup> submits that the AER should make it clear that JGN is required to allow customers to connect directly to its trunk and EnergyAdvice<sup>1721</sup> submits that JGN should continue to offer a continuation of the trunk negotiated service. The AER notes JGN's submission that a trunk connection is treated the same as any other network connections and would be seen by the STTM as a withdrawal at a JGN delivery point and not as a bypass.<sup>1722</sup>

Boral submits that it will experience an increase in tariffs of 26 per cent.<sup>1723</sup> However, the AER notes that Boral's increase in tariffs is less than the average increase in tariffs for users in the gas network.

### **12.3.4 Conclusion**

The AER confirms its draft decision that the trunk costs allocation into the reference tariffs complies with r. 93 and r. 94 of the NGR.

## **12.4 New tariff classes**

### **12.4.1 Revised access arrangement proposal**

The revised access arrangement proposal includes 10 new throughput tariff classes, in response to the draft decision that Sydney users will be exposed to large prices shocks. These tariff classes include two new demand tariff categories for the five Sydney tariff locations. The new tariff classes offer large Sydney users the ability to cap their charges.<sup>1724</sup> The new tariff classes recognise that the combined effects of the underlying increases in total revenue in the access arrangement period and the restructuring of the demand in Sydney is significant.<sup>1725</sup>

### **12.4.2 Submissions**

EnergyAdvice submits that mid-sized customers in the Sydney region are still facing tariff increases in excess of 40 per cent.<sup>1726</sup> EnergyAdvice submits that the eligibility criteria for the major end-customer throughput category (DMT) should be reviewed and adjusted to ensure mid-sized sites can qualify for DMT.<sup>1727</sup> EnergyAdvice

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1719 EMRF, *Submission to the AER*, April 2010, p. 64.

1720 EMRF, *Submission to the AER*, April 2010, p. 68.

1721 EnergyAdvice, *Submission to the AER*, April 2010, p. 2.

1722 JGN, email to the AER, *JGN submission on new issues raised in public submission published by the AER on 4 May 2010*, 18 May 2010, attachment, JGN, *JGN response to the public submissions on the JGN revised access arrangement revision*, 18 May 2010, p. 5.

1723 Boral, *Submission to the AER*, April 2010, p. 1 (confidential).

1724 JGN, *Initial response to the draft decision*, March 2010, p. 227.

1725 JGN, *Initial response to the draft decision*, March 2010, pp. 227–228.

1726 EnergyAdvice, *Submission to the AER*, April 2010, p. 2.

1727 EnergyAdvice, *Submission to the AER*, April 2010, p. 2.

submits that there is no basis to proceed with a tariff structure under which the biggest losers are mid-sized demand customers.<sup>1728</sup>

### **12.4.3 AER's analysis and considerations**

The draft decision outlines that on 1 July 2010 Sydney demand users are expected to have a significant increase in tariffs above the adjustment to support the increase in required total revenue. The AER considers that the significant increase in tariffs for Sydney users is due to the combined impact of a flat trunk charge and a location based network charge.<sup>1729</sup> The revised access arrangement proposal seeks to address this price shock for some users.<sup>1730</sup>

The AER recognises that JGN is offering the 10 new tariff classes to large Sydney users in order to mitigate the large tariff increases for some Sydney users. The large tariff increase for Sydney users is due to the combined effect of the increase in total revenue and the introduction of a flat (hub) trunk charge.<sup>1731</sup> As outlined in section 12.2.3 above, the AER considers all tariff classes and tariffs are consistent with r. 93 and r. 94 of the NGR. The AER notes that this rebalancing of tariffs for certain large Sydney users result in higher tariffs for all other demand and volume tariff classes. Further, in order to address initial price shock for users, section 13.2.1.3 reinstates X factors of -1.96 per cent.

EnergyAdvice submits that the eligibility criteria for the major end-customer throughput category DMT should be reviewed and adjusted to ensure mid-sized sites can qualify for DMT.<sup>1732</sup> The AER considers that since the revised access arrangement proposal complies with r. 93 and r. 94 of the NGR, the eligibility criteria for the DMT does not need to be extended to mid-sized Sydney users.

### **12.4.4 Conclusion**

The AER approves the access arrangement proposal for 10 new throughput tariff classes as they comply with r. 93 and r. 94 of the NGR.

## **12.5 Demand first response**

### **12.5.1 Revised access arrangement proposal**

The revised access arrangement proposal does not accept parts of amendment 12.3 in the draft decision which require the discount associated with the demand first response to be reduced to 25 per cent and which require the assumed uptake of the demand first response tariff class to be reduced. The revised access arrangement proposal retains the demand first response tariff classes. The demand first response tariff classes offer coastal demand customers a 50 per cent discount if they are willing to participate in an emergency supply curtailment process. The proposed eligibility criteria for demand first response is modified in the revised access arrangement

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1728 EnergyAdvice, *Submission to the AER*, April 2010, p. 2.

1729 AER, *Draft decision*, February 2010, p. 268.

1730 JGN, *Revised access arrangement information*, March 2010, Appendix 15.1.

1731 JGN, *Initial response to the draft decision*, March 2010, pp. 227–228.

1732 EnergyAdvice, *Submission to the AER*, April 2010, p. 2.

proposal so that it only applies to sites with a demand greater than 350 GJ per hour against 100 GJ per hour in the access arrangement proposal.<sup>1733</sup> This change in eligibility criteria results in a lower forecast uptake for the demand first response tariff classes from the access arrangement proposal of 16 customers to five customers.<sup>1734</sup> The revised access arrangement proposal does not accept the reduction in the discount in tariffs to 25 per cent as required in the draft decision, and instead reinstates the 50 per cent discount included in the access arrangement proposal.<sup>1735</sup> To support the 50 per cent discount, JGN conducted a survey of customers with hourly utilisation of around 100 GJ per hour or more.<sup>1736</sup> The survey confirmed that a 50 per cent reduction is needed to incentivise users to take advantage of the first response tariff.<sup>1737</sup> JGN submits that a significant discount is required as network charges only represent a small part of the total price of delivered gas and curtailment costs can be significant.<sup>1738</sup>

### 12.5.2 Submissions

AGL Energy Ltd (AGL) submits that the assumed uptake of the demand first response tariffs is still based on forecasts that are not assured or guaranteed. AGL submits that JGN has recourse to its right to involuntary curtailment over and above any voluntary curtailment plans proposed.<sup>1739</sup> AGL submits that it seeks clarification and amplification on how the call-up from voluntary curtailment would be managed and how users would be kept informed, and the consequential impact on billing arrangements, both network and retail.<sup>1740</sup>

The EMRF submits that it strongly supports the first response tariff and more examination is required to identify how much gas is likely to be voluntarily load shed.<sup>1741</sup> The EMRF submits that the first response tariff provides consumers with the ability to receive a benefit for being the first customers having involuntarily load shed when there is a shortage of gas in the network.<sup>1742</sup> The EMRF submits that the draft decision to reduce the demand first response discount to 25 per cent is not appropriate and notes that benefit of the demand first response tariff accrues to all customers who continue to use gas when there is a shortage.<sup>1743</sup> The EMRF submits that since all customers benefit from the demand first response, the cost of the discounted tariff needs to be carried by all customers that do not load shed.<sup>1744</sup> The EMRF submits that the AER should examine the schedule of involuntary load shedding used in the earlier access arrangement period, and the amount of gas this approach releases for use by

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1733 JGN, *Initial response to the draft decision*, March 2010, p. 233.

1734 JGN, *Revised access arrangement information*, March 2010, appendix 12.5, pricing model (confidential).

1735 JGN, *Initial response to the draft decision*, March 2010, p. 233.

1736 JGN, *Initial response to the draft decision*, March 2010, pp. 231–232.

1737 JGN, *Initial response to the draft decision*, March 2010, p. 232.

1738 JGN, *Initial response to the draft decision*, March 2010, p. 233.

1739 AGL, *Submission to the AER*, April 2010, p. 6.

1740 AGL, *Submission to the AER*, April 2010, p. 6.

1741 EMRF, *Submission to the AER*, April 2010, p. 4.

1742 EMRF, *Submission to the AER*, April 2010, p. 61.

1743 EMRF, *Submission to the AER*, April 2010, p. 66.

1744 EMRF, *Submission to the AER*, April 2010, p. 67.

other consumers. The EMRF submits that it is this schedule that the AER should use as a basis for assessing the extent of gas that will be covered by the first response program.<sup>1745</sup>

EnergyAdvice submits that it supports the first response tariffs in principle. EnergyAdvice notes that JGN stated that first response reductions are not intended to prevent or substitute for other demand customers from being called to load shed.<sup>1746</sup> EnergyAdvice submits that the AER should require JGN to provide additional evidence to substantiate that establishment of the first response category will substantially benefit JGN's operations and the extent that other users not taking up the first response will be better off.<sup>1747</sup> EnergyAdvice submits that the 50 per cent tariff reduction being offered to first response customers is excessive, and agrees with the 25 per cent discount proposed in the draft decision.<sup>1748</sup>

The EUAA submits that the demand first response tariff class results in potential savings to some users, while increasing costs for other users. The EUAA submits that the costs and benefits of the demand first response tariff class have not been adequately substantiated.<sup>1749</sup> The EUAA would like to know how the additional costs borne by users due to the demand first response are offset by the benefits.<sup>1750</sup> EUAA notes there is a significant risk of over-recovery of revenues if the uptake of the demand first response falls short of the forecast.<sup>1751</sup> The EUAA submits that it is important that the uptake rate forecast of demand first response is robust and clearly justified.<sup>1752</sup> The EUAA submits that it supports the draft decision amendments to the demand first response tariff class, as the amendments have a downward impact on the standard tariff rates. However, the EUAA submits that the draft decision is not clear whether the amendments associated with demand first response adequately reflect the potential uptake of the demand first response. The EMRF submits that the AER's methodology and underlying assumptions used to determine the assumed uptake and discount of the demand first response has not been reported.<sup>1753</sup> The EUAA notes that the take up rates for the New South Wales Government's gas contingency scheme and United Energy Distribution Pty Ltd's (UED) peak demand tariffs were modest.<sup>1754</sup> The purpose of the demand first response is to enable curtailment of significant loads in a short period of time in an emergency situation. The AER considers there is merit in such a scheme for management of emergency situation through orderly curtailment procedures that is consistent with the safety and security of supply.<sup>1755</sup> The EUAA submits that it would like to know whether the additional costs offset the

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1745 EMRF, *Submission to the AER*, April 2010, p. 68.

1746 EnergyAdvice, *Submission to the AER*, April 2010, p. 3.

1747 EnergyAdvice, *Submission to the AER*, April 2010, p. 3.

1748 EnergyAdvice, *Submission to the AER*, April 2010, p. 3.

1749 EUAA, *Submission to the AER*, April 2010, p. 2.

1750 EUAA, *Submission to the AER*, April 2010, p. 2.

1751 EUAA, *Submission to the AER*, April 2010, p. 3.

1752 EUAA, *Submission to the AER*, April 2010, p. 3.

1753 EUAA, *Submission to the AER*, April 2010, p. 3.

1754 EUAA, *Submission to the AER*, April 2010, p. 3.

1755 NGR, r 100.

benefits.<sup>1756</sup> The AER outlined earlier in this chapter that the demand first response tariffs meet r. 94 of the NGR which is the relevant rule for setting tariffs. Contrary to the EUAA submission JGN is not required to demonstrate whether the benefits of these tariffs outweigh the costs.

### 12.5.3 AER's analysis and considerations

While the AER accepts that there is merit in the proposed demand first response tariffs to attempt to address gas supply constraints in an emergency, the draft decision outlines several issues with the proposed assumptions underlying these tariffs. First, the draft decision outlines that JGN does not provide sufficient information to justify the 50 per cent discount required to induce customers to participate in the demand first response tariff classes. As a consequence the draft decision reduces the discount to 25 per cent. Second, the draft decision outlines that the assumption that all demand customers with a chargeable demand of greater than 1800 GJ will take up the demand first response tariffs is not supported and the draft decision reduces the assumed up take by 50 per cent.<sup>1757</sup> The impact on total revenue from the reduction in the assumed discount and the up take of the demand first response tariffs is allocated as lower tariffs for demand first response customers in the coastal area in the draft decision.<sup>1758</sup>

The AER notes that both EMRF and EnergyAdvice support the demand first response tariff classes.<sup>1759</sup> AGL submits about the assumed uptake of the demand first response tariffs. The EMRF submits that the schedule of involuntary load shedding used in the earlier access arrangement should be used as a basis for assessing the extent of gas that will be covered by the first response program.<sup>1760</sup> The EUAA notes that there is a significant risk of over-recovery of revenues if the uptake of the demand response falls short of the forecast.<sup>1761</sup> The EMRF submits that the draft decision proposed a 25 per cent discount for the demand first response which is not appropriate and the cost of the discounted tariff needs to be carried by all customers.<sup>1762</sup> EnergyAdvice submits that the 50 per cent tariffs reduction being offered is excessive, and agrees with the 25 per cent discount proposed in the draft decision.<sup>1763</sup>

The AER considers the revised access arrangement proposal justifies the assumed uptake of the demand first response tariff classes and the need to offer a 50 per cent discount based on the results of a survey of users.<sup>1764</sup> The draft decision lowered the assumed uptake of the demand first response and lowers the discount offered to users who participate in the demand first response. The revised access arrangement proposal surveyed users about the level of discount that should apply and take up of the demand first response tariffs. Notwithstanding that the survey design may provide

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1756 EUAA, *Submission to AER*, April 2010, p. 2.

1757 AER, *Draft decision*, February 2010, p. 268.

1758 AER, *Draft decision*, February 2010, p. 268.

1759 EMRF, *Submission to the AER*, April 2010, p. 4 and EnergyAdvice, *Submission to the AER*, April 2010, p. 3.

1760 EMRF, *Submission to the AER*, April 2010, p. 68 and AGL, *Submission to the AER*, April 2010, p. 6.

1761 EUAA, *Submission to the AER*, April 2010, p. 3.

1762 EMRF, *Submission to the AER*, April 2010, pp. 66–67.

1763 EnergyAdvice, *Submission to the AER*, April 2010, p. 3.

1764 JGN, *Initial response to the draft decision*, March 2010, p. 232.

a skewed response from users. The AER considers the survey results support the assumed uptake of the demand first response tariff class and required discount required to induce users to participate. As already outlined, the demand first response tariff classes are consistent with r. 93 and r. 94 of the NGR.

EnergyAdvice and AGL question the operation of the demand first response tariff classes if JGN intends to retain involuntary supply curtailment.<sup>1765</sup> In addition AGL seeks clarification on how voluntary curtailment will be managed.<sup>1766</sup> The AER considers that the demand first response tariff classes provide an additional mechanism for JGN to manage emergency supply curtailment. The AER notes JGN's submission that the first response tariff will provide users with a financial incentive to improve the effectiveness of emergency management of the network, but that there is still need for recourse to involuntary supply curtailment to support emergency circumstances. The AER considers that the access arrangement proposal and reference service agreement sets out sufficient detail on how voluntary and involuntary supply curtailment will be managed.<sup>1767</sup> Further the NGR provides further requirements under emergency circumstances –refer to part 19, Division 5 for further reference.

#### **12.5.4 Conclusion**

The AER approves the revised demand first response tariff classes as they comply with r. 93 and r. 94 of the NGR.

### **12.6 Minimum demand bill**

#### **12.6.1 Revised access arrangement proposal**

The revised access arrangement proposal does not accept amendment 12.2 in the draft decision which requires the minimum demand bill to be removed for demand customers who transition from the volume tariff class to the demand tariff class. The revised access arrangement proposal outlines that the minimum bill for demand customers provides a smooth transition in price between volume and demand tariff classes.<sup>1768</sup> The revised access arrangement proposal does not accept that the minimum bill may result in some large volume customers seeking to constrain consumption as outlined in the draft decision.<sup>1769</sup> In particular, the revised access arrangement proposal considers the statement in the draft decision 'that demand customers who pay capacity charges receive a more constrained service, and should pay less for this', to be an oversimplification of network pricing principles.<sup>1770</sup>

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1765 EnergyAdvice, *Submission to the AER*, April 2010, p. 3 and AGL, *Submission to the AER*, April 2010, p. 6.

1766 AGL, *Submission to the AER*, April 2010, p. 6.

1767 JGN, *Revised access arrangement proposal*, March 2010, pp. 59–61 and JGN, *Reference Service Agreement*, March 2010, clause 25.

1768 JGN, *Initial response to the draft decision*, March 2010, p. 228.

1769 JGN, *Initial response to the draft decision*, March 2010, p. 229.

1770 JGN, *Initial response to the draft decision*, March 2010, p. 230.

### 12.6.2 Submissions

AGL, EnergyAdvice and EnergyAustralia Retail (EnergyAustralia) submit that they do not support the minimum bill and it should be removed as required in the draft decision.<sup>1771</sup>

AGL submits that transitioning of the minimum bill may remove the initial price shocks to users, but after five years the full price shock will still be manifested.<sup>1772</sup>

EnergyAdvice submits that it does not understand why a customer should be subject to a minimum bill, after paying for connection, meter and capacity charges and being subject to the terms and conditions associated with the demand service.<sup>1773</sup>

EnergyAustralia submits that the justification used by JGN for the minimum bill is flawed and creates perverse pricing signals.<sup>1774</sup> EnergyAustralia submits that the proposed minimum bill charge applies to all demand customers not just those that transition from the volume to the demand classes.<sup>1775</sup> EnergyAustralia submits that the minimum bill distorts the efficient consumption signal for a set of customers. EnergyAustralia submits that the minimum bill in some locations will apply to customers using 100 TJ a year.<sup>1776</sup> EnergyAustralia submits that the introduction of the minimum bill imposes a minimum charge on demand customers that has no cost reflective basis and therefore distorts the cost reflective nature of the demand customers.<sup>1777</sup>

Boral submits that the minimum bill will result in some sites being exposed to tariff increases of more than 250 per cent.<sup>1778</sup>

### 12.6.3 AER's analysis and considerations

The draft decision does not approve the minimum demand bill. The draft decision outlines that the minimum demand bill may result in some volume users seeking to constrain consumption to avoid the minimum demand bill charge contrary to the national gas objective (NGO) to promote the efficient use of gas.<sup>1779</sup>

AGL, EnergyAdvice and EnergyAustralia submit that they do not support the minimum bill and it should be removed as required in the draft decision.<sup>1780</sup> In the draft decision, the AER considers that the minimum demand bill may enhance price

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1771 AGL, *Submission to the AER*, April 2010, p. 3; EnergyAdvice, *Submission to the AER*, April 2010, p. 4; EnergyAustralia, *Jemena Gas Network (NSW) Ltd's Revised 2010–2015 Access Arrangement & Reference Service Agreement*, April 2010, p. 3 (EnergyAustralia, *Submission to the AER*, April 2010.).

1772 AGL, *Submission to the AER*, April 2010, p. 3.

1773 EnergyAdvice, *Submission to the AER*, April 2010, p. 4.

1774 EnergyAustralia, *Submission to the AER*, April 2010, pp. 3 and 27.

1775 EnergyAustralia, *Submission to the AER*, April 2010, p. 26.

1776 EnergyAustralia, *Submission to the AER*, April 2010, p. 26.

1777 EnergyAustralia, *Submission to the AER*, April 2010, p. 27.

1778 Boral, *Submission to the AER*, April 2010, p. 6 (confidential).

1779 AER, *Draft decision*, February 2010, pp. 273–274.

1780 AGL, *Submission to the AER*, April 2010, p. 3; EnergyAdvice, *Submission to the AER*, April 2010, p. 4; EnergyAustralia, *Submission to the AER*, April 2010, p. 3.



signals for some users as they move from the volume tariff class to the demand tariff class. However, as outlined in the draft decision, the minimum demand bill can also have an adverse effect on users and how customers respond to price signals (contrary to the effect the minimum bill is trying to achieve).<sup>1781</sup> For example, as outlined in EnergyAustralia's submission the minimum demand bill will mean that some demand customers will pay the same network charge regardless of whether they are using 10 TJ per annum or 100 TJ per annum.<sup>1782</sup> Therefore the minimum demand bill enhances pricing signals for some users, while other users demanding volumes in the range of 10 TJ to 100 TJ per annum will have no price incentive to manage their gas consumption. Further, the minimum demand bill applies to all demand users, and will result in some existing demand users being exposed to tariff changes as high as 250 per cent.<sup>1783</sup> For this reason the AER does not consider the minimum demand bill takes into consideration all circumstances of the price responsiveness of users.<sup>1784</sup> The AER notes that transitioning the minimum bill over the access arrangement period may take into consideration the price responsiveness of users in the early years of the access arrangement, but not in the later years.<sup>1785</sup>

Further, the revised access arrangement proposal states that the location of demand customer tariffs in the network is an important factor in which tariffs apply, whereas volume customers are charged regardless of their location in the network.<sup>1786</sup> However, the minimum demand bill has the effect of also introducing tariffs that are independent of the location for small demand users. This is because all demand users with a consumption of 10 TJ will pay the same network (minimum bill) charge irrespective of their location within the network. The AER considers that tariffs for some tariff locations should increase while others should decrease when users transition for a location independent tariff structure (volume tariff classes) to a location dependent tariff structure (demand tariff classes).<sup>1787</sup> However, the proposed network tariff structure for demand customers will in general result in a customer paying less compared to volume customers. This is a result of users moving to a capacity service. These are more constrained than throughput services. The AER notes that when users move from a volume throughput charge (averaged across the NSW network) to a demand throughput charge (averaged across the NSW network) tariffs only decrease marginally.<sup>1788</sup> For this reason the AER considers the minimum demand bill does not result in demand tariffs being location dependent.

JGN submits that the minimum bill will smooth the transition to the demand users' charges and does not involve a price increase relative to the top end of volume user

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1781 AER, *Draft decision*, February 2010, pp. 273–274.

1782 EnergyAustralia, *Submission to the AER*, April 2010, p. 26.

1783 EnergyAustralia, *Submission to the AER*, April 2010, p. 26 and Boral, *Submission to the AER*, April 2010, p. 6 (confidential).

1784 NGR, r. 94(4)(b)(ii).

1785 AGL, *Submission to the AER*, April 2010, p. 3.

1786 JGN, *Initial response to the draft decision*, March 2010, p. 231.

1787 The AER considers that when users move from a volume throughput charge to a demand capacity charge, tariffs increase for DC–5 and DC –11 tariff classes while decrease for DC–1, DC–2, DC–3, DC–4, DC–6, DC–7, DC–8, DC–9 and DC–10 tariff classes.

1788 JGN, *Initial response to the draft decision*, March 2010, table 12.3.

charges.<sup>1789</sup> The AER recognises that the minimum demand bill will not increase users' tariffs as they transition from being a volume customer to a demand customer. However, the AER considers that users may avoid increasing their gas consumption above 10 TJ a year in order to prevent being charged for capacity service without a discount. In effect the minimum bill may result in some large volume users seeking to constrain consumption to avoid the minimum bill capacity charge contra to the NGO to promote the efficient use of gas.<sup>1790</sup> Revision 12.1 requires the minimum demand bill to be removed from the revised access arrangement proposal as it is not consistent with the NGO.

#### **12.6.4 Conclusion**

The AER does not approve the revised minimum demand bill as it is not consistent with r. 94(4)(b)(ii) and r. 100 of the NGR.

#### **12.6.5 Revisions**

The AER proposes the following revisions:

**Revision 12.1:** amend the revised access arrangement proposal to delete clause 1.3 F (j) of schedule 2.

### **12.7 Introduction and withdrawal of reference tariffs**

#### **12.7.1 Revised access arrangement proposal**

The revised access arrangement proposal does not accept amendment 12.1 in the draft decision which requires JGN to remove the ability to introduce and remove new haulage reference tariff, haulage reference tariff components and tariff classes within the access arrangement period. The revised access arrangement proposal outlines that it is necessary for a service provider to be able to introduce and remove reference tariffs in an access arrangement period so that it can respond to external factors including changes. JGN considers that an access arrangement revision under r. 65 of the NGR is not appropriate to consider changes to reference tariffs. JGN considers that an access arrangement revision is costly and adds to uncertainty.<sup>1791</sup>

#### **12.7.2 Submissions**

The Energy Network Association (ENA) submits that not allowing JGN to introduce new tariffs in the next regulatory period will prevent JGN reacting to significant market changes, to flexibly redesign, retire and create new tariffs within the requirements of its proposed access arrangement. The ENA submits that requiring JGN to re-open their access arrangement in order to introduce new tariffs is inconsistent with the broad role of the access arrangement to provide an overarching framework for revenue and overall price paths over a five year period.<sup>1792</sup>

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<sup>1789</sup> JGN, *Initial response to the draft decision*, March 2010, p. 229.

<sup>1790</sup> NGR, r. 100.

<sup>1791</sup> JGN, *Initial response to the draft decision*, March 2010, pp. 242–243.

<sup>1792</sup> ENA, *Submission to the AER*, April 2010, p. 7.

EnergyAustralia submits that where a haulage reference tariff or haulage reference tariff component is being introduced or withdrawn or a tariff class is being introduced or withdrawn, JGN should be required to give additional notice over and above that required for the annual variation of reference tariffs. EnergyAustralia submits that the revised access arrangement may not leave users with enough time to implement the necessary changes to their systems to reflect the structural changes. EnergyAustralia submits that any structural changes should be notified to the AER and to users well in advance of the annual variation of reference tariff submission. EnergyAustralia submits that JGN should be required to supply proposed network tariffs to users shortly after they have been submitted to the AER.<sup>1793</sup>

### **12.7.3 AER's analysis and considerations**

The draft decision requires JGN to remove its ability to introduce and remove new haulage reference tariffs, haulage reference tariff components and tariff classes over the access arrangement period. The AER considers that an access arrangement revision<sup>1794</sup> which may be scheduled or unscheduled is the relevant process to consider changes to reference tariffs.<sup>1795</sup>

The revised access arrangement proposal outlines that an access arrangement revision process is a more costly process than a provision (as proposed) that allows JGN to introduce and remove reference tariffs over an access arrangement period using the annual tariff variation mechanism. Despite the costs associated with the variation of an access arrangement, the AER considers that reference tariffs form a fundamental feature of an access arrangement and changes to these tariffs over the access arrangement period warrant consideration and review by the AER and users affected by any new tariffs. Foremost is the need to consider whether any new reference tariffs proposed to be introduced comply with the requirements of the NGR for setting tariffs,<sup>1796</sup> and further whether the underlying basis for determining all reference tariffs needs to be examined and reviewed in light of the need to withdraw or introduce new reference tariffs. The NGR requires that the total revenue calculated using the building blocks equals the present value of expected revenue over the terms of the access arrangement period.<sup>1797</sup> As a consequence, the impact of the removal or inclusion of reference tariffs on expected revenue needs to be reviewed. For these reasons the AER does not consider that the ability to introduce and remove reference tariffs through the formula mechanism complies with r. 92 or r. 94 of the NGR.

Given that the revised access arrangement proposal seeks to include the ability to introduce and remove reference tariffs as part of the tariff variation mechanism, the AER does not consider that the proposed mechanism is in accordance with r. 97 of the NGR. In particular, JGN does not demonstrate that the tariff structure (due to the inclusion or withdrawal of tariffs) will result in an efficient tariff structure.<sup>1798</sup> Further, the potential for JGN to introduce new reference tariffs and for these tariffs to

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<sup>1793</sup> EnergyAustralia, *Submission to the AER*, April 2010, p. 28.

<sup>1794</sup> NGR, r. 65.

<sup>1795</sup> AER, *Draft decision*, February 2010, p. 278.

<sup>1796</sup> NGR, r. 94.

<sup>1797</sup> NGR, r. 92(2).

<sup>1798</sup> NGR, r. 97(3)(a).

be assessed as part of an annual tariff variation mechanism does not give the AER adequate oversight of the process.<sup>1799</sup> The proposed tariff variation mechanism to introduce or withdraw reference tariffs is not consistent with regulatory arrangements for similar services.<sup>1800</sup> These access arrangements are the only access arrangements which have been revised and approved under the NGR. Unlike the NGR, the National Electricity Rules (NER) does not allow the distribution determination to be revised for within the regulatory control period for the addition and removal of reference tariffs by the regulator. For this reason, the AER considers that it is not appropriate in this instance to compare the revised access arrangement proposal to past electricity decisions. Therefore, having regard to r. 97 of the NGR, the AER considers that the ability to introduce and withdraw tariffs through the tariff variation formula mechanism must be removed.

The AER notes the ENA submission and considers that r. 65 of the NGR, provides a means for JGN to add and remove tariffs during the access arrangement period if this is warranted by market change. The ENA submits that requiring JGN to re-open their access arrangement in order to introduce new tariffs is inconsistent with the broad role of the access arrangement to provide an overarching framework for revenue and overall price paths over a five year period.<sup>1801</sup> However, the AER considers this is precisely the purpose of r. 65 of the NGR.

EnergyAustralia submits that where a haulage reference tariff or haulage reference tariff component is being introduced or withdrawn or a tariff class is being introduced or withdrawn, JGN should be required to give additional notice over and above that required for the annual variation of tariffs.<sup>1802</sup> As outlined above, the AER considers that r. 65 of the NGR provides the mechanism to do so.

#### 12.7.4 Conclusion

The AER has had regard to the factors in r. 97(3) of the NGR and for the reasons outlined above does not approve the introduction or withdrawal of haulage reference tariffs through the tariff variation formula mechanism as it is not in accordance with r. 92(2), r. 94, r. 97(3) and r. 97(4) of the NGR. The AER considers that the introduction or withdrawal of haulage reference tariffs should be done through r. 65 of the NGR.

#### 12.7.5 Revisions

The AER proposes the following revisions:

**Revision 12.2:** amend the revised access arrangement proposal to:

- delete the text of clause 3.2(b) and replace it with the following:

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<sup>1799</sup> NGR, r. 97(4).

<sup>1800</sup> NGR, r. 97(3)(d); AER, *Access arrangement for the Wagga Wagga gas distribution network 1 July 2010 – 30 June 2015*, April 2010, p. 37–43; AER, *Access arrangement for ACT, Queanbeyan and Palerang gas distribution network 1 July 2010 – 30 June 2015*, April 2010, p. 25–36.

<sup>1801</sup> ENA, *Submission to the AER*, April 2010, p. 7.

<sup>1802</sup> EnergyAustralia, *Submission to the AER*, April 2010, p. 28.

This section contains the principles and procedures that apply to how and when the Service Provider may vary Reference Tariffs.

- delete the text of clause 3.2(d) and replace it with the following:

The Service Provider may vary an existing Reference Tariff for application to Users at any time during the Access Arrangement Period, in accordance with this Section and the approval of the AER.

- delete clause 3.2(e)
- delete clause 3.2(f)
- delete the text of clause 3.2(g) and replace it with the following:

Where the Service Provider makes a change to a Reference Tariff at any time in accordance with this Section, the Service Provider will publish a revised Reference Tariff Schedule on the Service Provider's website which will take effect from the date specified in that revised Reference Tariff Schedule.

- delete clause 3.3(d)
- delete clause 3.3(e)
- delete clause 3.3(f)
- delete clause 3.3(g)(ii)
- delete clause 3.3(i)
- delete the text of clause 3.4(a) and replace it with the following:

The Service Provider will follow the procedure set out below in varying an existing Reference Tariff during the Access Arrangement Period.

- delete the text of clause 3.4(b)(i) and replace it with the following:

*Annual Variation of reference Tariffs:* Where the Service Provider proposes to vary the Haulage Reference Tariffs to apply from the start of the next Financial Year, it will submit a Variation Notice to the AER on or before the 15<sup>th</sup> of April or the next closest Business Day prior to the commencement of the next Financial Year.

- delete the text of clause 3.4(b)(ii) and replace it with the following:

*Variation of a Reference Tariff within a Financial Year:* Where the Service Provider proposes to vary one or more Haulage Reference Tariffs within a Financial Year it will submit a Variation Notice to the AER at least 50 Business Days prior to the date upon which it intends to vary the amount of the Haulage Reference Tariff.

- delete clause 3.4(b)(iii)
- delete the text of clause 3.4(b)(iv) and replace it with the following:

Any proposed change to Haulage Reference Tariffs submitted by the Service Provider under this Access Arrangement must comply with the Annual Tariff Variation Mechanism.

- delete clause 3.4(c)(iii)
- delete clause 3.4(d)(i)B
- delete clause 3.6.

## 12.8 Other matters

### 12.8.1 Revised access arrangement proposal

The revised access arrangement proposal does not accept amendment 12.6 of the draft decision which requires that in the event of an inconsistency between the tariff methodology and the reference tariff schedule in the revised access arrangement proposal, the tariff methodology takes precedence. JGN does not cite any reasons for not accepting the amendment 12.6 of the draft decision.<sup>1803</sup>

### 12.8.2 AER's analysis and considerations

The draft decision requires that JGN amend its access arrangement proposal so that when an inconsistency between the tariff methodology and the reference tariff schedule in the revised access arrangement exists the tariff methodology rather than the reference tariff schedule should take precedence. The AER requires the amendment so that future tariff can be amended for possible past errors in tariff variations.<sup>1804</sup> As JGN has not made a submission outlining why it has not accepted amendment 12.6 of the draft decision, the AER considers that the amendment is necessary as outlined in the draft decision and revision 12.3.<sup>1805</sup> Revision 12.3 is required to ensure compliance with the NGO.<sup>1806</sup>

### 12.8.3 Conclusion

The AER does not approve clause 1.5(b) in Schedule 3 of the revised access arrangement proposal as it is inconsistent with the NGO.

### 12.8.4 Revisions

The AER proposes the following revisions:

**Revision 12.3:** amend schedule 3 of the revised access arrangement proposal to delete the text of clause 1.5(b) and replace it with the following:

If there is any inconsistency between section 3 of the Access Arrangement and the Reference Tariff Schedule, unless otherwise provided, section 3 of the Access Arrangement takes precedence.

