ICRC

independent competition and regulatory commission

Final Decision

Review of access arrangement for ActewAGL natural gas system in ACT, Queanbeyan and Yarrowlumla

October 2004

The Independent Competition and Regulatory Commission (the commission) was established by the *Independent Competition and Regulatory Commission Act 1997* (ICRC Act) to determine prices for regulated industries, advise government about industry matters, advise on access to infrastructure and determine access disputes. The commission also has responsibilities under the Act for determining competitive neutrality complaints and providing advice about other government-regulated activities.

The commission has three commissioners:

Paul Baxter, Senior Commissioner
Robin Creyke, Commissioner
Peter McGhie, Commissioner.

Submissions, correspondence or other enquiries may be directed to the commission at the addresses below:

The Independent Competition and Regulatory Commission
PO Box 975
CIVIC SQUARE ACT 2608

Level 7 Eclipse House
197 London Circuit
CIVIC ACT

The secretariat may be contacted at the above addresses, by telephone on 6205 0799, or by fax on 6207 5887. The commission's website is at www.icrc.act.gov.au and its email address is icrc@act.gov.au or ian.primrose@act.gov.au.

For further information on this review or any other matters of concern to the commission please contact Ian Primrose, Chief Executive Officer, on 6205 0779.

Foreword

The Independent Competition and Regulatory Commission (the commission) has undertaken a review of ActewAGL's proposed revisions to the access arrangement governing third-party access to the natural gas distribution system in the Australian Capital Territory, Queanbeyan and Yarrowlumla. This is the commission's final decision on the access arrangement revisions submitted by ActewAGL. Among other things, the access arrangement sets out the benchmark tariffs to be paid to transport gas throughout ActewAGL's distribution system.

The review is required to be conducted in accordance with the National Third Party Access Code for Natural Gas Pipeline Systems (the Code).

In January 2001, the commission approved ActewAGL's proposed access arrangement, which came into effect on 1 February 2001. It was envisaged that the revisions to the access arrangement would commence on 1 July 2004 (the 'revisions commencement date'). ActewAGL was required to submit its proposed revisions to the access arrangement, together with the applicable access arrangement information, by 30 June 2003 (the 'revisions submission date'). However, ActewAGL sought from the commission an extension to the revisions submission date, which the commission subsequently granted.

In December 2003, ActewAGL submitted its proposed revisions to the access arrangement to the commission. During the course of this review, ActewAGL has amended aspects of its proposed revisions as originally submitted. This final decision relates to the latest amended version of ActewAGL's proposed revisions.

In assessing the proposed revisions submitted by ActewAGL, the commission has applied the Code. It has formed its views on the proposed access arrangement on the basis of careful analysis of those arrangements, the Code and the submissions made. The commission also conducted extensive economic and financial analysis that covered, among other factors, operating expenditure, capital expenditure, demand forecasts and the rate of return.

On 19 July 2004, the commission released its draft decision, which proposed not to approve the full suite of ActewAGL's revisions to the access

arrangement and set out the amendments (or nature of the amendments) that would have to be made to the revisions in order for the commission to approve them. This final decision, which does not approve the full suite of ActewAGL's revisions, is made by the commission after considering submissions in relation to the draft decision and after conducting further analysis in addition to that contained in the draft decision. The amendments (or nature of the amendments) that would have to be made to the revisions in order for the commission to approve them are set out in the relevant sections of this final decision.

ActewAGL is requested to resubmit its proposed revisions to the access arrangement, incorporating the required amendments (or nature of the amendments) specified in this final decision. The commission requires ActewAGL to resubmit its proposed revisions incorporating the required amendments as set out in this decision by 3 November 2004.

For further information about this review, please contact Ian Primrose, Chief Executive Officer, on 6205 0799 or by fax on 6207 5887.

Paul Baxter
Senior Commissioner
October 2004

Contents

Foreword **iii**

Executive summary **1**

1 Introduction **13**

1.1 The statutory framework 13
1.2 The review process 17
1.3 Outline of decision 23

2 Background to the ACT gas market and ActewAGL's proposed access arrangement **25**

2.1 ActewAGL and the ACT gas market 25
2.2 Overview of ActewAGL's proposed access arrangement 25
2.3 Retail gas prices and full retail contestability 35
2.4 Review of the gas access regime 35
2.5 Proposals for a single national energy regulator 37

3 Services policy **39**

3.1 Code requirements 39
3.2 Background and draft decision 40
3.3 Further submissions 48
3.4 Further analysis 50
3.5 Final decision 52

4 Terms and conditions **53**

4.1 Code requirements 53
4.2 Background and draft decision 53
4.3 Further submissions 60
4.4 Further analysis 61
4.5 Final decision 61

5 Reference tariff overview **63**

6 Total revenue **67**

6.1 Code requirements 67
6.2 Background and draft decision 70
6.3 Further submissions 72
6.4 Further analysis 73
6.5 Final decision 73

7 Operating cost forecasts **75**

7.1 Code requirements 75
7.2 Background and ActewAGL proposal 77
7.3 Draft decision 81
7.4 Further submissions 84
7.5 Further analysis 89
7.6 Final decision 95

8 Capital expenditure and the capital base **97**

8.1 Code requirements 99
8.2 Background and draft decision 103
8.3 Further submissions 114
8.4 Further analysis 116
8.5 Final decision 121

9 Demand forecasts **125**

9.1 Code requirements 125
9.2 Background and draft decision 126
9.3 Further submissions 133
9.4 Further analysis 136
9.5 Final decision 140

10 Cost of capital **143**
10.1 Code requirements 143
10.2 Calculating the WACC 144
10.3 Background and draft decision 147
10.4 Further submissions 155
10.5 Further analysis 158
10.6 Final decision 191

11 Financial analysis **199**
11.1 Code requirements 199
11.2 Submissions 199
11.3 Analysis 202
11.4 Final decision 206

12 Reference tariffs and reference tariff policy **207**
12.1 Code requirements 207
12.2 2000 final decision 209
12.3 ActewAGL proposal and draft decision 209
12.4 Further submissions 221
12.5 Further analysis 223
12.6 Final decision 232

13 Extensions and expansions policy **237**
13.1 Code requirements 237
13.2 Background and draft decision 238
13.3 Further submissions 242
13.4 Final decision 242

14 Capacity management, trading and queuing policies **243**
14.1 Capacity management policy 243
14.2 Trading policy 245
14.3 Queuing policy 248
14.4 Further submissions 251
14.5 Final decision 251

15 Term of access arrangement **253**

15.1 Code requirements 253
15.2 Background and draft decision 254
15.3 Further submissions 256
15.4 Final decision 256

Appendix 1 Final decision **257**

Glossary and abbreviations **263**

Index **265**

Tables

Table 1 ActewAGL and commission forecasts of ActewAGL's non-capital costs, 2005–10 5
Table 2 Commission's final decision, capital base roll-forward, 2005–10 6
Table 3 Customer numbers and volumes, 2004–10 7
Table 4 Final decision: WACC parameters and overall rates of return 8
Table 5 Commission's final decision, total revenue and cost allocation, 2005–2010 9
Table 2.1 ActewAGL operating expenditure, actual and forecast, 2001–04 28
Table 2.2 ActewAGL operating expenditure, projected, 2004–10 28
Table 2.3 ActewAGL capital expenditure, actual and forecast, 2001–04 29
Table 2.4 ActewAGL capital expenditure, forecast, 2005–10 29
Table 2.5 ActewAGL's gas demand forecast, 2005–10 30
Table 2.6 ActewAGL's revenue requirement forecast, 2005–10 31
Table 2.7 ActewAGL's proposals for tariff changes, 2003–04 to 2004–05 33
Table 6.1 ActewAGL's total revenue requirement, 2001–04 70

Table 7.1	ActewAGL's non-capital costs, commission forecast and actual, 2001–04	77
Table 7.2	ActewAGL's operating expenditure, actual 2004 and forecast 2005–10	78
Table 7.3	ActewAGL and draft commission forecasts of ActewAGL's non-capital costs, 2005–10	81
Table 7.4	ActewAGL and draft commission asset management and services expenditure, forecast 2005–10	82
Table 7.5	ActewAGL and draft commission projected marketing expenditure, 2005–10	83
Table 7.6	ActewAGL and draft commission actual and projected unaccounted-for-gas expenditure, 2004–10	83
Table 7.7	ActewAGL's forecast asset management and asset services costs, 2005–10	86
Table 7.8	ActewAGL's revised UAG forecasts, 2005–10	87
Table 7.9	ActewAGL's revised non-capital cost forecasts, 2005–10	88
Table 7.10	Commission and ActewAGL, asset management and asset services costs, 2005–10	92
Table 7.11	Commission and ActewAGL marketing costs, 2005–10	92
Table 7.12	Draft decision and ActewAGL's revised UAG, 2005–10	93
Table 7.13	Commission's final decision on ActewAGL non-capital costs, 2004–10	96
Table 8.1	Commission's projected capital base roll-forward, 2000–2004	104
Table 8.2	Commission's 2000 estimates of economic life of assets	106
Table 8.3	ActewAGL's capital base roll-forward, 2000–04	107
Table 8.4	Commission forecast and actual ActewAGL capital expenditure, 2000–04	108
Table 8.5	ActewAGL's forecast capital base, 2005–10	109
Table 8.6	ActewAGL's forecast capital expenditure, 2005–10	109

Table 8.7	Commission's draft forecast capital expenditure, 2005–10	111
Table 8.8	Commission's final decision, forecast capital expenditure, 2005–10	123
Table 8.9	Commission's final decision, capital base roll-forward, 2005–10	123
Table 9.1	Initial residential tariff customer numbers and volume demand, ActewAGL forecast, 2005–10	127
Table 9.2	Revised residential tariff customer numbers, volume demand, ActewAGL forecast, 2005–10	128
Table 9.3	Initial business tariff customer numbers, volume demand, ActewAGL forecast, 2005–10	129
Table 9.4	Revised business tariff customer numbers, volume demand, ActewAGL forecast, 2005–10	129
Table 9.5	Contract market consumption, ActewAGL forecast, 2005–10	130
Table 9.6	Draft commission forecasts, customers and volume demand, 2004–10	132
Table 9.7	Residential customer numbers	137
Table 9.8	Business customer numbers	137
Table 9.9	Contract customer numbers	138
Table 9.10	Final residential volumes	139
Table 9.11	Business customer tariff volumes	139
Table 9.12	Contract customer volumes (GJ)	140
Table 9.13	Customer numbers and volumes	141
Table 10.1	WACC parameters, ActewAGL proposal and other regulatory decisions	148
Table 10.2	Draft decision: WACC parameters and overall rates of return 155	
Table 10.3	10-year Treasury bond returns	169
Table 10.4	CBA Spectrum data on debt margins	173

Table 10.5 Final decision: WACC parameters and overall rates of return 190

Table 11.1 Possible ratings (Standard & Poor's 2003) 200

Table 11.2 Credit rating based on draft decision and regulatory gearing (60%) 200

Table 11.3 Credit rating based on draft decision and actual gearing (34.7%)201

Table 11.4 Credit rating based on ActewAGL's proposed access arrangement and actual gearing (34.7%) 201

Table 11.5 Standard & Poor's 2003 credit rating using final decision 205

Table 11.6 Possible ratings (NSW Treasury 2002) 205

Table 11.7 NSW Treasury 2002 credit rating using final decision 206

Table 12.1 ActewAGL, proposed total revenue, cost allocation, 2005–2010 210

Table 12.2 Commission, proposed total revenue and cost allocation, 2005–2010 211

Table 12.3 ActewAGL's proposal for tariff changes, 2003–04 to 2004–05 213

Table 12.4 Commission's final decision, total revenue and cost allocation, 2005–2010 224

Table 14.1 Methods of managing capacity on a pipeline 244

Figures

Figure 7.1 Asset management and asset services costs, 2001–10 91

Executive summary

This executive summary is provided to assist interested parties and other readers of the commission's detailed reasons for its final decision. It summarises the commission's final decision, the reasons underlying the decision, and the analysis applied in reaching the commission's assessment of ActewAGL's proposed access arrangement. The summary is not a substitute for, and does not form any part of, the commission's final decision.