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1803 JGN, *Initial response to the draft decision*, March 2010, p. 226.

1804 AER, *Draft decision*, February 2010, p. 278–279.

1805 AER, *Draft decision*, February 2010, p. 278–279.

1806 NGR, r. 100.

**Revision 12.4:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revisions 12.1 to 12.3.

## 13 Tariff variation mechanism

### 13.1 Introduction

This chapter sets out the AER's consideration of issues arising from the revised access arrangement proposal in relation to the tariff variation mechanism.

The AER's analysis and consideration of the access arrangement proposal in relation to the tariff variation mechanism are set out in chapter 13 of the draft decision.

The AER notes that the revised access arrangement proposal incorporates in full amendments 13.4, 13.7, 13.8 and 13.9 of the draft decision. This chapter only deals with the amendments that the revised access arrangement proposal did not incorporate.

### 13.2 Annual tariff variation mechanism

#### 13.2.1 Equalisation of revenue

##### 13.2.1.1 Revised access arrangement proposal

The draft decision approves an increase in haulage reference services (P0) of 1.23 per cent which is lower than the proposed increase of 34.3 per cent in the access arrangement proposal. The lower P0 reflects lower total revenue approved in the draft decision. The AER approves X factors of -1.96 per cent as proposed in the access arrangement proposal.<sup>1807</sup>

JGN demonstrates that for haulage reference services and meter data services the net present value (NPV) of the proposed revenue is equal to the net present value (NPV) of the revenue requirement.<sup>1808</sup> The revised access arrangement proposal proposes X factors of 0 per cent which result in tariffs being constant in real terms over the access arrangement period.<sup>1809</sup>

##### 13.2.1.2 Submissions

AGL Energy Ltd (AGL) submits that the P0 adjustment for tariffs is a major step change and should be smoothed over the access arrangement period.<sup>1810</sup> AGL submits that it is not in the interests of users and end-use consumers to be faced with significant price shocks and that a smoothing of any approved increase that is deemed material over the five years would represent a better outcome.<sup>1811</sup>

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1807 JGN, *Access arrangement proposal*, August 2009, p. 17.

1808 JGN, *Revised access arrangement information*, March 2010, appendix 12.5, pricing model (confidential).

1809 JGN, *Revised access arrangement proposal*, March 2010, p. 21.

1810 AGL, *Submission to the AER*, April 2010, p. 1.

1811 AGL, *Submission to the AER*, April 2010, p. 3.



Origin Energy Retail Ltd (Origin) submits that the X factors for each year of the access arrangement period should be clearly labelled.<sup>1812</sup> Origin submits that the X factor (P0 adjustment) in the first year is particularly important.<sup>1813</sup>

Boral Limited (Boral) submits that the changes in its tariff should be transitioned over the 5 year period and that industrial related network tariff changes should be capped to increases in consumer price index (CPI).<sup>1814</sup>

### **13.2.1.3 AER's analysis and considerations**

#### **Changes to total revenue and the impact on tariff (expected revenue)**

The purpose of the annual tariff variation mechanism over the access arrangement period is to equalise in present value terms the forecast revenue from reference services and the portion of total revenue allocated to reference services.<sup>1815</sup> The AER also has to assess whether the resulting real tariff increases over the access arrangement period are consistent with the national gas objective (NGO).

The revised access arrangement proposal demonstrates that proposed total revenue is equal in present value terms to expected revenue.<sup>1816</sup> The AER notes that the final decision revises the total revenue and demand forecasts and as a consequence the expected revenue and tariffs are not consistent with those proposed by JGN. As a result, the AER considers that the methodology for equalising revenue in the revised access arrangement proposal does not comply with r. 92(2) of the NGR.

The expected revenue and tariffs over the access arrangement period need to be updated to reflect the revised forecast total revenue<sup>1817</sup> and demand forecasts arising from the final decision. This is because r. 92(2) of the NGR requires that total revenue and expected revenue are equal in present value terms over the access arrangement period. The changes to total revenue and demand forecasts are outlined in part A of the final decision. Revision 13.1 updates the tariff schedules for the change to expected revenue.

#### **P0 adjustment and X factors**

The revised access arrangement proposal instead proposes a P0 adjustment of -30.08 per cent for haulage reference services and -29.31 per cent for meter data services with X factors of 0 per cent for subsequent years of the access arrangement period. This means that all the real increases in tariffs are made at the commencement of the access arrangement period, when the real increase in costs may occur over the access arrangement period. JGN does not provide any explanation for this revision nor does it support why it should recover all of the real increases in tariffs at the commencement of the access arrangement period.

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1812 Origin, *Access Arrangement Draft Decision: Jemena's NSW Gas Networks*, April 2010, p. 1 (Origin, *Submission to the AER*, April 2010, p. 1)

1813 Origin, *Submission to the AER*, April 2010, p. 2.

1814 Boral, *Submission to the AER*, April 2010, p. 1 (confidential).

1815 NGR, r. 92(2).

1816 JGN, *Revised Access arrangement information*, March 2010, p. 46.

1817 NGR, r. 76.

AGL submits that the P0 adjustment for tariffs is a major step change and should be smoothed over the access arrangement period<sup>1818</sup> and it is not in the interests of users and end-use consumers to be faced with such significant price shocks.<sup>1819</sup>

The AER considers while there is merit in a large real P0 adjustment if the service provider is expected to face a similar large step change in costs incurred in delivering the reference services, the AER notes this is not what is proposed in the revised access arrangement proposal.

Table 13.1 highlights this point. It shows the difference between tariff (or expected) revenue and the forecast total costs expected to be incurred by JGN in each year of the access arrangement period. It compares these differences with reference to the access arrangement proposal which applies an X factor of -1.96 per cent, and the revised access arrangement proposal which applies an X factor of 0 per cent. This comparison is valid because the pattern of expenditure over the access arrangement period has not changed markedly between the two proposals. What this analysis shows is that tariff (or expected) revenue closely matches the pattern of costs JGN expects to incur in providing reference services, when an X factor of -1.96 per cent applies, but there is either significant over recovery or under recovery of costs when an X factor of 0 per cent applies.

For example, in 2010–11 JGN seeks to recover \$30.7 million (2009–10) more in expected revenue than forecast total costs (or the building block revenue). However, in 2014–15 the tariff or expected revenue will be \$37.1 million less than the forecast total costs (building block revenue). In contrast, the access arrangement proposal provides for much less variability during the access arrangement period.

**Table 13.1: Expected tariff revenue compared to the building block total revenue (million) (2009–10)**

|                                     | 2010–11 | 2011–12 | 2012–13 | 2013–14 | 2014–15 |
|-------------------------------------|---------|---------|---------|---------|---------|
| Revised access arrangement proposal |         |         |         |         |         |
| (X factors of 0.00 per cent)        | 30.7    | 15.5    | -2.8    | -21.3   | -37.1   |
| P0=30.4                             |         |         |         |         |         |
| Final Decision                      |         |         |         |         |         |
| (X factors of -1.96 per cent)       |         |         |         |         |         |
| P0=(X)                              | 14.5    | 2.8     | -4.1    | -6.4    | -11.1   |

Source: JGN, *Revised Access arrangement information*, March 2010, p. 46 and JGN, *Access arrangement information*, August 2009, p. 177.

As outlined above, the revised access arrangement does not provide support for this change in X factors and in light of submissions from its large user the AER considers that there is merit in better aligning the real changes in tariffs to the real change in

1818 AGL, *Submission to the AER*, April 2010, p. 1.

1819 AGL, *Submission to the AER*, April 2010, p. 3.

costs over the access arrangement period. The AER considers that the X factors of -1.96 or haulage reference services should be reinstated to better align the changes in real tariff increases with the costs to be incurred in the access arrangement period. The AER considers that this:

- is consistent with the requirement to equalise total (building block) revenue and expected revenue in present value terms over the access arrangement period<sup>1820</sup>
- has regard to whether customers are able and likely to respond to price signals<sup>1821</sup>
- is consistent with the NGO.<sup>1822</sup>

Revision 13. 2 provides for the inclusion of X factors of -1.96 per cent for the last four years of the access arrangement period.

In relation to other matters related to P0 and X factors, Origin submits that the X factors and P0 adjustment should be clearly identified.<sup>1823</sup> The AER notes that the X factors within the access arrangement period are clearly identified in section 3.5A of the revised access arrangement proposal and it considers that the P0 adjustment must also be identified in the revised access arrangement proposal.<sup>1824</sup>

Boral submits that the tariff increase should be capped to CPI.<sup>1825</sup> The AER notes that the purpose of the CPI adjustment is to convert tariffs from real terms to nominal terms over the access arrangement period. In addition to CPI, the NGR allow tariffs to be increased and decreased for other factors including cost pass throughs. Further, the NGR do not provide a means to restrict the tariff increases to only inflation increases, particularly when costs incurred increase during the access arrangement period. The NGR explicitly outlines that reference tariffs may increase as a result of a cost pass through for a defined event.<sup>1826</sup>

The AER considers that the NGR do not restrict it to cap tariff increases to the CPI annually. The AER notes that it is usual practice for tariffs to change at a minimum by CPI annually in order to convert tariffs from real terms to nominal terms.

#### **13.2.1.4 Conclusion**

The AER does not approve the revised reference tariffs in schedule 2 of the revised access arrangement proposal as they do not comply with r. 92(2) of the NGR.

#### **13.2.1.5 Revisions**

The AER proposes the following revisions:

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1820 NGR, r. 92(2).

1821 NGR, r. 94(4)(b)(ii).

1822 NGR, r. 100.

1823 Origin, *Submission to the AER*, April 2010, pp. 1–2.

1824 JGN, *Revised access arrangement proposal*, March 2010, p. 21.

1825 Boral, *Submission to the AER, April 2010*, p. 1 (confidential)).

1826 NGR, r. 97(1)(c).

**Revision 13.1:** amend schedule 2 of the revised access arrangement proposal to:

- include the following as a new clause (g) in the introductory section of schedule 2:

The Initial Reference Tariffs have been determined using a P0 adjustment of -5.31 per cent for the Haulage Reference Service and -29.69 per cent for the Meter Data Service.

- delete the Table in clause 1.3 F (a) and replace it with the following:

| Customer Type | Tariff Class | Unit Rate – dollars per GJ of Chargeable Demand per annum (\$/GJ.CD.pa)<br>Period ending 30 June 2011<br>Prices are real 2010–2011 GST exclusive dollars   |                   |                    |                    |            |
|---------------|--------------|--|-------------------|--------------------|--------------------|------------|
|               |              | First 200 GJ of CD   | Next 400 GJ of CD | Next 1000 GJ of CD | Next 2000 GJ of CD | Rest of CD |
| Demand        | DC-1         | 193.378  | 125.745           | 95.962             | 82.172             | 72.920     |
|               | DC-2         | 214.822  | 138.611           | 104.539            | 88.604             | 77.209     |
|               | DC-3         | 290.924  | 184.273           | 134.981            | 111.436            | 92.429     |
|               | DC-4         | 480.009  | 297.724           | 210.613            | 168.160            | 130.246    |
|               | DC-5         | 2571.469   | 1552.600          | 1047.198           | 795.599            | 548.538    |
|               | DC-6         | 97.958   | 68.493            | 57.793             | 53.546             | 53.835     |
|               | DC-7         | 321.373  | 202.542           | 147.159            | 120.570            | 98.519     |
|               | DC-8         | 663.067  | 407.558           | 283.837            | 223.078            | 166.857    |
|               | DC-9         | 45.076   | 36.764            | 36.642             | 37.681             | 43.259     |
|               | DC-10        | 152.859  | 101.433           | 79.753             | 70.016             | 64.817     |
|               | DC-11        | 2024.585   | 1224.468          | 828.444            | 631.534            | 439.161    |
|               | DC-Country   | Demand Capacity Rate for DC-Country is comprised of two components of demand charge: (i) the Capacity Distance Rate; and (ii) the Pressure Reduction Rate. See tables Capacity Distance Rate (cl F(b)), and Pressure Reduction Rate (cl F(c)) below. These charges will be calculated for each Delivery Point and expressed as a single rate \$/GJ.CD.pa for billing purposes. |                   |                    |                    |            |

- delete the Table in clause 1.3 F (b) and replace it with the following:

| Customer Type | Tariff Class | Distance Unit Rate – dollars per GJ of Chargeable Demand per annum per km (\$/(GJ.CD).pa per km)<br>Period ending 30 June 2011<br>Prices are real 2010–2011 GST exclusive dollars |                   |                    |                    |            |
|---------------|--------------|---|-------------------|--------------------|--------------------|------------|
|               |              | First 200 GJ of CD  | Next 400 GJ of CD | Next 1000 GJ of CD | Next 2000 GJ of CD | Rest of CD |
| Demand        | DC-Country   | 41.597  | 24.958            | 16.639             | 12.479             | 8.32       |

*Rates apply per km of the straight line distance from the relevant country Receipt Point rounded up to the nearest 0.5 km as determined by the Service Provider*

- delete the Table in clause 1.3 F (c) and replace it with the following:

| Customer Type | Tariff Class | Pressure Reduction Unit Rate – dollars per GJ of Chargeable Demand per annum (\$/(GJ.CD).pa)<br>Period ending 30 June 2011<br>Prices are real 2010–2011 GST exclusive dollars |                   |                    |                    |            |
|---------------|--------------|---|-------------------|--------------------|--------------------|------------|
|               |              | First 200 GJ of CD  | Next 400 GJ of CD | Next 1000 GJ of CD | Next 2000 GJ of CD | Rest of CD |
| Demand        | DC-Country   | 14.762  | 8.857             | 5.905              | 4.428              | 2.952      |

- delete the Table in clause 1.3 F (f) and replace it with the following:

| Customer Type                                   | Tariff Class | Demand Throughput Rate (\$/GJ)<br>Period ending 30 June 2011 |                          |       |
|---|--------------|--|--------------------------|-------|
|   |              | Minimum chargeable quantity of 833 GJ/month                  |                          |       |
| Prices are real 2010–2011 GST exclusive dollars |              |  |                          |       |
|   |              | First 1667 GJ per month                                      | Next 2500 GJ per month   | Rest  |
| Demand  | DT           | 4.08   | 3.29                     | 2.76  |
| Customer Type                                   | Tariff Class | Demand Throughput Rate (\$/GJ)<br>Period ending 30 June 2011 |                          |       |
|   |              | Prices are real 2010–2011 GST exclusive dollars              |                          |       |
|   |              | First 41,667 GJ per month                                    | Next 41,667 GJ per month | Rest  |
| Demand  | DMT-1        | 0  | 0.187                    | 0.160 |
|   | DMT-2        | 0  | 0.187                    | 0.173 |
|   | DMT-3        | 0  | 0.320                    | 0.267 |
|   | DMT-4        | 0  | 0.640                    | 0.600 |
|   | DMT-5        | 0  | 0.787                    | 0.854 |

- delete the Table in clause 1.3 F (g) and replace it with the following:

| Customer Type   | Tariff Class          | Standing Charge: \$/pa per Delivery Station<br>Charges based on Delivery Point MHQ<br>Period ending 30 June 2011<br>Prices are real 2010–2011 GST exclusive dollars |   |                      |                      |                         |                            |
|---|-----------------------|---|---|----------------------|----------------------|-------------------------|----------------------------|
|   |                       |   | MHQ < 10 GJ/hr  | MHQ 10 to < 50 GJ/hr | MHQ 50 to <100 GJ/hr | MHQ 100 to < 1000 GJ/hr | MHQ 1000 GJ/hr and greater |
| Demand  | All Demand Classes    | Single Run  | 3,775   | 5,096                | 9,906                | 13,381                  | 17,617                     |
|   |                       | Double Run  | 7,549   | 10,193               | 19,812               | 26,762                  | 35,234                     |
| Charge per Delivery Station<br>Charges based on meter capacity.<br>Period Ending 30 June 2011.<br>Prices are real 2010–2011 GST exclusive dollars |                       |   |   |                      |                      |                         |                            |
| Volume  | V-Coastal & V-Country | For meters with capacity less than or equal to 6m3/hr   | Fixed Charge \$31.345 pa  |                      |                      |                         |                            |
|   |                       | For meters with a capacity of greater than 6m3/hr   | Unit rate \$0.346/GJ, subject to a minimum charge per billing period of:<br>\$4.32 per monthly billing period, or<br>\$12.96 per quarter billing period |                      |                      |                         |                            |

- delete the Table in clause 1.3 F (h) and replace it with the following:

| Customer Type | Tariff Class | Volume Throughput Rate (\$/GJ)<br>Period ending 30 June 2011<br>Price are real 2010–2011 GST exclusive dollars |               |             |               |             |                |
|---------------|--------------|--|---------------|-------------|---------------|-------------|----------------|
|               |              | Block size (GJ per month)  | First 1.25 GJ | Next 1.5 GJ | Next 5.75 GJ  | Next 75 GJ  | Next 333.5 GJ  |
|               |              | Block size (GJ per qtr)  | First 3.75 GJ | Next 4.5 GJ | Next 17.25 GJ | Next 225 GJ | Next 1000.5 GJ |
| Volume        | V-Coastal    |  | 10.983        | 6.321       | 6.074         | 5.942       | 5.168          |
|               | V-Country    |  | 10.773        | 6.11        | 5.864         | 5.731       | 4.958          |
|               |              |  |               |             |               |             | 3.937          |
|               |              |  |               |             |               |             | 3.725          |

- delete the Table in clause 1.3 F (i) and replace it with the following:

| Customer Type | Tariff Class          | Standing Charge – dollars per annum<br>Period ending 30 June 2011<br>Prices are real 2010–2011 GST exclusive dollars |            |
|---------------|-----------------------|--|------------|
|               |                       |  |            |
| Volume        | V-Coastal & V-Country |  | 54.024     |
| Demand        | DMT-1                 |  | 186,732.00 |
|               | DMT-2                 |  | 213,408.00 |
|               | DMT-3                 |  | 250,754.40 |
|               | DMT-4                 |  | 426,816.00 |
|               | DMT-5                 |  | 800,280.00 |

- delete the clause 1.3 F (k) and replace it with the following:

(k) Ancillary Reference Service: fees for Haulage Reference Service



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**Ancillary Reference Service: fees applicable to All Tariff Classes**  
**Period Ending 30 June 2011**  
**Prices are real 2010–2011 GST exclusive dollars**

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| Fee Type                | Description   | Charge  |
|-------------------------|---|---|
| Request for service     | For time spent assessing requirements, collating information and responding to a User (or Prospective User) when the User (or Prospective User) requests a new/additional/changed Service, tariff assignment, authorisation of overruns or change in chargeable demand.   | \$68.83, plus \$68.83 per hour after the first hour |
| Temporary disconnection | <p>This charge covers the temporary disconnection of supply to a single Delivery Point at the request of a User where temporary isolation of supply is required. A request for temporary disconnection is not a request to remove a delivery point from the User's Service Agreement. The specific method of isolation will be at the discretion of the Service Provider to ensure the site is able to be left in a safe state. The charge also covers the cost of subsequent reconnection.</p> <p>(This charge is for providing disconnection services in accordance with the Network Code in force at the date of commencement of this Access Arrangement.)</p> | <p>\$101.77</p> <p>Charge applies per meter set</p> |
| Permanent disconnection | <p>This charge covers disconnection of supply to a single delivery point at the request of a User and where the User (on behalf of a Customer) also requests that the meter is not to be moved or removed. A request for permanent disconnection is also a request to remove a delivery point from the Users Service Agreement. The specific method of disconnection will be at the discretion of the Service Provider to ensure the site is able to be left in a safe state. A request for reconnection must be</p>  | <p>\$304.11</p> <p>Charge applies per meter set</p> |

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|                                   |   |  |
|-----------------------------------|---|--|
| Decommissioning and meter removal | made as a new connection request.<br><br>(This charge is for providing disconnection services in accordance with the Network Code in force at the date of commencement of this Access Arrangement).   |  |
|                                   | This charge covers permanent decommissioning of a network connection including the removal of the meter. A request to permanently decommission is also a request to remove a delivery point from the Users Service Agreement. The specific method of disconnection will be at the discretion of the Service Provider to ensure the site is able to be left in a safe state.<br><br>(This charge is for providing disconnection services in accordance with the Network Code in force at the date of commencement of this Access Arrangement). | Charges apply per meter.<br>(i) meters with a capacity of less than or equal to 6m <sup>3</sup> /hr: \$708.25<br>(ii) meters with a capacity of greater than 6m <sup>3</sup> /hr: \$1,516.53 |

- delete the Table in clause 1.3 G (a) and replace it with the following

| Customer Type | Tariff Class              | Meter Reading Cycle | Meter Reading Charge- \$ per annum per Delivery Station<br>Prices are real 2010–2011 GST exclusive dollars |                            |                            |                            |                            |
|---------------|---------------------------|---------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|
|               |                           |                     | Period ending 30 June 2011   | Period ending 30 June 2012 | Period ending 30 June 2013 | Period ending 30 June 2014 | Period ending 30 June 2015 |
| Volume        | All Volume Tariff Classes | Quarterly           | 4.065  | 4.065                      | 4.065                      | 4.065                      | 4.065                      |
|               |                           | Monthly             | 42.980   | 42.980                     | 42.980                     | 42.980                     | 42.980                     |
| Demand        | All Demand Tariff Classes | Daily Meter Reading | 754  | 754                        | 754                        | 754                        | 754                        |

- delete the Table in clause 1.3 G (b) and replace it with the following:

| Customer Type | Tariff Class              | Provision of On Site Data and Communications Equipment - \$ per annum per Delivery Station |                            |                            |                            |                            |
|---------------|---------------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|
|               |                           | Prices are real 2010–2011 GST exclusive dollars  |                            |                            |                            |                            |
|               |                           | Period ending 30 June 2011   | Period ending 30 June 2012 | Period ending 30 June 2013 | Period ending 30 June 2014 | Period ending 30 June 2015 |
| Demand        | All Demand Tariff Classes | 1,408  | 1,408                      | 1,408                      | 1,408                      | 1,408                      |

- delete clause 1.3 G (c) and replace it with the following:

(c) Ancillary Reference Service: fees for Meter Data Service

**Ancillary Reference Service: fees applicable to all tariff classes**  
**Prices are real 2010–2011 GST exclusive dollars**

| Fee Type           | Description   | Charge                        |                            |                            |                            |                            |
|--------------------|---|-------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Special meter read | For reads requested by a User rather than ordinary reads (for instance when the meter reader makes a special visit to read a particular meter out of the usual meter reading route or schedule). This service must be scheduled with a minimum 5 day notice period. | See below                     |                            |                            |                            |                            |
|                    |   | Charge applies per meter read |                            |                            |                            |                            |
|                    |   | Period ending 30 June 2011    | Period ending 30 June 2012 | Period ending 30 June 2013 | Period ending 30 June 2014 | Period ending 30 June 2015 |
|                    |   | 35.13                         | 35.13                      | 35.13                      | 35.13                      | 35.13                      |

## 13.2.2 Annual tariff variation factor

### 13.2.2.1 Revised access arrangement proposal

The revised access arrangement proposal does not accept the draft decision to remove the adjustment factors from the tariff variation mechanism and reinstates the adjustments for the weather (demand), unaccounted for gas (UAG) cost variances, licence fee variations and the variations for other cost pass through events.<sup>1827</sup> The revised access arrangement proposal outlines that the form of the tariff variation formula mechanism has been approved by other regulators to include a tariff basket with parameters in addition to the CPI and the X factor (pre-determined real changes).<sup>1828</sup>

<sup>1827</sup> JGN, *Revised access arrangement proposal*, March 2010, pp. 22–26.

<sup>1828</sup> JGN, *Initial response to the draft decision*, March 2010, p. 246.

JGN submits the UAG cost variance is well established in the tariff variation mechanism used for the earlier access arrangement period and the side constraint ensures that the tariffs are efficient. JGN submits that the X factors have the same likely effect of leading to inefficient tariffs as the weather variation adjustment and UAG adjustment.<sup>1829</sup>

In the revised access arrangement proposal, the tariff variation formula mechanism includes a weighted average cost of capital (WACC) adjustment to take account of the time value of money.<sup>1830</sup> JGN submits that the WACC adjustment in the tariff variation mechanism is consistent with r. 92(2) of the NGR. JGN submits that r. 76, r. 78 and r. 87 of the NGR are irrelevant to the question of which adjustments should be allowed during the access arrangement period. Further, JGN submits that the ESC allows a WACC adjustment and the National Electricity Law (NEL) requires cost pass through events to take into account the time value of money based on the WACC.<sup>1831</sup>

JGN submits that the UAG and licence fee adjustments in its proposed tariff variation formula mechanism will not expose the AER to any discernable incremental costs beyond current practice. JGN submits that the inclusion of a weather variation factor and other pass through adjustments in its proposed tariff variation mechanism will incrementally increase the administrative costs for JGN and the AER, but not for users or prospective users. JGN submits that its proposed tariff variation formula mechanism is less costly and more efficient for passing through the weather variation and cost variance than the cost pass through mechanism.<sup>1832</sup>

JGN submits that the weather variation factor is based on discernable and verifiable information available from the Bureau of Meteorology. JGN proposes that weather variations within the access arrangement period cannot be addressed by appropriate demand forecasting methodologies. JGN also notes that the Australian Competition and Consumer Commission (ACCC) has approved a weather adjustment factor for GasNet Australia Group (GasNet).<sup>1833</sup>

#### **13.2.2.2 Submissions**

EnergyAdvice Pty Ltd (EnergyAdvice) and EnergyAustralia Retail (EnergyAustralia) submit that they do not support the weather variation adjustment.<sup>1834</sup> EnergyAustralia submits that under recovery in the tariff variation mechanism should not be escalated by the WACC.<sup>1835</sup>

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1829 JGN, *Initial response to the draft decision*, March 2010, p. 247.

1830 JGN, *Revised access arrangement proposal*, March 2010, pp. 25–31.

1831 JGN, *Initial response to the draft decision*, March 2010, p. 248.

1832 JGN, *Initial response to the draft decision*, March 2010, p. 249.

1833 JGN, *Initial response to the draft decision*, March 2010, pp. 250–252.

1834 EnergyAdvice, *Submission to the AER*, April 2010, p. 7 and EnergyAustralia, *Submission to the AER*, April 2010, p. 28.

1835 EnergyAustralia, *Submission to the AER*, April 2010, p. 28.

### 13.2.2.3 AER's analysis and considerations

#### *Adjustment factor*

The draft decision does not approve the tariff variation formula mechanism to include an adjustment factor. The revised access arrangement proposal seeks to automatically adjust annual tariffs for the CPI and the X factors as well as other factors including the weather variation factor, UAG cost variations, licence fee adjustment and cost pass throughs.

Instead, the draft decision accepts that while some of the factors such as UAG adjustment, licence fee adjustment and other event pass through adjustments may be adjusted, the AER considers that they should be treated differently to CPI adjustments. The AER creates a low cost pass through threshold event which allows the UAG cost variances and the change in tax event to be processed at the same time as the annual tariff adjustments for CPI and X factors. The notification timing (i.e. when JGN is required to submit its notification for approval to pass through for these low threshold events) and decision making time is identical to the annual tariff variation for CPI and X factors.

There are several reasons why these events are separated and not treated in the same way as the CPI and X factors: first, the AER has had regard to the administration costs for reviewing and assessing these events;<sup>1836</sup> second, the AER has had regard to the efficient structure of the tariffs;<sup>1837</sup> and third the AER considers that in order to approve these costs there needs to be information provided to support the efficient cost of these events.<sup>1838</sup>

In relation to the first issue, the AER outlines in the draft decision that these low threshold events can be processed expeditiously. However, the AER considers the administrative costs for processing these events should not be considered the same as CPI and X factors.

The adjustment factors impose higher administrative costs on the service provider, users and the AER than the CPI and X factors. The revised access arrangement proposal does not recognise these differences.

The administrative costs for the service providers, users and the AER are low for notifying, understanding and reviewing the annual tariff variation mechanism for CPI and X factors. This is because information for CPI and X factors is readily available and verifiable. However, this is not the case with costs such as UAG cost variations or licence fees where the efficient cost cannot be discerned from publicly available information. In relation to cost pass through events which are high in net financial impact and administrative costs, a more thorough investigation and wider consultation process is generally required. As outlined in the draft decision, the AER reiterates that the reason why the UAG cost variance and change in tax events are classified as low threshold events is that unlike the CPI and X factors, the AER considers tariff variation for these cost adjustments must be supported by verifiable and

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1836 NGR, r. 97(3)(b).

1837 NGR, r. 97(3)(a).

1838 NGR, r. 97(4).

independently sourced documentation<sup>1839</sup> to reduce administrative costs for the service providers, users and the AER.

The draft decision outlines that these events can be considered low administrative threshold events. This is because the verification information that the service provider is required to submit is straightforward and relies on information and documentation that exists.<sup>1840</sup> The AER notes the revised access arrangement proposal outlines that the additional adjustment factors in the tariff variation formula mechanism will not increase the users' administrative costs.<sup>1841</sup> JGN submits that this is because the tariff variation will occur regardless of whether the factors are included or not.<sup>1842</sup> However, the AER considers that the factors in the formula over complicate the tariff variation mechanism making it difficult for users to understand the basis for the tariff changes.<sup>1843</sup> The AER's administrative costs are also minimised if verifiable information is submitted with the tariff variation application, as the efficient cost of the event can be readily verified. As outlined below in relation to the second issue, there are also other benefits in providing information to support the cost of the event.

While the AER acknowledges the revised access arrangement proposal outlines a particular element of the weather variation data is readily available (i.e. heating degree days),<sup>1844</sup> but the AER considers other issues (in relation to this event).

In relation to the second issue, the draft decision also outlines that the adjustment factors for costs associated with the weather variation, UAG variances, licence fee adjustment and other event pass through adjustment costs may be allocated in a way which results in an inefficient tariff structure over time.<sup>1845</sup> This is a result of the dollar amount of the adjustment factor being potentially allocated inefficiently to tariffs in the tariff basket approach. Unlike the automatic tariff formula mechanism, the AER considers that the cost pass through mechanism will allow it to properly assess the adjustment factor costs and ensure they are allocated efficiently to tariffs.<sup>1846</sup>

The revised access arrangement proposal submits that the adjustment for UAG costs is a feature of the access arrangement in the earlier access arrangement period.<sup>1847</sup> However, a feature of the prevailing UAG adjustment mechanism is that the UAG costs are allocated efficiently to the volume and demand customers. The revised access arrangement proposal outlines that the side constraint will govern the individual efficiency of the tariffs.<sup>1848</sup> However, the AER considers that the 10 per cent side constraint is not sufficient to prevent the tariffs from being rebalanced and

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1839 AER, *Draft decision*, February 2010, p. 299.

1840 AER, *Draft decision*, February 2010, p. 299.

1841 JGN, *Initial response to the draft decision*, March 2010, p. 249.

1842 JGN, *Initial response to the draft decision*, March 2010, p. 249.

1843 NGR, r. 97(3)(e).

1844 JGN, *Initial response to the draft decision*, March 2010, pp. 250.

1845 NGR, r. 97(3)(a).

1846 NGR, r. 97(3)(a).

1847 JGN, *Initial response to the draft decision*, March 2010, p. 247.

1848 JGN, *Initial response to the draft decision*, March 2010, p. 247.

may result in a less efficient structure over the access arrangement period. While the AER agrees with the revised access arrangement proposal that the X factors can be allocated inefficiently in the tariff basket approach,<sup>1849</sup> the AER notes that the revised access arrangement proposal includes an X factor of 0 per cent so this submission by JGN is not a relevant factor for consideration (refer to section 13.2.1.3 on X factors).

In relation to the third issue, JGN submits that an automatic tariff adjustment mechanism should operate for the adjustment factors (variation in weather, UAG cost variance, licence fee variations and other events pass through adjustment).<sup>1850</sup>

However, as outlined above and in the draft decision,<sup>1851</sup> the AER considers that an automatic adjustment factor for the annual tariff variation formula mechanism does not provide it with adequate oversight.<sup>1852</sup> In the circumstances of the CPI and X factor adjustments, the AER and users can readily establish the inputs for CPI and X used to vary tariffs. However, in the case of UAG cost variances and licence fee adjustments, information about the efficient costs cannot be readily established from publicly available information. To provide the AER with adequate oversight and approval powers, the draft decision considers these costs could be classified and processed with the annual tariff variation (via the cost pass through mechanism) if certain conditions are met. The most important condition is that information provided can verify the efficient cost of these events. As outlined in the draft decision, the AER considers that the efficient cost of a licence fee can be readily verified with an invoice or other verification from a third party. This is further detailed in section 13.3.2.3.

The AER accounts for UAG cost variances and licence fee variations in the cost pass through mechanism. The AER considers that such events cannot be considered as low threshold events in an expeditious manner without information to support the efficient cost of these events. The reclassification of these adjustments as low threshold cost pass through events is to provide a practical means for JGN to recover the efficient cost of these events which takes into consideration the administrative costs of the service provider, users and the AER; as well as the need for the oversight and procedures of approval to verify the efficient cost of these adjustments.

For the reasons outlined above, and having regard to factors in r. 97(3) and r. 97(4) of the NGR, the AER does not approve the adjustment factor in the tariff variation formula mechanism. Instead, the AER does accept that certain costs in the adjustment factor are appropriate for consideration as low cost pass through events in a separate cost pass through tariff variation mechanism.<sup>1853</sup>

In summary the AER has not approved UAG adjustment, license fee adjustment and other event cost pass through adjustment in the tariff variation formula as it does not:

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1849 JGN, *Initial response to the draft decision*, March 2010, p. 247.

1850 JGN, *Initial response to the draft decision*, March 2010, p. 253.

1851 AER, *Draft decision*, February 2010, pp. 289–293.

1852 NGR, r. 97(4).

1853 NGR, r. 97(3)(b).

- have regard to the administrative costs of the AER as the costs associated with UAG, license fee event and other events cost pass through are not readily verifiable as CPI and X factors<sup>1854</sup>
- have regard to the administrative cost of users as the formula is over complicated making it difficult for users to understand the basis for tariff changes<sup>1855</sup>
- maintain an efficient tariff structure as costs associated with UAG, licence fee and other events can be allocated inefficiently to tariffs<sup>1856</sup>
- provide the AER with adequate oversight or powers of approval over the reference tariff variations.<sup>1857</sup>

The AER notes that even though it has not approved the UAG adjustment, license fee adjustment and other events adjustment as part of the annual tariff variation formula mechanism, it does provide for the recovery of these costs under the cost pass through mechanism. Refer to section 13.3 for further details.

#### ***Weather variation factor***

The draft decision does not approve the weather variation factor.<sup>1858</sup> This is because the weather variation factor adjusts tariffs for lower demand but not other determinants of tariffs such as building block costs that are impacted by lower demand. Further the draft decision outlines that the access arrangement proposal seeks to use the tariff variation mechanism as means to introduce a true-up mechanism to adjust for differences in forecast and actual costs for a select number of uncontrollable costs.<sup>1859</sup>

The revised access arrangement proposal outlines that the weather variation adjustment preserves the present value of total revenue and is therefore consistent with r. 92(2) of the NGR. EnergyAdvice and EnergyAustralia submit that they do not support the weather variation adjustment.<sup>1860</sup>

The AER considers that given the interaction of demand with other factors that determine tariffs, adjustments for demand risk should not be adjusted in isolation without consideration of those other factors. For example the capital expenditure program (market expansion capital expenditure) is linked to assumptions about demand. The proposed weather adjustment seeks to only account for the effects to tariffs arising from the change to demand and not the change to total revenue. The one-sided adjustment for weather variation will invariably impact the assumed relationship between the present value of the expected revenue and total revenue in

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1854 NGR, r. 97(3)(b).

1855 NGR, r. 97(3)(b).

1856 NGR, r. 97(3)(a).

1857 NGR, r. 97(4).

1858 AER, *Draft decision*, February 2010, pp. 290–291.

1859 AER, *Draft decision*, February 2010, pp. 289–293.

1860 EnergyAdvice, *Submission to the AER*, April 2010, p. 7 and EnergyAustralia, *Submission to the AER*, April 2010, p. 28.



the access arrangement period which is required to be equalised through the tariff variation mechanism under the NGR.<sup>1861</sup>

A key issue for the AER is the asymmetry of the adjustment factor in the tariff variation mechanism proposed. The adjustment factor seeks to either adjust tariffs for an increase in incurred costs compared to forecast costs or, in the case of the weather adjustment factor, the impact on expected but not total revenue. The AER considers that in order to meet r. 92(2) of the NGR which requires that the NPV of the expected revenue and total (forecast) revenue are equalised, there needs to be symmetry in the proposed tariff variation mechanisms. As outlined above in relation to capital expenditure, this symmetry needs to be achieved both in terms of the expected revenue and the total revenue. The AER considers that the CPI and X factors provide a symmetrical mechanism, as do adjustments for UAG costs and licence fees, but the proposed weather variation adjustment is not consistent with r. 92(2) of the NGR. This is because any change in costs for these CPI and X factors and UAG costs and licence fees will result in expected revenue and total revenue being equal in NPV terms over the access arrangement period.

As also outlined in the draft decision, JGN proposes a price cap tariff variation mechanism but seeks to make one-sided adjustments to revenue as if a revenue cap operates to adjust tariffs.<sup>1862</sup> The draft decision outlines that the adjustment factor seeks to secure total revenue over the access arrangement period, akin to the revenue caps for regulated electricity service providers.<sup>1863</sup> However, the AER notes that in doing so the features of the electricity framework including periodic adjustments for under and over recovery of revenue are not a feature of the proposed annual tariff variation mechanism, where tariffs (prices) rather than revenue are capped. This framework does not lead to the proposed adjustment factor in the tariff variation mechanism may not provide for the same symmetry present under the electricity framework.

Rather than addressing the issues of symmetry and differences in the operation of the electricity framework, the revised access arrangement proposal reiterates the key elements of the access arrangement proposal and indicates that other regulators have approved similar arrangements in the past. The revised access arrangement proposal cites the example of the GasNet decision made under the code.<sup>1864</sup>

The AER notes that all of the arrangements cited in the revised access arrangement proposal were approved under a different framework, including the GasNet decision. The AER further notes that this decision is one of the first decisions made by the AER under the NGL framework, and that the final decision seeks to establish consistency between arrangements approved under the NGL framework and not previous frameworks.<sup>1865</sup>

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1861 NGR, r. 92(2).

1862 AER, *Draft decision*, February 2010, pp. 289–293.

1863 AER, *Draft decision*, February 2010, pp. 289–293.

1864 JGN, *Initial response to the draft decision*, March 2010, p. 252.

1865 NGR, r. 97(3)(d).

The revised access arrangement proposal also seeks to draw differences in approaches between decisions made by the AER under the NGL and the National Electricity Law. In doing so the revised access arrangement proposal seeks to draw out inconsistencies in the decisions made by the AER under each framework. In relation to this, the AER first notes that while both frameworks are similar they are not identical. For example, one key distinction is the flexibility available to service providers to choose how tariffs should vary under the NGR (e.g. price cap, revenue cap or a variation). This is different to the revenue caps that are used to determine tariffs under the National Electricity Rules (NER). Further, it should be noted that unlike JGN which operated under a price cap, GasNet operates under a revenue cap.

For the reasons discussed above, and having regard to the factors in r. 97(3) and r. 97(4) of the NGR, the AER does not consider that the weather variation adjustment provides for a symmetrical mechanism and as a consequence it is not consistent with r. 92(2) of the NGR.

The AER does not consider that the weather variation factor is appropriate for the inclusion in the annual tariff adjustment formula or as a low administrative cost pass through event.

In summary the AER has not approved weather variation adjustment in the tariff variation formula as it does not:

- comply with r. 92(2) of the NGR because adjusting tariffs for the demand effects of expected revenue and not total revenue does not equalise forecast and total revenue in NPV terms
- have regard to the administrative costs of users as the formula is over complicated making it difficult for users to understand the basis for tariff changes<sup>1866</sup>
- maintain an efficient tariff structure as costs associated with UAG, licence fee and other events can be allocated inefficiently to tariffs<sup>1867</sup>
- provide the AER with adequate oversight and powers of approval of the reference tariff variations.<sup>1868</sup>

#### ***Weighted average cost of capital adjustment***

JGN submits that the tariff variation mechanism must take into account the time value of money using the WACC.<sup>1869</sup>

The AER considers that since the adjustment factor is removed, the annual tariff variation formula will adjust tariffs for CPI and X factors which does not require time value of money adjustment. As outlined in section 13.3.3.3 below, the AER approves a WACC adjustment for the cost pass through mechanism. Therefore, since all the variation adjustment factors (besides the weather variation) are to be considered in the

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<sup>1866</sup> NGR, r. 97(3)(b).

<sup>1867</sup> NGR, r. 97(3)(a).

<sup>1868</sup> NGR, r. 97(4).

<sup>1869</sup> JGN, *Initial response to the draft decision*, March 2010, pp. 247–248.

costs pass through mechanism, the time value of money will be taken into account based on the WACC.

The AER notes the EnergyAustralia's submission that cost in the tariff variation formula mechanism should not be adjusted for time value of money using the WACC.<sup>1870</sup> However, the AER considers that having tariffs adjusted by the WACC to take account of the time value of money is required in order for the tariffs to be consistent with r. 92(2) of the NGR.

#### **13.2.2.4 Conclusion**

Having regard to the factors in r. 97(3) and r. 97(4) of the NGR, the AER does not approve the inclusion of an adjustment factor in the annual tariff variation formula as it does not comply with r. 97(3)(a), r. 97(3)(b), r. 97(3)(d), and r. 97(4) of the NGR.

Further having regard to factors in r. 97(3) of the NGR, the AER does not approve the weather variation adjustment factor as it does not comply with r. 92(2), r. 97(3)(a), r. 97(3)(b) and r. 97(3)(d) of the NGR.

That said, the AER considers it appropriate for adjustment factors such as the UAG costs and licence fees, where their efficient cost can be verified with information and documentation, to be considered as low administrative events for a cost pass through mechanism (see section 13.3 for further details).

#### **13.2.2.5 Revisions**

The AER proposes the following revisions:

**Revision 13.2:** amend the revised access arrangement proposal to:

- delete clause 3.4 (d) (vi) and replace it with the following:
  - (vi) Tariffs will only change once a year on 1 July as a result of Change in Tax Events, Licence Fee Adjustment Events, and UAG Adjustment Events.
- delete clause 3.5 A and replace it with the following:
  - A Annual Tariff Variation Mechanism**

The Service Provider will implement its CPI-X price path for the Financial Years commencing on or after 1 July 2011 using the Annual Tariff Variation Mechanism as specified as the following formulae:

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<sup>1870</sup> EnergyAustralia, *Submission to the AER*, April 2010, p. 28.

$$(1 + CPI_t)(1 - X_t) \geq \frac{\sum_{x=1}^n \sum_{y=1}^m p_t^{xy} q_{t-2}^{xy}}{\sum_{x=1}^n \sum_{y=1}^m p_{t-1}^{xy} q_{t-2}^{xy}}$$

Subject to the side-constraint that, for each Reference Tariff:

$$(1 + CPI_t)(1 - X_t) + 0.1 \geq \frac{\sum_{y=1}^m p_t^{xy} q_{t-2}^{xy}}{\sum_{y=1}^m p_{t-1}^{xy} q_{t-2}^{xy}}$$

where the Service Provider has n Reference Tariffs, which each have up to m tariff components, and where:

- $t$  is the Financial Year for which the tariffs are being set;
- $p_t^{xy}$  is the proposed tariff for component y of Reference Tariff x in Financial Year t, i.e. the new tariff to apply in Financial Year t;
- $p_{t-1}^{xy}$  is the tariff for component y of Reference Tariff x that is being charged at the time the notification is submitted to the AER for assessment. It is the tariff that applies in Financial Year t-1, i.e. the tariff that applies before the new tariffs come into effect;
- $q_{t-2}^{xy}$  is the quantity of component y of Reference Tariff x that was sold in Financial Year t-2  
  
for the Financial Year t-2 which is the Financial Year ending 30 June 2010, it is the quantity of component y of Reference Tariff x forecast by the Service Provider for Financial Year ending 30 June 2011 for the purpose of determining the values of  $X_t$  as submitted to the AER;
- $CPI_t$  is defined as defined in Section B;
- $X_t$  is defined as by the alignment of the Service Provider's building block revenue requirement with the NPV of its forecast revenues and is determined to be:
  - 1.96% in 2011/12;
  - 1.96% in 2012/13;
  - 1.96% in 2013/14; and
  - 1.96% in 2014/15.

- delete clause 3.5 C and replace it with the following:

**C Tariff adjustments and pass-through events**

- (a) The Annual Tariff Variation mechanism provides for annual adjustment in accordance with the approved price path (X factor) and for the variation of Reference Tariffs where there is an impact on the cost of providing Reference Services as a result of one or more of a Cost Pass-Through Event occurring (subject to each individual event having a material impact), the cost of which was not included in the amount of the Initial Reference Tariffs and price path.
- (b) Cost pass-through events are:
  - a Licence Fee Event;
  - a Change in Tax Event;
  - a Business Continuity Event;
  - a Market Cost Event;
  - a Declared Retailer of Last Resort (ROLR) Event;
  - a Carbon Pollution Reduction Scheme Event;
  - an Unaccounted for Gas (UAG) Adjustment Event; and
  - a General Pass Through Event,
 (any of which is a Cost Pass-Through Event)

Where:

**“Licence Fee Event”** means the annual costs incurred by the Service Provider as a result of any decision by the AER, IPART, AEMO, the Gas Market Company or any other relevant regulator, authority or State or Commonwealth Government which has the effect of changing or introducing any authorisation fee, licence fee or statutory charge imposed on the Service Provider which is related to the operation of the Network.

**“Change in Tax Event”** means:

- (i) a change in the way, or rate at which, a Relevant Tax is calculated (including a change in the application or official interpretation of Relevant Tax); or
- (ii) the removal of a Relevant Tax or imposition of a new Relevant Tax.

**“Business Continuity Event”** means any occurrence that may create, or may lead to, an interruption, disruption, loss and/or crisis in the Service Provider’s business for which the Service Provider does not have full insurance coverage as identified in the Service Provider’s Access Arrangement Information, including but not limited to, gas supply shortfall, tsunami, cyclone, pandemic illness and earthquake.

**“Market Costs Event”** means any

- (i) decision made by the AER, or any other authority;

- (ii) coming into force of any new statute, regulation, order, rule, subordinate legislation or other source of legal obligation on the Service Provider;
- (iii) change in any existing statute, regulation, order, rule, subordinate legislation or other source of legal obligation on the Service Provider; or
- (iv) change in any other document enforceable under any statute, regulation, rule or subordinate legislation;

which occurs on or after 1 July 2010, which has the effect of:

- (v) imposing minimum standards (including network design, operational or safety standards) on the Service Provider that are new or different from those applying immediately before 1 July 2010; or
- (vi) substantially altering the manner in which the Service Provider is required to undertake any activity forming part of, or ancillary to, its Reference Services (including, but not limited to, rules governing the operation of competitive gas markets or a requirement that a party other than, or in addition to, the Service Provider be required to comply with the obligation of a Service Provider for the Network under the National Gas Law and National Gas Rules);

such that the Service Provider incurs greater or lesser costs in providing the Reference Service than it did before the event occurred.

**“Declared Retailer of Last Resort (ROLR) Event”** means the occurrence of an event whereby the Service Provider incurs materially higher or lower administrative costs as a result of an existing retailer for Customers being unable to continue to supply gas and those Customers being transferred to the declared retailer of last resort.

**“Carbon Pollution Reduction Scheme (CPRS) Event”** means the occurrence of an event whereby the Service Provider incurs costs as a result of the introduction and operation of a CPRS or similar legislated scheme which places a cost on carbon or carbon-containing emissions.

**“UAG Adjustment Event”** occurs when annual forecast UAG costs are different to the actual UAG costs incurred for that year.

**“General Pass Through Event”** means any other pass through event which occurs in the following circumstance:

1. An uncontrollable or unforeseeable event occurs during the 1 July 2010 to 30 June 2015 access arrangement period, the effect of which could not have been prevented or mitigated by prudent operation risk management.
2. The costs of the event are not already included in building block revenue or reimbursed by a third party. These events will be assessed at the time of application for consistency with the relevant National Gas Rules criteria. For the

purpose of this definition, an event will be considered unforeseeable if, at the time the Service Provider lodged its access arrangement revision proposal, despite the occurrence of the event being a possibility there was no reason to consider that the event was more likely to occur than not to occur during the 1 July 2010 to 30 June 2015 access arrangement period.

- delete clause 3.5 D (g)
- delete clause 3.5 E
- delete clause 3.5 F
- delete clause 3.5 G.

### **13.2.3 Verification of actual gas quantities**

#### **13.2.3.1 Revised access arrangement proposal**

The revised access arrangement proposal incorporates a new clause 3.4(c)(iv) which requires JGN to provide an independent statement to verify the actual gas quantities used in the tariff variation formula mechanism (amendment 13.8 of the draft decision). However, JGN submits that the costs associated with obtaining the independent audit or verification statement must be allowed as a recoverable cost.<sup>1871</sup>

#### **13.2.3.2 AER's analysis and considerations**

The draft decision requires JGN to provide an independent statement to verify the actual gas quantities used in the tariff variation formula mechanism.<sup>1872</sup> The AER requires an audited statement to verify the actual gas quantities to be applied in the tariff variation formula mechanism, and to ensure that it is applied consistently every year.<sup>1873</sup> The AER recognises that the requirement for an independent audit statement will increase JGN's administrative costs.<sup>1874</sup> Having regard to r. 97(4) and the factors in r. 97(3) of the NGR, the AER considers that the quantities do not need to be independently audited, but instead verified by an officer of the service provider.

The draft decision requires that the verification statement should provide for quarterly and annual gas quantities.<sup>1875</sup> For desirability of consistency between other regulatory arrangements for similar services,<sup>1876</sup> the AER considers that annual quantity data does not need to be divided into quarterly data.<sup>1877</sup> Similar to Country Energy's access arrangement, the AER considers that the quantity verification statement must reflect

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1871 JGN, *Initial response to the draft decision*, March 2010, p. 259.

1872 AER, *Draft decision*, February 2010, p. 296.

1873 NGR, r. 97(3)(e).

1874 NGR, r. 97(3)(b).

1875 AER, *Draft decision*, February 2010, p. 296.

1876 AER, *Access arrangement for the Wagga Wagga gas distribution network 1 July 2010 – 30 June 2015*, April 2010, p. 43.

1877 NGR, r. 97(3)(d); AER, *Access arrangement for the Wagga Wagga gas distribution network*, April 2010, pp. 37–43; AER, *Access arrangement for the ACT, Queanbeyan and Palerang gas distribution network 1 July 2010 – 30 June 2015*, April 2010, pp. 25–36.

the most recent actual financial year quantity available at the time of the tariff variation assessment.<sup>1878</sup> Having regard to the factors in r. 97(3) of the NGR, the AER considers that the annual quantities do not need to be divided into quarterly data and must reflect the actual gas quantities in the most recent financial year available at the time of the tariff variation assessment.

### 13.2.3.3 Conclusion

The AER has regard to r. 97(4) and the factors in r. 97(3) of the NGR and does not approve the amendment in the revised access arrangement proposal regarding the provision of an audit statement to verify actual gas quantities for the tariff variation mechanism. Instead, revision 13.3 requires that the quantity verification statement be provided by an officer of JGN and reflect the actual quantities in the most recent financial year available at the time of the tariff variation assessment.

### 13.2.3.4 Revisions

The AER proposes the following revisions:

**Revision 13.3:** amend the revised access arrangement proposal to delete the text of clause 3.4(c)(iv) and replace it with the following:

a statement to support the Gas Quantity inputs in the tariff variation formula.  
The statement must be provided by an officer of the Service Provider and the Quantity input must reflect the most recent actual financial year Quantity available at the time of the tariff variation assessment.

## 13.2.4 Oversight powers and procedures

### 13.2.4.1 Revised access arrangement proposal

The revised access arrangement proposal does not incorporate the draft decision that allows the AER to approve tariffs consistent with the annual tariff variation mechanism. As an alternative to the draft decision position, JGN proposes default tariffs. The default tariffs are tariffs that are to apply on 1 July in the situation where the AER does not approve the proposed tariff variation notification or JGN fails to submit a tariff variation notification. Default tariffs will apply without any approval from the AER if JGN does not submit a tariff variation notification or the AER's approval for the annual tariff variations is delayed.<sup>1879</sup> Further, if the AER does not approve any part of its tariff variation notification, JGN proposes that it may resubmit a revised tariff variation notification to the AER within 20 business days. JGN submits that the AER must consider its revised tariff variation notification and the default tariffs will apply until the AER approves the revised tariff notification.<sup>1880</sup>

The revised access arrangement proposal does not accept the draft decision to remedy errors in tariffs approved in previous years of the access arrangement period. As an

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1878 AER, *Access arrangement for the Wagga Wagga gas distribution network 1 July 2010 – 30 June 2015*, April 2010, p. 43.

1879 JGN, *Initial response to the draft decision*, March 2010, p. 259.

1880 JGN, *Revised access arrangement proposal*, March 2010, p. 16.



alternative, the revised access arrangement proposal outlines that any material errors can be changed prospectively.<sup>1881</sup>

#### 13.2.4.2 Submissions

The Energy Networks Association Ltd (ENA) submits that the annual tariff approval processes must provide ex ante certainty to service providers that, barring any material mathematical or methodological errors, the tariffs approved may be charged without tariff revenue being ‘clawed back’ into the future. The ENA seeks clarification from the AER of the intended operation of this mechanism.<sup>1882</sup>

#### 13.2.4.3 AER’s analysis and considerations

As outlined in the draft decision, the AER did not approve the automatic variation of tariffs in the absence of an annual tariff variation notification.<sup>1883</sup> This is because the automatic tariff variation mechanism does not provide the AER with any oversight powers of approval.<sup>1884</sup> The revised access arrangement proposal does not address the issues outlined in the draft decision the AER does not approve the proposed automatic tariff variation.<sup>1885</sup> The AER considers that even the most straightforward annual tariff variation mechanisms are subject to the AER’s review and approval. The AER considers that for consistency with similar tariff variation mechanisms,<sup>1886</sup> and to provide for adequate oversight procedures, the AER requires a review and approval process as a feature in the tariff variation mechanism. Revision 13.4 requires that all tariff variations must be reviewed before taking effect.<sup>1887</sup>

The draft decision does not approve the access arrangement proposal to resubmit a tariff variation notification if the AER does not approve the annual tariff variation proposal.<sup>1888</sup> The revised access arrangement proposal does not address the draft decision and maintains its position for the AER to reassess annual tariff variation notifications if the AER does not approve the original notification.

The AER considers the revised access arrangement proposal exposes JGN to additional administrative costs as it may be required to submit more than one notification. Users will be exposed to higher administrative costs because, under the revised access arrangement proposal, users would be exposed to potentially two tariff variations within a single tariff year.<sup>1889</sup> The AER will also be exposed to higher administrative costs because it may be required to assess more than one tariff variation notification each year. Having regard to the factors in r. 97(3) of the NGR,

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1881 JGN, *Initial response to the draft decision*, March 2010, pp. 256–257.

1882 ENA, *Submission to the AER*, April 2010, p. 7.

1883 AER, *Draft decision*, February 2010, pp. 295–296.

1884 NGR, r. 97(4).

1885 NGR, r. 97(4).

1886 NGR, r. 97(3)(d).

1887 With the exception the AER does not respond within the required time. In this situation the AER will have deemed to have approved the tariff variation notification.

1888 AER, *Draft decision*, February 2010, p. 295.

1889 If the tariff variation formula mechanism notification was not accepted by the AER, default tariffs would apply on 1 July, resulting in the first tariff variation to users. A second tariff variation would occur after 1 July, once JGN’s revised tariff variation notification was approved by the AER.

the AER considers that the requirement to reassess tariff variation notifications exposes the AER, JGN and users to higher administrative costs.<sup>1890</sup>

In the event the AER does not approve an annual tariff variation notification or JGN fails to submit a tariff variation notification by 15 April or the next business day, the AER will determine the annual tariffs to apply from 1 July consistent with the approved annual tariff adjustment mechanism of the CPI-X.<sup>1891</sup> The AER considers that this provides users and JGN with certainty about which tariffs will apply in the event the AER does not approve the annual tariff proposal or JGN does not submit an annual tariff variation notification by the due date.

Revision 13.4 below provides that if the AER does not approve JGN's annual tariff variation, or JGN does not submit a tariff variation notification, the AER will determine tariffs according to the approved tariff variation mechanism. The AER does not approve the proposal for default tariffs and does not allow JGN to resubmit a tariff variation formula notification.

The draft decision requires JGN to include a means to correct for past errors because the proposed tariff variation mechanism sets tariffs each year of the access arrangement period with reference to past tariffs.<sup>1892</sup> If any past errors are not corrected, errors will compound over the access arrangement period, and tariffs will not be efficient.<sup>1893</sup> Revision 13.4 below requires the revised access arrangement proposal to include a provision that allows tariffs to be corrected for past errors. The revision allows JGN to propose a correction for past errors as part of the annual tariff variation process and allows JGN to consult with the AER on past tariff variation errors. The AER notes the ENA submission that the tariff approval process must provide ex ante certainty to service providers.<sup>1894</sup> The AER considers that revision 13.4 does provide JGN with ex ante certainty. Having regard to the need for an efficient tariff structure, the AER considers that the revision is required so that tariff variation errors that cause tariffs to be inefficient in a financial year do not result in inefficient tariffs in subsequent financial years.<sup>1895</sup>

#### **13.2.4.4 Conclusion**

The AER has regard to r. 97(4) and the factors in r. 97(3) of the NGR. For the reasons outlined above, the AER does not approve the oversight and powers of approval proposed in the revised access arrangement proposal. Instead, the AER requires the oversight and powers of approval as outlined in the revisions below.

#### **13.2.4.5 Revisions**

The AER proposes the following revisions:

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1890 NGR, r. 97(3)(b).

1891 When the AER determines tariffs, it will not rebalance the effective weights of each tariff within the tariff basket, resulting in a uniform CPI-X adjustment to every tariff.

1892 AER, *Draft decision*, February 2010, p. 294.

1893 NGR, r. 97(3)(a).

1894 ENA, *Submission to the AER*, April 2010, p. 7.

1895 NGR, r. 97(3)(a).

**Revision 13.4:** amend the revised access arrangement proposal to:

- delete clause 3.4 (d) (v) and replace it with the following:
  - (v) In relation to a Variation Notice relating to Haulage Reference Tariffs, in the event that the AER decides that any part of the proposal in the Variation Notice is not compliant for a new Financial Year  $t$ , then the AER will determine the reference tariffs that are compliant with the approved tariff variation mechanism. In this situation the AER will scale all reference tariff by  $(1+CPI)(1-X)$ .
- delete the following wording from above clause 3.4 (d) (vii):

**[JGN note:** JGN's position is that amendment 13.5 should not be incorporated. However, if the AER maintains its position that an amendment is required to make the proposal consistent with the NGR and NGL, the AER should consider the drafting for sub-clause (vii) in green below:
- include the following as a new clause 3.4 (d) (vii) C:
  - C. the Service Provider may submit as part of the annual tariff variation process a correction for past clerical mistakes, accidental slips or omissions. The AER may also make the Service Provider aware that a past clerical mistake, accidental slips or omissions has occurred and require all future tariff variation notification to take account of that past clerical mistake, accidental slip or omissions. The Service Provider is allowed to consult with the AER on past clerical mistakes, accidental slips or omissions.
- delete clause 3.4 (f) and replace it with the following:
  - (f) **Default Haulage Reference Tariffs for the new Financial Year  $t$** 

If the Service Provider does not submit the proposed Haulage Reference Tariffs to apply from the start of the next Financial Year  $t$  in accordance with the procedures set out above in paragraph (b) then the AER will determine the reference tariffs that are compliant with the approved tariff variation mechanism. In this situation the AER will scale all reference tariff by  $(1+CPI)(1-X)$ .
- delete clause 3.5 (c) and replace it with the following:
  - (c) Subject to the AER's approval, the Service Provider will adjust the Meter Data Service Reference Tariff for CPI annually. For Meter Data Services, the approval by the AER process set out in clause 3.4 applies.

## 13.3 Cost pass through tariff variation mechanism

### 13.3.1 Cost pass through events

#### 13.3.1.1 Revised access arrangement proposal

##### *Carbon Pollution Reduction Scheme*

The access arrangement proposal includes a UAG adjustment event which accounts for routine UAG costs and the costs of the Carbon Pollution Reduction Scheme (CPRS).<sup>1896</sup> The draft decision requires that the UAG adjustment and CPRS costs be treated separately. The draft decision requires that the CPRS costs could be considered as part of the approved general pass through event and the routine UAG costs be treated under the UAG adjustment event. The UAG costs and carbon costs are separated out in order to be more transparent in the tariff setting.<sup>1897</sup>

The revised access arrangement proposal proposes that carbon costs are considered under a new CPRS event rather than the general pass through event.<sup>1898</sup> In addition, the revised access arrangement proposal includes a new held over cost pass through event and maintains the access arrangement proposals market cost event.

##### *Held over cost pass through event*

The revised access arrangement proposal submits that the held over cost pass through event accounts for costs (including financing costs) for pass through events incurred in one year but can not be incorporated into tariffs in the next financial year due the decision making time being extended. The held over cost pass through events allows costs be ‘held over’ and incorporated into tariff in a later financial year.<sup>1899</sup>

##### *Market costs event*

In addition, the access arrangement proposal includes a market cost event which relates to costs that can be incurred before the commencement of the access arrangement period (i.e. 1 July 2009 to 30 June 2010).<sup>1900</sup> While the draft decision approves the market cost event it limits the application of this event to costs that are incurred after 1 July 2010.<sup>1901</sup>

The revised access arrangement proposal does not accept the draft decision requirement for the market cost event and maintains the market cost definition from the access arrangement proposal.<sup>1902</sup> JGN submits that when it submitted the access arrangement proposal in August 2009 it was not possible to forecast the full impact on costs of a market cost event occurring after 1 July 2009 and therefore the cost should be passed onto consumers in the 2010–2015 access arrangement period.<sup>1903</sup>

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1896 JGN, *Access arrangement proposal*, August 2009, pp. 21–23.

1897 AER, *Draft decision*, February 2010, p. 298.

1898 JGN, *Initial response to the draft decision*, March 2010, p. 255.

1899 JGN, *Initial response to the draft decision*, March 2010, p. 258.

1900 JGN, *Access arrangement proposal*, August 2009, p. 19.

1901 AER, *Draft decision*, February 2010, pp. 296–297.

1902 JGN, *Initial response to the draft decision*, March 2010, p. 255.

1903 JGN, *Initial response to the draft decision*, March 2010, p. 255.

### *Unaccounted for gas adjustment event*

The revised access arrangement proposal does not accept the draft decision that unaccounted for gas (UAG) costs for the UAG adjustment event reflect the lowest sustainable cost (e.g. the lowest cost of gas in an open competitive tender or available for purchase via the short term trading market (STTM)). JGN considers that the AER's requirement is imprecise and unworkable and instead JGN maintains the definition that the UAG costs are those incurred by JGN.<sup>1904</sup>

#### **13.3.1.2 Submissions**

The Energy Users Association of Australia (EUAA) agrees with the draft decision to take account of carbon cost in the cost pass through mechanism as opposed to including carbon credits or permit cost in the operating expenditure forecasts.<sup>1905</sup> However, the EUAA submits that the AER's proposal for assessing the efficiency of the procurement of the carbon credits based on amendments 13.3 and 13.11 in the draft decision is too general to provide the users with sufficient protection.<sup>1906</sup>

The EUAA submits that the UAG adjustment mechanism is not an efficient way for JGN to manage UAG costs and does not provide JGN with an incentive to minimise UAG costs.<sup>1907</sup> The EUAA submits the UAG cost adjustment mechanism appears to allow any variation in cost to be passed through to users. This could be a variation due to the change in actual UAG volumes or gas purchase costs. The EUAA submits that the UAG adjustment would provide JGN with no incentive to minimise either the amount of gas lost, or the costs of purchasing gas.<sup>1908</sup>

Origin submits that JGN may have an incentive to systematically under-purchase gas in the knowledge that participants in the STTM will physically make up the remainder in the event that UAG is greater than forecast. Origin submits that under the existing incentive mechanism of the access arrangement, if such costs remain below the target set, JGN retains the difference.<sup>1909</sup>

Origin submits that in the first year of the access arrangement period market participants will be paying twice for UAG, first through the settlement process, and second, through the amount JGN is able to pass-through in its next access arrangement. Origin suggests that the AER consult with Australian Energy Market Operator (AEMO), and if applicable, make adjustments to the UAG allowance at least in the next year to account for participants calculated contributions to UAG.<sup>1910</sup>

Origin submits that the Reconciliation Account Balances settlement exposures for individual participants could be recovered through adjustment to the UAG pass-through amounts set by the AER in the first year of the access arrangement period.<sup>1911</sup>

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1904 JGN, *Initial response to the draft decision*, March 2010, p. 255.

1905 EUAA, *Submission to the AER*, April 2010, p. 18.

1906 EUAA, *Submission to the AER*, April 2010, p. 18.

1907 EUAA, *Submission to the AER*, April 2010, p. 15.

1908 EUAA, *Submission to the AER*, April 2010, p. 17.

1909 Origin, *Submission to the AER*, April 2010, pp. 6–7.

1910 Origin, *Submission to the AER*, April 2010, p. 7.

1911 Origin, *Submission to the AER*, April 2010, p. 7.

However, Origin submits that over the long term the access arrangements should be amended to avoid any systematic bias for under-injection by JGN.<sup>1912</sup>

### **13.3.1.3 AER's analysis and considerations**

#### ***Carbon Pollution Reduction Scheme event***

The draft decision requires that the CPRS related costs should be passed through to consumers via the general pass through event. The AER considers that the general pass through event will pass through the actual cost of the CPRS as incurred.<sup>1913</sup>

While the AER considers that separately defining an event is unnecessary given that a general pass through event is available, the AER accepts that a CPRS event can be separately defined and approves this event. The AER notes that the CPRS implementation has been delayed which will result in the CPRS related costs being passed onto users at a later date.

The AER notes the EUAA's submission that the AER's proposal for assessing the efficiency of the carbon credits based on amendments 13.3 and 13.11 in the draft decision are too general to provide users with sufficient protection.<sup>1914</sup> However, the AER considers the factors it must take into consideration in accordance with section 3.4(e)(iv) of the revised access arrangement proposal that will ensure only efficient costs associated with carbon are passed onto users.

#### ***Held over cost pass through event***

The revised access arrangement proposal includes a new held over costs pass through event.<sup>1915</sup> The purpose of the held over cost pass through event is to allow JGN to recover the costs incurred as a result of a pass through event from one year in the following year. It relies on the cost pass through adjustment factor being included as part of the automatic annual tariff formula variation mechanism. The revised access arrangement proposal includes this event as a response to the draft decision to allow for a decision making time up to a maximum period of 90 business days. The held over cost pass through event is to apply in circumstances where this decision making time extends beyond 1 July in any one year during the access arrangement period. JGN proposes that if the decision making time is extended beyond 1 July, the CPI and X factor changes in the tariff variation formula mechanism will apply on 1 July.<sup>1916</sup> JGN also proposes that all other factors in the tariff variation formula mechanism (adjustment factor) will be considered in the following financial year under the held over cost pass through event if the decision making time is extended beyond 1 July.<sup>1917</sup> The AER notes that the operation of the held over cost event is inconsistent with the operation of r. 92(1) of the NGR. This is because the operation of the held

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1912 Origin, *Submission to the AER*, April 2010, p. 7.