Introduction

In December 2003, ActewAGL submitted to the commission its proposed revisions to the access arrangement relating to the natural gas distribution system in the ACT, Queanbeyan and Yarrowlumla. The revised access arrangement describes the terms and conditions under which ActewAGL proposes to provide third parties with access to its natural gas distribution system.

During the course of this review of its access arrangement, ActewAGL amended aspects of its proposed revisions as originally submitted. This final decision relates to the latest amended version of ActewAGL's proposed access arrangement revisions.

This executive summary provides an overview of the commission's assessment of ActewAGL's proposed access arrangement and the final decision, including the amendments the commission requires in order for the access arrangement to be approved. The required amendments, and reasons for the commission's final decisions, are provided throughout this report, as required by section 7.7 of the National Third Party Access Code for Natural Gas Pipeline Systems (the Code).

The commission released its draft decision, on 19 July 2004, which proposed not to approve the full suite of ActewAGL's revisions to the access arrangement and set out the amendments (or nature of the amendments) that would have to be made to the revisions in order for the commission to approve them. This final decision is made by the commission after

considering submissions from interested parties in relation to the draft decision.

The commencement date for the revised access arrangement is proposed to be 1 January 2005.

The process and key issues considered in this decision

The commission has adopted a review process involving extensive consultation, research, and analysis. This final decision aims to deliver a balanced outcome that has regard to the provisions of the access arrangement, the interest of the service provider and users, the objectives of the Code, and the Code's specific requirements.

Services policy

The commission approves ActewAGL's proposed services policy subject to the following amendment in relation to ActewAGL's proposal to cease to offer the meter data service as a reference service if the service becomes contestable.

The amendment (which uses words suggested by ActewAGL) seeks to ensure that the event that triggers the withdrawal of this service as a reference service is clear and unambiguous. The required amendment is as follows:

> The Meter Data Service, or relevant elements of that service, will cease to be offered as a Reference Service, and at ActewAGL's discretion as a Service, on the date of the commencement of any Gas Law (or the lawful adoption of any requirement by any person or group of people appointed by Government or industry to implement retail contestability in the gas industry in the Australian Capital Territory or New South Wales) where that Gas Law or requirement permits the provision of gas meter reading or on-site data and communication equipment in the ACT, Queanbeyan and Yarrowlumla by a person other than ActewAGL.
>
> If such a Gas Law or requirement is introduced in either the Australian Capital Territory or New South Wales, but not in both

jurisdictions, then this clause will apply to the Meter Data Service only in so far as it relates to the area affected by the Gas Law or requirement.

In relation to service standards, the commission proposed in its draft decision to require ActewAGL to achieve no worse than ‘current’ service standards, as reported in the commission’s compliance and performance reports for 2002–03 and, when available, 2003–04. In the final decision the commission accepts that a revision to ActewAGL’s access arrangement to this effect would not be practical in the context of the current review. This matter is considered to be more effectively addressed by a link between reference tariffs and service standards, discussed in section 12 of this decision. While it may also not be practical to create such a link for the forthcoming access arrangement period, ActewAGL has agreed to work towards the determination of an appropriate service incentive factor to apply during the subsequent access arrangement period.

Terms and conditions

The commission approves the general and specific terms and conditions proposed by ActewAGL and the proposed arrangements for gas balancing and establishment of receipt points.

However, the commission does not approve ActewAGL’s proposed curtailment of supply policy (in terms of arrangements to protect ActewAGL from action by users and for users to indemnify ActewAGL in instances where ActewAGL is required to conduct load shedding) and requires the following amendment to be made to that policy in order for the commission to approve it:

> ActewAGL’s proposed access arrangement is to be amended so that the indemnity provision in the curtailment of supply policy only applies to liability for:
>
> - third party claims made against ActewAGL as a result of load shedding
> - direct loss ActewAGL incurs as a result of a user’s failure to take required action under the load shedding provisions.

Total revenue

Subject to the commission's not approving ActewAGL's proposal to obtain a return on working capital under the cost of service methodology, the commission considers that ActewAGL's proposed approach to calculating its total revenue requirement over the forthcoming access arrangement period meets the requirements of the Code in that it:

- adopts a cost of service methodology in accordance with section 8.4 of the Code
- represents a real basis for calculating total revenue (under which the capital base, depreciation and all costs and revenues are expressed in constant prices and a real rate of return is allowed) in accordance with section 8.5A of the Code.

The commission's assessment of ActewAGL's cost of service components, or 'building blocks', used in calculating its total revenue requirement for the forthcoming access arrangement period is provided in sections 7 to 11 of this decision.

The commission does not approve the 'return on working capital' building-block cost component proposed by ActewAGL. The commission considers that ActewAGL's approach to modelling its total revenue requirements already provides a short-term financing allowance by assuming that cash inflows occur at the end of the year when they will actually be spread throughout the year, thereby giving ActewAGL a cash financial advantage during the year. Accordingly the commission approves the form of ActewAGL's total revenue calculation, subject to the removal of the component return on working capital.

Operating cost forecasts

Having assessed ActewAGL's proposal with reference to the Code, and on the basis of the information before it, the commission does not approve ActewAGL's projection on non-capital costs.

The commission considers that the revised projection of non-capital costs set out in Table 1 would be those incurred by a prudent service provider operating efficiently in accordance with accepted and good industry practice,

and to achieve the lowest sustainable cost of delivering ActewAGL's reference services, as required by the Code.

Table 1 ActewAGL and commission forecasts of ActewAGL's non-capital costs, 2005–10

$ million, real 2004–05							
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**Total**
ActewAGL	13.5	13.6	13.8	13.9	13.9	13.9	82.5
Commission	12.6	12.8	13.1	13.2	13.4	13.5	78.6
Difference	–0.9	–0.8	–0.7	–0.7	–0.5	–0.4	-3.9

Capital expenditure and the capital base

Opening capital base

The commission approves the opening capital base proposed by ActewAGL as having been set in accordance with the roll-forward methodology as provided for under sections 8.9 and 8.5A of the Code. The value of the capital base at the start of the forthcoming access arrangement period is $225.9 million at 30 June 2004.

Roll-forward over forthcoming access arrangement period

The commission's assessment of efficient capital expenditure has resulted in a proposed reduction of 1.5% to the forecast capital costs of ActewAGL's forward-looking capital expenditure program. Table 2 sets out the commission's revised roll-forward of the opening capital base over the forthcoming access arrangement period.

The commission's assessment of ActewAGL's forward-looking capital expenditure program has been based on the unit cost information provided by its consultants, McLennan Magasanik Associates Pty Ltd (MMA). The commission considers the revised forecast capital costs and forward-looking capital program to be consistent with the tests set out in section 8.16 of the Code.

Table 2 Commission's final decision, capital base roll-forward, 2005–10

	$ million, nominal					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Opening value	225.9	236.8	244.5	252.2	260.4	272.0
Plus capital expenditure	12.6	9.8	9.4	8.9	12.3	8.1
Less depreciation	7.4	8.1	8.6	8.4	8.7	9.0
Less disposals	0.05	0.05	0.05	0.05	0.06	0.06
Plus indexation	5.8	6.0	7.0	7.7	8.0	8.3
Roll-forward amount	**236.8**	**244.5**	**252.2**	**260.4**	**272.0**	**279.3**

Demand forecasts

The commission considered forecasts of customer numbers as developed by its consultants, MMA, against those forecast by ActewAGL. During the course of the review, ActewAGL revised its forecasts from those it originally submitted in December 2003. The commission has accepted the revised forecasts ultimately submitted by ActewAGL.

In making its final decision, the commission does not approve ActewAGL's initial proposed forecast tariff customer numbers (which has a consequential effect on forecast total usage for this group, given an agreed average consumption) and requires the tariff customer numbers and other values as set out in Table 3 to be adopted in order for the revisions to the access arrangement to be approved. These projections are based on revised forecasts submitted by ActewAGL.

The commission considers the forecasts in Table 3 to be best estimates arrived at on a reasonable basis.

Table 3 Customer numbers and volumes, 2004–10

Year ending 30 June	2004	2005	2006	2007	2008	2009	2010
Number of customers							
Tariff customers	96,069	100,077	103,573	106,937	110,181	113,319	116,362
Contract	38	39	39	39	39	39	39
Total customers	96,107	100,116	103,612	106,976	110,220	113,358	116,401
Volumes							
Tariff (TJ)	5,966	6,151	6,310	6,462	6,611	6,756	6,896
Contract (GJ)	5,494	5,711	5,628	5,546	5,487	5,405	5,347

Cost of capital

The Code requires that the rate of return on capital used in determining reference tariffs should provide a return commensurate with prevailing conditions in the market for funds and the risk involved in delivering the reference service. The commission approves ActewAGL's approach to determining the rate of return, which is based on applying a pre-tax real weighted average cost of capital (WACC). However, after a thorough assessment of ActewAGL's proposal, the commission does not approve all of the individual parameter values proposed by ActewAGL for calculation of the rate of return. The WACC parameter values proposed by ActewAGL for assessing the required rate of return, and those revised by the commission to satisfy the requirements of the Code, are set out in Table 4. In this table, ActewAGL's proposed rate of return parameter values have been updated, where applicable, for the most recent information on the risk-free rate. The WACC approach and parameters input to the WACC formula were chosen after considering, amongst other factors, the submissions received from ActewAGL, a review of recent regulatory decisions within Australia, and an assessment of information from studies performed in Australia and overseas.

The pre-tax real WACC approved by the commission is 7.0%.

Table 4 Final decision: WACC parameters and overall rates of return

	Commission's range		ActewAGL original submission[a]	
Parameter description	**Low**	**High**	**Low**	**High**
Risk-free rate	5.41%	5.41%	5.41%	5.41%
Real risk-free rate	2.77%	2.77%	2.77%	2.77%
Consumer price index	2.57%	2.57%	2.57%	2.57%
Debt funding	60%	60%	60%	60%
Equity funding	40%	40%	40%	40%
Total funding	100%	100%	100%	100%
Market risk premium	6.0%	6.0%	6.5%	7.0%
Debt margin	1.245%	1.430%	1.430%	1.430%
Gamma	50%	30%	40%	40%
Effective tax rate	30%	30%	30%	30%
Equity beta	0.90	1.09	0.980	1.090
Cost of equity (nominal)	10.81%	11.95%	11.78%	13.04%
Cost of debt (nominal)	6.66%	6.84%	6.84%	6.84%
Pre-tax nominal WACC	9.08%	10.16%	9.85%	10.47%
Pre-tax real WACC	**6.35%**	**7.40%**	**7.10%**	**7.70%**

a Updated for the current estimate of the risk-free rate.