1913 AER, *Draft decision*, February 2010, p. 298.

1914 EUAA, *Submission to the AER*, April 2010, p. 18.

1915 JGN, *Initial response to the draft decision*, March 2010, p. 258.

1916 JGN considers that the CPI and X factors changes will not require an extension of decision making time and therefore can be passed through to users on 1 July without a need to extend the decision making time. JGN considers that if an extension of decision making time is required for the tariff variation formula mechanism it is due to the factors that make up the adjustment factor.

1917 JGN, *Initial response to the draft decision*, March 2010, p. 258.

over cost pass through event will provide a means to pass through costs from year five of the access arrangement period into tariffs in the next access arrangement period. This is inconsistent with a mechanism which only varies tariffs over the access arrangement period. The AER considers that users in one access arrangement period are not necessarily the same as users in the next access arrangement period. As a result, the AER considers moving costs from one access arrangement period to the next access arrangement period moves costs from one set of users to another.

The AER considers that since the adjustment factor for the cost pass through mechanism is removed from the tariff variation formula mechanism, the held over costs pass through event is not necessary. Revision 13.2 below requires that the held over costs pass through event be removed.<sup>1918</sup>

#### ***Market costs event***

The draft decision does approve the market costs event.<sup>1919</sup> The revised access arrangement proposal does not address the issues raised in the draft decision that this event seeks to recoup costs for an event and costs incurred in the earlier access arrangement period. Instead the revised access arrangement proposal seeks to reinstate this event.<sup>1920</sup> As discussed above, AER considers that r. 92(1) of the NGR requires that a tariff variation mechanism apply over the course of the access arrangement period. Further, r. 92(2) of the NGR requires that in present value terms the expected revenue from reference services must equal the total revenue allocated for reference services. The market cost event does not relate to costs incurred in total revenue for the access arrangement period and would allocate total revenue from the earlier access arrangement period into the access arrangement period, increasing tariffs more than would otherwise be the case. Therefore, the costs incurred in the 2009–2010 financial year are required to be recovered from users in the earlier access arrangement period and not in the access arrangement period.<sup>1921</sup> Accordingly revisions 13.2 and 13.5 below require that within the access arrangement period, tariffs can only be adjusted for cost pass through events that occur in that access arrangement period. The AER notes that for the same reasons, the fixed principles in the revised access arrangement proposal are not accepted as outlined in chapter 8. The fixed principles were not accepted as the cost incurred in the 2010–2015 access arrangement period cannot be recovered from the users in the access arrangement period commencing 1 July 2015. Further, as outlined in the held over cost pass through event discussion above, the AER considers moving costs from one access arrangement period to the next access arrangement period moves costs from one set of users to another.

#### ***Unaccounted for gas adjustment event***

The draft decision requires the costs associated with the UAG adjustment to be verified by an independent auditor. The AER requires that an auditor verify that the cost incurred in purchasing the UAG is the lower of gas purchased in a competitive

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1918 NGR, r. 97(3)(e).

1919 AER, *Draft decision*, February 2010, pp. 296–297.

1920 JGN, *Initial response to the draft decision*, March 2010, p. 258.

1921 AER, *Draft decision*, February 2010, pp. 296–297.

tender or via the STTM.<sup>1922</sup> The revised access arrangement proposal outlines that the UAG purchasing cost should be defined as 'the costs associated with purchase of gas by the Service Provider as UAG, including the costs for transmission haulage and other direct costs reasonably incurred by the Service Provider to acquire UAG through a competitive market or process'.<sup>1923</sup> As outlined in section 13.2.2.3, the UAG cost event can be considered as a low administrative cost pass through event. For the purposes of consideration of UAG costs, the AER accepts the UAG cost definition in the revised access arrangement proposal.<sup>1924</sup>

The EUAA submits that the UAG adjustment mechanism is not an efficient way for JGN to manage UAG costs and does not provide JGN with an incentive to minimise UAG costs.<sup>1925</sup> The AER considers that the UAG adjustment mechanism does provide JGN with an incentive to minimise UAG costs. For instance, since the actual gas throughput multiplied by the UAG target rate is passed through, and not the actual UAG throughput, JGN has an incentive to minimise the amount of leakage on its network. JGN is incentivised as it receives a financial benefit if it can achieve an actual UAG rate that is less than the UAG target rate. Further, the independent audit statement and the AER assessment criteria in clause 3.4(e)(iv) of the revised access arrangement proposal will ensure the UAG cost per gigajoule is efficient.<sup>1926</sup>

The AER considers that the matters raised by Origin in relation to the operation of the gas market are not matters for consideration of the AER in the context of this review. The AER considers that Origin's submission relates to the responsibilities of the AEMO. Further, the AER notes JGN's submission that JGN has a responsibility to replace the physical gas lost from its network. JGN submits that reconciliation account balances have no direct relationship with UAG and that Origin's submission that net retail market imbalances increase or decrease JGN's UAG costs is not correct.<sup>1927</sup>

#### **13.3.1.4 Conclusion**

The AER approves the inclusion of a CPRS event and the definition of UAG purchasing cost in the UAG adjustment factor as it is consistent with r. 97 of the NGR.

The AER does not approve the held over cost pass through event as it is obsolete due to revision 13.2.

The AER does not approve the market cost event as it does not comply with r. 92 of the NGR.

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1922 AER, *Draft decision*, February 2010, pp. 299–300.

1923 JGN, *Initial response to the draft decision*, March 2010, p. 255.

1924 JGN, *Revised access arrangement proposal*, March 2010, clause 3.4 (e) (iv) C.

1925 EUAA, *Submission to the AER*, April 2010, pp. 15–17.

1926 NGR, r. 97(3)(a).

1927 JGN, letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 4.



### 13.3.1.5 Revisions

The revisions proposed by the AER are included in revision 13.2 and the following:

**Revision 13.5:** amend the revised access arrangement proposal to include the following as a new clause 3.4(e)(vii):

Subject to the AER's approval, Haulage Reference Tariffs for the 1 July 2010 to 30 June 2015 access arrangement period will only be adjusted for cost pass through costs that have been incurred in that access arrangement period.

### 13.3.2 Materiality threshold

#### 13.3.2.1 Revised access arrangement proposal

##### *High materiality threshold events*

The revised access arrangement proposal outlines that the materiality threshold required in the draft decision is unreasonably large compared with the costs that would be incurred by stakeholders in assessing a cost pass through application.

JGN submits that a one per cent of revenue materiality threshold is inconsistent with the NGO and the revenue and pricing principles and it is unreasonable that each individual pass through event should be subject to the one per cent of revenue threshold.<sup>1928</sup>

JGN submits that if adjustments of less than one per cent of revenue are considered reasonable at the time of the access arrangement review, then a lower threshold should be applied to cost pass through events in the access arrangement period.<sup>1929</sup>

##### *Low administrative threshold events*

JGN submits that a materiality threshold of greater than the administrative costs of the service provider, users and the AER is unworkable as the costs cannot be known until an application has been made and assessed. Further, JGN proposes that a license fee adjustment event should be considered a low administrative cost event as the costs associated with the event are readily verifiable.<sup>1930</sup>

#### 13.3.2.2 Submissions

EnergyAustralia submits that costs relating to other events should be limited to reasonable costs and should be subject to some level of materiality. EnergyAustralia submits that any cost saving to JGN relating to other events should be passed through to users subject to the same materiality threshold.<sup>1931</sup>

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<sup>1928</sup> JGN, *Initial response to the draft decision*, March 2010, pp. 253–254.

<sup>1929</sup> JGN, *Initial response to the draft decision*, March 2010, p. 254.

<sup>1930</sup> JGN, *Initial response to the draft decision*, March 2010, pp. 253–254.

<sup>1931</sup> EnergyAustralia, *Submission to the AER*, April 2010, p. 28.

### 13.3.2.3 AER's analysis and considerations

#### *High materiality threshold events*

The draft decision requires that some cost pass through events are subject to a low materiality threshold and others to a high materiality threshold.<sup>1932</sup> For low administrative cost pass through events, the AER considers the proposed cost to be passed through needs to outweigh the administrative costs for the users, JGN and the AER. Further, the AER considers that it would only consider cost pass through applications for low administrative cost events once during each year of the access arrangement period and the notification must be supported by verifiable documentation. The AER considers that all cost pass throughs that are not subject to the low administrative threshold must be subject to a materiality threshold of one per cent of total revenue approved in the year in which the costs are incurred. Further, the AER considers that the administrative threshold must be met for each separate event.<sup>1933</sup>

The AER accepts that the one per cent threshold for cost pass through events is considerably higher than the administrative costs incurred by stakeholders in reviewing and assessing a cost pass through notification.<sup>1934</sup> However, as outlined in the draft decision, this is just one factor that the AER has regard to in determining this threshold.<sup>1935</sup> The reason the AER does not approve the administrative threshold in the revised access arrangement proposal is that the cost pass through mechanism should only pass through costs that are unknown or outside the service provider's control and which are significant in impact. The AER does not accept the administrative threshold in the revised access arrangement proposal, as it is too low and provides for the bundling of a large number of events.

Further the revised access arrangement proposal to combine and bundle events allows a large number of small cost items to be considered as part of a single cost pass through application.<sup>1936</sup> While there may be some minor administrative cost savings in considering these events in the one process, the AER will still need to review and consider each cost of the bundled event. Both elements of the revised access arrangement proposal are likely to impose significant administrative costs on JGN, users and the AER. Having regard to the possible effects of the reference tariff variation mechanism on the administrative costs of the AER, the AER considers that a one per cent administrative threshold is appropriate.<sup>1937</sup>

The AER notes that the threshold has been selected as a means to provide some relative measure across all service providers for similar arrangements regardless of the scale or scope of a service provider's business. The one per cent administrative threshold is applied in other regulatory arrangements for services similar to those to

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1932 AER, *Draft decision*, February 2010, pp. 299–300.

1933 AER, *Draft decision*, February 2010, pp. 299–300.

1934 JGN, *Initial response to the draft decision*, March 2010, p. 254.

1935 AER, *Draft decision*, February 2010, pp. 299–300.

1936 JGN, *Initial response to the draft decision*, March 2010, pp. 253–254.

1937 NGR, r. 97(3)(b).

be offered by JGN.<sup>1938</sup> Having regard to the desirability of consistency between regulatory arrangements for similar services, the AER considers that a one per cent revenue administrative threshold is appropriate.<sup>1939</sup>

#### ***Low administrative threshold events***

As outlined in the draft decision<sup>1940</sup> and discussed in some detail in section 13.2.2.3, certain events in the adjustment factor may be considered as low administrative cost pass through events. The draft decision<sup>1941</sup> and section 13.2.2.3 in this chapter outline why certain events can be classified as low threshold events in a cost pass through mechanism but not as an adjustment factor in the annual tariff variation mechanism. The draft decision also outlines that tax change events with the appropriate documentation could be considered low administrative cost pass through events.<sup>1942</sup>

The revised access arrangement proposal accepts that licence fee events can be considered as a low administrative threshold event. The access arrangement proposal submits that the definition for low administrative cost events is unworkable.<sup>1943</sup>

The AER agrees that the low administrative threshold as defined in the draft decision has its limitations. For instance, the AER acknowledges that it may be difficult for JGN to determine the administrative costs for users and the AER before making an application. Having regard to the desirability of consistency between regulatory arrangements for similar services and the limitations outlined above, revision 13.6 below requires the low administrative threshold be set the smallest increment required to change the reference tariffs.<sup>1944</sup> This low administrative threshold definition is consistent with that used in ActewAGL Distribution's (ActewAGL) access arrangement and does not require JGN to estimate the administrative costs of the AER and the users.<sup>1945</sup>

Further, the AER accepts the revised access arrangement proposal that the licence fee adjustment event is classified as a low administrative threshold event. However, the AER notes that as with all other low administrative threshold event costs the licence fee adjustment event must be supported by verifiable independent information to support the cost of this event. In the situation that the low administrative threshold events are not supported by verifiable information, the higher administrative threshold (as discussed above) will apply.

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1938 AER, *Access arrangement for the Wagga Wagga gas distribution network*, April 2010, p. 40 and AER, *Access arrangement for the ACT, Queanbeyan and Palerang gas distribution network 1 July 2010 – 30 June 2015*, April 2010, p. 32.

1939 NGR, r. 97(3)(d); AER, *Access arrangement for the Wagga Wagga gas distribution network*, April 2010, p. 40; AER, *Access arrangement for the ACT, Queanbeyan and Palerang gas distribution network 1 July 2010 – 30 June 2015*, April 2010, p. 32.

1940 AER, *Draft decision*, February 2010, pp. 298–300.

1941 AER, *Draft decision*, February 2010, pp. 289–293.

1942 AER, *Draft decision*, February 2010, pp. 298–300.

1943 JGN, *Initial response to the draft decision*, March 2010, pp. 253–254.

1944 NGR, r. 97(3)(d).

1945 AER, *Access arrangement for the ACT, Queanbeyan and Palerang gas distribution network 1 July 2010 – 30 June 2015*, April 2010, p. 32.

The AER notes EnergyAustralia's submission that all costs should be limited to reasonable costs and should be subject to some materiality threshold. The AER considers that clause 3.4 (e) (v) of the revised access arrangement proposal requires all cost pass through events (positive and negative costs) to be subject to an administrative threshold. Further, the AER considers that the factors that it must consider when assessing a cost pass through (set out in clause 3.4 (e) (iv) of the revised access arrangement proposal) will ensure cost pass through costs are efficient.

#### **13.3.2.4 Conclusion**

Having regard to the factors in r. 97(3) of the NGR and for the reasons outlined above the AER does not approve the administrative cost threshold as part of the cost pass through mechanism as it does not comply with r. 97(3)(b) and r. 97(3)(d) of the NGR.

#### **13.3.2.5 Revisions**

The AER proposes the following revisions:

**Revision 13.6:** amend the revised access arrangement proposal to delete clause 3.4 (e) (v) and replace it with the following:

- (v) Subject to the AER's approval, Haulage Reference Tariffs will be adjusted to pass through the costs of one or more of the Cost Pass-Through Events, subject to each individual pass through event meeting the Administrative threshold. The Administrative threshold is defined below:
  - A for all Cost Pass-Through Events (with the exception Change of the in Tax Event, UAG Adjustment Event and Licence Fee Adjustment Event, unless clause 3.4(e)(v)B requires otherwise) – at least 1 per cent of the smoothed revenue requirement specified in the final decision in the years of the access arrangement period that the costs are incurred.
  - B for Change in Tax Event, UAG Adjustment Event and Licence Fee Adjustment Event sufficient to change the smallest increment in the Reference Tariffs as per the rounding convention. The costs incurred by the service provider for the Change in Tax Event, UAG Adjustment Event and Licence Fee Adjustment Event must be supported by verifiable information (including invoices or independently verified information). If the Change in Tax Event, UAG Adjustment Event and Licence Fee Adjustment Event are not supported by verifiable information the higher administrative threshold (outlined in paragraph (i) above) applies to those events. The financial impacts for the Change in Tax Event may be supported by documentation from an auditor or accountant to verify the estimates.
- (vi) Only incurred costs for a Change in Tax Event, UAG Adjustment Event and Licence Fee Adjustment Event can be subject to the lower materiality threshold defined in clause 3.4 (e) (v) B. Non incurred costs, including expected or forecast costs are subject to the higher administrative threshold defined in clause 3.4 (e) (v) A.

### 13.3.3 Oversight powers and procedures

#### 13.3.3.1 Revised access arrangement proposal

The revised access arrangement proposal does not incorporate the factors the AER must take into consideration when assessing cost pass through events as required in amendment 13.11 of the draft decision.<sup>1946</sup> Under amendment 13.11 of the draft decision, some of the factors the AER must take into consideration when assessing a cost pass through notification include whether the costs to be passed through are for the delivery of pipeline services and whether the total costs to be passed through are building block components of total revenue. Instead of incorporating amendment 13.11, the revised access arrangement proposal incorporates the factors that the AER must take into consideration when assessing cost pass through events as required under clause 6.6.1(j) in the NER. One of the factors the AER has to take into consideration under clause 6.6.1(j) of the NER is the time cost of money based on the WACC when assessing a cost pass through amount.<sup>1947</sup>

Amendment 13.12 of the draft decision requires the service provider to provide a verification statement stating that the financial impact of the cost pass through event in a variation notice is net of any third party payments including insurer payments and reimbursements in connection with the event. The revised access arrangement proposal does not incorporate amendment 13.12 of the draft decision in the form required by the AER. Instead, it sets out the information a service provider must provide to the AER when seeking approval of a pass through amount based on clause 6.6.1 of the NER.<sup>1948</sup>

The revised access arrangement proposal incorporates an additional paragraph stating that UAG adjustment costs must be verified by an independent auditor. JGN proposes that the UAG auditor confirm that the gas purchased as UAG was purchased through a competitive market or open competitive process.<sup>1949</sup>

The revised access arrangement proposal considers that the AER's requirement that an application for a change in tax event 'be supported by information about the financial impact of the taxation change event from the relevant taxation or regulatory authority' is unworkable.<sup>1950</sup>

The revised access arrangement proposal specifies that tariff changes on account of a change in tax event, weather variation adjustments, UAG adjustments and licence fee adjustments will occur only once a year on 1 July. In general, events will be notified within 90 business days of incurring the cost of the event. The exceptions are a change in tax event and a held over cost pass through event; and a declared retailer of last resort (ROLR) event in which an estimate of the effect of the event will be

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1946 JGN, *Initial response to the draft decision*, March 2010, pp. 260–261.

1947 JGN, *Initial response to the draft decision*, March 2010, p. 260.

1948 JGN, *Initial response to the draft decision*, March 2010, p. 260.

1949 JGN, *Initial response to the draft decision*, March 2010, p. 260.

1950 JGN, *Initial response to the draft decision*, March 2010, pp. 260–261.

provided within 90 business days and full details in a final notification no later than 120 business days after the event.<sup>1951</sup>

### **13.3.3.2 Submissions**

The EUAA submits that it does not support pass throughs as a matter of principle and believe they will always be asymmetric in favour of the network businesses given their information advantages.<sup>1952</sup> The EUAA submits that in the case of regulated businesses, the AER needs to recognise the incentives for strategic behaviours by regulated businesses as a result of pass through events.<sup>1953</sup>

### **13.3.3.3 AER's analysis and considerations**

The draft decision requires the revised access arrangement proposal to set out the factors the AER must take into consideration when assessing a cost pass through event.<sup>1954</sup> Further, the draft decision requires a statement accompanying a cost pass through notification to verify that the costs of any pass through event are net of any payment by an insurer or third party which partially or wholly offsets the financial impact of that event (including self insurance).<sup>1955</sup>

The revised access arrangement proposal does not incorporate these factors required in the draft decision but instead incorporates requirements in the NER. The revised access arrangement proposal is modelled on clause 6.6.1(j) of the NER. Even though the revised access arrangement proposal does not directly address the requirements of the draft decision the AER considers that these requirements of the NER will ensure that the cost pass throughs are net of third party payments. The AER accepts this aspect of the revised access arrangement proposal.

Further, a change in tax event and UAG adjustment event cost needs to be supported by verifiable information about the cost of the event.<sup>1956</sup> As discussed above in sections 13.2.2.3 and 13.3.2.3, if low administrative threshold events are not supported by verifiable information, the higher administrative threshold will apply to those events.

The draft decision requires a tax change event to be supported by an invoice from the relevant taxation or regulatory authority.<sup>1957</sup> The revised access arrangement proposal outlines that this requirement is unworkable and the recoverable amount attributable to a change in tax event will not be reflected in the actual tax payments or in an audited tax statement. The AER considers that since a change in tax event is classified as a low administrative threshold event, all the costs associated with the event need to be incurred and verified. The AER considers costs that cannot be verified under a low administrative threshold event cannot be passed onto users through a change in tariffs. However, the AER considers that some change in tax event costs may not be able to

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1951 JGN, *Initial response to the draft decision*, March 2010, pp. 261–262.

1952 EUAA, *Submission to the AER*, April 2010, p. 17.

1953 EUAA, *Submission to the AER*, April 2010, p. 17.

1954 AER, *Draft decision*, February 2010, p. 301.

1955 AER, *Draft decision*, February 2010, p. 301.

1956 AER, *Draft decision*, February 2010, p. 299.

1957 AER, *Draft decision*, February 2010, p. 299.

be supported by documents from a relevant taxation authority. As outlined in revision 13.4, the AER considers that to be considered as a low threshold event, the cost of a change in tax event must be supported by documentation that references the relevant change in taxation and the financial impact of the net impact of the new impost. The financial impact may be supported by documentation from an auditor or accountant to verify the estimates. Alternatively, as outlined in section 13.3.2.3, the AER considers that if low administrative threshold event costs cannot be substantiated by verifiable information, the event will be subject to the higher administrative threshold and subject to a detailed AER review. As outlined in the draft decision, in order for low administrative threshold events to take account of the AER's administrative costs, the costs associated with the low administrative threshold event must be supported by verifiable information so the efficient cost of these events can be readily assessed.<sup>1958</sup>

The draft decision requires an amendment that all cost pass through events other than a change in tax event and a UAG adjustment event are notified to the AER within 90 business days.<sup>1959</sup> The purpose of this amendment is so the AER knows when a cost pass through event has occurred, not the cost of that event. This amendment was not clear in the draft decision and the AER has modified the final decision revision to clarify this requirement. Given the misunderstanding in the draft decision, the AER does not consider that the separate timeframe as proposed in the revised access arrangement proposal for the ROLR event is required.<sup>1960</sup> As discussed above the intent of the draft decision is that JGN must make the AER aware within 90 business days that a material cost pass through event has occurred. The AER considers that making the AER aware of a process is separate to the notification process. This is outlined in revision 13.7.

The EUAA submits that regulated businesses have an informational advantage which results in the cost pass through mechanism being always in favour of the business.<sup>1961</sup> The AER considers that this is not the case as JGN is required to advise the AER within 90 business days that a material cost pass through event has occurred. As a result the AER will be notified of negative cost pass through events and the cost pass through mechanism will be symmetrical. Further, the AER considers clause 3.4 (e) (iv) C of the revised access arrangement proposal requires the AER to take into consideration the efficiency of the Service Provider's decision and actions when a cost pass through event occurs. The AER considers that clause 3.4 (e) (iv) C of the revised access arrangement proposal addresses EUAA's submission about incentive for strategic behaviour.<sup>1962</sup>

#### **13.3.3.4 Conclusion**

The AER approves the inclusion of the two new paragraphs in the revised access arrangement proposal which are modelled on clauses 6.6.1(j) and 6.6.1 of the NER as it is consistent with r. 97 of the NGR.

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<sup>1958</sup> NGR, r. 97(3)(c).

<sup>1959</sup> AER, *Draft decision*, February 2010, p. 302.

<sup>1960</sup> NGR, r. 97(3)(e).

<sup>1961</sup> EUAA, *Submission to the AER*, April 2010, p. 17.

<sup>1962</sup> EUAA, *Submission to the AER*, April 2010, p. 17.

Having regard to the factors in r. 97(3) of the NGR, and for reasons outlined above, the AER requires that the costs associated with a change in tax event must be supported by verifiable information from the tax authority or an auditor.

Having regard to the factors in r. 97(3) of the NGR, and for reasons outlined above, the AER does not approve the requirement that JGN must make a notification for a cost pass through event 90 business days after the event has occurred.

#### **13.3.3.5 Revision**

The AER proposes the following revision:

**Revision 13.7:** amend the revised access arrangement proposal to delete clauses 3.4 (e) (i) and 3.4 (e) (ii) and replace them with the following:

- (i) The Service Provider must advise the AER if the Service Provider becomes aware that a Pass Through has occurred (other than Tax Event, Licence Fee Adjustment Event and UAG Adjustments Event), which has met, or is likely to meet, the administrative threshold (as defined in clause 3.4(e)(iv)).

The Service Provider must advise the AER of such a Pass Through Event within 90 Business Days of becoming aware of the event. This clause 3.4 (e) (i) is not an application to vary the Reference Tariffs.

**Revision 13.8:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revisions 13.1 to 13.7.



## **Part C—Other provisions of an access arrangement**

## 14 Non-tariff components

### 14.1 Introduction

This chapter considers the non-tariff components of the revised access arrangement proposal. The NGR sets out the criteria for determining which pipeline services constitute reference services and the terms and conditions on which service providers are to grant third parties access to these services.

The AER's analysis and consideration of the access arrangement proposal in relation to the non-tariff components of the access arrangement proposal is set out in chapter 14 of the draft decision.

JGN submits that the revised access arrangement proposal:

- incorporates amendments 14.4–14.7, 14.11, 14.17–14.18, 14.22–14.23, 14.26, 14.29–14.31 and 14.37 of the draft decision
- incorporates with modifications, amendments 14.1, 14.3, 14.13, 14.16, 14.20–14.21, 14.24–14.25 and 14.27 of the draft decision
- does not incorporate amendments 14.2, 14.8–14.10, 14.12, 14.14–14.15, 14.19, 14.28, 14.32–14.36 and 14.38 of the draft decision.<sup>1963</sup>

### 14.2 Terms and conditions

In making the final decision, the AER has reviewed the revised access arrangement proposal including the revised reference service agreement to the access arrangement proposal (schedule 3 of the revised access arrangement proposal) and considered the issues concerning terms and conditions raised in submissions received as well as issues raised at the round table discussion on 27 November 2009 (the round table discussion) and in follow up correspondence from JGN.<sup>1964</sup>

An overview of the AER's assessment of the terms and conditions contained in schedule 3 of the revised access arrangement proposal is attached as appendix B. This sets out the AER's assessment of those terms and conditions that are not included in chapter 14 of the draft decision which the AER has received submissions but do not relate to terms and conditions of access which require revision.

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<sup>1963</sup> JGN, *Initial response to the draft decision*, March 2010, pp. 263–267.

<sup>1964</sup> JGN, letter to the AER, *Clarifications following the round-table discussion on Jemena's access arrangement proposal (2010–2015) terms and conditions*, 18 December 2009; JGN, email to the AER, *Response to AER questions received on 27 April 2010*, 3 May 2010; JGN, letter to the AER, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010 (JGN, *JGN response to public submissions*, 18 May 2010).

### 14.2.1 Ancillary services

#### Revised access arrangement proposal

Amendment 14.1 of the draft decision requires JGN to state the terms and conditions on which the ancillary services reference service is provided.

JGN submits that all activities associated with ancillary fees are set out in the reference services agreement which forms schedule 3 of the revised access arrangement proposal and the activity description in schedule 2 of the revised access arrangement proposal.<sup>1965</sup> In particular, it submits that requests for services, temporary disconnections, permanent disconnections and decommissioning are addressed in relation to the haulage reference service in clauses 3.1, 24.1 and 15.8 of schedule 3 of the revised access arrangement proposal. Requests for meter data services are addressed in clause 17.1(b) and special meter reads are addressed in the ancillary fee schedule of schedule 3 of the revised access arrangement proposal.<sup>1966</sup>

To clarify that the ancillary services are not independent of the reference haulage and meter data services, JGN amends clauses 17.1(j), 17.1(k), 24.1 and 15.8 in schedule 3 of the revised access arrangement proposal. JGN also submits that it has changed the headings of clauses 24.1 and 15.8 of the schedule 3 of the revised access arrangement proposal to clarify that these clauses concern activities which are subject to ancillary fees. JGN also submits that it has made flow-on amendments to clauses 15.8(a), 15.8(b) and 15.8(d) of schedule 3 of the revised access arrangement proposal.<sup>1967</sup>

JGN treats individual ancillary fees as components of the haulage and meter data service reference tariffs.<sup>1968</sup>

#### AER's analysis and considerations

For the reasons set out in chapter 2, the AER considers that the ancillary services are a reference service. Clause 1.1 of schedule 1 of the revised access arrangement proposal does not reflect this. It defines 'Reference Services Agreement' to mean the contract between JGN and a user or prospective user for the provision of reference services as set out in schedule 3 of the revised access arrangement proposal. Clause 1.1 of schedule 1 of the revised access arrangement proposal defines 'Reference Service' to mean the haulage or meter data services. It does not include the ancillary services. The AER proposes including a revised definition of 'Reference Service' in clause 1.1 of schedule 1 of the revised access arrangement proposal to also refer to the ancillary services. This ensures that schedule 3 of the revised access arrangement proposal includes the ancillary services, which represent a third reference service.

JGN submits that clauses 3.1, 24.1 and 15.8 of schedule 3 of the revised access arrangement proposal set out the terms on which requests for service, temporary disconnections, permanent disconnections and decommissioning are dealt with in

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<sup>1965</sup> JGN, *Initial response to the draft decision*, March 2010, p. 268.

<sup>1966</sup> JGN, *Initial response to the draft decision*, March 2010, p. 269.

<sup>1967</sup> JGN, *Initial response to the draft decision*, March 2010, p. 269.

<sup>1968</sup> JGN, *Initial response to the draft decision*, March 2010, p. 269.

relation to the reference haulage services.<sup>1969</sup> The AER has reviewed these clauses and accepts JGN's submission.<sup>1970</sup> The AER approves the amendment of the headings of clauses 24.1 and 15.8 as well as the amendments to clauses 15.8(a), 15.8(b) and 15.8(d) of schedule 3 of the revised access arrangement proposal as these clarify that the clauses concern temporary disconnection and permanent disconnections, decommissioning and meter removal respectively.

The AER notes that clauses 15.8, 17.1(j) and 24.1 of schedule 3 of the revised access arrangement proposal refers to an 'Ancillary Fee' which is defined to mean a charge specified in schedule 2 of the access arrangement proposal<sup>1971</sup>. As discussed in chapter 2 of the final decision, the AER considers that the reference tariffs for the ancillary reference services need to be determined and identified in their own right. Assuming that revision 2.4 of the final decision is made, the reference to an 'Ancillary Fee' in clauses 15.8, 17.1(j) and 24.1 of schedule 3 of the revised access arrangement proposal is appropriate.

The AER notes that the new clause 17.1(j) of schedule 3 of the revised access arrangement proposal sets out the terms on which special meter reads are provided by JGN. The revised access arrangement proposal amends clause 17.1(k) of schedule 3 of the revised access arrangement proposal to require it to advise users of the date of a special meter read pursuant to clause 17.1(j) of schedule 3 of the revised access arrangement proposal.

While the AER considers that schedule 3 of the revised access arrangement proposal would be clearer if the terms and conditions on which the ancillary services are provided were to be grouped together, it does not consider that this is a matter for review under the NGL or NGR.

## **Conclusion**

The AER approves the terms and conditions on which the ancillary services are provided having regard to the amendments required to be made in chapter 2.

### **14.2.2 Legacy services**

#### **Revised access arrangement proposal**

Amendment 14.2 of the draft decision requires JGN to state the terms on which legacy services are provided.

JGN submits that it has removed the legacy services from its revised access arrangement proposal as the legacy services cannot operate in a short term trading market (STTM) environment. This is discussed in chapter 2.<sup>1972</sup>

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1969 JGN, *Initial response to the draft decision*, March 2010, p. 268.

1970 For the avoidance of doubt, the AER notes that because meter data services are deemed to be requested when a user requests a haulage reference service (revised schedule 3, clause 17.1(b)), there is no need to refer to meter data services in relation to requests for services.

1971 JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clause 1.1.

1972 JGN, *Initial response to the draft decision*, March 2010, p. 269.

JGN also submits that it has amended the defined term 'Legacy Services' in the revised reference services agreement to 'Pre-STTM Contracts/Services'.<sup>1973</sup>

#### **AER's analysis and considerations**

The AER notes that the terms 'Pre-STTM Service Agreement' and 'Pre-STTM Service' are used in the schedule 3 of the revised access arrangement proposal.<sup>1974</sup>

#### **Conclusion**

The AER approves the use of the terms 'Pre-STTM Service Agreement' and 'Pre-STTM Service' as this complies with r. 48(1) of the NGR. For a further discussion of legacy services, see chapter 2.

The AER approves the removal of legacy services from the revised access arrangement proposal as this complies with r. 48(1) and r. 100 of the NGR.

### **14.2.3 Meter data**

#### **Revised access arrangement proposal**

Amendment 14.3 of the draft decision requires JGN to include a new clause 17.7 in schedule 3 of the access arrangement proposal requiring a user who reasonably believes meter data information or a meter reading to be incorrect to inform JGN of this and for JGN to investigate and inform the user of its findings.

JGN submits that it has included amendment 14.3 of the draft decision with two minor changes: (i) the new clause referred to as clause 17.7 in the draft decision, is renumbered clause 17.5 to take account of changed numbering; and (ii) the word 'their' is replaced with 'its'.<sup>1975</sup>

#### **Submissions**

EnergyAdvice Pty Ltd (EnergyAdvice) submits that demand customers should have a right to access their metering data directly from JGN (without recourse to their retailer). EnergyAdvice notes that the draft decision considers that JGN may confer certain rights on end users, such as for example, the right to access metering data. EnergyAdvice requests JGN to confer such rights on end users.<sup>1976</sup>

#### **AER's analysis and considerations**

The AER considers both modifications made by JGN, which have no effect on the substance of schedule 3 of the revised access arrangement proposal, to be appropriate.

The AER considers that there may be benefits in JGN permitting end-users access to their metering data. Having said that, as set out in the draft decision and accepted by EnergyAdvice, it is open to JGN to confer such rights on end-users. The AER understands from the round table discussion regarding the proposed tariffs and tariff

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1973 JGN, *Initial response to the draft decision*, March 2010, p. 269.

1974 JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clause 1.1.

1975 JGN, *Initial response to the draft decision*, March 2010, pp. 271–272.

1976 EnergyAdvice, *Submission to the AER*, April 2010, p. 6.

structure that demand customers are able to access their metering data through a direct connection to the meter. In addition, JGN submits that where requested it has offered to provide monthly data to end users.<sup>1977</sup>

## **Conclusion**

The AER approves the revisions made to clause 17.5 of schedule 3 of the revised access arrangement proposal as they comply with r. 100 of the NGR.