Reference tariffs and reference tariff policy

In the light of its decisions on the components of the proposed revised access arrangement discussed above, the commission does not approve ActewAGL's proposed reference tariffs and reference tariff policy.

The commission's final decision sets out a revised price path for ActewAGL's reference tariffs for the forthcoming access arrangement period (anticipated to be 1 January 2005 to 30 June 2010).

The total revenue requirement assessed by the commission under the cost of service methodology in accordance with the principles and procedures discussed in the final decision represents a reduction of approximately 8.2% on the total revenue requirement proposed by ActewAGL over the forthcoming access arrangement period.

The total revenues originally proposed by ActewAGL compared with those assessed by the commission as reasonable are shown in Table 5.

Table 5 Commission's final decision, total revenue and cost allocation, 2005–2010

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Return on capital base	16.19	16.43	16.50	16.53	16.67	16.76
Depreciation	7.41	7.96	8.22	7.75	7.88	7.85
Redundant capital (accelerated depreciation)	nil	nil	nil	nil	nil	nil
Return on working capital	nil	nil	nil	nil	nil	nil
Non-capital costs	12.64	12.81	13.14	13.24	13.37	13.46
Total cost of service	**36.25**	**37.21**	**37.86**	**37.52**	**37.91**	**38.07**
Revenue from tariff customers	35.04	35.51	35.92	36.30	36.64	36.94
Revenue from contract customers	1.45	1.45	1.45	1.45	1.45	1.45

The primary factor driving the difference between ActewAGL's original proposal and the commission's calculated WACC is the commission's use of a lower rate of return than that proposed by ActewAGL. ActewAGL had proposed a pre-tax real rate of return of 7.9%, whereas the commission applied a pre-tax real rate of 7.0%.

The commission has also found a lower level of non-capital costs than that projected by ActewAGL to be prudent. This is a significant factor in explaining the difference in revenue projection in the first three years of the access arrangement. Given the reduced total revenue requirement calculated by the commission on the basis of its review, ActewAGL is to amend its proposed consumer price index (CPI)-related price path mechanism so that the amended mechanism is designed to recover not more than the revised forecast total revenue requirement.

ActewAGL's proposed revisions to the access arrangement defined five categories of pass-through event:

- capital cost events
- change in tax events
- regulatory events
- insurance events
- unforeseen external events.

The commission noted that broadly defined pass-through provisions may undermine incentives to reduce costs, where such incentives are encouraged by the general nature of the price path mechanism proposed by ActewAGL.

In relation to the proposed ‘capital cost event’ pass-through category, the commission noted that such events were not well defined in ActewAGL’s access arrangement revisions and that, in any case, unspecified major events may be appropriately dealt with though the general access arrangement revision process set out in section 2 of the Code. The commission therefore does not approve incorporation of a capital cost event in the reference tariff variation method in the revised access arrangement. However, the commission approves the incorporation of the following pass-through events proposed by ActewAGL in the reference tariff variation method:

- change in tax events
- regulatory events
- unforeseen external events.

These events are consistent with the pass-through events accepted by the commission in its recent decision on prices for electricity distribution services in the ACT. In the case of unforeseen external events, the commission considered the ‘terrorism or major natural disaster event’ pass-through definition in the electricity decision to be more detailed and specific in describing such events than the proposed definition of unforeseen external event, and requires ActewAGL’s access arrangement to be amended accordingly.

Insurance events were not accepted as pass-through events in the electricity decision. On similar grounds to those given for disallowing insurance events as pass-through events in the electricity decision, the commission does not approve the incorporation of such events in the reference tariff variation method.

The commission also requires the proposed access arrangement revisions to be amended to incorporate a materiality test for individual pass-throughs of $0.5 million (in 2004–05 dollars) in any one year, above the costs reasonably forecast by the commission.

The commission does not require the establishment of a formal link between tariffs and service standards in this access arrangement. However, during the

forthcoming access arrangement period the commission proposes to work with ActewAGL and interested persons towards the development of a suitable adjustment mechanism for the subsequent access arrangement period.

The commission considers the fixed principles as proposed by ActewAGL to be consistent with the Code, apart from their incompleteness in that ActewAGL did not in its original submission specify a fixed period to which the fixed principles would apply. ActewAGL has indicated that it will specify the fixed period (which will be the duration of an access arrangement period) in the access arrangement.

Extensions and expansions policy

The commission approves ActewAGL's proposed extensions and expansions policy, subject to their 'significance' (where 'significant' extensions and expansions may be excluded from coverage under the access arrangement, on ActewAGL giving notice to the commission) being decided by the commission case by case.

Capacity management, trading and queuing policies

The commission approves ActewAGL's proposed capacity management and queuing policies.

In order for the commission to approve ActewAGL's proposed trading policy, the commission requires ActewAGL to amend that policy to provide that ActewAGL will take reasonable steps to respond to any urgent request for trade within two business days of receiving the request.

Term of access arrangement

ActewAGL has proposed a five-and-a-half-year access arrangement period, from 1 January 2005 to 30 June 2010. The commission has considered whether any mechanism needs to be included in the proposed revised access arrangement to address the risk that any forecasts on which the arrangement is based prove to be incorrect. The commission notes that the proposed term is not materially greater than five years, and considers that the level of uncertainty around ActewAGL's longer term operating and capital

expenditure projections does not warrant a reduction in the term of the access arrangement.

The commission is also of the view that the pass-through events to be included in the access arrangement will assist in managing some of the risk associated with external events over this slightly longer period. In any event, ActewAGL is not precluded from utilising the general access arrangement revision process under section 2 of the Code in order to deal with the effects of major unforeseen events.

The commission therefore approves ActewAGL's proposal for a regulatory period from 1 January 2005 to 30 June 2010, with a revisions submission date of 30 June 2009.

1 Introduction

ActewAGL's natural gas distribution system in the Australian Capital Territory (ACT), Queanbeyan and Yarrowlumla is 'covered' under the National Third Party Access Code for Natural Gas Pipeline Systems (the Code). Accordingly, ActewAGL is required to submit, and have approved by the commission, an access arrangement that sets out the terms and conditions under which third-party users can obtain access to services provided by the system.

In January 2001, the commission approved ActewAGL's proposed access arrangement, which came into effect on 1 February 2001. It was envisaged that the revisions to the access arrangement would commence on 1 July 2004 (the 'revisions commencement date'). ActewAGL was required to submit its proposed revisions to the access arrangement, together with the applicable access arrangement information, by 30 June 2003 (the 'revisions submission date'). However, ActewAGL sought from the commission an extension to the revisions submission date, which the commission subsequently granted.

In December 2003, ActewAGL submitted to the commission proposed revisions to the 2001 access arrangement. Under the Code, the commission is required to decide whether to approve the proposed revisions. The revised access arrangement is proposed by ActewAGL to apply from 1 January 2005 to 30 June 2010.

On 19 July 2004, the commission released its draft decision, which proposed not to approve ActewAGL's revisions to the access arrangement and set out the amendments (or nature of the amendments) that would have to be made to the revisions in order for the commission to approve them. The commission requested submissions on the draft decision by 13 August 2004. This final decision is issued by the commission after considering the submissions received in relation to the draft decision.

1.1 The statutory framework

In making its decision whether to approve ActewAGL's proposed revisions, the commission has taken into account, and has had regard to, the matters required under the provisions of the Code and the Gas Pipelines Access

(ACT) Law. The Code and law apply in the ACT through the operation of the *Gas Pipelines Access Act 1998*. Under that Act, the commission is the relevant regulator in relation to ActewAGL's natural gas distribution system in the ACT, Queanbeyan and Yarrowlumla.

To the extent that the commission considers that its objectives under the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act) and the *Utilities Act 2000* (the Utilities Act) are relevant to its decision on the proposed revisions to the access arrangement, the commission will take those objectives into account.

1.1.1 Requirements of the gas access regime and the Code

The Code establishes a national access regime for natural gas distribution and transmission pipeline systems. The Code applies to pipelines that are 'covered' under the Code. Pipelines that are not covered are not subject to the Code.

Service providers (owners and operators) of covered pipelines are required to lodge access arrangements with the relevant regulator—in this case, the commission—for approval. An access arrangement sets out the terms and conditions (including tariffs) under which the service provider will provide certain services to existing and prospective third-party users.

The Code is based on the principle that a service provider must define the benchmark services it will offer ('reference services') and the terms and conditions, including prices ('reference tariffs') that will apply to those services. The service provider and access seeker are free to agree to other tariffs, terms and conditions (with the exception of the queuing policy). However, in resolving disputes under the Code in relation to reference services, an arbitrator must apply the provisions of the access arrangement, including the associated reference tariffs.

The Code sets out the detailed regulatory principles and processes that the commission must follow when assessing a proposed access arrangement and subsequent revisions. In accordance with section 2.24 of the Code, the commission may only approve a proposed access arrangement if it is

satisfied the access arrangement contains the elements and satisfies the principles set out in sections 3.1 to 3.20 of the Code,[1] including:

- a services policy
- a reference tariff and a reference tariff policy
- the terms and conditions of supply
- a capacity management policy
- a trading policy
- a queuing policy
- an extensions and expansions policy
- a revisions submission date and a revisions commencement date.

The commission must not refuse to approve a proposed access arrangement solely for the reason that the arrangement does not address a matter that sections 3.1 to 3.20 do not require an access arrangement to address.

In accordance with section 2.24 of the Code, in assessing a proposed access arrangement, the commission is required to take the following factors into account:

- the service provider's legitimate business interests and investment in the covered pipeline
- firm and binding contractual obligations of the service provider or other persons (or both) already using the covered pipeline
- the operational and technical requirements necessary for the safe and reliable operation of the covered pipeline
- the economically efficient operation of the covered pipeline
- the public interest, including the public interest in having competition in markets (whether or not in Australia)
- the interests of users and prospective users
- any other matters that the relevant regulator considers are relevant.

[1] In the case of assessing revisions to an access arrangement, these provisions are given effect through section 2.46 of the Code.

The reference tariffs and reference tariff policy included in the proposed access arrangement must comply with the objectives set out in section 8 of the Code:

- to provide the service provider with the opportunity to earn a stream of revenue that recovers the efficient costs of delivering the reference service over the expected life of the assets used in delivering that service
- to replicate the outcome of a competitive market
- to ensure the safe and reliable operation of the pipeline
- not to distort investment decisions in pipeline transportation systems or in upstream and downstream industries
- to be efficient in the level and structure of the reference tariff
- to provide an incentive to the service provider to reduce costs and to develop the market for reference and other services.

To the extent that any of these objectives conflict in their application to a particular reference tariff determination, the commission may determine the manner in which they can best be reconciled or which of them should prevail.

The process the commission is required to follow when deciding whether to approve proposed revisions to the access arrangement is set out in section 2 of the Code. This is discussed in Section 1.2.

1.1.2 Other relevant legislation and reviews

As noted above, in making its decision whether to approve ActewAGL's proposed revisions, where relevant, the commission will also have regard to its objectives under the Utilities Act and the ICRC Act.

The Utilities Act establishes a framework for regulating the provision of electricity, gas, water and sewerage services in the ACT, including licensing requirements, industry codes of practice and approval of various contracts. The Utilities Act also enables the commission to monitor and report on utilities' compliance with licence conditions, including those of ActewAGL's gas distribution licence.