### **14.2.4 Amendments to schedule 3 of the access arrangement proposal**

#### **Revised access arrangement proposal**

JGN accepts amendments 14.4–14.7 and 14.11 of the draft decision.

Amendment 14.4 of the draft decision requires JGN to amend clause 2.2, section C(b) of schedule 3 of the access arrangement proposal to permit it to seek the AER's approval to amend the terms of schedule 3 of the access arrangement approved during the access arrangement period in accordance with Division 10 of Part 8 of the NGR. The revised access arrangement proposal reflects this amendment.

Amendment 14.5 of the draft decision requires JGN to delete clauses 2.2, section C(c)–2.2, section C(f) of schedule 3 of the access arrangement proposal. The revised access arrangement proposal reflects this amendment.

Amendment 14.6 of the draft decision requires JGN to amend clause 1.4(b) of schedule 3 of the access arrangement proposal to provide that the user agrees that specified amendments will vary the terms of schedule 3 of the revised access arrangement proposal unless the user can demonstrate its inability to comply with this. Where this is the case, a reasonable extension will be granted. The revised access arrangement proposal reflects this amendment.

Amendment 14.7 of the draft decision requires JGN to amend clause 1.4 of schedule 3 of the access arrangement proposal. The revised access arrangement proposal reflects these amendments.

Amendment 14.11 of the draft decision requires JGN to amend the definition of reference tariff schedules by deleting the reference to the service provider. The revised access arrangement proposal reflects this amendment.

JGN does not accept amendments 14.8–14.10 and 14.12 of the draft decision.

Amendments 14.8–14.10 and 14.12 of the draft decision require JGN to amend schedule 3 of the access arrangement proposal to refer to the variation process set out in Division 10 of Part 8 of the NGR. JGN submits that it has not accepted these amendments as they represent variations of operational matters that JGN currently changes by notification.<sup>1978</sup>

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1977 AER, *Note of roundtable discussion about Jemena's proposed tariffs and tariff structure*, 11 December 2009, p. 7, <<http://www.aer.gov.au/content/index.phtml/itemId/733157>>.

1978 JGN, *Initial response to the draft decision*, March 2010, p. 272.

The revised access arrangement proposal states that schedule 3 of the revised access arrangement proposal forms part of the revised access arrangement proposal. Once the access arrangement proposal is approved it can only be amended in accordance with Division 10 of Part 8 of the NGR.<sup>1979</sup> It submits that once executed, the terms and conditions set out in schedule 3 of the revised access arrangement proposal become a commercial agreement. JGN submits that it is this agreement that is varied by the notification of operational matters set out in the revised access arrangement proposal.<sup>1980</sup> JGN submits that a variation to a transportation agreement made by commercial agreement between two parties does not vary the standard terms of schedule 3 of the revised access arrangement proposal and once in place does not represent a variation to an approved access arrangement.<sup>1981</sup>

Clause 10.1(a)(ii) of schedule 3 of the revised access arrangement proposal concerns JGN's ability to vary gas quality specifications to the extent that such a matter is not dealt with under relevant law. Matters of gas specification which are not prescribed by law include odorant levels and permissible variations. JGN also submits that the Gas Supply (Safety and Network Management) Regulation 2008 sets out responsibilities for managing gas qualities. JGN submits that it would be unable to make lawful amendments of the specification contractually enforceable which would create operational risks. JGN submits that this is not an appropriate subject matter for an access arrangement variation.<sup>1982</sup>

Clauses 14.9(a) and 24.2(a) of schedule 3 of the revised access arrangement proposal deal with the minimum and maximum pressures for the delivery of gas at network receipt points. JGN submits that the safe and reliable operation of the network depends on the pressure of gas presented to its network. JGN submits that it has used its contractual rights to vary receipt point pressures to reduce the pressure to allow maintenance of pipelines and to permit third party works to be carried out. JGN submits that this is not an appropriate subject matter for an access arrangement variation.<sup>1983</sup>

The revised access arrangement proposal outlines that establishing a new receipt point should not require an amendment of an access arrangement. Requiring an access arrangement variation to accommodate a new receipt point, e.g. when Albion Park comes on line in later 2010, is not efficient.<sup>1984</sup>

JGN submits that it is not consistent with the national gas objective (NGO) for the AER to require approval of operational changes. It also advises that requiring a revision would represent a change from its current practice.<sup>1985</sup>

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1979 JGN, *Initial response to the draft decision*, March 2010, p. 274.

1980 JGN, *Initial response to the draft decision*, March 2010, p. 275.

1981 JGN, *Initial response to the draft decision*, March 2010, p. 272.

1982 JGN, *Initial response to the draft decision*, March 2010, pp. 272–273.

1983 JGN, *Initial response to the draft decision*, March 2010, p. 273.

1984 JGN, *Initial response to the draft decision*, March 2010, pp. 273–274.

1985 JGN, *Initial response to the draft decision*, March 2010, p. 274.

In order to clarify that any specifications notified by JGN from time to time under its bilateral contracts with users do not amount to amendments to schedule 3 of the revised access arrangement proposal, JGN incorporates amendments to clauses 10.1(a)(ii) and 28.2(a)(ii)(B)<sup>1986</sup> of schedule 3 of the revised access arrangement proposal. These:

- insert obligations for the user to comply with such specifications and pressures as are notified by JGN from time to time
- describe the operational specifications in annexures 2 and 6 as the initial specifications
- amend annexures 3 and 4 so that JGN will notify the user of any actions required to be taken by them and JGN in the event of a change of circumstances in order to ensure the continued safety, reliability and security of supply of natural gas.<sup>1987</sup>

JGN submits that EnergyAustralia's submission has the same effect as amendment 14.38 of the draft decision to which it has already responded. JGN submits that as with any commercial agreement it is a matter for the parties how to integrate changes in law.<sup>1988</sup>

### **Submissions**

EnergyAustralia Retail (EnergyAustralia) submits that clause 1.4 of schedule 3 of the revised access arrangement should be amended to require JGN to lodge amendments to this document in a timely manner in order to ensure that it remains consistent with legal changes and obligations under the National Energy Customer Framework (NECF). EnergyAustralia states that without this, JGN has absolute discretion whether or not it makes changes to schedule 3 of the revised access arrangement proposal and the timing of these changes.<sup>1989</sup>

### **AER's analysis and considerations**

Rule 41(1) of the NGR provides that the AER's approval of an access arrangement proposal implies approval of every element of the proposal. Each of the terms set out in schedule 3 of the revised access arrangement proposal represents a part of JGN's access arrangement proposal.

JGN submits that an executed schedule 3 of the revised access arrangement proposal forms a commercial arrangement between it and a user. A change made to a specific commercial agreement executed by JGN and a user is separate to, and distinct from, any changes to schedule 3 of the revised access arrangement proposal.

The AER agrees with this aspect of JGN's submission. However, the inclusion of wording that permits JGN to unilaterally amend the approved terms or conditions of

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1986 The AER assumes that JGN's reference to clause 28.2(a)(ii)(B) includes a typographical error and it intends to refer to clause 24.2(a)(ii)(B) in the last line on p. 274 of the Response to the draft decision.

1987 JGN, *Initial response to the draft decision*, March 2010, p. 275.

1988 JGN, letter to the AER, *JGN response to public submissions*, 18 May 2010, p. 30.

1989 EnergyAustralia, *Submission to the AER*, April 2010, p. 5.



schedule 3 has the potential to amend the terms of schedule 3 of the revised access arrangement proposal with terms that are not approved by the AER. The AER understands from JGN's submission that in certain instances, JGN may wish or need to make changes of the type outlined above. However, the proposed wording also presents a means by which the same outcome (as a variation of the terms of schedule 3 of the revised access arrangement proposal) can be achieved. In practice, the wording permits JGN to execute an agreement in schedule 3 of the revised access arrangement proposal with a user and immediately after the agreement is executed, JGN may turn around and notify the user of changed terms. The AER does not consider this approach is appropriate or likely to promote the 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, quality, safety, reliability and security of supply of natural gas as it creates uncertainty regarding the content and effect of the access arrangement proposal.<sup>1990</sup>

For the avoidance of doubt, the AER notes that JGN is generally free to negotiate commercial contracts with variations from the terms of schedule 3 of the approved access arrangement proposal. In the event of an access dispute, the terms of the access arrangement will apply insofar as this does not deprive either party of a relevant contractual right.<sup>1991</sup> The AER's issue is about the language used in schedule 3 of the revised access arrangement proposal.

The AER notes JGN's submission that amendments 14.8–14.10 of the draft decision would have the effect of requiring the AER to approve operational changes and that this would not be consistent with the NGL.<sup>1992</sup> The AER recognises JGN's submission and considers that there are two solutions to this issue:

- to delete the reference to variations being made from time to time, from clauses 10.1(a)(ii), 14.9(a) and 24.2(a)(ii)(B) of schedule 3 of the revised access arrangement proposal
- to change the wording of clauses 10.1(a)(ii), 14.9(a) and 24.2(a)(ii)(B) of schedule 3 of the revised access arrangement proposal to include a limitation on JGN's ability to make changes to take account of changed circumstances and to ensure the continued quality, safety, reliability and security of supply of gas. This would be consistent with clauses 1(c) of Annexures 3 and 4 of schedule 3 of the revised access arrangement proposal.

Under r. 66 of the NGR the AER is required to review and address non-material variations within 20 business days after receiving the access arrangement variation proposal. However, the AER notes JGN's submission that in some instances the changes permitted under the clauses affected by amendments 14.8–14.10 of the draft decision may need to be introduced at short notice and be in effect for a short period and affect some but not all users.<sup>1993</sup> In view of this, the AER considers that the

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<sup>1990</sup> NGL, s. 23.

<sup>1991</sup> NGL, s. 188 and s. 189.

<sup>1992</sup> JGN, *Initial response to the draft decision*, March 2010, p. 274.

<sup>1993</sup> JGN, *Initial response to the draft decision*, March 2010, p. 274.

approach set out in the second bullet point presents a preferable solution that is cognisant of JGN's commercial needs.

The AER notes EnergyAustralia's submission and considers that JGN is under an on-going obligation to ensure that schedule 3 of the revised access arrangement proposal complies with all legal requirements. This limits JGN's discretion as to the timing of any amendments. EnergyAustralia's second concern regarding the need for JGN to meet its obligations under the NECF, is addressed by the inclusion of trigger events - see section 14.2.20 of the decision.

### **Conclusion**

The AER approves amendments 14.4–14.7 and 14.11 of the draft decision as accepted in the revised access arrangement proposal.

The AER does not approve clauses 10.1(a)(ii), 14.9(a) or 24.2(a)(ii)(B) of schedule 3 of the revised access arrangement proposal as these do not comply with r. 100 of the NGR and a preferable alternative exists that complies with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR.<sup>1994</sup>

### **Revision**

The AER proposes the following revision:

**Revision 14.1:** amend schedule 3 of the revised access arrangement proposal to:

- include the following in clause 10.1(a)(ii) after 'Service Provider.' and before 'The initial specification':

The Service Provider shall only amend Annexure 2 in response to a change of circumstances where the changes are of a type reasonably likely to impact on the Service Provider's ability to ensure the continued quality, safety, reliability and security of supply of gas.

- include the following in clause 14.9(a) after 'Service Provider.' and before 'The initial minimum':

The Service Provider shall only amend Annexure 6 in response to a change of circumstances where the changes are of a type reasonably likely to impact on the Service Provider's ability to ensure the continued quality, safety, reliability and security of supply of gas.

- include the following in clause 24.2(a)(ii)(B) after 'Service Provider':

. The Service Provider shall only amend Annexure 6 in response to a change of circumstances where the changes are of a type reasonably likely to impact on the Service Provider's ability to ensure the continued quality, safety, reliability and security of supply of gas

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<sup>1994</sup> NGR, r. 40(3).

## 14.2.5 Decrease in chargeable demand

### Revised access arrangement proposal

Amendment 14.13 of the draft decision requires JGN to make amendments to clauses 4.7(b), 4.7(c), 4.7(e)(ii), 4.7(e)(iii), 4.7(f) and 4.7(g) of schedule 3 of the access arrangement proposal. JGN accepts amendment 14.13 of the draft decision with one minor change. It replaces the word 'their' with 'its' in clause 4.7(c) of schedule 3 of the revised access arrangement proposal.

JGN submits in response to EnergyAustralia's submission that it is simple to access a reduction in chargeable demand. JGN also submits that there is a limit on the ability to reduce chargeable demand in order to maintain the safe and reliable operation of the network and to reduce administrative costs associated with implementing and processing temporary reductions for small volumes of gas. It also submits that the criteria governing the 90 per cent and 'permanent and material reduction' requirement aim to reduce current administrative efforts associated with managing maximum daily quantity (MDQ) charges (by JGN, retailers and customers).<sup>1995</sup>

### Submissions

EnergyAdvice submits that the revised access arrangement proposal reflects a change from JGN's current practice regarding decreases in chargeable demand. In the earlier access arrangement period, customers were able to reduce their MDQ booking on an annual basis (not with 12 months notice and not subject to JGN's 'reasonable satisfaction').<sup>1996</sup> EnergyAdvice considers that there is a need to clarify the time at which requests can be made and the basis on which JGN will determine whether to accept a reduction request. The revised access arrangement proposal fails to provide a means of recourse in the event that JGN rejects a reduction request. EnergyAdvice submits that it should be possible to request reductions of less than 10 per cent, as chargeable demand (the quantity of gas used to determine the demand charge under the reference tariff schedule) can move up by small increments monthly. With this in mind, EnergyAdvice submits that: (i) the reference to 'permanent and material' should be deleted in clause 4.7(a) of the revised access arrangement proposal; (ii) the reference to 90 per cent in clause 4.7(b)(v) of the revised access arrangement proposal should be changed to 95 per cent; and (iii) clause 4.7(c) the revised access arrangement proposal should be amended to include the words 'such consent not to be unreasonably withheld'.

EnergyAustralia submits that clause 4.7 of schedule 3 of the revised access arrangement proposal is in effect equivalent to that of the access arrangement proposal. Regardless of when a user requests a decrease of MDQ—either before a reduction, as in the proposed access arrangement, or, after 12 months, as in the revised access arrangement—chargeable demand is still at least 10 per cent higher than the amount required for a period of at least 13 months. Any reduction in demand cannot be reflected and it remains difficult for customers to access. Like

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1995 JGN, letter to the AER, *JGN response to public submissions*, 18 May 2010, pp. 31, 33.

1996 EnergyAdvice, *Submission to the AER*, April 2010, p. 5.

EnergyAdvice, EnergyAustralia submits that the revised access arrangement proposal does not reflect the earlier access arrangement.<sup>1997</sup>

EnergyAustralia also submits that clause 4.2(h) of schedule 3 of the revised access arrangement proposal of the revised access arrangement permits JGN to decrease MDQ if it becomes aware of a reduced MDQ requirement. JGN may decrease MDQ without reducing the customer's chargeable demand.

Origin Energy Retail Ltd (Origin) submits that the term MDQ is confusing and it inhibits markets for the supply of natural gas from operating efficiently and that it is therefore inconsistent with the NGO. Origin submits that the term should be replaced with the term 'Daily Capacity Entitlement'. It states that 'Capacity Entitlement' is already defined in schedule 3 of the revised access arrangement proposal as being equal to the MDQ specified in the relevant customer list. Origin submits that the term 'Daily Capacity Entitlement' could be used to denote the customer's daily entitlement specified in the customer list. The term 'Hourly Capacity Entitlement' could also replace the term 'Maximum Hourly Capacity'.<sup>1998</sup>

#### **AER's analysis and considerations**

The AER considers that the minor modifications made by JGN to the wording of clause 4.7(c) of schedule 3 of the revised access arrangement proposal do not affect the substance of the clause.

The AER notes EnergyAdvice's and EnergyAustralia's respective submissions that clause 4.7 of schedule 3 of the revised access arrangement proposal represents a change from JGN's earlier access arrangement. The AER notes that JGN outlined at the round table discussion that chargeable demand will assist in stabilising gas use over the long term and to keep transaction costs low.<sup>1999</sup> JGN submits that for reductions to be approved, these need to be permanent and material. To create stability, JGN intends to accept reductions of more than 10 per cent only. These need to be shown to be permanent via historic data. The AER accepts that JGN's intent is to benefit customers over the longer term by stabilising usage and reducing transaction costs. No revision is required.

The AER notes EnergyAdvice's submission that JGN should be required not to withhold consent to a reduction request unreasonably. Clause 4.7(c) of the revised access arrangement proposal should be revised to include this requirement.

The AER notes EnergyAustralia's submission regarding JGN's ability to reduce MDQ without a corollary reduction of the chargeable demand.<sup>2000</sup> Recognising the need to create a stable gas supply system and noting that users are able to seek decreases in chargeable demand, the AER does not require revision of clause 4.2(h) of schedule 3 of the revised access arrangement proposal.

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1997 EnergyAustralia, *Submission to the AER*, April 2010, pp. 6–7.

1998 Origin, *Submission to the AER*, April 2010, pp. 2–3.

1999 AER, *Minutes of roundtable discussion of Jemena's access arrangement revision proposal (2010–2015): terms and conditions*, 27 November 2009, pp. 7–8, <<http://www.aer.gov.au/content/index.phtml/itemID/732690>>.

2000 EnergyAustralia, *Submission to the AER*, April 2010, p. 7.

The AER does not consider it appropriate to require amendment of 'MDQ' as submitted by Origin. As the term is defined in the revised access arrangement proposal, the AER considers that all parties are able to inform themselves of the meaning of the term.

### **Conclusion**

The AER approves the revision of clause 4.7(c) of schedule 3 of the revised access arrangement proposal as this complies with r. 100 of the NGR.

The AER does not approve clauses 4.7(b)(v) or 4.7(c) of schedule 3 of the revised access arrangement proposal as preferable alternatives exist that comply with applicable requirements of the NGL and NGR and are consistent with applicable criteria prescribed by the NGL and NGR.<sup>2001</sup>

### **Revision**

The AER proposes the following revision:

**Revision 14.2:** amend clause 4.7(c) of schedule 3 of the revised access arrangement proposal to include ' , such consent not to be unreasonably withheld' after 'User' and before the full stop.

## **14.2.6 Gas balancing under an arrangement approved by the Services Provider**

### **Revised access arrangement proposal**

Amendments 14.14 and 14.15 of the draft decision require JGN to clarify that JGN does not have discretion whether to apply a gas balancing mechanism that has the force of law. JGN does not accept amendments 14.14 and 14.15 of the draft decision. JGN submits that the amendments made by it to clause 7.4 of schedule 3 of the revised access arrangement proposal clarify that:

- it is not intended to operate to the exclusion of any gas balancing mechanisms that JGN is required to comply with at law
- if a gas balancing mechanism introduced by the Australian Energy Market Operator (AEMO) meets the operational requirements of the network, that mechanism will apply rather than the mechanism set out in the gas balancing annexures
- JGN will notify the user as to the gas balancing mechanism that will apply.<sup>2002</sup>

JGN submits that the responsibility for the ongoing safe and reliable operation of the network under the STTM. It draws on the 'Industry Guide to the STTM' issued by the AEMO in July 2009, which states:<sup>2003</sup>

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2001 NGR, r. 40(3).

2002 JGN, *Initial response to the draft decision*, March 2010, p. 275.

2003 JGN, *Initial response to the draft decision*, March 2010, p. 276.

AEMO has no statutory responsibility for managing gas quality or system security in the hub. The distributor remains responsible for the operation of the distribution system during a supply shortfall and the STTM scope does not include involuntary curtailment of distribution end-customers.

The STTM has no involvement in any distribution processes for managing the scheduling of withdrawals from a hub

## **Submissions**

EnergyAustralia submits that the revised access arrangement proposal does not implement the amendment sought by the AER as the clause retains an 'approval' role for any industry scheme. EnergyAustralia submits that clause 7.4 of schedule 3 of the revised access arrangement proposal needs to require JGN to implement any industry scheme.<sup>2004</sup>

AGL Energy Ltd (AGL) submits that JGN persists in insisting on the right to enforce an alternative balancing regime in the event that a gas balancing mechanism introduced by the AEMO fails to meet the operational requirements of JGN's network. AGL submits that it is in fact not the AEMO implementing a different balancing regime in NSW but the AEMO implementing the STTM as required by the NGL and NGR. AGL submit that in the event of a threat to system security, JGN can take advantage of contingency gas and does not need to revert to the balancing system that applied in the earlier access arrangement period. AGL considers that clause 7.4 of schedule 3 of the revised access arrangement proposal should be amended to provide certainty to users as to how gas balancing will operate in the market.<sup>2005</sup>

Origin submits that it is not convinced that JGN requires a right to enforce an alternative gas balancing regime as proposed in clause 7.4 of schedule 3 of the revised access arrangement proposal. It submits that the clause should be deleted.<sup>2006</sup>

In response to the submissions, JGN submits that it has proposed clause 7.4 of schedule 3 of the revised access arrangement proposal not because it sees fault with the STTM but because JGN is ultimately responsible for its network's operation. It submits that the clause is directed at ensuring the ongoing safety and security of the physical operation of the network.<sup>2007</sup>

## **AER's analysis and considerations**

JGN expresses some uncertainty whether a gas balancing mechanism will be introduced in the access arrangement period.<sup>2008</sup> This uncertainty is at odds with JGN's submission in other parts of the revised access arrangement proposal where it states that it is unable to provide legacy services in the access arrangement period because it cannot provide operational balancing in the STTM environment.<sup>2009</sup> However, leaving this inconsistency aside, the revised access arrangement proposal

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2004 EnergyAustralia, *Submission to the AER*, April 2010, p. 7.

2005 AGL, *Submission to the AER*, April 2010, pp. 3–5.

2006 Origin, *Submission to the AER*, April 2010, p. 6.

2007 JGN, *JGN response to public submissions*, 18 May 2010, pp. 27, 32, 33.

2008 JGN, *Initial response to the draft decision*, March 2010, p. 275.

2009 JGN, *Initial response to the draft decision*, March 2010, p. 27.

raises two issues: (i) responsibility for the safe and reliable operation of JGN's network; and (ii) the need for compliance with legal obligations.

The AER recognises that JGN remains responsible for the safe and reliable operation of its network in an STTM environment. The AER also notes JGN's submission that it has revised clause 7.4 of schedule 3 of the revised access arrangement proposal to clarify that it will not operate to the exclusion of any gas balancing mechanism that JGN is required to comply with at law and that insofar as such a gas balancing mechanism meets the operational requirements of the network, this mechanism will apply instead of the gas balancing mechanism set out in annexure 4 of the revised access arrangement proposal.<sup>2010</sup> Clause 7.4(b) of schedule 3 of the revised access arrangement proposal states that if a gas balancing mechanism is provided under clause 7.4(a) of schedule 3 of the revised access arrangement proposal and JGN reasonably considers that this meets its network's operational requirements JGN will notify users of its application.

The AER notes EnergyAustralia's and AGL's submission regarding clause 7.4 of schedule 3 of the revised access arrangement proposal. Having considered the issue in light of these submissions, the AER considers it appropriate to point out that two key features of the introduction of the STTM are a gas balancing arrangement called the market operator service and a contingency gas arrangement. In accordance with section 91BRB of the NGL the AEMO is responsible for operating and administering the STTM and does so in accordance with the requirements in the NGL, NGR and STTM Procedures. The AER accordingly considers that the STTM provides a gas balancing mechanism that has the force of law. Given this, the AER does not consider that clause 7.4(b) of Schedule 3 of the revised access arrangement proposal is consistent with the NGR or NGL. This is because a balancing mechanism proposed by AEMO will apply irrespective of whether or not it meets JGN's operational requirements.

Clause 7.4(c) of schedule 3 of the revised access arrangement proposal provides that if users have been notified of a mechanism and this mechanism 'ceases to meet the physical operational requirements of the Network Section', JGN may inform users that it ceases to apply. The AER does not approve clause 7.4(c) of schedule 3 of the revised access arrangement proposal because JGN is required to comply with a balancing mechanism that has the force of law.

The AER notes that clause 7.4 of schedule 3 of the revised access arrangement proposal uses the term 'Gas day'. This term also appears in the definition of 'Gas balancing' in section 1.1 of schedule 3 of the revised access arrangement proposal. However, it is not defined. The AER proposes that the term is defined in schedule 3 of the revised access arrangement proposal to mean a period of 24 consecutive hours beginning at 6:00 am, as set out in r. 200 of the NGR.

The AER notes that JGN has not made a submission stating the reason for its amendment of the definition of 'Gas balancing' in section 1.1 of schedule 3 of the revised access arrangement proposal. The amendment does not change the substance of the definition and the AER approves the amendment.

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2010 JGN, *Initial response to the draft decision*, March 2010, pp. 275–276.

JGN submits that it does not accept amendment 14.15 of the draft decision which requires it to amend the access arrangement and access arrangement information to reflect amendment 14.14.

## **Conclusion**

The AER does not approve clause 7.4 of schedule 3 of the revised access arrangement proposal as it does not comply with r. 100 of the NGR and a preferable alternative exists that complies with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR.<sup>2011</sup>

## **Revisions**

The AER proposes the following revisions:

**Revision 14.3:** amend clause 7.4(b) of schedule 3 of the revised access arrangement proposal to delete the following:

, and the Service Provider reasonably considers that mechanism meets the operational requirements of the Network Section,

**Revision 14.4:** amend clause 7.4(c) of schedule 3 of the revised access arrangement proposal to delete 'meet the physical operational requirements of the Network Section,' and replace it with 'be legally required'.

**Revision 14.5:** amend clause 1.1 of schedule 3 of the revised access arrangement proposal to include the following:

**Gas day** means a period of 24 consecutive hours beginning at 6:00 am;

## **14.2.7 User to provide JGN with forecast of withdrawals**

### **Revised access arrangement proposal**

Amendment 14.16 of the draft decision requires JGN to amend clause 7.5(a) of schedule 3 of the access arrangement proposal to include a limitation to the effect that clauses 7.5(c)–7.5(f) of schedule 3 of the access arrangement proposal will only apply if an applicable industry scheme does not set out a timetable.

Amendment 14.17 of the draft decision requires JGN to delete and replace the reference to 'clause 7.5(a)' with a reference to 'clause 7.5(b)' in clause 7.5(c) schedule 3 of the access arrangement proposal.

JGN submits that following its review of the draft decision, it modifies amendment 14.16 of the draft decision. The modification: (i) replaces 'clauses 7.5(c)–(f)' with 'clause 7.5(f)'; and (ii) inserts the following additional wording 'for the User to provide Forecast Withdrawals as required under this clause 7.5.'<sup>2012</sup>

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<sup>2011</sup> NGR, r. 40(3).

<sup>2012</sup> JGN, *Initial response to the draft decision*, March 2010, p. 277.



JGN submits that it accepts amendment 14.17 of the draft decision.<sup>2013</sup>

Responding to EnergyAustralia's submission on this matter, JGN restates its submission presented in its response to the draft decision.<sup>2014</sup>

### **Submissions**

EnergyAustralia submits that the amendments required to be made to clause 7.5 of schedule 3 of the revised access arrangement stated in the draft decision should be implemented in full.<sup>2015</sup>

### **AER's analysis and considerations**

Having had regard to EnergyAustralia's and JGN's submission on EnergyAustralia's submission, the AER does not approve clause 7.5(a) of schedule 3 of the revised access arrangement proposal as this states that clause 7.5(f) will not apply if an applicable industry scheme does not set out a timetable. Amendment 14.16 of the draft decision requires JGN to include a reference to clauses 7.5(c)–7.5(f) of schedule 3 of the revised access arrangement proposal.

Clauses 7.5(c)–7.5(f) of schedule 3 of the revised access arrangement proposal each refer to periods of time over or within which a specified action needs to be taken. In the event that an applicable industry scheme sets out a timetable, none of these provisions will need to (or should) apply. That said, the AER approves the additional wording of 'for the User to provide Forecast Withdrawals as required under this clause 7.5'. While JGN has not made a submission regarding the need to include this wording, the AER notes that this provides greater clarity.

### **Conclusion**

The AER does not approve clause 7.5(a) of schedule 3 of the revised access arrangement proposal as a preferable alternative exists that complies with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR.<sup>2016</sup>

The AER approves amendment 14.17 of the draft decision as accepted in schedule 3 of the revised access arrangement proposal.

### **Revision**

The AER proposes the following revision:

**Revision 14.6:** amend clause 7.5(a) of schedule 3 of the revised access arrangement proposal to delete 'clause 7.5(f)' and replace it with 'clauses 7.5(c)–(f)'.

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2013 JGN, *Initial response to the draft decision*, March 2010, p. 265.

2014 JGN, *JGN response to public submissions*, 18 May 2010, p. 32.

2015 EnergyAustralia, *Submission to the AER*, April 2010, p. 7.

2016 NGR, r. 40(3).

## 14.2.8 Typographical errors

### Revised access arrangement proposal

#### *Clause 11.4(c)(v) of the revised access arrangement proposal*

Amendments 14.18–14.19 of the draft decision require JGN to amend clauses 9.1 and 11.4 of schedule 3 of the access arrangement proposal. JGN submits that the reference to '1 July 2009' in clause 11.4(c)(v) of the access arrangement proposal is not a typographical error. It submits that its intent is to ensure that users have sufficient flexibility to consult with their customers. Also, JGN submits that with this proposal the assignment date will always be deemed to be at least 12 months or more in the past.<sup>2017</sup>

JGN accepts amendment 14.19 of the draft decision.<sup>2018</sup>

#### *Clause 1.3(b) of the revised access arrangement proposal*

JGN submits in correspondence of 28 April 2010, that its revised access arrangement proposal amends clause 1.3(b) of schedule 3 of the revised access arrangement proposal to note that JGN's NSW gas network is made up of four covered pipelines that are together the 'Covered Pipelines'.<sup>2019</sup>

### AER's analysis and considerations

#### *Clause 11.4(c)(v) of the revised access arrangement proposal*

The AER notes JGN's submission regarding amendments 14.18–14.19 of the draft decision and approves its approach.

#### *Clause 1.3(b) of the revised access arrangement proposal*

The AER notes that JGN has amended clause 1.3 of the revised access arrangement proposal to define the AGL NSW Distribution System, AGL Central West Distribution System, Wilton–Newcastle trunk pipeline and Wilton–Wollongong trunk pipeline together to be the 'Covered Pipelines'. Clause 1.1 of schedule 1 of the revised access arrangement proposal defines 'Covered Pipeline' to mean a pipeline to which a coverage determination applies or a pipeline that is deemed to be a covered pipeline by operation of s. 126 or s.127 of the NGL. Clause 1.2(b) of schedule 1 of the revised access arrangement proposal provides that, for the purposes of interpreting the access arrangement proposal, a reference to the singular includes the plural and vice versa. The AER considers that this use of the term 'Covered Pipeline' is likely to cause confusion. The AER does not approve this amendment by JGN.

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2017 JGN, *Initial response to the draft decision*, March 2010, p. 277.

2018 JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clause 9.1.

2019 JGN, letter to the AER, *JGN access arrangement proposal: JGN further response to the draft decision*, 28 April 2010, attachment 4, JGN, *JGN's summary of minor changes to the revised AA that were not made in response to issues raised in the draft decision submitted on 10 April 2010*, 28 April 2010, p. 1.

## Conclusion

### *Clause 11.4(c)(v) of the revised access arrangement proposal*

The AER approves clauses 9.1 and 11.4(c)(v) of the revised access arrangement proposal as they comply with r. 100 of the NGR.

### *Clause 1.3(b) of the revised access arrangement proposal*

The AER does not approve clause 1.3 of the revised access arrangement proposal as a preferable alternative exists that complies with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR.<sup>2020</sup>

## Revision

The AER proposes the following revision:

**Revision 14.7:** amend clause 1.3(b) of the revised access arrangement proposal to delete the following:

, together, the Covered Pipelines

## 14.2.9 Basic metering equipment downgrade at existing delivery station

### **Revised access arrangement proposal**

Amendment 14.20 of the draft decision requires JGN to amend clause 15.6 of schedule 3 of the access arrangement proposal to include a requirement to consult with users. JGN incorporates amendment 14.20 of the draft decision in clause 15.6(a) of schedule 3 of the revised access arrangement proposal with one amendment. It replaces the words 'their' with 'the User's Customers'.<sup>2021</sup>

### **AER's analysis and considerations**

The AER considers that the revised wording is appropriate and approves this.

## Conclusion

The AER approves clause 15.6 of the revised schedule 3 of the access arrangement proposal.

## 14.2.10 Safe access to measuring equipment

### **Revised access arrangement proposal**

Amendment 14.21 of the draft decision requires JGN to amend clause 16.1 of the access arrangement proposal regarding safe access to measuring equipment. JGN incorporates amendment 14.21 of the draft decision in clause 16.1 of schedule 3 of the revised access arrangement proposal with two amendments: (i) JGN deletes the reference to clause 16.1(b) of schedule 3 of the access arrangement proposal from the new clause 16.1(d) as it has no rights to take any action under clause 16.1(b) of schedule 3 of the revised access arrangement proposal; (ii) JGN adds a proviso to

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<sup>2020</sup> NGR, r. 40(3).

<sup>2021</sup> JGN, *Initial response to the draft decision*, March 2010, p. 277.

clause 16.1(d) of schedule 3 of the revised access arrangement proposal that it not be required to give notice in the case of safety risks or emergencies.<sup>2022</sup>

### **Submissions**

Origin submits that clause 16.1 of schedule 3 of the revised access arrangement proposal should be amended to state a specific number of days.<sup>2023</sup>

### **AER's analysis and considerations**

The AER has considered Origin's submission but approves clause 16.1 of schedule 3 of the revised access arrangement proposal. The wording proposed by JGN addresses the issues raised in the draft decision. The AER notes that the proviso inserted by JGN relates to circumstances where 'immediate' access is required for safety reasons or due to an emergency.<sup>2024</sup> The AER considers this appropriate.