The ICRC Act establishes the commission and confers on it functions that include determining prices for regulated industries, advising government about industry matters, advising on access to infrastructure and determining access disputes. The commission also has responsibilities under the ICRC Act for determining competitive neutrality complaints and providing advice about other government-regulated activities.

The commission seeks to ensure that regulation is cost-effective, transparent, accountable, applied consistently and balanced between the interests of customers and the regulated businesses. Additionally, regulated prices should aim to achieve economic efficiency, revenue sufficiency and equity. These objectives are consistent with those of the Code.

In addition to these pieces of legislation, the commission has been mindful of the Productivity Commission's review of the gas access regime, which was released by Treasury on 10 August 2004.[2] The Productivity Commission's recommendations have not been adopted at this stage. The Code applied by the commission in terms of this review is the current version of the Code.

1.2 The review process

1.2.1 Process

The Code sets out the process that the commission is required to follow in assessing whether to approve the proposed revisions to the access arrangement (sections 2.28 to 2.48). This includes requirements that the commission:

- after receiving a proposed revision to an access arrangement, informs each person known to the commission who the commission believes has a sufficient interest in the matter that it has received proposed revisions to the access arrangement, and publishes a notice in a national daily newspaper which describes the covered pipeline, states how copies of the revisions may be obtained, and requests submissions by a specified date

[2] *Review of the Gas Access Regime*, Productivity Commission Inquiry Report No. 31, 11 June 2004.

- after considering submissions received, issue a draft decision which either proposes to approve the revisions to the access arrangement, or proposes not to approve the revisions and provides reasons why (and, if the revisions have been proposed by the service provider as required by the access arrangement, states the amendments or nature of the amendments required in order for the commission to approve the revisions)
- provides a copy of its draft decision to the service provider, any person who made a submission on the matter and any other person who requests a copy
- requests submissions on the draft decision from persons to whom it provides the draft decision by a date specified by the commission and considers any submissions received by the date specified by the commission, and may (but is not obliged to) consider submissions received after that date
- issues a final decision within six months[3] of receiving proposed revisions to the access arrangement.

The commission must issue a final decision that:

- if the service provider has not submitted amended revisions to the access arrangement, either approves the revisions to the access arrangement originally proposed by the service provider or does not approve the revisions to the access arrangement originally proposed by the service provider, and states the amendments which would have to be made to the revisions in order for the commission to approve them and the date by which the amended revisions must be resubmitted by the service provider

  or

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[3] The commission may extend the period of six months by periods of up to two months on one or more occasions, provided it publishes in a national newspaper notice of the decision to increase the period. In order for the timeframes proposed in this review to be met, the commission has made such extensions to this period. Notices of the decisions to increase the period were published in the *Australian Financial Review* on 12 June 2004 and 15 August 2004.

- if the service provider has submitted amended revisions to the access arrangement, either approves the amended revisions to the access arrangement or does not approve the amended revisions to the access arrangement and states the amendments which would have to be made to the revisions in order for the commission to approve them and the date by which the amended revisions must be resubmitted by the service provider.

The commission must provide a copy of its final decision to the service provider, any person who made a submission on the matter and any other person who requests a copy.

The commission advertised that it had received the proposed access arrangement revisions on 31 January 2004 in *The Canberra Times* and on 11 February 2004 in the *Australian Financial Review*.

The commission released an issues paper on 27 February 2004 which sought submissions from interested parties by 8 April 2004 on the issues raised or any other matters. The only submissions received by the commission on the issues paper were from ActewAGL.

The commission released its draft decision on 19 July 2004. The draft decision proposed not to approve the full suite of ActewAGL's revisions to the access arrangement and set out the amendments (or nature of the amendments) that would have to be made to the revisions in order for the commission to approve them. The commission requested submissions on that decision by 13 August 2004. It received submissions from ActewAGL and the Energy Networks Association. ActewAGL's submission was accompanied by separate papers from its advisers and other parties in response to particular issues raised by the commission's draft decision. Issues raised in the submissions are discussed in the body of this decision.

The commission's timetable for the remainder of this review is as follows.

Milestone	*Date*
Release of final decision	Tuesday, 19 October 2004
ActewAGL to resubmit the access arrangement in response to final decision	Wednesday, 3 November 2004
Release of final approval	Friday, 19 November 2004.

1.2.2 Application of statutory requirements

In its response to the commission's draft decision, ActewAGL raised concerns about the general procedure that it considered the commission had adopted in arriving at the draft decision. ActewAGL's key concerns were:

- that the commission has not met the requirements of the Code, in that it is beyond the power of the relevant regulator not to approve the proposed access arrangement simply because it prefers a different access arrangement
- that the commission has taken the approach that the Australian Competition Tribunal in Application by *GasNet Australia (Operations) Pty Ltd* [2003] ACompT 6; (2004) ATPR 41–978 was so critical of—rejecting ActewAGL's proposals in favour of its own, while failing to show that ActewAGL's proposals are unreasonable[4]
- that the commission should act in accordance with section 2.24 of the Code when assessing the proposals and requiring amendments, and that the power of the relevant regulator to require amendments, or to itself draft and approve its own access arrangement, does not arise until it is of the opinion that the access arrangement proposed by the service provider does not comply with the Code, and in determining the question of compliance it must act in accordance with section 2.24.[5]

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[4] Page iii of ActewAGL's submission, quoting from paragraph 29 of the Australian Competition Tribunal's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8.

[5] Page iv of ActewAGL's submission, quoting from paragraphs 29 and 30 of the Australian Competition Tribunal's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8.

Contrary to ActewAGL's comments about the commission's application of the statutory requirements, the commission has adopted a decision-making process that is consistent with the requirements of the Code and which takes into account the provisions of the access arrangement, the submissions made by interested parties, and the interpretations and issues arising from decisions of the Australian Competition Tribunal and the Supreme Court of Western Australia in relation to the Code, including those noted by ActewAGL. The commission's process in this regard is described below.

ActewAGL also submitted that aspects of the commission's draft decision were based on limited and flawed analysis. The specific issues raised by ActewAGL, and the commission's responses to those issues, are contained in the body of this decision.

In accordance with the requirements discussed in Section 1.1 above, in assessing the revisions to the access arrangement, the commission has applied section 2.24 of the Code in determining whether the access arrangement as revised:

- contains the elements in sections 3.1 to 3.20 of the Code
- satisfies the principles in those sections (including the principles included by cross reference, for example the reference tariff principles in section 8, as referenced by sections 3.4 and 3.5).

In assessing whether the proposed revised access arrangement (including the individual components of the access arrangement) contains the elements in sections 3.1 to 3.20 of the Code, the commission has identified the particular provisions of the Code that are relevant to the individual components of the access arrangement.

Using the discretion available to it under the Code, and guided by the objectives and factors in the Code, the commission has determined whether the components of ActewAGL's proposed revised access arrangement satisfy the requirements of those provisions of the Code.

In determining whether the proposed access arrangement is consistent with the requirements of the Code, the commission has taken into account the factors that it is required to take into account in assessing an access arrangement under section 2.24 of the Code. Those factors are set out in sections 2.24(a) to (g) of the Code. In particular, where the proposed revised

access arrangement produces a tension, for example if the reference tariff principles in the access arrangement produce a tension in the achievement of the tariff design objectives in section 8.1 of the Code, the commission has taken into account the factors described in sections 2.24(a) to 2.24(g) of the Code in resolving that tension.

The commission's decision-making process has also taken into account the interpretations and issues arising from decisions of the Australian Competition Tribunal and the Supreme Court of Western Australia concerning the access arrangement provisions contained in the Code. To the extent the commission considers those decisions to be relevant for its assessment of the proposed access arrangement under section 2.24 of the Code, it has also taken into account decisions made by other regulators under sections 2.24–2.48 of the Code, and its own decisions, and the decisions of other regulators, in other industries. As commented in Section 1.1.2 above, where relevant the commission has also had regard to its objectives under the Utilities Act and the ICRC Act.

Where on this basis the commission has considered that a proposed access arrangement component would result in the revised access arrangement not complying with the requirements of the Code, the commission has determined the amendment (or nature of amendment) that would result in the access arrangement being consistent with those requirements.

1.2.3 Consultancies

The commission has engaged consultants to provide expert economic, technical, engineering and legal advice to assist it in the review of the proposed revisions to ActewAGL's access arrangement.

PricewaterhouseCoopers has provided overall project management services and specialist economic, regulatory and financial advice to the commission.

McLennan Magasanik Associates (MMA) has provided independent analysis and advice, including by reviewing demand forecasts and ActewAGL's corporate cost allocation and ring fencing policies. MMA subcontracted the Energy Consulting Group (ECG) to provide technical engineering analysis and advice, including by reviewing operating and capital expenditure programs.

Clayton Utz has provided legal services to the commission as required.

While the commission appointed these consultants to provide independent advice and detailed analysis, the views and conclusions set out in this final decision are those of the commission.

1.3 Outline of decision

This final decision outlines the commission's process for conducting this review, and explains the context of the review and the key issues the commission has considered in making its final decision. The issues covered by each section of this decision are as follows.

Section 2 sets out background information relating to ActewAGL, the proposed access arrangement and the gas industry.

Section 3 discusses the services to be offered under ActewAGL's proposed access arrangement.

Section 4 discusses the terms and conditions under which ActewAGL proposes to offer access to those services.

Section 5 provides an overview of the Code requirements in relation to reference tariffs. This overview provides the context for the commission's assessment of the methodology and cost components used by ActewAGL in calculating the proposed reference tariffs and in defining the reference tariff policy.

Section 6 discusses the proposed methodology for determining ActewAGL's total revenue requirement.

Section 7 sets out the commission's final decision regarding ActewAGL's operating expenditure allowances to be applied over the forthcoming access arrangement period.

Section 8 sets out the commission's final decision regarding ActewAGL's capital expenditure allowances to be applied over the forthcoming access arrangement period.

Section 9 sets out the commission's final decision regarding forecast gas demand.

Section 10 sets out the commission's final decision regarding the weighted average cost of capital applied to ActewAGL's capital base to determine the return on its investment in the network.

Section 11 sets out the commission's calculation of a credit rating for ActewAGL.

Section 12 brings together sections 6 to 10 (and takes into account Section 11) in calculating ActewAGL's total revenue requirement. It also sets out the commission's final decisions in relation to the reference tariff policy and fixed principles contained in ActewAGL's proposed access arrangement.

Section 13 sets out the commission's final decision regarding ActewAGL's proposed extensions and expansions policy.

Section 14 sets out the commission's final decision regarding ActewAGL's proposed queuing policy, capacity management policy and trading policy.

Section 15 sets out the commission's final decision in relation to the term of the revised access arrangement.

The amendments (or nature of the amendments) that would have to be made to ActewAGL's access arrangement revisions in order for the commission to approve them are listed in Appendix 1 (in addition to being set at the end of each section relating to the particular amendment).

2 Background to the ACT gas market and ActewAGL's proposed access arrangement

2.1 ActewAGL and the ACT gas market

Prior to 2000, AGL Gas Company (ACT) Limited was the monopoly supplier of gas in the ACT. In November 2000, ACTEW Corporation and AGL Limited entered into a joint venture arrangement. This followed the ACT Legislative Assembly's decision to pass the ACTEW/AGL Partnership Facilitation Bill 2000 in March 2000.

The joint venture included the amalgamation of ACTEW Corporation's ACT electricity network and retail operations, and AGL's ACT gas network and retail operations, and gas network operations in Queanbeyan and Yarrowlumla.

Under the joint venture, the two distribution network businesses were combined as ActewAGL Distribution (referred to as 'ActewAGL' in this final decision) on 3 October 2000. At that time, operation and management of the network was contracted out to Agility (a wholly owned subsidiary of AGL).

2.2 Overview of ActewAGL's proposed access arrangement

ActewAGL's proposed access arrangement is broadly similar to its 2001 access arrangement in its approach and content. However, the proposed arrangement contains a number of amendments and changes to existing provisions, reflecting, among other things, changes in the gas industry. Factors cited by ActewAGL as influencing the changes included the following.

- Full retail contestability was introduced in the gas industry in the ACT on 1 January 2002 and a number of new rules and codes now apply to ActewAGL's gas network. The commission notes that contestability has

not yet been introduced for a number of services, such as the meter data service (discussed in Section 3.4 of this decision).

- The ACT gas distribution system has been connected to the Eastern Gas Pipeline (EGP).
- ActewAGL has contracted out the operation and management of its network assets (to Agility).
- The size of the network and the number of customers have grown sharply.

The main features of the proposed access arrangement, the contents of which must comply with the Code, are discussed below. The following documents submitted by ActewAGL concerning its proposed revisions to the access arrangement may be found on the commission's website:[6]

- Access Arrangement for ActewAGL Distribution in ACT, Queanbeyan and Yarrowlumla, December 2003
- Access Arrangement Information for ActewAGL Distribution System in ACT, Queanbeyan and Yarrowlumla, December 2003
- Access Arrangement Attachments
- Access Arrangement Attachment—Definitions.

In the tables in this section of the final decision, unless otherwise indicated, ActewAGL's proposed cost, revenue and usage forecasts for the forthcoming access arrangement period are the forecasts set out in the above documents as originally submitted. However, both before and in response to the draft decision, ActewAGL altered some numeric values associated with its proposed revisions. The commission's assessment in this final decision is based on ActewAGL's latest values. In response to particular issues raised in the draft decision, ActewAGL has proposed a number of general amendments to the wording of its access arrangement revisions as contained in the above documents. Where this final decision specifies amendments to the wording of ActewAGL's proposed revisions, the amendments relate to the proposed revisions as contained in the above documents.

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[6] http://www.icrc.act.gov.au

2.2.1 Services to be offered

ActewAGL proposes to offer the same six reference services as in the 2001 access arrangement, with no change to the definitions of reference services. Negotiated services are also to be offered under the same definition as in the 2001 access arrangement. The reference services are:

- a tariff reference service for the transportation of gas to customers using less than 10 terajoules (TJ) per annum
- four reference services for the transportation of gas to contract customers (customers using more than 10 TJ per annum)
- a meter data service for the provision of meter reading and on-site data and communication equipment.

Non-reference services—including a (new) interconnection service and a negotiated service—are also offered.

2.2.2 Terms and conditions

The proposed access arrangement includes a general set of terms and conditions to apply to all services that are the subject of the access arrangement, plus a specific set of terms and conditions that apply to the individual reference services.

ActewAGL has proposed a number of changes to the terms and conditions in the 2001 access arrangement, most of which set out in more detail the rights and obligations of ActewAGL and users. Other changes include:

- altered gas-balancing arrangements
- a different curtailment of supply policy
- revisions to the minimum gas quality specifications.

2.2.3 Operating expenditure

ActewAGL's non-capital costs (operating expenditure) over the 2001 access arrangement period were higher than those forecast by the commission in its 2000 decision, as shown in Table 2.1.

Table 2.1 ActewAGL operating expenditure, actual and forecast, 2001–04

	$ million, real 2004–05			
Year ending 30 June	2001	2002	2003	2004
Final decision	11.12	10.55	10.11	9.77
Actual	12.78	11.58	12.02	11.57
Difference	1.66	1.03	1.91	1.80

ActewAGL has attributed the increased expenditure to higher customer numbers than forecast, unexpected bushfire costs, higher insurance costs and costs associated with establishing the new asset management arrangement with Agility.

ActewAGL's forecasts of operating expenditure over the forthcoming access arrangement period are shown in Table 2.2.

Table 2.2 ActewAGL operating expenditure, projected, 2004–10

	$ million, real 2004–05						
Year ending 30 June	2004 (est)	2005	2006	2007	2008	2009	2010
Total controllable costs	10.90	12.04	12.09	12.30	12.31	12.30	12.29
Other allowable costs	0.67	1.50	1.51	1.53	1.54	1.55	1.56
Total non-capital costs	11.57	13.54	13.60	13.83	13.85	13.85	13.85

In ActewAGL's submission, forecast expenditure grows in real terms each year and is higher than the actual expenditure during the 2001 access arrangement period. ActewAGL has indicated that its forecasts incorporate efficiency improvements of 1.5% per annum over the forthcoming access arrangement period. During this review, ActewAGL revised its forecast operating costs for the forthcoming access arrangement period from the costs set out in Table 2.2 above. The costs as revised are discussed in Section 7.

2.2.4 Capital expenditure

In aggregate, ActewAGL's actual capital expenditure in the 2001 access arrangement period has been similar to that forecast by the commission in its 2000 final decision. However, annual differences have occurred because of higher than expected capital expenditure arising from growth in customer numbers and a timing issue in relation to the EGP.

Table 2.3 ActewAGL capital expenditure, actual and forecast, 2001–04

	$ million, real 2004–05				
Year ending 30 June	**2001**	**2002**	**2003**	**2004**	**Total**
Final decision	18.8	8.3	7.8	5.6	40.5
Actual capital expenditure	14.2	11.7	9.8	7.4	43.1
Difference	–4.6	3.4	2.0	1.8	2.6

ActewAGL's forecast expenditure is set out in Table 2.4, and is marginally higher, on average, than expenditure in the period of the 2001 access arrangement. The increase in expenditure in 2009 is attributed to higher augmentation expenditure in that year, notably the expenditure associated with the planned construction of a trunk receiving station at Tuggeranong.

Table 2.4 ActewAGL capital expenditure, forecast, 2005–10

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Total distribution system	10.32	9.90	9.28	8.46	11.27	7.24
Total non-system expenditure	2.10	—	—	—	—	—
Total capital expenditure	12.42	9.90	9.28	8.46	11.27	7.24

In response to the commission's draft decision, ActewAGL revised its capital expenditure forecast for the forthcoming access arrangement period from that set out in Table 2.4 above. The revised forecast is discussed in Section 8.

2.2.5 Demand forecasts

ActewAGL has provided the commission with a forecast of gas demand in the ACT, Queanbeyan and Yarrowlumla over the five-and-a-half-year period that underpins its proposed access arrangement. ActewAGL's December 2003 forecasts are shown in Table 2.5.

Table 2.5 ActewAGL's gas demand forecast, 2005–10

Year ending 30 June	2005	2006	2007	2008	2009	2010
Residential tariff market (TJ)	4,839	5,003	5,162	5,317	5,469	5,617
Non-residential tariff market (TJ)	1,473	1,494	1,515	1,535	1,556	1,577
Contract market (GJ)	5,695	5,604	5,512	5,419	5,327	5,235

ActewAGL revised its demand forecasts from those set out in Table 2.5. The revised forecasts are discussed in Section 9.

In preparing its initial demand forecasts, ActewAGL made a number of assumptions, including:

- average annual consumption by new residential customers to fall from 53.1 gigajoules (GJ) in 2002–03 to 47.6 GJ in 2009–10
- average consumption by existing non-residential (business tariff) customers to fall by 0.06% per annum
- an annual weather-warming effect of 3.8 heating degree days (a measure of coldness of climate) to occur
- average consumption for contract customers to decline because of energy efficiency initiatives.

2.2.6 Cost of capital

To determine reference tariffs in its total revenue and tariff model, ActewAGL has proposed a pre-tax real cost of capital of 7.9%.

2.2.7 Reference tariffs and reference tariff policy

ActewAGL has proposed that it determine reference tariffs using a 'building block' methodology, where revenue to be generated from tariffs is equal to the sum of:

- efficient operating costs
- a return on the value of assets (the capital base)
- a return on the capital base (depreciation).

ActewAGL has also proposed to include separate building blocks for:

- working capital
- redundant capital.

The building-block components of the revenue requirement proposed by ActewAGL in December 2003 are shown in Table 2.6.

Table 2.6 ActewAGL's revenue requirement forecast, 2005–10

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Return on capital base	18.2	18.5	18.6	18.7	18.8	19.0
Depreciation	7.4	7.9	8.2	7.7	7.9	7.8
Redundant capital (accelerated depreciation)	0.1	0.1	0.1	0.1	0.1	0.1
Return on working capital	0.5	0.6	0.6	0.7	0.8	0.8
Non-capital costs	13.5	13.6	13.8	13.8	13.8	13.8
Total cost of services	39.7	40.7	41.3	41.0	41.4	41.5

ActewAGL has in effect revised its forecast total revenue requirement (given, among other things, revision of its non-capital cost and capital expenditure forecasts as commented above) from that in Table 2.6. Its revised total revenue requirement is discussed in Section 12.

Based on this initial forecast total revenue requirement, ActewAGL proposed the following tariff arrangements.

- There will be changes in tariffs between 2003–04 and 2004–05. The tariffs, expressed in real 2003–04 dollars, and changes are shown in Table 2.7.
- Revenue from the contract market will remain constant over the forthcoming access arrangement period. However, because ActewAGL has forecast volumes to fall, there will be annual real increases in tariffs of 1.0% to 1.5%.
- There will be no real change in charges for basic metering equipment and metering charges for tariff customers.
- There will be annual real increases of 0.3% to 4% for fixed and throughput charges for tariff customers.
- Ancillary charges (fees for processing requests for service, special meter readings, connections and disconnections) will not change in real terms.
- Overall, reference tariffs are to rise in real terms by 0.4% per annum over the forthcoming access arrangement period.

Table 2.7 ActewAGL's proposals for tariff changes, 2003–04 to 2004–05

Tariff	2003–04 $	2004–05 $	Change %
Contract charges			
Network unit charge ($ per GJ per MDQ per annum)	210.237	211.547	0.6
Throughput charge ($ per GJ)	4.608	3.100	–32.7
Capped rates ($ per GJ)			
First 20 TJ	4.120	2.888	–29.9
Next 30 TJ	3.570	2.507	–29.8
All additional TJ	3.020	2.117	–29.9
On-site data and communication equipment ($ per delivery station)	980.000	982.439	0.2
Meter reading charge ($ per delivery station)	419.000	420.488	0.4
Tariff market charges			
Fixed charge ($ per annum)	45.400	44.528	–1.9
Throughput charges ($ per GJ)			
First 1.25 GJ per month or 3.75 GJ per qtr	5.940	5.826	–1.9
Next 1.5 GJ per month or 4.5 GJ per qtr	4.244	4.601	8.4
Next 5.75 GJ per month or 17.25 GJ per qtr	4.514	4.427	–1.9
Next 75 GJ per month or 225 GJ per qtr	4.691	4.311	–8.1
Next 333.5 GJ per month or 1000.5 GJ per qtr	3.856	3.782	–1.9
All additional GJ	2.701	2.649	–1.9
Meter provision charges			
Meters < $6m^3$ per hour ($ per annum)	21.550	18.862	–12.5
Meters > $6m^3$ per hour ($ per GJ)	0.167	0.146	–12.4
Meter reading charge ($ per annum)			
Quarterly	3.730	3.500	–6.2
Monthly	35.600	33.406	–6.2
Ancillary service charges			
Request for service (rate per hour)	50.000	53.220	6.4
Special meter read	40.000	39.912	–0.2
Reconnection fee	n.a.	75.385	n.a.
Disconnection fee	100.000	102.000	2.0

The structure of tariffs for contract customers proposed by ActewAGL remains unchanged from the 2001 access arrangement.