### **Conclusion**

The AER approves clause 16.1 of the revised schedule 3 of the revised access arrangement proposal as it complies with r. 100 of the NGR.

## **14.2.11 Consequence of no access**

### **Revised access arrangement proposal**

Amendments 14.22 and 14.23 of the draft decision require JGN to amend clauses 16.3(a) and 16.3(c) of schedule 3 of the access arrangement proposal to specify the basis on which JGN will estimate the quantity of gas delivered and to increase the period of time before which measuring equipment is replicated at a location accessible to JGN.

JGN accepts amendments 14.22 and 14.23 of the draft decision.<sup>2025</sup>

### **Conclusion**

The AER approves amendments 14.22–14.23 of the draft decision as accepted in schedule 3 of the revised access arrangement proposal.

## **14.2.12 Right to alter measuring equipment and flow control**

### **Revised access arrangement proposal**

Amendment 14.24 of the draft decision requires JGN to amend clause 16.8 of schedule 3 of the access arrangement proposal regarding the right to alter measuring equipment. JGN incorporates amendment 14.24 of the draft decision in clause 16.8 of schedule 3 of the revised access arrangement proposal with one change. It submits that this change clarifies that the provision of reasonable time in which the user may

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2022 JGN, *Initial response to the draft decision*, March 2010, p. 278.

2023 Origin, *Submission to the AER*, April 2010, p. 5.

2024 JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clause 16.1 (d).

2025 JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clauses 16.3(a) and 16.3 (c).

rectify the issue only applies where the issue relates to the user's compliance with the provision of schedule 3 of the revised access arrangement proposal.<sup>2026</sup>

Clause 6.1 concerns unauthorised overruns. The draft decision does not require an amendment of clause 6.1 of schedule 3 of the access arrangement proposal.

Because the two clauses are related and a common submission was received they are considered together.

### Submissions

EnergyAustralia submits that JGN should not have the right to install flow control mechanisms without giving the users an adequate opportunity to revise their MDQ. In addition, EnergyAustralia submits that if flow control equipment is installed, chargeable demand should reflect the restricted quantity that the customer can take.<sup>2027</sup>

Origin questions the need to retain JGN's right to install a flow control mechanism (clause 16.8 of schedule 3 of the revised access arrangement proposal) to ensure the network's safe and reliable operation as: (i) Division 2, Part 12 of the NGR allows JGN to not supply a customer if it would be unsafe to do so; (ii) the chargeable demand framework sends a strong price signal to customers not to allow unauthorised overruns.<sup>2028</sup>

In its response to the public submissions, JGN submits that relying on legal process, financial incentives and negotiation with customers would not provide JGN with adequate means to maintain the safety and reliability of the network.<sup>2029</sup>

JGN also submits that clause 6.1 only applies to overruns that have not been authorised by JGN and not 'unauthorised overruns' as defined in schedule 3 of the revised access arrangement proposal.<sup>2030</sup> JGN submits that it needs to be able to install flow control mechanisms to manage network capacity, queuing and system security and safety. It submits that users are able to revise their MDQ or maximum hourly quantity (MHQ) well before an authorised overrun occurs or to request an 'authorised overrun'.<sup>2031</sup>

Further, JGN submits that EnergyAustralia's assumption that a user is entitled to an unauthorised overrun and that this entitlement forms part of the chargeable demand is incorrect. Clause 6.1(b) of schedule 3 of the revised access arrangement only permits

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2026 JGN, *Initial response to the draft decision*, March 2010, p. 278.

2027 EnergyAustralia, *Submission to the AER*, April 2010, p. 7.

2028 Origin, *Submission to the AER*, April 2010, pp. 4–5.

2029 JGN, *JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 33.

2030 JGN, *JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 31.

2031 JGN, *JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 31.

withdrawals to be restricted to the capacity entitlement for the relevant delivery point for any hour or day.<sup>2032</sup>

#### **AER's analysis and considerations**

The AER approves clauses 6.1 and 16.8 of schedule 3 of the revised access arrangement proposal. In coming to this view the AER has accepted JGN's submission<sup>2033</sup> that it needs to have means available to it to ensure the safety and reliability of the network. The installation of flow control mechanisms forms a part of this. The AER also accepts that users are able to use other means to prevent the installation of a flow control mechanism. Further, in the event that a flow control mechanism is installed, the user's demand can only be reduced to that of their chargeable demand per clause 6.3(b) of schedule 3 of the revised access arrangement period.

The AER approves clause 16.8 of schedule 3 of the revised access arrangement proposal as it provides that JGN may only take specified action at the cost of a user where this is required for the safe and reliable operation or protection of the network. In relation to a user's compliance with a provision of schedule 3 of the revised access arrangement proposal, JGN will provide the user with a reasonable period of time to rectify the issue before JGN takes action at the user's cost.

#### **Conclusion**

The AER approves clauses 6.1 and 16.8 of schedule 3 of the revised access arrangement proposal as they comply with r. 100 of the NGR.

### **14.2.13 Service provider to issue invoice**

#### **Revised access arrangement proposal**

Clause 22.1 of schedule 3 of the revised access arrangement proposal concerns the invoices issued by JGN. Clause 22.1(a) of the revised access arrangement provides that JGN may issue invoices at intervals determined at its absolute discretion.

The draft decision does not require an amendment of this clause.

JGN submits in response to the submissions received by interested parties on the draft decision, the draft decision considered that invoicing represented a continuation of current commercial practice and it supports this view. JGN submits that although clause 22.1 of schedule 3 of the revised access arrangement proposal gives JGN absolute discretion as to the intervals with which it will invoice customers, the invoicing clauses require the invoice to be issued in respect to the immediately preceding period and to specify amounts payable for all services supplied in that period.<sup>2034</sup>

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2032 JGN, *JGN response to public submissions*, 18 May 2010, p. 31.

2033 JGN, *JGN response to public submissions*, 18 May 2010, p. 33.

2034 JGN, *JGN response to public submissions*, 18 May 2010, pp. 28, 32, 34.

## Submissions

AGL submits that clause 22.1 of schedule 3 of the revised access arrangement proposal should be amended to ensure that invoices cannot be issued more frequently than monthly so that a retailer can run automated reconciliation processes prior to payment. AGL also submits that invoices should state charges so that retailers can verify them and that they can be provided to a customer or court.<sup>2035</sup>

EnergyAustralia submits that under the earlier access arrangement JGN was required to issue an invoice either as soon as possible after: (i) the first day of the calendar month; or (ii) the end of a billing period. The move to a period at the absolute discretion of JGN represents a deviation from current commercial practice. EnergyAustralia also submits that the earlier access arrangement's obligation on JGN to provide details of total quantities delivered to each delivery point should be reinserted.<sup>2036</sup>

Origin submits that under the earlier access arrangement, JGN issued invoices with regular frequency: this was not less frequently than once monthly.<sup>2037</sup>

With regard to EnergyAustralia's submission that particulars regarding the total quantities at each delivery point should be reinserted, JGN submits that this is covered by clause 17.1(k) of schedule 3 of the revised access arrangement proposal. This requires JGN to provide all meter readings to users.<sup>2038</sup>

## AER's analysis and considerations

The AER notes that the precise content of clause 22.1 of schedule 3 of the revised access arrangement does not represent a continuation of commercial practices undertaken in the earlier access arrangement. The submissions received indicate that users need JGN to issue invoices on a regular basis. This will give users greater certainty regarding JGN's billing cycle. As the intervals at which invoices are issued has flow-on commercial and financial consequences for users, the AER considers that there is merit in establishing a predictable pattern of invoicing. This will support the efficient investment in, and efficient operation and use of, natural gas services for the long term interest of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas. The AER considers it appropriate to revise clause 22.1(a) of schedule 3 of the revised access arrangement proposal by replacing it with the clause that had applied in the earlier access arrangement period.<sup>2039</sup> In coming to this decision, the AER has taken JGN's response to the submissions into consideration but has come to the view that clarity and certainty to the benefit of all parties can be best facilitated by this revision.

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2035 AGL, *Submission to the AER*, April 2010, pp. 7–8.

2036 EnergyAustralia, *Submission to the AER*, April 2010, p. 8.

2037 Origin, *Submission to the AER*, April 2010, pp. 5–6.

2038 JGN, *JGN response to public submissions*, 18 May 2010, p. 32.

2038 JGN, *JGN response to public submissions*, 18 May 2010, p. 32.

2039 JGN, *Jemena's NSW gas networks access arrangement (updated to reflect new ownership 7 March 2007)*, 7 March 2007, schedule 2A, clause 38.

The AER has considered AGL's and EnergyAustralia's submissions that certain information should be specified in the invoice. In view of clause 17.1(k) of schedule 3 of the revised access arrangement proposal the AER does not consider it necessary to prescribe the format or content of the invoices.

### **Conclusion**

The AER does not approve clause 22.1(a) of schedule 3 of the revised access arrangement proposal as a preferable alternative exists that complies with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR.<sup>2040</sup>

### **Revision**

The AER proposes the following revision:

**Revision 14.8:** amend clause 22.1(a) of schedule 3 of the revised access arrangement proposal to delete the text and replace it with the following:

The service provider will render invoices at regular intervals but not less frequently than monthly.

## **14.2.14 Overcharges and undercharges**

### **Revised access arrangement proposal**

Amendment 14.25 of the draft decision requires JGN to amend the access arrangement proposal to include a new clause that addresses JGN's ability to recover amounts over and under charged. JGN incorporates amendment 14.25 of the draft decision in the revised access arrangement proposal with three drafting changes:

- the clause is numbered 22.8(a) instead of 22.8(aa) of schedule 3 of the revised access arrangement proposal
- the term 'additional charges' is replaced with 'correct amount pursuant to clause 22.8(b)' to clarify that overcharges and undercharges are not additional charges but corrections
- the clause is split in two and a proviso is added to the effect that the limitation does not apply to the extent the user has not complied with its obligations under relevant law or has not used reasonable endeavours to recover from end users or whether the user is unable to recover because of default by the user. JGN provides as an example that it would be unreasonable if JGN were not able to recover an amount because the retailer had failed to correctly issue an invoice to a customer.<sup>2041</sup>

### **Submissions**

AGL submits clause 22.8 of schedule 3 of the revised access arrangement should be amended to delete the words 'and pass those charges through to its customers' and the

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<sup>2040</sup> NGR, r. 40(3).

<sup>2041</sup> JGN, *Initial response to the draft decision*, March 2010, p. 278.



following section of clause 22.8(a)(ii) should be moved to the end of sub-clause (i): 'provided that the User has complied with the requirements of all applicable Laws and any relevant contracts and has used reasonable endeavours to recover the relevant charges in accordance with its rights at Law or under a relevant contract.'<sup>2042</sup>

### **AER's analysis and considerations**

The AER considers the proposed renumbering and replacement of the term 'additional charges' is appropriate.

The AER also approves the inclusion of the proviso. This is appropriate to ensure that clause 22.8 of schedule 3 of the revised access arrangement proposal will only apply if a user has complied with their legal (including contractual) obligations and exercised their rights. Having said that, the AER considers that there is merit in AGL's submission that the proviso following clause 22.8(a)(ii) of schedule 3 of the revised access arrangement proposal which applies to both clauses 22.8(a)(i) and 22.8(a)(ii) of schedule 3 of the revised access arrangement proposal should be moved so that it applies to clause 22.8(a)(i) only. A user who has been overcharged by JGN will, as submitted by AGL not be in a position to recover those costs from its customers.<sup>2043</sup>

The AER does not consider it necessary to delete the words 'and pass those charges through to its customers' as submitted by AGL.<sup>2044</sup> The AER considers this requirement appropriate.

The AER notes that JGN has advised that it does not object to these changes being made.<sup>2045</sup>

As an additional matter, the AER notes that the word 'and' joining clauses 22.8(a)(i) and 22.8(a)(ii) of schedule 3 of the revised access arrangement proposal should be deleted in order to avoid confusion. The sub-clauses operate independently of each other.

### **Conclusion**

The AER approves amendment 14.25 of the draft decision as accepted in schedule 3 of the revised access arrangement proposal.

The AER does not approve clause 22.8(a) of schedule 3 of the revised access arrangement proposal as a preferable alternative exists that complies with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR.<sup>2046</sup>

### **Revisions**

The AER proposes the following revisions:

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2042 AGL, *Submission to the AER*, April 2010, p. 8.

2043 AGL, *Submission to the AER*, April 2010, p. 8.

2044 AGL, *Submission to the AER*, April 2010, p. 8.

2045 JGN, *JGN response to public submissions*, 18 May 2010, p. 29.

2046 NGR, r. 40(3).

**Revision 14.9:** amend clause 22.8(a)(i) of schedule 3 of the revised access arrangement proposal to include the following after 'from its customers' and before '; and':

provided that the User has complied with the requirements of all applicable Laws and any relevant contracts and has used reasonable endeavours to recover the relevant changes in accordance with its rights at Law or under a relevant contract

**Revision 14.10:** amend clause 22.8(a)(i) of schedule 3 of the revised access arrangement proposal to delete the word 'and' after the semi-colon.

### 14.2.15 Scheduled interruptions

#### Revised access arrangement proposal

Amendment 14.26 of the draft decision requires JGN to amend clause 25.2(c)(i) of schedule 3 of the access arrangement proposal to require JGN to notify the user and customer in relation to scheduled interruptions.

JGN accepts amendment 14.26 of the draft decision.<sup>2047</sup>

#### Submissions

EnergyAustralia submits that under the earlier access arrangement a user had to use 'best endeavours' to cease delivery or the taking of gas in the event of a scheduled interruption or curtailment.<sup>2048</sup> This matter is relevant to clause 25 of schedule 3 of the revised access arrangement proposal about interruptions and curtailments. Under clauses 25.2(d) and 25.4(c) of schedule 3 of the revised access arrangement proposal, a user is now 'solely responsible' for ensuring there is a cessation or reduction in taking of gas. Clause 25.4(h) and 25.4(i) of schedule 3 of the revised access arrangement proposal further state that a user 'must ensure' that they and their customers comply with any direction given by JGN. EnergyAustralia states that it is unclear how this would operate as short of physically limiting supply (which is only permitted if the user is certified by the network operator) a user has limited means to comply with this clause. EnergyAustralia submits that the earlier access regime's reference to best endeavours should be reinstated.<sup>2049</sup>

JGN responds to EnergyAustralia's submission stating that in the earlier access arrangement the 'best endeavours' obligation is accompanied by an absolute obligation on the user to cease delivering and taking gas. JGN therefore considers that clause 25.4 of schedule 3 of the revised access arrangement proposal is consistent with the earlier access arrangement.<sup>2050</sup>

With respect to clause 25.2(d) of schedule 3 of the revised access arrangement, JGN notes that users will be given advance notice of scheduled interruptions. This will give

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2047 JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clause 25.2(c)(i).

2048 EnergyAustralia, *Submission to the AER*, April 2010, p. 8.

2049 EnergyAustralia, *Submission to the AER*, April 2010, pp. 8, 22–23.

2050 JGN, *JGN response to public submissions*, 18 May 2010, p. 32.

2050 JGN, *JGN response to public submissions*, 18 May 2010, p. 32.

them an opportunity to arrange the cessation or reduction of services with their customers.<sup>2051</sup>

### **AER's analysis and considerations**

The AER notes that the earlier access arrangement does not impose an obligation of sole responsibility as set out in clauses 25.2 and 25.4 of schedule 3 of the revised access arrangement. The AER considers that EnergyAustralia's submission raises two central issues:

- the user (JGN's customer) has a direct contractual relationship with their customer and can require compliance with their customer more directly than JGN
- the user (JGN's customer) is held liable for their customers' actions.

On balance, the AER considers that the user is better placed to affect compliance by their customer in the event that JGN requires a cessation or load reduction or compliance with a curtailment plan. This is because a direct contractual connection exists between these parties. Having said that, the AER accepts EnergyAustralia's submission that users face a practical difficulty in ensuring that their customers comply with their direction. While users may be able to address these difficulties by means of contractual arrangements with their customers, it appears unlikely to the AER that such arrangements are currently in place. In view of this and given the onerous nature of the requirement, the AER considers that: (i) clauses 25.2(d) and 25.4(c) of schedule 3 of the revised access arrangement should be revised by requiring users to use best endeavours to ensure compliance but not making them solely responsible for this; (ii) clauses 25.4(h) and 25.4(i) of schedule 3 of the revised access arrangement proposal should be revised to remove the requirement that users must ensure customers' compliance.

The AER notes that JGN has made amendment 14.26 of the draft decision to clause 25.2(c)(i) of the revised access arrangement proposal.

### **Conclusion**

The AER does not approve clauses 25.2(d), 25.4(c), 25.4(h) and 25.4(i) of schedule 3 of the revised access arrangement proposal.

The AER approves amendment 14.26 of the draft decision as accepted in schedule 3 of the revised access arrangement proposal.

### **Revisions**

The AER proposes the following revisions:

**Revision 14.11:** amend clauses 25.2(d) and 25.4(c) of schedule 3 of the revised access arrangement proposal to delete 'is solely responsible for' and replace it with 'will use best endeavours'.

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2051 JGN, *JGN response to public submissions*, 18 May 2010, p. 32.

2051 JGN, *JGN response to public submissions*, 18 May 2010, p. 32.

**Revision 14.12:** amend clause 25.4(h) of schedule 3 of the revised access arrangement proposal to include the words 'use best endeavours to' between 'the User must' and 'ensure'.

**Revision 14.13:** amend clause 25.4(i) of schedule 3 of the revised access arrangement proposal to include the words 'use best endeavours to' between 'the User must comply with, and must' and 'ensure'.

#### **14.2.16 Failure to pay**

##### **Revised access arrangement proposal**

Amendment 14.27 of the draft decision requires JGN to delete and replace clause 27.3 of schedule 3 of the access arrangement proposal regarding the failure to pay. JGN incorporates amendment 14.27 of the draft decision and amends a typographical error in this so that it refers to clause 22.6 of schedule 3 of the revised access arrangement proposal instead of clause 26.2 of schedule 3 of the revised access arrangement proposal.<sup>2052</sup>

##### **Conclusion**

The AER approves clause 27.3 of schedule 3 of the revised access arrangement proposal as it complies with r. 100 of the NGR.

#### **14.2.17 Liability and indemnity**

##### **Revised access arrangement proposal**

Amendment 14.28 of the draft decision requires JGN to delete clauses 15.12(b) and 24.3(b) of schedule 3 of the access arrangement proposal. JGN does not accept this amendment. It submits that clauses 15.12(b) and 24.3(b) of schedule 3 of the access arrangement proposal do not intend to remove JGN's liability and to impose indemnity liability upon users for JGN's negligent conduct.<sup>2053</sup> JGN submits that these clauses intend to cover damages or claims resulting from a cessation or suspension of gas deliveries at the relevant delivery point, due to a temporary or permanent disconnection or decommissioning of the delivery point pursuant to clauses 15.8, 15.9 and 24 of schedule 3 of the revised access arrangement proposal.<sup>2054</sup>

JGN submits that it is not able to manage risk arising from a cessation or suspension of gas supply because (pursuant to clauses 15.8, 15.9 and 24 of schedule 3 of the revised access arrangement proposal) this arises as a result of a user's request or acts or events in respect of which JGN has no control.<sup>2055</sup>

Clauses 15.8 and 15.9 of schedule 3 of the revised access arrangement proposal apply to the decommissioning of delivery stations by JGN at the user's request and reconnections at a delivery point. JGN submits that clause 24 of schedule 3 of the revised access arrangement proposal applies to the suspension of the delivery of gas at

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2052 JGN, *Initial response to the draft decision*, March 2010, p. 278.

2053 JGN, *Initial response to the draft decision*, March 2010, p. 279.

2054 JGN, *Initial response to the draft decision*, March 2010, p. 279.

2055 JGN, *Initial response to the draft decision*, March 2010, p. 279.

a user's request if: (i) JGN has not received sufficient gas at the receipt point to meet relevant withdrawals; (ii) gas is delivered to a receipt point which is out of specification or does not comply with pressure requirements; (iii) the user is not a registered participant; (iv) the AEMO has instructed the user to suspend the delivery of gas at the delivery point.<sup>2056</sup>

JGN submits that a user is likely to have a contractual arrangement in place with parties for the delivery of gas to the receipt points under the STTM and the user accordingly has the ability to manage the risk.<sup>2057</sup>

JGN submits that it has amended clauses 15.12(b) and 24.3(b) in schedule 3 of the revised access arrangement proposal to delete and replace the words 'Service Provider's actions' in order to address the issue that these clauses impose liability on the user for JGN's negligence.<sup>2058</sup> JGN submits that the revised clauses limit the indemnity liability of the user to damages or claims arising from the suspension or cessation of delivery of gas pursuant to clauses 15.8, 15.9 or 24 of schedule 3 of the revised access arrangement proposal. To the extent to which any damage is suffered or incurred as a result of JGN's negligence, clause 28.2(b) of schedule 3 of the revised access arrangement proposal will apply.<sup>2059</sup>

Amendment 14.29 of the draft decision requires JGN to delete clauses 17.5 and 17.6 of schedule 3 of the access arrangement proposal. JGN accepts this amendment in schedule 3 of the revised access arrangement proposal.

Amendment 14.30 of the draft decision requires JGN to amend the definition of 'Demand Customer List' in schedule 3 of the access arrangement proposal. JGN accepts this amendment in schedule 3 of the revised access arrangement proposal.<sup>2060</sup>

## **Submissions**

AGL submits that a number of clauses in schedule 3 of the revised access arrangement proposal need to be reconsidered.<sup>2061</sup> EnergyAustralia submits that as a consequence of JGN including schedule 3 in the access arrangement proposal, negotiations between users and JGN will be excluded.<sup>2062</sup>

## ***Limited obligation***

EnergyAustralia submits that clauses 3.4, 9.2, 10.1(a) and 14.9(a) of schedule 3 of the revised access arrangement proposal place a limited obligation on JGN. Even if JGN fails to act in accordance with good operating practice it will not breach these clauses and hence users will be left without a remedy.<sup>2063</sup>

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2056 JGN, *Initial response to the draft decision*, March 2010, p. 279.

2057 JGN, *Initial response to the draft decision*, March 2010, p. 279.

2058 JGN, *Initial response to the draft decision*, March 2010, p. 280.

2059 JGN, *Initial response to the draft decision*, March 2010, pp. 280–281.

2060 JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clause 1.1.

2061 AGL, *Submission to the AER*, April 2010, p. 7.

2062 EnergyAustralia, *Submission to the AER*, April 2010, p. 11.

2063 EnergyAustralia, *Submission to the AER*, April 2010, p. 17.

### ***Limited liability***

EnergyAustralia submits that the liability regime proposed in the revised access arrangement proposal differs significantly from that in place in the earlier access arrangement period and that all the revised access arrangement proposal changes reduce JGN's obligations but impose greater liability on users.<sup>2064</sup> EnergyAustralia submits that schedule 3 of the revised access arrangement proposal makes the user expressly liable for loss or damage in a number of circumstances in addition to those of the earlier access arrangement, even where the user has complied with all relevant contractual obligations.<sup>2065</sup> It further submits that the regime is unreasonable and unbalanced to the detriment of users and many risks allocated to users cannot be managed by them.<sup>2066</sup>

AGL submits that schedule 3 of the revised access arrangement proposal does not cover the issue set out in the draft decision. AGL suggests that explicit wording should be included in clauses 15.12(b) and 24.3(b) of schedule 3 of the revised access arrangement proposal attributing the liability to JGN for any negligent dealings connected to user requests and/or the carrying out acts of decommissioning, disconnection or suspension.<sup>2067</sup> Clause 28.2(b) of schedule 3 of the revised access arrangement proposal concerns indemnity.

### ***National Energy Customer Framework***

EnergyAustralia submits that the proposed liability and indemnity regime is inconsistent with the proposed NECF.<sup>2068</sup>

### ***Comparison with other access arrangements***

EnergyAustralia submits that the terms of schedule 3 of the revised access arrangement differ from those approved in the AER's recent access arrangement decision regarding ActewAGL's access arrangement proposal.<sup>2069</sup> It also submits that they differ from the terms approved by the Essential Services Commission of South Australia in 2007 regarding Envestra South Australia's distribution system.<sup>2070</sup>

### ***Specific clauses***

Submissions regarding liability and indemnity were received in relation to a number of specific clauses. The submissions are grouped according to the clause of the revised access arrangement proposal to which they relate.

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2064 EnergyAustralia, *Submission to the AER*, April 2010, pp. 12–18.

2065 EnergyAustralia cites the following clauses of schedule 3 of the revised access arrangement in this regard: clause 5.6(b); clause 9.2(b); clause 9.4(b); clause 10.1(e); clause 10.3(d); clause 14.9(b); clause 18.5; clause 24.2 and 24.3; clause 25.4(k); clause 25.7(a); clause 28.6(a)(v). EnergyAustralia, *Submission to the AER*, April 2010, pp. 14–15.

2066 EnergyAustralia, *Submission to the AER*, April 2010, pp. 18–20, pp. 32–35.

2067 AGL, *Submission to the AER*, April 2010, p. 8.

2068 EnergyAustralia, *Submission to the AER*, April 2010, p. 12.

2069 AER, *Final decision: Access arrangement proposal, ACT, Queanbeyan and Palerang gas distribution network*, March 2010.

2070 The AER assumes there is a typographic error in EnergyAustralia's submission and that 2006 not 2007 is meant. See Access arrangement terms and conditions annexure G ESCOSA 27 October 2006, viewed 18 May 2010, < <http://www.aemc.gov.au/Gas/Scheme-Register/Pipeline-list-summary/SA---Envestra-SA-Gas-Network.html>> and EnergyAustralia, *Submission to the AER*, April 2010, p. 25.

#### *Revocation of authorisation*

AGL submits that this clause should be limited to damage caused by the user.<sup>2071</sup> EnergyAustralia submits that users were not held liable for loss or damage in the case of a revocation by JGN of an authorised overrun in the earlier access arrangement period.<sup>2072</sup> JGN submits that users are better placed to manage this risk than JGN.<sup>2073</sup> Clause 5.6(b) of schedule 3 of the revised access arrangement proposal states that JGN will not be liable and will be indemnified and held harmless by the user against all claims and damages resulting from a revocation by JGN of an authorised overrun.

#### *Liability for disconnection*

AGL submits that this clause should be amended to ensure that JGN is liable for its own negligence or wilful misconduct as this is a fundamental principle of law.<sup>2074</sup> In response to the public submissions, JGN submits that it has no control over the risk arising from the cessation of the delivery of gas as it is AEMO and the user who take action and not JGN. Clause 15.12 of schedule 3 of the revised access arrangement proposal relates to liability for disconnection.

#### *Meter data*

AGL submits that meter data provision is a big problem for users and queries the format in which the data must be provided by JGN. It also asks about standards in relation to data validation and submits that it does not understand why JGN does not indemnify users where JGN is negligent or fails to comply.<sup>2075</sup> Clause 17.1 of schedule 3 of the revised access arrangement proposal which concerns the meter data service offered as a reference service. It does not specify the format in which data is to be provided.

#### *Notices for incorrect meter readings*

AGL submits it would be equitable for JGN to indemnify users against any loss when considered against all indemnities that a user has to provide JGN.<sup>2076</sup> Clause 17.5 of schedule 3 of the revised access arrangement proposal concerns the notice to be given by a user regarding incorrect meter data information or reading. AGL submits that this clause, as revised, is improved.

#### *Force majeure*

AGL submits that clause 26.1(a)(vii) and 26.1(a)(viii) of schedule 3 of the revised access arrangement proposal—which concern equipment breakdowns and native title claims—should be deleted as they are not force majeure events but represent events within JGN's control.<sup>2077</sup>

EnergyAustralia submits the changes to the definition of 'force majeure' are one-sided. It submits that if there are changes in market conditions for the transportation and/or purchase and sale of gas, then a user is unable to call a force majeure but if the same

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2071 AGL, *Submission to the AER*, April 2010, p. 7.

2072 EnergyAustralia, *Submission to the AER*, April 2010, pp. 14, 22.

2073 JGN, *JGN response to public submissions*, 18 May 2010, p. 27.

2074 AGL, *Submission to the AER*, April 2010, p. 7.

2075 AGL, *Submission to the AER*, April 2010, p. 7.

2076 AGL, *Submission to the AER*, April 2010, p. 7.

2077 AGL, *Submission to the AER*, April 2010, p. 8.

event affects the operation of the network, then JGN is able to call a force majeure event. It submits that clause 26.1(b)(iv) of schedule 3 of the revised access arrangement should be deleted.<sup>2078</sup>

EnergyAustralia also submits that the definition of 'force majeure' alters the risk allocation from that in the previous access arrangement period, to the detriment of users. It submits that the user is now exposed to liability for more breaches which occur due to factors beyond its control and therefore removes much of the protection afforded to users by the force majeure provisions.<sup>2079</sup>

JGN submits that AGL's submission incorrectly assumes that clauses 26.1(vii) and 26.1(viii) of schedule 3 of the revised access arrangement proposal give JGN the benefit of the force majeure clause in the case of equipment breakdown or native title claims. JGN submits that this is not the case. The words at the beginning of clause 26.1(a) of schedule 3 of the revised access arrangement proposal expressly state that these are events outside the control of JGN. JGN further submits that the definition of force majeure is the same as that used in the earlier access arrangements.<sup>2080</sup>

JGN submits in relation to EnergyAustralia's submission regarding clause 26.1(b)(iv) of schedule 3 of the revised access arrangement proposal that the provision is included in JGN's existing general terms and conditions.<sup>2081</sup>

Clause 26 of schedule 3 of the revised access arrangement proposal concerns force majeure.

AGL submits that schedule 3 of the revised access arrangement proposal does not cover the issue set out in the draft decision. AGL suggests that explicit wording should be included in clauses 15.12(b) and 24.3(b) allocating JGN the liability related to JGN's negligence in dealing with user requests and/or carrying out acts of decommissioning, disconnection or suspension.<sup>2082</sup> Clause 28.2(b) of schedule 3 of the revised access arrangement proposal concerns indemnity.

### **AER's analysis and considerations**

The AER notes EnergyAustralia's submission that the effect of including schedule 3 of the revised access arrangement proposal will be to exclude negotiations between users and JGN.<sup>2083</sup> However, the AER operates under a propose-respond model and neither the NGL nor the NGR preclude JGN from submitting schedule 3 of the revised access arrangement proposal. Having said that, the AER notes that while the terms of schedule 3 of the revised access arrangement proposal may form the basis for

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2078 EnergyAustralia, *Submission to the AER*, April 2010, p. 8.

2079 EnergyAustralia, *Submission to the AER*, April 2010, p. 16.

2080 JGN, *JGN response to public submissions*, 18 May 2010, p. 29.

2081 JGN, *JGN response to public submissions*, 18 May 2010, p. 32. The AER notes that JGN also states 'JGN's response in relation to clause 26.1(b)(iv) above is relevant here too.' The AER assumes that JGN means to refer to clause 26.1(a)(vii) and 26.1(a)(viii) of schedule 3 of the revised access arrangement as JGN does not make an earlier submission regarding clause 26.1(b)(iv) of schedule 3 of the revised access arrangement in the document.

2082 AGL, *Submission to the AER*, April 2010, p. 8.

2083 EnergyAustralia, *Submission to the AER*, April 2010, p. 11.



negotiations, JGN and users are free to depart from the terms of schedule 3 of the revised access arrangement proposal. However, users should be aware that entering into an agreement on terms other than those set out in the access arrangement will have consequences in the event of an access dispute.

The following sections outline the AER's analysis and considerations about specific clauses of schedule 3 of the revised access arrangement proposal.

#### ***Limited obligation***

The AER has reviewed EnergyAustralia's submission and considers that the following clauses are not in accordance with the NGO and require revision:

- clause 3.4(b) of schedule 3 of the revised access arrangement proposal to include a statement that unless an imbalance is such as would negatively affect the ability of a prudent and efficient service provider to provide the service, JGN will receive and deliver quantities of gas. The AER considers that unless this is included, the efficient investment in, operation and use of natural gas services will not be promoted in the long term interests of consumers of natural gas
- clause 10.1(a) of schedule 3 of the revised access arrangement proposal to include a statement that JGN is not obliged to provide a service if the gas delivered at a receipt point does not comply with the relevant specifications and the non-compliance with the specifications is such as to negatively affect the ability of a prudent and efficient service provider to provide the service. The AER considers that unless this is included, the efficient investment in, operation and use of natural gas services will not be promoted in the long term interests of consumers of natural gas
- clause 14.9(a) of schedule 3 of the revised access arrangement proposal to include a statement that JGN is not obliged to provide a service if gas delivered at a receipt point does not comply with the pressure requirements, if the delivery at other pressures is such as to negatively affect the ability of a prudent and efficient service provider to provide services. AER considers that unless this is included, the efficient investment in and operation of natural gas services will not be promoted in the long term interests of consumers of natural gas.

The AER does not consider that clause 9.2 of schedule 3 of the revised access arrangement proposal should be revised. The AER accepts JGN's submission that it is not able to control the commingling of gas and that it is not appropriate for liability for this to rest with it.<sup>2084</sup>

#### ***Limited liability***

AGL submits that schedule 3 of the revised access arrangement proposal does not cover the issue set out in the draft decision. AGL suggests that explicit wording should be included in clauses 15.12(b) and 24.3(b) of schedule 3 of the revised access arrangement allocating JGN the liability related to JGN's negligence in dealing with

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2084 AER, *Notes of round-table discussion of Jemena's revised access arrangement revision proposal (2010–15): terms and conditions*, 27 November 2009, pp. 17–19, < <http://www.aer.gov.au/content/index.phtml/itemId/733157>>.

user requests and/or carrying out acts of decommissioning, disconnection or suspension.<sup>2085</sup> Clause 28.2(b) of schedule 3 of the revised access arrangement proposal concerns indemnity. The AER notes JGN's submission that clauses 15.12(b)<sup>2086</sup> and 24.3 of schedule 3 of the revised access arrangement proposal do not extend to any damage resulting from JGN's negligence in carrying out work required. JGN submits that clause 28.2(b) of schedule 3 of the revised access arrangement proposal covers such damage.<sup>2087</sup>

The AER notes that schedule 3 of the revised access arrangement proposal states that except for certain specified circumstances, a party's liability is limited. One of these circumstances is where an indemnity is provided.<sup>2088</sup> As submitted by EnergyAustralia, the effect of this is to leave users open to unlimited liability where they have provided an indemnity. Users provide an indemnity under both clauses 15.12(b) and 24.3(b) of schedule 3 of the revised access arrangement proposal.