In its proposed access arrangement, ActewAGL revised the relative prices of the tariff blocks for tariff customers from the commencement of the forthcoming access arrangement period. The result of these revisions would

be to increase relative tariffs for those customers using around 5–25 GJ per quarter. The majority of residential customers fall into this usage range. ActewAGL has revised the step charges, so that they now decline steadily as throughput increases. In the 2001 access arrangement, the steps fell, then increased, then fell again.

ActewAGL is proposing that changes in the following cost items be passed through to users during the forthcoming access arrangement period:

- capital cost event—where capital expenditure on a project is greater than forecast, or where expenditure is incurred on a project not included in the capital expenditure forecast
- change in tax event—a change in tax or introduction or removal of a tax
- regulatory event—an event which imposes a change in minimum standards and substantially alters the way in which ActewAGL must provide services, a change in authorisation fees, or a change in ActewAGL's obligations under the Code
- insurance event—including where insurance becomes more costly, unavailable, or available only on less favourable terms
- unforeseen external event—any unforeseen external event beyond ActewAGL's control, including natural disasters such as bushfires, and terrorism.

ActewAGL has not proposed a formal efficiency carryover mechanism, or any link between service standards and prices.

2.2.8 Extensions and expansions policy

ActewAGL is proposing that extensions and expansions of the network that have been included in the calculation of reference tariffs be part of the regulated pipeline, but that ActewAGL have the ability to elect that other extensions and expansions not be regulated. This differs from the 2001 access arrangement whereby all extensions and expansions (with the exception of duplicate pipelines) are automatically regulated.

2.2.9 Capacity management, trading and queuing policies

As in existing arrangements, ActewAGL proposes to manage capacity on a 'contract carriage' basis. Similarly, ActewAGL's policy for permitting trading of capacity is almost unchanged.

ActewAGL's general policy for access to capacity where constraints exist (the queuing policy) is more detailed than the existing provisions. It also proposes that persons seeking reference services have higher priority for accessing capacity than those seeking to connect an embedded network, and that short-term capacity seekers have a lower priority than those seeking other reference services.

2.2.10 Term of access arrangement

ActewAGL has proposed that it will submit revisions to the forthcoming access arrangement on 30 June 2009, to take effect on 1 July 2010.

This provides for a five-and-a-half-year access arrangement period and will give the commission 12 months to assess the revisions.

2.3 Retail gas prices and full retail contestability

The review undertaken by the commission relates solely to the terms, conditions and tariffs associated with the provision of the service of transportation of gas on ActewAGL's distribution network (and associated services) as required under the Code. It does not address the final retail gas price.

2.4 Review of the gas access regime

In 2003, the Australian Government referred the gas access regime (including the Code and relevant legislation) to the Productivity Commission for review.

The terms of reference for the inquiry required the Productivity Commission to report on:

- the benefits, costs and effects of the gas access regime, including its effect on investment in the sector and in upstream and downstream markets
- improvements to the gas access regime, its objectives and its application
- how the gas access regime might better facilitate a competitive market for energy services
- the appropriate consistency between the Code, the gas access regime and other regimes
- the institutional and decision-making arrangements under the gas access regime
- the appropriateness of including in the Code minimum (price and non-price) requirements for access to users.

The Productivity Commission's final report was released by Treasury on 10 August 2004.[7]

The Productivity Commission submitted its final report to the Australian Government in June 2004. The government is yet to consider the Productivity Commission's recommendations, and whether to implement any resulting changes to the regime and Code. Any changes to the Code are unlikely to be made before 2005, by which time ActewAGL's proposed revisions will be in place.

In undertaking this review, the commission is bound by the Code in its current form and is required to make its decision in accordance with the requirements of the Code.

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[7] *Review of the Gas Access Regime*, Productivity Commission Inquiry Report No. 31, 11 June 2004.

2.5 Proposals for a single national energy regulator

In June 2001, the Council of Australian Governments (COAG) established the Ministerial Council on Energy (MCE) to provide national oversight of policy development for Australia's energy sector. In December 2003, the MCE published a report to COAG on the reform of energy markets, which aims to provide a basis for the development of an efficient national energy market.[8]

In relation to economic regulation, the MCE recognised the importance of effective economic regulation to successful market reform and the need for processes to be more efficient and streamlined, responsive to market developments and nationally consistent. To advance these objectives, the MCE proposed the establishment of two new statutory bodies to undertake the tasks of rule making and market development, and network access regulation and market rule enforcement, respectively.

To the extent that the commission considers the establishment of the MCE to be relevant to its consideration of the proposed revisions to the access arrangement, the commission has taken the above matters into account in accordance with section 2.24(g) of the Code.

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[8] Ministerial Council on Energy, *Reform of Energy Markets*, *Report to the Council of Australian Governments*, 11 December 2003.

3 Services policy

An important element of any access arrangement is the services to be provided to access seekers—including the bundle of services being purchased and the different types of services to be offered. These services need to be sufficiently well defined, so that access seekers know 'what they are buying' and so that a regulator can assess whether the tariffs for the services are reasonable.

3.1 Code requirements

Sections 3.1 and 3.2 of the Code state that an access arrangement must include a policy on the service or services to be offered.

The services policy must comply with the following principles:

- The access arrangement must include a description of one or more services that the service provider will make available to access seekers, including:
  - one or more services that are likely to be sought by a significant part of the market
  - any service/s which in the commission's opinion should be included in the services policy.
- To the extent that it is practicable and reasonable, an access seeker must be able to obtain a reference service which includes only those elements that the access seeker wishes to be included in the service.
- To the extent that it is practical and reasonable a service provider must provide a separate tariff for an element of a service if requested by an access seeker.

A service which is specified in an access arrangement and for which a reference tariff has been specified in that access arrangement is known as a 'reference service'.

A service provider may also offer a number of services that are not reference services. These are often known as 'negotiated' or 'non-reference' services.

In assessing a proposed access arrangement, the commission must take into account the factors set out in section 2.24 of the Code.

3.2 Background and draft decision

3.2.1 2000 final decision

In its 2000 submission to the commission, ActewAGL proposed to offer a negotiated service and five reference services (a capacity reservation service, a managed capacity service, a throughput service, a multiple delivery point service and a tariff service). The commission required amendments to ActewAGL's proposed access arrangement to provide for the following capacity options to be specified in the access arrangement:

- a summer tranche service
- a short-term capacity service for small and medium customers
- a short-term capacity service for larger customers.

It also required that a partial use of assets service be specified as a negotiated service.

3.2.2 ActewAGL proposal

Reference services

ActewAGL proposes to offer the same reference services as in the 2001 access arrangement, with no change to the definitions of the reference services. These are:

- a single 'tariff' reference service—the transportation of gas to customers using less than 10 TJ per annum
- the following 'non-tariff' reference services for the transportation of gas to contract customers (those using more than 10 TJ per annum):

  - capacity reservation service—a transportation service with charges determined on the basis of capacity; under this service users may access additional short-term and summer capacity.
  - managed capacity service—a transportation service with charges determined on the basis of the previous year's maximum withdrawal
  - throughput service—a transportation service with charges determined on the basis of throughput of gas
  - multiple delivery point service—a transportation service for users with multiple delivery points
- a meter data service—a service for the provision of meter reading at a delivery point, and the provision of on-site data and communication equipment.

ActewAGL considered that the definitions of the reference services had worked well throughout the 2001 access arrangement period, with no problems or adverse comments from users.

Non-tariff reference services to new delivery points

ActewAGL proposed that the provision of non-tariff reference services to new delivery points be restricted to cases where upstream pressure is less than 1,050 kilopascals (kPa) and where the maximum daily quantity (MDQ) is at least 10 times the maximum hourly quantity (MHQ). This was not a feature of the 2001 access arrangement. ActewAGL's rationale for the particular terms of this service is discussed in Section 3.4.1 of the commission's draft decision.

ActewAGL submitted that the proposed terms meet the requirements of section 2.24 of the Code, which refers to the need to take account of the requirements for economically efficient operation of the pipeline and operational and technical requirements for the safe and reliable operation of the pipeline. ActewAGL commented that AGLGN included such a provision in the access arrangement submitted to the Independent Pricing and Regulatory Tribunal (IPART) in New South Wales.

Meter data service

ActewAGL indicated that it will cease to offer the meter data service as a reference service if the service becomes contestable. This is consistent with the 2001 access arrangement.

In support of this proposal, ActewAGL submitted that, if these services become contestable, the market would impose controls on the provision of the service.

ActewAGL also suggested that under the Code it may withdraw the meter data service as a service during the term of the access arrangement, without submitting the access arrangement to the commission for approval and public consultation. ActewAGL submitted that if an effective access arrangement contains a process governing what will happen on the occurrence of an event (such as clause 1.5 of Attachment 3F of the access arrangement), then if that event occurs, the process in the access arrangement would be triggered but the access arrangement itself does not need to be 'changed' (requiring submission to a further process as set out in section 2 of the Code).

Non-reference services

ActewAGL also proposes to offer non-reference services, including negotiated services, and an interconnection of embedded network service which provides for the establishment of a single delivery point from the network to an embedded network.

Interconnection of embedded network service

In its 2000 final decision, the commission concluded that while the Code did not require interconnection to be a separate reference service, it may be necessary to specify technical and operational considerations in relation to interconnection. The commission also noted that under section 3.2(a) of the Code, the commission could require that interconnection be a reference service if it believed that the service would be sought by a significant part of the market.

ActewAGL considers that in the developing gas market an option for interconnection, not included in the 2001 access arrangement, should be covered. ActewAGL has therefore included such a service as a non-reference service, with technical and operational conditions set out in the proposed

access arrangement which reflect, with slight modification as outlined in the draft decision, provisions for interconnection services in the 2001 access arrangement.

Ancillary services

The commission raised with ActewAGL the question of whether ancillary services, such as disconnection, reconnection and special meter reads, should be reference services. ActewAGL submitted that, in the past, ancillary services have been requested by a small proportion of the market, and there are no strong reasons to suggest that such requests are likely to increase substantially in the future.

Partial use of the network service

ActewAGL proposed that the partial use of the network non-reference service, which was separately identified in the 2001 access arrangement, be removed due to a lack of demand and because ActewAGL considers it to be adequately covered by the definition of the negotiated service.

Requests for service

ActewAGL is proposing some minor changes to the procedure for requests for service and connection to premises. These include more detailed requirements regarding ActewAGL's obligations to respond to a request for services. ActewAGL is proposing a fee of $60 plus $60 per hour for this service.

ActewAGL commented that the existing fee of $50 has not been adjusted for inflation since 2001 and that the proposed $60 charge reflects the costs of processing a request, and that annual increases during the forthcoming access arrangement period are kept in line with inflation using the escalation methodology specified for reference tariffs.

Service standards

In support of its submission that current service standards meet users' needs, ActewAGL referred to a study it commissioned on customers' willingness to pay for service standards for gas, electricity, and water and wastewater.

ActewAGL stated that the survey results show that both residential and commercial customers value the reliability of the gas service provided by

ActewAGL, and that customers rate highly both the standard of their gas supply and ActewAGL as a gas supplier. ActewAGL submitted that the study results indicate that customers are willing to pay for existing service levels, and would not prefer a reduction in reliability in return for a discount in price.

ActewAGL submitted that establishing a scheme to ensure that service standards do not drop below existing levels would require complex issues to be addressed, such as how to define and measure appropriate service standards at the start of the scheme and each subsequent access arrangement period, how to structure penalties and rewards, and how to deal with the impact of external events such as bushfires or third-party damage to the network. While it supported the concept of ensuring that service standards meet customer needs, ActewAGL was not convinced that a formal regulatory scheme is warranted, arguing that, in an increasingly competitive energy market, it has a strong commercial incentive to identify and respond to consumer preferences in service levels.

3.2.3 Draft decision

Reference services

In relation to the services to be offered, the commission did not receive any submissions from network users. The commission had no material before it to suggest that the services proposed by ActewAGL are not consistent with users' needs or are not sufficiently well defined, or that restrictions on the availability of reference services are not reasonable.

In its consideration of the services to be offered, the commission drew on information from submissions made in the review process for the 2001 access arrangement, where relevant.

As the definitions of the reference services generally reflect those set out in the 2001 access arrangement, and the commission had no material before it to suggest that those definitions required amendment, it proposed to accept those definitions for the forthcoming access arrangement period.

Non-tariff reference services to new delivery points

The commission considered that ActewAGL's proposal in relation to restrictions on the provision of non-tariff reference services to new delivery

points was consistent with the requirements of the Code and proposed to accept the proposed revisions.

Meter data service

The commission sought legal advice as to whether the Code permits a reference service to be withdrawn during an access arrangement period. On the basis of that advice the commission's view, as reflected in its draft decision, is that it may approve an access arrangement which provides that a reference service will cease to be a reference service upon the occurrence of events specified in the access arrangement.

In this regard, the commission noted in its draft decision that:

- Contract customers have already installed the facilities required to provide meter reading and on-site data collection services.
- While meter-reading and on-site data collection services would become contestable upon the commencement of a rule or other law or instrument which permits meter reading and on-site data collection services to be provided by third parties, network operators would continue to provide basic metering facilities (i.e. facilities other than the on-site data and communication equipment) at each site.
- Upon the commencement of a rule or other law or instrument which permits meter reading and on-site data collection services to be provided by third parties, while network operators (or their agents) are likely to continue to provide these services, third parties are also likely to begin providing those services, particularly as customers have already installed the necessary facilities.
- Draft rules have been prepared which contemplate the provision of meter reading and on-site data collection services by third parties (Rule 17 of the New South Wales and ACT Gas Retail Market Business Rules, version 27). There is a reasonable prospect that the draft rules will commence during the forthcoming access arrangement period. Upon commencement, the rules will apply to ActewAGL.

Accordingly, the commission was satisfied that meter data services are likely to be contestable upon the commencement of any law, code or instrument which permits the provision of meter reading or on-site data and communication services by a person other than ActewAGL. The commission

noted that in its 2000 decision it considered that a service should not be covered by the access arrangement when that service becomes contestable.

The commission proposed to accept ActewAGL's proposal to withdraw the meter data service as a reference service if the service becomes contestable. This is consistent with the 2001 access arrangement. To ensure that the event which triggers the withdrawal of this service as a reference service would be clear and unambiguous, the commission proposed to require ActewAGL to include specific wording in the access arrangement.[9]

Non-reference services

Interconnection of embedded network service

The commission had no material before it to suggest that interconnection is sought by any access seeker. Accordingly, the commission did not consider that interconnection is likely to be sought by a significant part of the market, and was of the view that the interconnection of embedded network service should not be required to be a reference service.

Ancillary services

In relation to ancillary services, the commission recognised that such services may not be sought by a significant part of the market. It also noted that ancillary services are collectively a monopoly service, and difficulties accessing these services might make it difficult for users to provide the services sought by their customers. The commission noted that ancillary services are included as reference services in some access arrangements (such as Envestra, Multinet and TXU in Victoria) but not in others (such as AGLGN in New South Wales).

On balancing the considerations in the draft decision, the commission was not prepared to accept that ancillary services should be treated as non-reference services at the stage of the draft decision, without obtaining further justification from ActewAGL that such treatment would be consistent with the principles and objectives of the Code.

[9] Specified as Amendment 1 in the draft decision.

Partial use of network service

While a partial use of the network service was included in the 2001 access arrangement as a separate non-reference service, the commission's 2000 final decision stated that this service should be specified as a negotiated service. The commission was satisfied that this continues to be an appropriate approach. The commission considered that the partial use of the network service offered in the 2001 access arrangement would be adequately covered by the definition of a negotiated service.

Requests for service

The commission considered that the access arrangement should specify that ActewAGL will provide an estimate of the cost of processing a request for service on request by a prospective user. In its response to the commission's issues paper, ActewAGL indicated that it considered this approach to be reasonable.

Service standards

In considering the costs of reference services, the commission noted that service standards are an important driver of capital and operating expenditure programs. The commission wishes to ensure that service standards are maintained over the access arrangement period and do not diminish in favour of increasing profits. The commission's consideration of these matters in this review is limited to standards of service that relate to access services subject to the Code. To the extent that the commission considered external service standards to be relevant to its consideration of the proposed access arrangement, those considerations were taken into account in accordance with section 2.24(g) of the Code.

The commission noted that ActewAGL's proposed revisions to the access arrangement refer to 'minimum network standards', which include external measures and standards imposed under a range of instruments, including the Utilities Act, licence conditions, the Consumer Protection Code, ring fencing guidelines and other codes. ActewAGL is required to comply with these standards and to report annually to the commission on its compliance. ActewAGL's current service standards in many cases exceed the minimum standards, and the commission did not believe that ActewAGL's cost forecasts are consistent with simply meeting the minimum standards.

The commission noted that maintaining current levels of service standards would be consistent with the findings of the 'willingness to pay' study. In addition, the commission was aware that the ACT's gas technical regulator (the ACT Planning and Land Authority) had begun reviewing network standards following the Canberra bushfires.

The commission proposed to require ActewAGL to achieve no worse than 'current' service standards, as reported in the commission's compliance and performance reports for 2002–03 and, when available, 2003–04. This was not to mean that if a single indicator falls slightly below the 2002–03 and 2003–04 levels the commission would regard ActewAGL as failing to maintain existing standards. Rather, the commission would have regard to the whole suite of indicators when reviewing ActewAGL's service levels.

3.3 Further submissions

In relation to the above proposed elements of the draft decision, the commission expressly sought the views of interested parties—particularly network users. Also, in relation to some elements, such as the ongoing treatment of ancillary services as reference services, it expressly sought further information from ActewAGL.

The commission did not receive submissions from users in relation to the draft decision, and only ActewAGL responded to the specific issues raised by Section 3 of the draft decision in relation to the proposed services policy. ActewAGL's comments in relation to this area of the draft decision were focused on the service policy elements of ancillary services, non-tariff reference services to new delivery points, the meter data service and service standards, as outlined below.

In relation to ancillary services, ActewAGL submitted that its proposed access arrangement does not change the ancillary services clauses from the 2001 access arrangement (in which they are treated as non-reference services). ActewAGL considered treatment of these services as non-reference services to be consistent with the Code, which requires services to be treated as reference services if they are likely to be sought by a significant part of the market. Ancillary services have in the past been requested by a small proportion of the market. In a market of around 96,000 customers, only 159 disconnections and 566 special meter reads were completed in 2003. ActewAGL considered that there are no strong reasons to

suggest that such requests would be likely to increase substantially in the future.

In the case of non-tariff reference services to new delivery points, ActewAGL emphasised that its proposed new condition (that the MDQ be at least 10 times the MHQ) would affect only non-tariff delivery points with poor and disproportionate hourly utilisation and is designed to encourage efficient supply and use of services.[10]

ActewAGL also requested that the commission make minor changes to its proposed amendment in relation to the meter data service. Its wording changes are in order to achieve consistency with the defined terms and concepts in the access arrangement and to recognise that, if and when contestability in meter data services is introduced, contestability may be introduced to different sections of the market at different times and to different degrees (for example, contestability might be introduced for large customers over a timeframe different from that for small customers). ActewAGL's suggested revised wording is as follows:

> The Meter Data Service, or relevant elements of that service, will cease to be offered as a Reference Service, and at ActewAGL's discretion as a Service, on the date of the commencement of any Gas Law (or the lawful adoption of any requirement by any person or group of people appointed by Government or industry to implement retail contestability in the gas industry in the Australian Capital Territory or New South Wales) where that Gas Law or requirement permits the provision of gas meter reading or on-site data and communication equipment in the ACT, Queanbeyan and Yarrowlumla by a person other than ActewAGL.
>
> If such a Gas Law or requirement is introduced in either the Australian Capital Territory or New South Wales, but not in both jurisdictions, then this clause will apply to the Meter Data Service only in so far as it relates to the area affected by the Gas Law or requirement.[11]

ActewAGL rejected the commission's proposal to require ActewAGL to achieve no worse than 'current' service standards, as reported in the commission's compliance and performance reports for 2002–03 and, when available, 2003–04.

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[10] ActewAGL's response to the draft decision, p 6.
[11] ActewAGL's submission in relation to the draft decision, p 7.

ActewAGL considered that provisions such as these should not be included in an access arrangement intended to set out the terms and conditions on which gas suppliers may gain access to the gas distribution network.

ActewAGL considered that the commission offered only a vague explanation of how the scheme would work and considered unworkable the commission's proposal that a single indicator falling 'slightly below' the previous year's standards would not be regarded as a failure. ActewAGL also expressed general concerns with such a scheme:

> Establishing a scheme to ensure that service standards do not drop below existing levels would involve some complex issues such as how to define and measure appropriate service standards at the start of the scheme and each subsequent review period, how to structure penalties and rewards and how to deal with the impact of external events such as bushfires and third party damage to the network.[12]

3.4 Further analysis

Based on the commission's assessment of the access arrangement provisions and the information submitted on the proposed services policy as part of the access arrangement review (including the commission's assessment of these matters in the draft decision) and also based on the fact that the commission has no information to suggest that ActewAGL's proposed revisions in relation to the services policy require amendment, the commission accepts ActewAGL's revisions in relation to the following elements of the services policy:

- that ancillary services should not cease to be treated as a non-reference service
- ActewAGL's proposal to include the interconnection of embedded network service as a non-reference service on the terms and conditions proposed by ActewAGL
- ActewAGL's proposal that the partial use of the network service in the 2001 access arrangement be removed as a separate service and covered as a negotiated service

[12] These issues are raised on page 8 of ActewAGL's submission.