The AER considers that JGN's approach is not in the long term interest of consumers of natural gas. Unless liability remains with JGN for its negligent acts, wilful misconduct or failure to meet the standard expected of a reasonable service provider, the efficient operation and use of natural gas services will not be promoted in the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas. Liability should remain with JGN where its negligent acts, wilful misconduct or failure to meet the standard expected of a reasonable service provider results in damage to a user. Having said that, the AER does not propose to require the deletion of clause 28.6(a)(vi) of schedule 3 of the revised access arrangement proposal. However, the following clauses require revision as the operation of clause 28.6(a)(iv) of schedule 3 of the revised access arrangement proposal would result in an outcome that would fail to meet the NGO clauses 3.4(b), 5.6(b), 6.2, 9.2, 10.1(a), 10.1(e), 10.3(d), 10.10(i), 14.9(b), 15.12(a), 15.12(b), 24.3(b), 25.4(k), 25.7(a), 28.4(b)(i) and 28.7(a) of schedule 3 of the revised access arrangement proposal.

### ***National Energy Customer Framework***

The AER notes EnergyAustralia's submission that parties should bear reasonable responsibility for their own non-compliance and negligence.<sup>2089</sup> The AER accepts this as a general proposition for the revised access arrangement proposal. However, because of the current status of the NECF and the fact that the Ministerial Council on Energy, Standing Committee of Officials makes this comment in relation to the reliability of network services the AER has afforded less weight to this than would otherwise be the case.<sup>2090</sup>

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2085 AGL, *Submission to the AER*, April 2010, p. 8.

2086 The AER notes that JGN refers to clause 15.2(a) of schedule 3 of the Revised access arrangement proposal in its submission on the public submissions. The AER assumes this to be a typographical error. JGN, *JGN response to public submissions*, 18 May 2010, p. 29.

2087 JGN, *JGN response to public submissions*, 18 May 2010, p. 29.

2088 JGN, *Revised access arrangement proposal*, March 2010, Schedule 3, clause 28.6(a)(vi).

2089 EnergyAustralia, *Submission to the AER*, April 2010, pp. 24–25.

2090 EnergyAustralia, *Submission to the AER*, April 2010, p. 25 which cites Ministerial Council on Energy, Standing Committee of Officials, National Energy Customer Framework: Second exposure draft, Explanatory Materials, November 2009, paragraph 72.

### *Comparison with other access arrangements*

The AER notes EnergyAustralia's submission that the terms of schedule 3 of the revised access arrangement differ from those approved by the AER in relation to ActewAGL Distribution (ActewAGL) in 2010<sup>2091</sup> and those approved by the Essential Services Commission of South Australia in 2007 regarding Envestra South Australia's distribution system.<sup>2092</sup> While the AER notes that EnergyAustralia's comparison is not exhaustive and neither the NGL nor NGR provide specific guidance about liability and indemnity issues the AER has taken EnergyAustralia's submission into consideration in this section.

### *Revocation of authorisation*

The AER notes AGL's and EnergyAustralia's submissions and JGN's response to these submissions. The AER does not consider it appropriate to limit a user's liability to damage caused by the user in the event of a revocation of authorisation permitting an overrun. To do so would shift a significant risk of liability to JGN alone. This may result in an outcome contrary to consumers' interests with regard to the price, quality, safety, reliability or security of supply of gas.<sup>2093</sup> As set out above under the heading of 'Limited liability', the AER does however consider it appropriate to hold JGN liable for any acts performed negligently, with wilful misconduct or where its conduct fails to meet that expected of a reasonable service provider.

### *Liability for disconnection*

The AER notes AGL's submission that JGN should be liable for its own negligence or wilful misconduct.<sup>2094</sup> JGN submits that it is not able to manage the risk arising from a cessation or suspension of gas supply because this arises as a result of a user's request or acts or events in respect of which JGN has no control.<sup>2095</sup> The AER does not accept this because while the request for the specific action is at a user's election, JGN has to take active steps to cease the delivery of gas on the decommissioning of a delivery station or the disconnection of supply. These activities form a part of the ancillary services.<sup>2096</sup> In the event that JGN takes action or fails to take action resulting in damage or acts negligently or engages in wilful misconduct, it would be unreasonable to hold the user liable for this.

Revisions to clauses 15.12(a) and 15.12(b) of schedule 3 of the revised access arrangement proposal are required (see the 'Limited liability' section above).

### *Meter data*

The AER notes that clause 17.1(k) of schedule 3 of the revised access arrangement proposal provides that JGN must advise users of the quantity of gas taken by them in such format as determined by it after giving reasonable notice of any change to the

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2091 AER, *Final decision: Access arrangement proposal, ACT, Queanbeyan and Palerang gas distribution network*, March 2010.

2092 Access arrangement terms and conditions annexure G ESCOSA 27 October 2006, viewed 18 May 2010, <<http://www.aemc.gov.au/Gas/Scheme-Register/Pipeline-list-summary/SA---Envestra-SA-Gas-Network.html>> and EnergyAustralia, *Submission to the AER*, April 2010, p. 25.

2093 NGL, s. 23.

2094 AGL, *Submission to the AER*, April 2010, p. 7.

2095 JGN, *Initial response to the draft decision*, March 2010, p. 279.

2096 JGN, *Access arrangement information*, August 2009, pp. 172–173.

format. AGL does not submit what might be an appropriate format or what an appropriate standard for data validation would contain.

The AER considers it appropriate to revise clause 17.1(k) of schedule 3 of the revised access arrangement proposal to require JGN to take into consideration users' submissions regarding changes being made to the format of meter data before a change is made to the format of the meter data. Because format changes will impact on of user's business practices, the AER considers that this revision will promote the 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, quality, safety, reliability and security of supply of natural gas.

The AER notes AGL's suggestion that JGN should indemnify users for inaccuracies of meter data information.<sup>2097</sup> The AER notes that the draft decision requires JGN to remove clause 17.5 of schedule 3 of the revised access arrangement (amendment 14.29 of the draft decision). However, the draft decision does not require JGN to provide the meter data service to a particular standard. Having regard to AGL's submission, the AER considers that this should be amended and JGN held accountable for the accuracy of the meter data information provided by it. This will give users greater security regarding the content, value and risk associated with information provided by JGN, thereby promoting the efficient investment, operation and use of natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas as users.

#### *Force majeure*

The AER has reviewed clause 26.1 of schedule 3 of the revised access arrangement proposal in the light of submissions from AGL, EnergyAustralia and JGN's response to these submissions. The AER does not accept AGL's submission as it does not consider that equipment breakdowns, breakages, native title claims and other factors listed in clause 26.1(a)(vii) are events that are reasonably within JGN's control.<sup>2098</sup> Clause 26.1 clearly states that force majeure events are circumstances or causes not within the control of a party and which could not be overcome or prevented by the exercise of due diligence. The AER considers that the events in clause 26.1(a)(vii) of schedule 3 of the revised access arrangement are of such a type. The AER notes JGN's submission that the definition of force majeure is in any event the same as that included in existing agreements.<sup>2099</sup> The AER does not consider this submission is helpful. It notes that the definition in schedule 3 of the revised access arrangement proposal is the same as the terms and conditions for tariff and non-tariff services. However, it is not the same as that included in the earlier access arrangement approved by the IPART. The document approved by the IPART shows some minor

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2097 AGL, *Submission to the AER*, April 2010, p. 7.

2098 AGL, *Submission to the AER*, April 2010, p. 8.

2099 JGN, *JGN response to public submissions*, 18 May 2010, p. 29.

wording differences, but more significantly, does not provide a list of circumstances that constitute force majeure events.<sup>2100</sup>

Turning to clause 26.1(b)(iv) of schedule 3 of the revised access arrangement proposal, the AER does not agree with EnergyAustralia that this clause should be deleted.<sup>2101</sup> Clause 26.1(b)(iv) of schedule 3 of the revised access arrangement proposal states that changes in market conditions for transportation and/or purchase and sale of gas will not constitute or force a force majeure event. The AER notes JGN's submission that this clause was included in the earlier access arrangement.<sup>2102</sup> For the reasons outlined above, the AER does not consider this submission is helpful. Notwithstanding this, the AER considers this clause is in accordance with the NGO and does not require a revision.

In relation to EnergyAustralia's submission regarding the reallocation of risk to the detriment of users,<sup>2103</sup> the AER notes that a force majeure event is defined by reference to clause 26.1 of schedule 3 of the revised access arrangement proposal. Clause 26.1(b)(iii) of schedule 3 of the revised access arrangement proposal states that a user's failure to comply with clauses 7 (nominating and balancing), 9.1 (commingling, custody, control, responsibility and warranty), 10 (gas quality) or 14 (receipt points and receipt stations) of schedule 3 of the revised access arrangement proposal will not constitute a force majeure event. This means that even if an event is beyond a user's control, the force majeure provision does not apply to these clauses. Accordingly, the user is liable for non-performance resulting from events outside its control.<sup>2104</sup>

The AER acknowledges that a user's non-performance under these clauses may affect the operation of the network: most particularly its reliability and the security of supply of gas. However, the AER considers that if the non-performance relates to circumstances beyond a user's control, these clauses should not be excluded from constituting force majeure events. The AER accordingly requires a revision to delete clause 26.1(b)(iii) of schedule 3 of the revised access arrangement proposal.

## Conclusion

The AER does not approve any of the following clauses of schedule 3 of the revised access arrangement proposal as these do not comply with r. 100 of the NGR and/or a preferable alternative exists that complies with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR:<sup>2105</sup> clause 3.4(b), 5.6(b), 6.2, 9.2(b), 10.1(a), 10.1(e), 10.3(d), 10.10(i), 14.9(a), 14.9(b), 15.12(a), 15.12(b), 17.1(k), 24.3, 25.4(k), 25.7(a), 26.1(b)(iii), 28.7(a).

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2100 JGN, *Jemena's NSW gas networks access arrangement (updated to reflect new ownership)* 7 March 2007, schedule 1, p. 76 and AGL gas networks: *Access arrangement for NSW network*, June 2005, schedule 1, p. 79.

2101 EnergyAustralia, *Submission to the AER*, April 2010, p. 8.

2102 JGN, *JGN response to public submissions*, 18 May 2010, p. 32.

2103 EnergyAustralia, *Submission to the AER*, April 2010, p. 16.

2104 EnergyAustralia, *Submission to the AER*, April 2010, p. 16.

2105 NGR, r. 40(3).

The AER approves the acceptance of amendments 14.29 and 14.30 of the draft decision in schedule 3 of the revised access arrangement proposal.

### Revisions

The AER proposes the following revisions:

**Revision 14.14:** amend clause 3.4(b) of schedule 3 of the revised access arrangement proposal to include 'unless the imbalance is such as to negatively affect the ability of a prudent and efficient service provider to provide the Service' between 'from that Network Section,' and 'under the Haulage Reference Service'.

**Revision 14.15:** amend clause 10.1(a) of schedule 3 of the revised access arrangement proposal to include the following words after 'Receipt Point does not comply':

with the following and the failure to comply is of a type likely to negatively affect the ability of a prudent and efficient service provider to provide the Service

**Revision 14.16:** amend clause 14.9(a) of schedule 3 of the revised access arrangement proposal to include 'and this is such as to negatively affect the ability of a prudent and efficient service provider to provide a Service' at the end of the first sentence of the clause, before the full stop.

**Revision 14.17:** amend clause 14.9(b) of schedule 3 of the revised access arrangement proposal to include at the end of the first sentence before the full stop, 'unless and to the extent the Service Provider's conduct constitutes wilful misconduct or negligence or the Service Provider's action is inconsistent with that expected of a reasonable service provider'.

**Revision 14.18:** amend clauses 5.6(b), 6.2, 9.2(b), 10.1(e), 10.3(d), 10.10(i), 25.4(k), and 25.7(a) of schedule 3 of the revised access arrangement proposal to include at the end before the full stop the words 'unless and to the extent the Service Provider's conduct constitutes wilful misconduct or negligence or the Service Provider's action is inconsistent with that expected of a reasonable service provider'.

**Revision 14.19:** amend schedule 3 of the revised access arrangement proposal to include the following in clause 15.12(a) between the words 'for any Damage' and 'if a Delivery Station' and in clause 15.12(b) between the words 'Damages or claims' and 'in connection with or arising':

unless and to the extent the Service Provider's conduct constitutes wilful misconduct or negligence or the Service Provider's action is inconsistent with that expected of a reasonable service provider

**Revision 14.20:** amend clause 17.1(k) of schedule 3 of the revised access arrangement proposal to include the following sentence after 'notice of any change in format.':

The Service Provider will take into consideration all reasonable concerns raised by a User regarding changes to the format, if these are received by the Service Provider within two business days following the User's receipt of a notice advising of a change of format.

**Revision 14.21:** amend clause 17.5 of schedule 3 of the revised access arrangement proposal to include the following at the end of the clause:

Except for circumstances beyond its control, the Service Provider remains liable for the accuracy of the information provided by it.

**Revision 14.22:** amend clause 24.3(b) of schedule 3 of the revised access arrangement proposal to include the following between the words 'suspension of the delivery of Gas' and 'pursuant to this clause 24':

unless and to the extent the Service Provider's conduct constitutes wilful misconduct or negligence or the Service Provider's action is inconsistent with that expected of a reasonable service provider

**Revision 14.23:** amend schedule 3 of the revised access arrangement proposal to delete clause 26.1(b)(iii).

**Revision 14.24:** amend clause 28.7(a) of schedule 3 of the revised access arrangement proposal to include the following between the words 'not apply to liabilities' and 'where the User has provided':

unless and to the extent the Service Provider's conduct constitutes wilful misconduct or negligence or the Service Provider's action is inconsistent with that expected of a reasonable service provider

## **14.2.18 Capacity trading**

### **Revised access arrangement proposal**

Amendment 14.31 of the draft decision requires JGN to amend clause 29.4(b) of schedule 3 of the access arrangement proposal regarding capacity trading requirements.

JGN accepts amendment 14.31 of the draft decision.<sup>2106</sup>

### **Conclusion**

The AER approves amendment 14.31 of the draft decision as accepted in schedule 3 of the revised access arrangement proposal.

## **14.2.19 Security and financial standing**

### **Revised access arrangement proposal**

The draft decision does not require an amendment to clause 30 of schedule 3 of the revised access arrangement proposal.

### **Submission**

AGL submits that clause 30 of schedule 3 of the revised access arrangement proposal should include a trigger describing the circumstances under which JGN can draw on

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<sup>2106</sup> JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clause 29.4(b).

credit support provided by a user. AGL submits that this should not be at the absolute discretion of JGN.<sup>2107</sup>

JGN submits in response, that the draft decision accepts that clause 30 of schedule 3 of the access arrangement to be in accordance with the NGO. JGN submits that the draft decision considers AGL's submission.<sup>2108</sup>

### **AER's analysis and considerations**

The AER has reviewed AGL's submission<sup>2109</sup> regarding clause 30 of schedule 3 of the revised access arrangement proposal and considers that it is appropriate to amend this by requiring JGN only to request security from a user where this is reasonably necessary. The AER notes that AGL's submission is not the same as that received in relation to the draft decision in November 2009.<sup>2110</sup> Irrespective of this, the AER notes that the NGR provides for the submission process and the AER must take into account submissions received in making its final decision in respect of an access arrangement proposal.<sup>2111</sup>

### **Conclusion**

The AER does not approve clauses 30(a), 30(b) or 30(d) of schedule 3 of the revised access arrangement as preferable alternatives exists that comply with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR.<sup>2112</sup>

### **Revision**

The AER proposes the following revision:

**Revision 14.25:** amend clauses 30(a), 30(b) and 30(d) of schedule 3 of the revised access arrangement proposal to delete 'at any time' and replace it with 'where reasonably necessary'.

## **14.2.20 Extensions and expansions**

### **Revised access arrangement proposal**

Amendments 14.32–14.36 of the draft decision require JGN to replace and amend certain aspects of the extensions and expansions policy set out in clause 7 of the access arrangement proposal. JGN submits that it has not incorporated amendments 14.32–14.36 of the draft decision. It submits that amendment 14.32 of the draft decision has the effect of declaring part of a network section to be uncovered. JGN submits that matters to do with coverage are the function of the National Competition Council (NCC) and that the default position should be that a network extension

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2107 AGL, *Submission to the AER*, April 2010, p. 9.

2108 JGN, *JGN response to public submissions*, 18 May 2010, p. 29.

2109 AGL, *Submission to the AER*, April 2010, p. 9.

2110 AGL, *Submission: JGN access arrangement 21010-2015*, 10 November 2009, appendix, p. 25.

2111 NGR, r. 62(1).

2112 NGR, r. 40(3).



should remain subject to the same access framework and market framework as the existing network section of which it is a part.<sup>2113</sup>

JGN submits that the operation of amendment 14.32 of the draft decision would have undesirable consequences: (i) separate services would have to be provided through different parts of the same network section. This would result in differences in the terms and conditions, prices, processes applying to customers within that network section and commercial operations (e. g. gas balancing) between covered and uncovered parts of the network; and (ii) retail market systems and structures would have to adapt to multiple pipelines within a single network section.<sup>2114</sup>

JGN submits that in the event that the AER rejects JGN's submission regarding amendment 14.32–13.33 of the draft decision, the AER should replace the words 'high pressure pipeline extension' in clause 7(a)(i)–(iv) of schedule 3 of the revised access arrangement proposal with the words 'new network sections', whereby a new network section is a discrete sub-network that is:

- not an extension of a pre-existing network section
- is exclusively supplied through a new connection to a transmission pipeline

where both the new network section and the new connection to the transmission pipeline are commissioned after 30 June 2010.<sup>2115</sup>

JGN submits that amendment 14.34 of the draft decision would require JGN to submit a detailed annual report on extensions and expansions during the financial year. JGN considers this inappropriate and unnecessary given the AER's existing information gathering powers.<sup>2116</sup>

#### **AER's analysis and considerations**

Amendment 14.32 of the draft decision concerns the method used to determine whether a high pressure extension or expansion of a covered pipeline will form a part of a covered pipeline. JGN submits that the effect of amendment 14.32 is that 'part of a network section could be declared to be uncovered' and that this is the domain of the NCC.<sup>2117</sup>

Section 18 of the NGL provides that certain extensions or expansions will form a part of a covered pipeline if the extension and expansion requirements under the access arrangement provide for this. Despite JGN's submission this provision provides for an access arrangement to include policy regarding extensions and expansions that may be included or not included as part of the existing covered network. Rule 48(1)(g) of the NGR provides that a full access arrangement must set out the extension and expansion requirements. Rule 104(1) of the NGR provides that the extension and

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2113 JGN, *Initial response to the draft decision*, March 2010, p. 281.

2114 JGN, *Initial response to the draft decision*, March 2010, p. 281.

2115 JGN, *Initial response to the draft decision*, March 2010, pp. 281–282.

2116 JGN, *Initial response to the draft decision*, March 2010, pp. 4, 282.

2117 JGN, *Initial response to the draft decision*, March 2010, p. 281.

expansion requirements in an access arrangement may state whether the access arrangement will apply to 'incremental services' to be provided as a result of a particular extension or expansion of the pipeline or allow for the later resolution of that question. 'Incremental services' means pipeline services provided by means of an extension or expansion of the pipeline.<sup>2118</sup> The AER accordingly considers that the requirement that JGN apply to the AER so that the AER can assess whether the access arrangement applies to the proposed high pressure extension is within the scope of r. 104 of the NGR.

The AER notes JGN's submission that if JGN does not apply to the AER or the AER does not approve the application, an extension will not represent a part of the covered pipeline. The consequence of this is that the services provided over the extension do not come within the scope of the access arrangement.<sup>2119</sup>

JGN submits that this would have undesirable consequences:

- separate services would have to be provided through different parts of the same network section, resulting in differences in the terms and conditions, prices and commercial operation (e. g. gas balancing) between covered and uncovered parts of the network
- retail market systems and structures would have to adapt to multiple pipelines within a single network section.<sup>2120</sup>

The AER notes that while JGN would not be required to apply the terms and conditions, processes and tariffs set out in the access arrangement, JGN would not be precluded from doing so. The AER notes JGN's submission that it would need to apply separate commercial operations.<sup>2121</sup> JGN refers to customer churn in this context and submits that retailers would have to establish contractual arrangements to deliver gas into the sub-network before being able to do business there.<sup>2122</sup> JGN also refers to gas balancing in this context. It submits that each network may have to be treated separately for the purpose of reconciling and balancing gas. This is currently done on the basis of network sections.<sup>2123</sup>

The AER notes JGN's submission regarding the retail market systems and structures. However, it does not agree with JGN that the default should be that a network extension should be covered unless JGN applies to the NCC for a pipeline not to be covered.<sup>2124</sup> In the draft decision, the AER uses the criterion of 'high pressure' to distinguish in-fill from new extensions to new areas and customers. The AER draws this distinction between in-fill within the reach of the existing network on the one hand and new developments servicing new areas outside the existing geographic

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2118 NGR, r. 3.

2119 JGN, *Initial response to the draft decision*, March 2010, pp. 281–282.

2120 JGN, *Initial response to the draft decision*, March 2010, p. 281.

2121 JGN, *Initial response to the draft decision*, March 2010, p. 281.

2122 JGN, email to the AER, *Response to AER questions received on 27 April 2010*, 3 May 2010, p. 5.

2123 JGN, email to the AER, *Response to AER questions received on 27 April 2010*, 3 May 2010, p. 5.

2124 JGN, *Initial response to the draft decision*, March 2010, p. 281.

reach of the network and existing developments previously not serviced with reticulated gas because in the case of new extensions to areas and customers without reticulated gas, pipelines are potentially extended to a new part of the market. This warrants consideration by the AER. It follows from this that the AER does not accept JGN's submission that network extensions should be covered by default. It is not the role of this decision to consider JGN's ability to apply for a no-coverage determination. This needs to be made to the NCC. Having said that, the AER notes that there is some doubt as to whether an extension would come within the scope of s. 151 of the NGL.

The AER notes JGN's submission that the words 'high pressure pipeline extension' should be replaced with the words 'new network sections' and the definition of this term. The AER considers this appropriate so long as the definition is amended. The AER considers the reference to 'a discrete sub-network' is suggestive of in-fill.

As a further matter, the AER notes JGN's submission that because it put forward extensions and expansions requirements in the revised access arrangement proposal that deal with the circumstances in which the access arrangement will apply to an extension or expansion it is not open to the AER to seek to amend revised access arrangement proposal.<sup>2125</sup> The AER notes that this submission is made by JGN in a document purporting to respond to a specific question from the AER to which this submission is not directly connected. Leaving that aside, the AER does not agree with JGN's submission. The AER is able to require revisions to address issues raised in submissions and to address any other matters necessary and to make revisions required to ensure compliance with the NGL and NGR.<sup>2126</sup> In this instance, the AER considers it necessary to amend the extensions and expansions policy from that set out in the draft decision, to take account of developments arising out of and for reasons of consistency with the AER's 2010 final decisions for ActewAGL<sup>2127</sup> and Country Energy<sup>2128</sup>. The AER considers that the revisions set out in the final decision represent a change of form not substance. The revisions are consistent with the substantive approach set out in the draft decision.<sup>2129</sup>

### **Reporting requirement**

The AER notes JGN's submission that the reporting requirements are not appropriate or reasonable.<sup>2130</sup> The AER has considered JGN's submissions and does not seek to impose amendment 14.34 of the draft decision. The AER notes that JGN is required to give the Australian Energy Market Commission (AEMC) a revised description of the pipeline when this is affected by an extension or capacity expansion.<sup>2131</sup> The AER can seek to obtain this information from the AEMC. A Memorandum of Understanding

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2125 JGN, email to the AER, *Response to AER questions received on 27 April 2010*, 3 May 2010, p. 8.

2126 NGR, r. 62(1).

2127 AER, *Final decision: Access arrangement proposal, ACT, Queanbeyan and Palerang gas distribution network*, March 2010.

2128 AER, *Final decision: Access arrangement proposal, Wagga Wagga gas distribution network*, March 2010.

2129 AER, *Draft decision*, February 2010, section 14.5, amendments 14.32–14.36.

2130 JGN, *Initial response to the draft decision*, March 2010, p. 282.

2131 NGR, r. 134.

between the two parties addresses information sharing.<sup>2132</sup> This avoids any additional regulatory burden on JGN. To the extent necessary, the AER may also seek to exercise its information gathering powers under the NGL to specifically request JGN to keep, maintain and provide necessary information.

## Conclusion

The AER does not approve the revised extension and expansion policy as a preferable alternative exists that complies with applicable requirements of the NGL and NGR and is consistent with applicable criteria prescribed by the NGL and NGR.<sup>2133</sup>

## Revisions

The AER proposes the following revisions:

**Revision 14.26:** amend the revised access arrangement proposal to delete clauses 8(a)(i)–(iv) and replace them with the following:

- (i) If the Service Provider proposes a new network section of the Covered Pipeline that it must apply to the AER in writing to decide whether the new network section will be taken to form part of the covered pipeline and will be covered by this access arrangement. The application must be made in accordance with clause 8(a)(ii).

For the purposes of this section 8, a new network section means an extension to the Service Provider's Covered Pipeline with a direct connection to a transmission pipeline and which is designed to provide reticulated gas to a new development or an existing development not serviced with reticulated gas.

- (ii) The Service Provider must apply to the AER under clause 8(a)(i) before the proposed new network section comes into service:
  - A. in writing;
  - B. stating whether the Service Provider intends for the proposed new network section to be covered by the Access Arrangement; and
  - C. describing the new network section and setting out why it is being undertaken.
- (iii) The Service Provider is not required to advise the AER under clause 8(a)(i) to the extent that the cost of the high pressure pipeline extension has already been included in the calculation of Reference Tariffs.
- (iv) After considering the Service Provider's application, and undertaking such consultation as the AER considers appropriate, the AER will inform the Service Provider of its decision on the Service Providers' proposed coverage approach for the new network section.

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2132 AER, AEMC and ACCC, *Memorandum of Understanding between Australian Energy Market Commission and Australian Energy Regulator and Australian Competition and Consumer Commission*, 2 July 2009, viewed 28 April 2010, <<http://intranet.accc.gov.au/content/index.phtml/itemId/680478>>.

2133 NGR, r. 40(3).

- (v) The AER's decision referred to in 8(a)(iv) above, may be made on such reasonable conditions as determined by the AER and will have the effect stated in the decision.

**Revision 14.27:** amend the revised access arrangement proposal to delete the text of clause 8 (b) and replace it with the following:

Any extensions to and expansions of the capacity of the Network which are not new network sections within the meaning of clause 8(a)(i) will be treated as part of the Network and covered by this Access Arrangement.

**Revision 14.28:** amend the revised access arrangement proposal to:

- include the following new clause 8(c):

All extensions of low or medium pipelines and expansions of the capacity of the Network carried out by the Service Provider will be treated as covered under this Access Arrangement.

- renumber the existing clause 8(c) to 8(d).

**Revision 14.29:** include at the end of the renumbered clause 8(d) (which was formerly clause 8(c)) of the revised access arrangement proposal the following:

The Service Provider will notify the AER of any proposed surcharge to be levied on users of incremental services and designed to recover non-conforming capital expenditure or a specified portion of non-conforming capital expenditure (non-conforming capital expenditure which is recovered by means of a surcharge will not be rolled into the capital base).

## **14.2.21 Terms and conditions for changing receipt and delivery points**

### **Revised access arrangement proposal**

Amendment 14.37 of the draft decision requires JGN to amend clause 13(b) of schedule 3 of the access arrangement proposal regarding the terms and conditions for changing receipt and delivery points.

JGN accepts amendment 14.37 of the draft decision.<sup>2134</sup>

### **Conclusion**

The AER approves amendment 14.37 of the draft decision as accepted in schedule 3 of the revised access arrangement proposal.

## **14.2.22 Acceleration of review submission date triggers**

### **Revised access arrangement proposal**

Amendment 14.38 of the draft decision requires JGN to include trigger events. JGN has not incorporated amendment 14.38 of the draft decision in the revised access arrangement proposal. It submits that:

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2134 JGN, *Revised access arrangement proposal*, March 2010, schedule 3, clause 13(b).

- the AER does not have the power to require a review of the access arrangement if it considers that the access arrangement does not accommodate the STTM or the STTM does not operate as anticipated<sup>2135</sup>
- rule 65 of the NGR provides a more appropriate avenue to address any inconsistencies between the access arrangement and the NGL, NGR, National Energy Retail Law (NERL) or National Energy Retail Rules (NERR). JGN submits that because the access arrangement proposal forms the basis on which it provides services, it has a real incentive to ensure that the access arrangement complies with all legal requirements<sup>2136</sup>
- it is inefficient to use r. 51 of the NGR to deal with a situation where the AER perceives a tension between the access arrangement and the NGL, NGR, NERL, NERR or the STTM. JGN submits that r. 51 of the NGR is intended to be used where a fundamental change in the nature and economics of the provision of pipeline services occurs. The pass through provisions in the access arrangement can appropriately deal with the issues outlined by the AER<sup>2137</sup>
- a review of the access arrangement in the circumstances proposed by the AER is not consistent with the NGO which requires the efficient investment in, and use of, natural gas services. JGN considers that the focus of amendment 14.38 is on the operation of the STTM and its purpose appears to be to allow scope for the access arrangement to better accommodate the STTM. JGN submits that this is not a valid purpose.<sup>2138</sup>

#### **AER's analysis and considerations**

JGN submits that the AER does not have the power to require a review of the access arrangement if the STTM does not operate as anticipated or schedule 3 of the approved access arrangement does not effectively accommodate the STTM.<sup>2139</sup> Both of these issues relate to paragraph (b) of the proposed clause 1.8 of the draft decision.

Rule 51(3) of the NGR gives the AER the general power to require JGN to include trigger events in its access arrangement. It provides that the AER may insist that an access arrangement include trigger events and may specify the nature of the trigger events to be included.<sup>2140</sup> Rule 51(2) of the NGR provides that a 'trigger event may consist of any significant circumstance or conjunction of circumstances'.

In the event that the STTM was to fail to operate as anticipated, this would be likely to affect the operation of the access arrangement and would likely represent a significant circumstance or conjunction of circumstances within the meaning of r. 51(2) of the NGR. However, having regard to JGN's issue and the AER's recent final decision for the Australian Capital Territory (ACT), Queanbeyan and Palerang

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2135 JGN, *Initial response to the draft decision*, March 2010, p. 282.

2136 JGN, *Initial response to the draft decision*, March 2010, p. 282.

2137 JGN, *Initial response to the draft decision*, March 2010, pp. 282–283.

2138 JGN, *Initial response to the draft decision*, March 2010, p. 283.

2139 JGN, *Initial response to the draft decision*, March 2010, p. 282.

2140 NGR, r. 51(3).

gas distribution network,<sup>2141</sup> the AER has more closely mirrored the language of r. 51(2) of the NGR and to limit the apparent subjective element of amendment 14.38 of the draft decision.

Turning to the second of JGN's submission (as set out in the second bullet point above), the AER notes that r. 65(1) of the NGR provides that a service provider may submit for the AER's approval a proposal for variation of the applicable access arrangement. The AER considers that JGN has an incentive to seek a variation if the NECF affects its interests adversely. However, where the interests of users or prospective users are adversely affected, there is no redress unless or until such time as legislative requirements come into force and JGN is not required to address this asymmetry until such time. As the NECF is likely to impact the obligations of service providers in arrangements with users and prospective users, the AER considers that it is necessary to include the trigger events set out below.

The AER notes JGN's submission (set out in bullet point three above) that:

- it is inefficient to use r. 51 of the NGR to address perceived tensions between the access arrangement and the NGL, NGR, NERL, NERR or the STTM
- as change in the law or rules as identified in the draft decision does not fall within the types of events envisaged by r. 51 of the NGR.<sup>2142</sup>

The AER does not consider that it is inefficient to use r. 51 of the NGR to require the review submission date to advance to an earlier date in the circumstances outlined in amendment 14.38 of the draft decision. It would be contrary to the long term interests of users of gas to rely on JGN to seek an access arrangement variation in circumstances where a variation would be adverse to its interests (see above).

The AER notes JGN's submission that a change in the law or rules as outlined in the draft decision does not fall within the types of events envisaged by r. 51 of the NGR as this is intended to be used where there is 'a very significant event that fundamentally changes the nature and economics of the provision of pipeline services'.<sup>2143</sup> For the reasons outlined above in relation to r. 51(2) and r. 51(3) of the NGR, the AER considers the nature of the triggers proposed to be appropriate for inclusion in the access arrangement.

The AER does not agree with JGN's submission that the pass through provisions—in particular the market costs event<sup>2144</sup>—can appropriately address the issues outlined in the draft decision. The cost pass through mechanism can only take account of costs incurred by the service provider as a result of the coming into force of the NERL and NERR.<sup>2145</sup> It cannot take account of factors that do not relate to the costs incurred by

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2141 AER, *Final decision: ACT, Queanbeyan and Palerang gas distribution network*, 1 July 2010–30 June 2015, March 2010, p. 130.

2142 JGN, *Initial response to the draft decision*, March 2010, p. 282.

2143 JGN, *Initial response to the draft decision*, March 2010, p. 282.

2144 JGN, *Initial response to the draft decision*, March 2010, p. 283. See JGN, *Access arrangement proposal*, August 2009, p. 19.

2145 JGN, *Access arrangement proposal*, August 2009, p. 19.

JGN associated with the NERL and NERR. For this reason, the AER considers that it is necessary to include the trigger events set out at below.

The AER has reviewed JGN's submission to the effect that the review of the access arrangement in the circumstances proposed in the draft decision is not consistent with the NGO. JGN submits that this is the case because the STTM is not a pipeline service within the meaning of the NGL.

While the AER agrees that the STTM itself probably does not constitute a pipeline service within the meaning of s. 2 of the NGL, this focus misses the point made by ss. 23 and 28 of the NGL. Section 28 of the NGL sets out the manner in which the AER must perform or exercise its economic regulatory functions or powers. It provides that the AER must, perform or exercise its function or power in a manner that will or is likely to contribute to the achievement of the NGO. This means that in determining whether a trigger event should be included in the access arrangement, and if so, what form it should take, the AER must exercise its power such as to (be likely to) contribute to the NGO. Section 23 of the NGL sets out the meaning of the NGO. It provides that the objective of the NGL 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, quality, safety, reliability and security of supply of natural gas. The AER considers that this is contrary to the suggestion that amendment 14.38 of the draft decision was not for a valid purpose.

Whether the requirement that the revision submission date advances to a date earlier than that stated in the access arrangement in the event that the STTM does not operate as anticipated and the access arrangement does not effectively accommodate the STTM will or is likely to contribute to the NGO is a question of fact based on economic and policy considerations.

The AER does not agree with the characterisation of clause (b) of amendment 14.38 of the draft decision. Clause (b) provides for the eventuality that the access arrangement is not able to accommodate the STTM because the STTM does not operate as anticipated. In order to address this eventuality, the AER considers it necessary to include a trigger event. Notwithstanding this, in view of JGN's submission, the AER considers it appropriate to amend the language of amendment 14.38 of the draft decision regarding trigger events.

### **Conclusion**

The AER does not approve the non-inclusion of the acceleration of review submission date triggers and in accordance with r. 51(3) of the NGR requires the access arrangement to be amended as set out below.

### **Revision**

The AER proposes the following revision:

**Revision 14.30:** amend the revised access arrangement proposal to include the following new clause 12:

#### **Acceleration of review submission date triggers**



- (a) If an amendment to the National Gas Law or the National Gas Rules takes effect or the National Energy Retail Law or the National Energy Retail Rules commence operation in New South Wales and:
  - (i) this affects the terms and conditions on which Users or Customers obtain access under the Access Arrangement; and
  - (ii) this results in more favourable conditions for Users or Customers than those under the Access Arrangement.

The Service Provider is required to notify the AER no later than one month following this and to also provide contact details of its Users to the AER at this time.

- (b) The AER may consult with interested parties and the Service Provider in order to determine whether the circumstances outlined in (a) above are circumstances that are likely to be significant and constitute a trigger event.
- (c) Following the consultation in (b) above, the AER will notify the Service Provider whether the circumstances constitute a trigger event, in which case the review submission date fixed in the Access Arrangement will advance, to a date 6 months from the date of the trigger event or such other date as determined by the AER subject to the National Gas Rules.

**Revision 14.31:** make any and all consequential amendments necessary in the revised access arrangement proposal and revised access arrangement information to take account of and reflect revisions 14.1 to 14.30.

## **A. Confidential Self Insurance**

[c-i-c]





























## B. Summary of non-tariff issues raised in submissions

| Matter <sup>2221</sup>  | Summary of issue raised in submission   | Revision <sup>2222</sup> /amendment <sup>2223</sup><br>required <sup>2224</sup> |
|---|---|---|
| General Matters   |   |   |
| National Energy Customer Framework (NECF)                       | See chapter 14, annexure E of the draft decision and section 14.2.17 of the final decision. | Amendments: None.<br>Revisions: None.   |
| Short term trading market (STTM)                                | See chapter 14, annexure E of the draft decision.   | Amendments: None.<br>Revisions: None.   |
| Access Arrangement Proposal/Revised access arrangement proposal |   |   |
| Services Policy – terms and conditions<br>Clause 2.2            | See chapter 14, annexure E of the draft decision and 14.2.2 of the final decision.          | Amendment: 14.2.<br>Revisions: None.  |
| Ancillary services  | See chapter 2 of the draft decision.  | Amendments: 2.1–2.4, 13.1.  |

<sup>2221</sup> These refer to the Revised access arrangement proposal and schedule 3 of the Revised access arrangement proposal.

<sup>2222</sup> Revisions relate to changes required in the final decision. Unless a revision is required in relation to a clause, the AER considers that the clause meets the requirements of the NGR and the national gas objective.

<sup>2223</sup> Amendments relate to changes required in the draft decision.

<sup>2224</sup> This document should be read in relation to the draft decision which sets out the AER's reasoning and analysis on the access arrangement proposal and submissions received in relation to it.



The AER received a submission from EnergyAdvice Pty Ltd's (EnergyAdvice), that gas customers have a right to engage directly with JGN for connection to the network rather than being required to do so via a retailer. EnergyAdvice notes that 'Prospective User' is defined as a person who wishes or seeks to be provided with a Pipeline Service by means of the Network'.<sup>2225</sup>

The AER notes that clause 2.1(b) of the revised access arrangement proposal states that a user or prospective user who seeks to obtain reference services or non-reference services must comply with the request for service procedure set out in schedule 5 of the revised access arrangement proposal regardless of whether they are requesting services for the first time or a change to an existing delivery point. Schedule 5 sets out procedures to be followed by a user or prospective user. Users are not excluded.

The revised access arrangement proposal does not state that JGN will not enter into an arrangement for the supply of gas to consumers. The AER accordingly rejects EnergyAdvice's statement suggesting that it may be seen to be endorsing JGN not entering into agreements for the supply of gas with users directly.

The AER is satisfied that the terms of schedule 5 of the access arrangement proposal are consistent with the NGR and the national gas objective (NGO) as it is JGN's commercial decision which parties it decides to contract with and accept requests for service from.

The AER notes that in the event that a party has issues regarding access to JGN NSW gas distribution network, they may wish to avail themselves of the access dispute mechanism provided in the NGL.<sup>2226</sup>

Amendments: None.  
Revisions: None.

Schedule 5 – Request for service

Schedule 3 of the Access Arrangement Proposal – Reference Services Agreement

2225 EnergyAdvice, *Submission to the AER*, April 2010, p. 6. and EnergyAdvice, *Joint submission to AER on Jemena Gas Networks (NSW) revised access arrangement – August 2009*, 10 November 2009, p. 19 (EnergyAdvice, *Submission to the AER*, 10 November 2009).

2226 NGL, chapter 6.

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| Definitions and interpretation                          |  |                                       |
| Clause 1  | See chapter 14, sections 14.2.4 and 14.2.8 of the draft decision and chapter 14, section 14.2.4 of the final decision.   | Amendments: 14.4, 14.5, 14.30.        |
| Clause 1.1 – Definitions                                |  | Revision: 14.1.                       |
| Clause 1.4 – Amendments to this agreement               |  |                                       |
| Commencement and expiry of a reference service Clause 2 | No submissions were received on clause 2.  | Amendments: None.<br>Revisions: None. |
| Haulage Reference Service                               |  | None.                                 |
| Clause 3  | See chapter 14, annexure E of the draft decision and section 14.2.17 of the final decision.  | Revision: 14.14.                      |
| MDQ, MHQ and Chargeable demand                          |  |                                       |
| Clause 4.2 – MDQ and MHQ                                | EnergyAustralia Retail (EnergyAustralia) submits that JGN should be required to deliver gas in line with the greater of chargeable demand (as this is what is being paid for) and the maximum daily quantity (MDQ). <sup>2227</sup> Having regard to JGN’s comments at the round table discussion, the AER accepts that automatically increasing contractual MDQ to match actual withdrawal would mean that actual contractual capacity rights would no longer be set according to the level of capacity in a user’s request. This is not consistent with JGN’s approach to capacity management and its replacement of overruns with the concept of chargeable demand. <sup>2228</sup> In recognition of this, the AER approves clause 4.2 of schedule 3 of the revised access arrangement proposal. | Amendment: 14.13.                     |
| Clause 4.5 – chargeable demand                          |  | Revision: 14.2.                       |
| Clause 4.6 – increases in chargeable demand             | EnergyAustralia submits that clause 4.5(c) and 4.5(d) of schedule 3 of the revised access arrangement  |                                       |

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2227 EnergyAustralia, *Submission to the AER*, April 2010 p. 5.

2228 AER, *Minutes of round-table discussion on terms and conditions*, 27 November 2009, p. 7 and JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 30.

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| Clause 4.7 – decreases in chargeable demand | <p>proposal should be deleted as they will result in some customers experiencing significant cost increases as maximum hourly quantity (MHQ) is linked to variations since 1 July 2005.<sup>2229</sup> The AER does not require clauses 4.5(c) or 4.5(d) of schedule 3 of the revised access arrangement to be revised as it considers these to comply with r. 100 of the NGR. In coming to this view, the AER has had regard to JGN’s submission on EnergyAustralia’s submission.<sup>2230</sup></p> <p>Origin Energy Retail Ltd (Origin) submits that clause 4.5(c) of schedule 3 of the revised access arrangement proposal states that chargeable demand must be greater than both MDQ and ten times the MHQ. Origin submits that in light of comments made at the Roundtable, the reference to ‘greater than the larger of’ should be replaced with the words ‘equal to the greater of’. Origin also submits that the clause fails to state what chargeable demand will be when a customer has not exceeded their MDQ.<sup>2231</sup></p> <p>The AER notes that clause 4.5(c) of schedule 3 of the revised access arrangement proposal states that chargeable demand must be greater than the larger of: (i) the MDQ for that delivery point; and (ii) ten times that MHQ for that delivery point. The AER considers that this clause provides an ‘either-or’ alternative. The AER also considers that this is consistent with the statements made by JGN at the round table as well as JGN’s submission regarding Origin’s submission.<sup>2232</sup> Further, having regard to the definition of ‘chargeable demand’ set out in schedule 3 of the revised access arrangement proposal, the AER considers that this will be the amount for which the parties have contracted. Given this, no revision is required.</p> <p>EnergyAustralia submits that JGN’s ability to increase chargeable demand to equal the ninth-highest actual quantity of gas withdrawn at the delivery point in any one day over any 12 month period should be limited to the preceding 12 months. The AER notes that clause 4.6(b) is intended to operate on a rolling basis. It will shift every month if there is a change in chargeable demand.<sup>2233</sup> The AER does not require a revision.</p> |
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2229 EnergyAustralia, *Submission to the AER*, April 2010, p. 6.

2230 JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 30.

2231 Origin, *Submission to the AER*, April 2010, pp. 3–4.

2232 AER, *Minutes of round-table discussion on terms and conditions*, 27 November 2009, p. 6.

2233 Origin, *RE: Jemena Gas Networks Access Arrangement Proposal*, 10 November 2009, pp. 6–7; JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 33; AER, *Minutes of round-table discussion on terms and conditions*, 27 November 2009, p. 6.

2233 AER, *Minutes of round-table discussion on terms and conditions*, 27 November 2009, p. 9 and clause 4.6(d) of schedule 3 of the revised access arrangement proposal.

2234 JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 30.

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|   | In coming to this view, the AER has had regard to JGN's submission on EnergyAustralia's submission. <sup>2234</sup>  |                                       |
|   | Clause 4.7 of schedule 3 of the access arrangement proposal and schedule 3 of the revised access arrangement proposal—decreases in chargeable demand—is discussed in chapter 14 section 14.2.6 of the draft decision and 14.2.6 of the final decision. |                                       |
| Overruns  |  |                                       |
| Clause 5 Clause 5.6(b) – revocation of authorisation                                      | See chapter 14, section 14.2.17 of the draft and final decisions.  | Amendments: None.<br>Revision: 14.18. |
| Unauthorised overruns   |  |                                       |
| Clause 6  | See chapter 14, section 14.2.17 of the draft and final decisions.  | Revision: 14.18.                      |
| Nomination and balancing  |  |                                       |
| Clause 7 Clause 7.4 – gas balancing under an arrangement approved by the service provider | See chapter 14, section 14.2.7 and 14.2.8 of the draft decision and 14.2.6 and 14.2.7 of the final decision.   | Amendments: 14.14–14.17.              |
| Clause 7.5 – user to provide service provider with forecast of withdrawals                |  | Revisions: 14.3–14. 6.                |
| Determination of quantity delivered at delivery points                                    | No submissions were received on clause 8.  | None.                                 |
| Clause 8  |  |                                       |
| Commingling, custody, control, responsibility and warranty                                | See chapter 14, section 14.2.9 and annexure E of the draft decision and section 14.2.17 of the final decision.   | Amendment: 14.18.                     |

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| Clause 9  |   | Revision: 14.18.                             |
| Clause 9.1 – Warranty and indemnity   |   |  |
| Clause 9.2 – Right to commingle   |   |  |
| Clause 9.4 – Responsibility for gas   |   |  |
| Clause 9.5 – Unaccounted for gas  |   |  |
| Gas Quality   |   |  |
| Clause 10   |   |  |
| Clause 10.1 – Specification gas   |   |  |
| Clause 10.3 – Consequences of the service provide exercising rights under clause 10.2 | See chapter 14, section 14.2.17 of the draft decision and section 14.2.17 of the final decision.  | Amendment: None.<br>Revisions: 14.15, 14.18. |
| Clause 10.4 – User to satisfy the service provider                                    |   |  |
| Clause 10.7 – amendment of specification  |   |  |
| Clause 10.10 – gas testing by users   |   |  |
| Addition of delivery points   | See chapter 14, annexure E of the draft decision.<br>The draft decision does not consider that any amendment to clause 11 is required (other than the | Amendment 14.19.                             |

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| Clause 11   | typographical error identified in amendment 14.19 and accepted in section 14.2.8 of the final decision).  | Revisions: None.              |
| Clause 11.4 Transfer of legacy reference service delivery points at commencement of 2010 access agreement |   |                               |
| Deletion of delivery points   | No submissions were received on clause 12.  | Amendment: None.              |
| Clause 12   |   | Revisions: None.              |
| Change of receipt or delivery point   | No submissions were received on clause 13.  | Amendment: None.              |
| Clause 13   |   | Revisions: None.              |
| Receipt points and receipt stations   | See chapter 14, sections 14.2.5 and 14.2.17 of the draft decision and sections 14.2.4 and 14.2.17 of the final decision.  | Amendment: 14.8.              |
| Clause 14   |   | Revisions: 14.1, 14.16–14.17. |
| Clause 14.9 – Pressure at receipt point.  |   |                               |
| Delivery points and delivery stations   | The AER received submissions from AGL and Origin regarding clause 15.11 of the revised access arrangement proposal. AGL submits that the words ‘or a maximum of 2 business days of becoming aware of a fault at a Basic Metering Equipment’ should be inserted after a ‘reasonable time’ in clause 15.11. <sup>2235</sup>               | Amendments: 14.20, 14.28.     |
| Clause 15   | Origin submits that it is not aware of any reasons why JGN should not be able to meet a timeline of two business days since basic metering equipment will be in stock. Origin considers, that if necessary, this timeline could be increased to four business days in outer gas supply regions. <sup>2236</sup> JGN submits in response | Revision: 14.19.              |
| Clause 15.1 –   |   |                               |

2235 AGL, *Submission to the AER*, 10 November 2009, appendix, p. 10.

2236 Origin, *Submission to the AER*, April 2010, p. 5.

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|---|---|---|
| Requirement for a delivery station  | to Origin's submission, that it is not possible to specify a simplistic time for repair. <sup>2237</sup> The AER does not consider that it is necessary to amend clause 15.11 as it considers that the words 'within a reasonable time' in the clause are appropriate and meet the NGO.   |   |
| Clause 15.6 – Basic metering equipment downgrade at existing delivery station | See chapter 14, sections 14.2.10, 14.2.17 and annexure E of the draft decision and sections 14.2.9 and 14.2.17 of the final decision.   |   |
| Clause 15.11 – Repair of basic metering equipment                             |   |   |
| Clause 15.12 – No liability for disconnection                                 |   |   |
| Measuring equipment – access, safety and estimation                           |   |   |
| Clause 16   | Origin questions the need to retain JGN's right to install a flow control mechanism (clause 16.8 of schedule 3 of the revised access arrangement proposal) to ensure the network's safe and reliable operation as: (i) Division 2, Part 12 of the NGR allows JGN to not supply a customer if it would be unsafe to do so; (ii) the chargeable demand framework sends a strong price signal to customers not to allow unauthorised overruns. <sup>2238</sup> JGN submits in response, that relying on legal process, financial incentives and negotiation with customers would not provide JGN with adequate means to maintain safety and reliability of the network. <sup>2239</sup> The AER is satisfied that clause 16.8 of schedule 3 does not require revision. | Amendments 14.21, 14.22, 14.23 and 14.24. |
| Clause 16.1 – Safe access to measuring equipment                              |   | Revisions: None.                          |
| Clause 16.3 – Consequences of no access                                       | See chapter 14, sections 14.2.11, 14.2.12, 14.2.13 and annexure E of the draft decision and chapter 14.2.10, 14.2.11 and 14.2.12 of the final decision.   |   |
| Clause 16.5 – No tampering with   |   |   |

2237 JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 34.

2238 Origin, *Submission to the AER*, April 2010, pp. 4–5.

2239 JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 33.

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| measuring equipment   |   |                            |
| Clause 16.8 – Right to alter measuring equipment  |   |                            |
| Meter Data Service  |   |                            |
| Clause 17   |   | Amendments 14.3 and 14.29. |
| Clause 17.5 – No warranty   | AGL submits that clause 17.5 of schedule 3 of the revised access arrangement proposal, as revised, is improved. However, it submits that it would be equitable for JGN to indemnify the user against any loss when considered against all indemnities that a user has to provide JGN. <sup>2241</sup> | Revisions: 14.20–14.21.    |
| Clause 17.6 - Scope of liability  | The AER has considered AGL's submission but does not consider that the fact that users provide a number of indemnities warrants JGN indemnifying a user against any loss.   |                            |
| Clause 17.7 – Notice (renumbered 17.5 in the revised access arrangement proposal) <sup>2240</sup> | See chapter 14, sections 14.2.3, 14.2.4 and 14.2.17 of the draft decision and sections 14.2.3 and 14.2.17 of the final decision.  |                            |
| Metering requirements where user does not take a meter data service                               |   |                            |
| Clause 18   | See chapter 14, annexure E of the draft decision.   | Amendment: None.           |
| Clause 18.2 – User to provide daily meter reading facilities at demand customer                   |   | Revisions: None.           |

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2240 Amendment 14.29 of the draft decision requires the deletion of clauses 17.5 and 17.6 of schedule 3 of the access arrangement proposal. JGN accepts this amendment in schedule 3 of the revised access arrangement proposal. As a result of these deletions clause 17.7 of schedule 3 of the revised access arrangement proposal is renumbered clause 17.5 of schedule 3 of the revised access arrangement proposal.

2241 AGL, *Submission to the AER*, April 2010, p. 7.



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| delivery points                                  |   |                                      |
| Allocation<br>Clause 19                          | No submissions were received on clause 19.  | Amendment: None.<br>Revisions: None. |
| Charges<br>Clause 20                             | No submissions were received on clause 20.  | Amendment: None.<br>Revisions: None. |
| Allocation of tariff<br>classes<br>Clause 21     | See chapter 12 of the draft and final decisions.  | Amendment: None.<br>Revisions: None. |
| Invoicing and payments<br>Clause 22              | AGL, EnergyAustralia, Origin and TRUenergy made submissions on clause 22. <sup>2242</sup>   |                                      |
| Clause 22.1 Service<br>provider to issue invoice | The draft decision considers that clause 22.1, 22.3 and 22.6 of schedule 3 of the access arrangement proposal are a continuation of current commercial obligations and are consistent with the NGR and the NGO. The AER notes its comment above, that when the NECF is finalised, JGN may apply to the AER under r. 65 of the NGR to seek a variation to the access arrangement, if this is required. | Amendment: 14.25.                    |
| Clause 22.3 Due date of<br>payment               | AGL submits that clause 22.6 of schedule 3 of the revised access arrangement proposal should be amended to permit a user to withhold disputed amounts. To this end AGL submits that the words 'manifestly wrong' should be replaced with the words 'genuinely disputed'. <sup>2243</sup>  | Revision: 14.8–14.10                 |
| Clause 22.6 Disputed<br>payments                 | The AER considers clause 22.6 of schedule 3 of the revised access arrangement proposal appropriate and notes that the Country Energy draft decision also accepted that disputed payments should not be withheld.  |                                      |
| Clause 22.8<br>Overcharging and<br>undercharging | The AER notes that clause 22.7 of schedule 3 of the revised access arrangement proposal provides that on resolution of the dispute an adjustment may be made for interest.<br><br>See chapter 14, section 14.2.14 and annexure E of the draft decision and sections 14.2.13 and 14.2.14 of  |                                      |

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2242 AGL, *Submission to the AER*, 10 November 2009, appendix, pp. 16–19; AGL, *Submission to the AER*, April 2010, p. 8; EnergyAustralia, *Submission to the AER*, April 2010, p. 8; Origin, *Submission to the AER*, 10 November 2009, pp. 2–3; TRUenergy, *Jemena Gas Network - Access Arrangement Proposal 2010 -1015*, 11 November 2009, p. 2 (TRUenergy, *Submission to the AER*, 11 November 2009), p. 2.

2243 AGL, *Submission to the AER*, April 2010, p. 8.

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|  | the final decision.  |   |
| Goods and services tax                             |  |   |
| Clause 23  | See chapter 14, annexure E of the draft decision.  | Amendment: None.                                  |
| Clause 23.6 –<br>Adjustments                       |  | Revisions: None.                                  |
| Suspension of service                              |  |   |
| Clause 24  |  |   |
| Clause 24.2 –<br>Suspension by service<br>provider | See chapter 14, section 14.2.17 of the draft decision and sections 14.2.1, 14.2.4 and 14.2.17 of the final decision.         | Amendment: 14.7, 14.28.<br>Revision: 14.1, 14.22. |
| Clause 24.3 – No<br>liability                      |  |   |
| Interruptions and<br>curtailments                  |  |   |
| Clause 25  |  | Amendment: 14.26.                                 |
| Clause 25.2 – Scheduled<br>interruptions           | See chapter 14, section 14.2.15 and annexure E of the draft decision and sections 14.2.15 and 14.2.17 of the final decision. | Revisions: 14.11–14.13, 14.18.                    |
| Clause 25.4 – Load<br>shedding                     |  |   |
| Force Majeure                                      |  |   |
| Clause 26  | See chapter 14, annexure E of the draft decision and section 14.2.17 of the final decision.                                  | Amendments: None.<br>Revision: 14.23.             |

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| Termination or cessation                            | EnergyAustralia submits that JGN may terminate the agreement for a change of law that affects JGN's commercial position materially. The right to terminate operates irrespective of whether the agreement is affected or not. EnergyAustralia submits that the clause goes beyond the earlier access arrangement in two aspects. Under the earlier access arrangement negotiation and amendment was limited to changes in the law that were inconsistent, and second, parties were obligated to negotiate in good faith to agree amendments to ensure that the agreement complied with changes. EnergyAustralia submits that clause 27.2 of schedule 3 of the revised access arrangement proposal allows JGN to walk away from the agreement if negotiations fail as well as giving it absolute discretion about whether or not to lodge amendments to the agreement. EnergyAustralia submits that JGN's ability to terminate the agreement should be deleted. <sup>2244</sup>  |                                      |
| Clause 27   | JGN submits in response that contrary to EnergyAustralia's submission clause 27.2 of schedule 3 of the revised access arrangement provides means to serves the interests of both users and JGN. <sup>2245</sup>   |                                      |
| Clause 27.2 – Right of service provide to terminate | The AER considers that clause 27.2 of schedule 3 of the revised access arrangement is sufficient to ensure that the right to terminate can only be exercised if the agreement is adversely affected. Clause 27.2(a) only permits termination if the change of law results in the reference services being no longer available to the user and this, in the opinion of JGN (acting reasonably), has a material adverse affect on its commercial position. The AER considers that this materiality threshold and requirement to act reasonably, coupled with users having recourse to the dispute resolution mechanism under chapter 6 of the NGL is sufficient to ensure that the right to terminate can only be exercised if the agreement is adversely affected. With regard to EnergyAustralia's submission that JGN may walk away from unsuccessful negotiations, the AER notes that clause 27.2(b) requires JGN to negotiate in good faith before exercising its right to terminate. The AER is satisfied that clause 27.2 of schedule 3 of the revised access arrangement proposal is consistent with the NGR and the NGO. | Amendment 14.27.<br>Revisions: None. |
| Clause 27.3 – Failure to pay                        | See chapter 14, section 14.2.16 and annexure E of the draft decision and section 14.2.16 of the final decision.   |                                      |
| Liability   | AGL submits that clause 28.4(b) of schedule 3 of the revised access arrangement proposal should be reciprocal and should not apply where adequate insurance is not maintained. <sup>2246</sup> JGN stated at the round  |                                      |

2244 EnergyAustralia, *Submission to the AER*, April 2010, p. 9.

2245 JGN, *JGN access arrangement revision proposal: JGN response to public submissions on the JGN revised access arrangement revision proposal*, 18 May 2010, p. 33.

2246 AGL, *Submission to the AER*, April 2010, p. 9.

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| Clause 28  | table discussion on non-tariff issues that it has a licence requirement to have prudent insurance. <sup>2247</sup> The   | Amendments: None.                     |
| Clause 28.4 – scope of liability   | AER considers that this legislative obligation is sufficient and no amendment is required to clause 28.4 of schedule 3 of the revised access arrangement proposal. | Revision: 14.24.                      |
| Clause 28.6 – circumstances in which limitations and exclusions do not apply | See chapter 14, section 14.2.17 of the draft and final decisions.  |                                       |
| Clause 28.7 – contribution to loss or damage                                 |  |                                       |
| Transfer   |  |                                       |
| Clause 29  |  | Amendments: None.                     |
| Clause 29.2 – No assignment without consent                                  | See chapter 14, annexure E of the draft decision.  | Revisions: None.                      |
| Security and financial standing  |  |                                       |
| Clause 30  | See chapter 14, annexure E of the draft decision and section 14.2.19 of the final decision.  | Amendments: None.<br>Revision: 14.25. |
| Confidentiality  |  |                                       |
| Clause 31  | See chapter 14, annexure E of the draft decision.  | Amendments: None.<br>Revisions: None. |
| Dispute resolution   |  |                                       |
| Clause 32  | No submissions were received on clause 32.   | Amendments: None.<br>Revisions: None. |

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2247 AER, *Minutes of round-table discussion on terms and conditions*, 27 November 2009, p. 18.

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|             |   |                                       |
|-------------|---|---------------------------------------|
| Notices     |   |                                       |
| Clause 33   | No submissions were received on clause 33.        | Amendments: None.<br>Revisions: None. |
| General     |   |                                       |
| Clause 34   | No submissions were received on clause 34.        | Amendments: None.<br>Revisions: None. |
| New clauses | See chapter 14, annexure E of the draft decision. | Amendments: None.<br>Revisions: None. |

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## **C. Submissions**

The AER received submissions on the draft decision and the revised access arrangement proposal from the following interested parties:

AGL Energy Ltd

Boral Limited

EnergyAdvice Pty Ltd

EnergyAustralia Retail

Energy Markets Reform Forum

Energy Networks Association Ltd

Energy Users Association of Australia

Ms Madeleine Kingston

Origin Energy Retail Ltd

Public Interest Advocacy Centre Ltd

WA Gas Networks Pty Ltd

Weston Aluminium

## Glossary

| Acronym/Initialism | Extended form                                  |
|--------------------|--|
| AASB               | Australian Accounting Standards Board          |
| ABS                | Australian Bureau of Statistics                |
| ACCC               | Australian Competition and Consumer Commission |
| ACG                | Allen Consulting Group                         |
| ACT                | Australian Capital Territory                   |
| ActewAGL           | ActewAGL Distribution                          |
| AEMC               | Australian Energy Market Commission            |
| Agility            | Agility Management Pty Ltd                     |
| AGL                | AGL Energy Ltd                                 |
| AEMO               | Australian Energy Market Operator              |
| AMA                | Asset Management Agreement                     |
| AMI                | Advanced Metering Infrastructure               |
| APIA               | Australian Pipeline Industry Association Ltd   |
| ATO                | Australian Taxation Office                     |
| BBi                | Babcock and Brown Infrastructure               |
| Boral              | Boral Limited                                  |
| bppa               | basis points per annum                         |
| CAPM               | Capital Asset Pricing Model                    |
| Country Energy     | Country Energy Gas Pty Limited                 |
| CEG                | Competition Economists Group                   |
| CEO                | Chief Executive Officer                        |
| CFA                | Chartered Financial Analyst                    |
| CFO                | Chief Financial Officer                        |
| CGS                | Commonwealth Government Securities             |
| CPI                | Consumer Price Index                           |
| CPRS               | Carbon Pollution Reduction Scheme              |
| DFA                | Dimensional Fund Advisers                      |

|                      |   |
|----------------------|---|
| DMT                  | Demand Major end-customer Throughput  |
| DUET                 | Diversified Utilities and Energy Trust Group  |
| Eastern Gas Pipeline | This is owned by Jemena Ltd and transports gas from the Gippsland Basin in Victoria to markets in Sydney and regional centres |
| EMRF                 | Energy Markets Reform Forum   |
| ENA                  | Energy Networks Association Ltd   |
| EnergyAdvice         | EnergyAdvice Pty Ltd  |
| EnergyAustralia      | EnergyAustralia Retail  |
| ESCV                 | Essential Services Commission of Victoria   |
| ESF                  | enterprise support functions  |
| EUAA                 | Energy Users Association of Australia   |
| FFM                  | Fama–French three-factor model  |
| FFO                  | funds from operations   |
| FTE                  | full time employee  |
| GAAP                 | Generally Accepted Accounting Principles  |
| GasNet               | GasNet Australia Group  |
| GDP                  | gross domestic product  |
| GFC                  | global financial crisis   |
| GJ                   | gigajoules (equal to 1 000 000 000 joules)  |
| GMM                  | Generalised method of moments   |
| GPG                  | gas-powered generation  |
| GSP                  | gross state product   |
| GST                  | goods and services tax  |
| HDD                  | heating degree days   |
| HML                  | high–minus–low  |
| Impaq                | Impaq Consulting  |
| ISR                  | industrial special risk   |
| IS                   | In-sample   |
| IT                   | information technology  |



|                           |  |
|---------------------------|--|
| JAM                       | Jemena Asset Management  |
| Jemena Group              | The Jemena Group includes all entities that are wholly or partially owned by SPI (Australia) Assets Pty Ltd, which is a wholly owned subsidiary of Singapore Power International Limited Pte Ltd.  |
| JFE                       | Journal of Financial Economics   |
| KPI                       | key performance indicator  |
| LRMC                      | long run marginal cost   |
| MDQ                       | maximum daily quantity   |
| MEM                       | market expansion mechanism   |
| MHQ                       | maximum hourly quantity  |
| MRC                       | Marsh Risk Consulting  |
| MRP                       | market risk premium  |
| Moomba to Sydney Pipeline | This is owned by the APA Group and links the Cooper Basin gas fields at Moomba with distribution networks in Sydney and regional New South Wales. The pipeline includes laterals to Canberra and regional centres including Lithgow and Griffith |
| MTN                       | medium term notes  |
| NCC                       | National Competition Council   |
| NGO                       | National Gas Objective   |
| NECF                      | National Energy Customer Framework   |
| NER                       | National Electricity Rules   |
| NERL                      | National Energy Retail Law   |
| NERA                      | NERA Economic Consulting   |
| NERR                      | National Energy Retail Rules   |
| NIEIR                     | National Institute of Economic and Industry Research   |
| NPV                       | net present value  |
| NSW                       | New South Wales  |
| Ofgem                     | Office of Gas and Electricity Markets  |
| OOS                       | out-of-sample  |

|           |   |
|-----------|---|
| Origin    | Origin Energy Retail Ltd                                      |
| O&M       | operating and maintenance                                     |
| Oxera     | Oxera Consulting  |
| PB        | Parsons Brinckerhoff Australia Pty Ltd                        |
| PIAC      | Public Interest Advocacy Centre Ltd                           |
| PJ        | petajoules  |
| PTRM      | post-taxation revenue model                                   |
| PwC       | PricewaterhouseCoopers  |
| QLD       | Queensland  |
| RBA       | Reserve Bank of Australia                                     |
| RBSM      | risk and benefit sharing mechanism                            |
| RF        | Radio Frequency   |
| ROLR      | retailer of last resort                                       |
| SA        | South Australia   |
| SAIPAR    | the South Australian Independent Pricing and Access Regulator |
| SCADA     | supervisory control and data acquisition                      |
| SFG       | Strategic Finance Group Consulting                            |
| SMB       | small-minus-big   |
| S&P       | Standard and Poor's   |
| SPI       | Singapore Power International                                 |
| SPIAA     | SPI (Australia) Assets Pty Ltd                                |
| STTM      | short term trading market                                     |
| Synergies | Synergies Economic Consulting                                 |
| TJ        | terajoules (equal to 1000 gigajoules)                         |
| Tribunal  | Australian Competition Tribunal                               |
| UAG       | unaccounted for gas   |
| UBS       | Union Bank of Switzerland                                     |
| UED       | United Energy Distribution Pty Ltd                            |
| US        | United States   |

|       |                                   |
|-------|-----------------------------------|
| WACC  | weighted average cost of capital  |
| WAGN  | WA Gas Networks Pty Ltd           |
| WBHs  | water bath heaters                |
| WOBCA | whole of business cost allocation |