- ActewAGL’s proposal to restrict the provision of non-tariff reference services to new delivery points
- ActewAGL’s proposal to withdraw the meter data service as a reference service if it becomes contestable, subject to adopting wording changes suggested by ActewAGL, as discussed below
- the requirement, in relation to a request for services, that ActewAGL will provide an estimate to prospective users of the cost of processing the request (as per ActewAGL’s stated acceptance of the commission’s proposed condition in this regard specified in the draft decision).[13]

The commission accepts the minor changes suggested by ActewAGL to the commission’s proposed amendment in the draft decision for the meter data service. The commission’s acceptance is based on the rationale provided by ActewAGL, namely that the suggested changes would achieve consistency with the defined terms and concepts in the access arrangement and would accommodate different contestability scenarios. The proposed clause takes into account that the planned introduction of contestability throughout the ACT and NSW[14] may occur in stages, and requires ActewAGL to continue to offer the meter data service as a reference service until such time as contestability is introduced in the geographic area of the access arrangement. The commission’s acceptance of this specific suggested change gives rise to a specific required amendment to ActewAGL’s access arrangement revisions as submitted.

In relation to the commission’s proposal in the draft decision that ActewAGL is to achieve no worse than ‘current’ service standards, as reported in the commission’s compliance and performance reports, the commission accepts that a revision to ActewAGL’s access arrangement to this effect would not be practical in the context of this review. This matter is considered to be more effectively addressed by a link between reference tariffs and service standards, as discussed in Section 12 of this decision. As noted in Section 12, it is not practical to create such a link for the forthcoming access arrangement period, although ActewAGL has agreed to

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[13] ActewAGL’s acceptance of the condition in relation to the provision of a cost estimate in this regard is noted at page 5 of its response to the draft decision.

[14] As contemplated by section 17 of the NSW and ACT Gas Retail Market Business Rules to Support Retail Competition in Gas, which have yet to take effect.

work towards the determination of an appropriate 'S factor' to apply during the subsequent access arrangement period.[15]

3.5 Final decision

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendment is required:

Amendment 1

ActewAGL must include the following wording in its access arrangement:

> The Meter Data Service, or relevant elements of that service, will cease to be offered as a Reference Service, and at ActewAGL's discretion as a Service, on the date of the commencement of any Gas Law (or the lawful adoption of any requirement by any person or group of people appointed by Government or industry to implement retail contestability in the gas industry in the Australian Capital Territory or New South Wales) where that Gas Law or requirement permits the provision of gas meter reading or on-site data and communication equipment in the ACT, Queanbeyan and Yarrowlumla by a person other than ActewAGL.
>
> If such a Gas Law or requirement is introduced in either the Australian Capital Territory or New South Wales, but not in both jurisdictions, then this clause will apply to the Meter Data Service only in so far as it relates to the area affected by the Gas Law or requirement.

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[15] ActewAGL's response to the draft decision, p 56.

4 Terms and conditions

The terms and conditions of an access arrangement form the basis of the relationship between the service provider and the user of the service. Terms and conditions are of concern where a monopoly service provider is able to adopt a 'take it or leave it' approach to the terms and conditions under which it operates. This can shift risks from the service provider to the user. For these reasons, regulatory involvement in setting default terms and conditions can help to ensure that the interests of service providers and users are appropriately balanced.

4.1 Code requirements

Section 3.6 of the Code requires that an access arrangement must include the terms and conditions on which the service provider will supply each reference service. The terms and conditions included must, in the regulator's opinion, be reasonable. In assessing a proposed access arrangement, the commission must take into account the factors set out in section 2.24(a) to (g) of the Code.

4.2 Background and draft decision

4.2.1 2000 final decision

The commission's 2000 final decision did not specifically consider general and specific terms and conditions, curtailment of supply or establishment of receipt points.

In relation to gas balancing, the commission required ActewAGL to adopt a gas-balancing mechanism to provide for two possible scenarios: where there is an operational balancing agreement (OBA) in place, and where there is no OBA in place. Operational balancing by ActewAGL represented a fallback position in the absence of an OBA. The commission signalled that provision of default operational balancing services would be examined at the next review with the benefit of further experience in a competitive market.

In the case of gas quality specifications, the commission required ActewAGL to amend the access arrangement to provide that gas delivered to a receipt point by a user must comply with the specifications prescribed by any ACT or New South Wales law; if there is no such law, the gas must comply with specifications determined by ActewAGL; if there is no such determination, the gas must comply with the default specification as set out in the access arrangement.

4.2.2 ActewAGL proposal

To make the access arrangement easier to use, ActewAGL proposes consolidating terms and conditions that apply to all services into part 3 of the access arrangement. Terms and conditions that apply specifically to each reference service are specified in a separate attachment to the proposed access arrangement for each reference service (attachments 3A to 3H). Attachments 4, 5, 6 and 8 are to contain provisions relating to curtailment of supply, gas balancing, gas quality specification and establishment of receipt points.

In general, the terms and conditions in the proposed access arrangement are more detailed than those in the 2001 access arrangement, with the aim of setting out more clearly the rights and obligations of ActewAGL and users.

General terms and conditions

The general terms and conditions contained in part 3 of the proposed access arrangements cover matters including:

- receipt points and stations (clauses 3.20 to 3.30)
- delivery points and stations (clauses 3.31 to 3.38)
- allocation of gas (clause 3.39)
- title to and responsibility for gas (clauses 3.40 to 3.41)
- gas quality (clauses 3.42 to 3.45)
- variations in quality and pressure, and interruptions (clauses 3.47 to 3.48)
- force majeure (clauses 3.50 to 3.53).

Proposed changes to the general terms and conditions include the following.

- Clauses on receipt points and delivery points (covering establishment, alterations, relocations, measuring consumption, estimating consumption and relocating measuring equipment—clauses 3.20 to 3.38) are revised as follows:
  - The pressure range within which users are required to deliver gas to a receipt point has changed slightly (clause 3.20).
  - A provision allowing for establishment of new receipt points has been added (clause 3.21).
  - Clause 3.25 has been expanded to require a user to have contractual arrangements in place with the owner of a receipt station to allow ActewAGL to exercise its right to operate pressure and flow control facilities at any receipt station not owned by ActewAGL.
  - Clause 3.27 has been expanded to provide for ActewAGL to recover costs incurred in measuring or improving the measurement of gas quality at the receipt point (clause 3.27(c)).
  - Clauses relating to alterations to receipt points and receipt stations have been added (clauses 3.28 to 3.29).
  - Clause 3.30, allowing ActewAGL to estimate consumption at receipt points, has been added.
  - Provisions relating to estimating consumption at delivery points and relocating measuring equipment have been clarified (clauses 3.36 to 3.37).
  - A provision allowing ActewAGL to relocate measuring equipment or cease providing the service metered by that measuring equipment has been added (clause 3.38).
- Provisions have been introduced for ActewAGL to require a user to provide evidence that the user has title to gas at a receipt point and that the quantities of gas the user is entitled to have delivered to a receipt point are consistent with the quantities the user is required to have delivered under gas-balancing arrangements applying to that receipt point (clause 3.40).

- A requirement has been introduced for users to comply with gas-testing requirements where quality is measured upstream of the network (clause 3.45).
- Provisions noting that the provision of services is subject to a variety of factors—and hence that ActewAGL is unable to guarantee that there will be no variations in gas pressure or quality or interruptions to gas supply—have been added (clauses 3.47 to 3.48).
- A clause has been added specifying that the force majeure clauses do not apply to a party's failing to pay money or a user's failing to ensure that gas delivered to a receipt point meets specifications (clause 3.53).

The commission considered ActewAGL's proposed revisions to the general terms and conditions on which services will be offered to be reasonable.

Specific terms and conditions

As noted above, specific terms and conditions for each reference service are contained in the attachment for each reference service (attachments 3A to 3H). These provisions are generally similar to those in the 2001 access arrangement. Exceptions include the following.

- The requirement to nominate MDQ and MHQ has been made a service-specific condition rather than a general condition.
- For the capacity reservation service:
  - the requirement for ActewAGL to respond to a request for summer tranche capacity within 10 business days of the date of receipt of a completed request for service form has been removed (clause 1.23, Attachment 3A)
  - new provisions relating to additional capacity for an existing service have been added (clauses 1.33 to 1.37, Attachment 3A).
- For the managed capacity and throughput services:
  - provisions for users to extend a service for a further term have been added (clauses 1.7 to 1.12, Attachment 3B and clauses 1.6 to 1.10, Attachment 3C)
  - provisions relating to overruns have been simplified (clause 1.17, Attachment 3B and clause 1.16, Attachment 3C).

- For the tariff service, a clause requiring ActewAGL and the user to comply with the applicable gas law in relation to connection, disconnection and reconnection of measuring equipment has been added.
- For meter data services, a clause relating to losses as a result of interference by a user with the operation of metering equipment for non-tariff delivery points has been added (clause 1.11, Attachment 3F).

The commission considered ActewAGL's proposed revisions to the specific terms and conditions on which services will be offered to be reasonable.

Curtailment of supply

ActewAGL proposes to revise curtailment of supply policy in its access arrangement by adding two additional clauses.

- The first clause states that ActewAGL may suspend delivery of gas if a user fails to comply with the load-shedding procedure in the access arrangement (clause 1.15, Attachment 4).
- The second additional clause says that ActewAGL will not be liable for damages incurred by the user arising from load shedding, and the user will be liable for and indemnify ActewAGL against any loss ActewAGL suffers, incurs or is liable for arising out of its load-shedding procedures (clauses 1.16 and 1.17, Attachment 4).

ActewAGL submitted that its proposed revisions are designed to provide greater detail and certainty for users and ActewAGL and to reflect changes in conditions since the 2001 access arrangement.

The proposed provisions in clauses 1.16 and 1.17 of Attachment 4 were held by ActewAGL to be reasonable on the basis that the user has a contractual arrangement with the end customer in which it can protect itself against claims from the customer regarding load-shedding procedures, whereas ActewAGL, on the other hand, does not have a contractual arrangement with the end customer and cannot protect itself from end customer claims in these circumstances. ActewAGL argued that the user is responsible for ensuring that the end customer understands the potential for load shedding and takes the required steps to protect itself in the event that those procedures are implemented.

The commission considered that the proposed revision allowing ActewAGL to suspend delivery of gas if a user fails to comply with the load-shedding procedure in the access arrangement appears reasonable. However, it considered that while the proposed indemnity provision would not be inconsistent with the operational and technical requirements necessary for the safe and reliable operation of the pipeline, it unduly favours the service provider's legitimate business interests and investment in the pipeline, relative to the interests of users and prospective users (in terms of the factors the commission is to take into account under section 2.24 of the Code in assessing the proposed access arrangement).

Gas balancing

ActewAGL proposed to amend the gas-balancing arrangements in its access arrangement to take account of changing circumstances in the market, notably Duke Energy's refusal to sign the OBA. In this case, ActewAGL seeks to provide a gas-balancing mechanism for three possible scenarios:

- gas balancing with an OBA with pipeline operators
- gas balancing with an OBA with pipeline shippers
- gas balancing with no OBA in place.

ActewAGL submitted that the proposed balancing mechanisms provide flexibility for suppliers and their pipeline shippers to reach their own agreements, with agreement and overview from ActewAGL, without the need for ActewAGL to be involved in purchasing and selling gas. It submitted that this is consistent with the Code requirement to take account of the interests of both the service provider and users.

ActewAGL's gas-balancing arrangements take account of potential changes in market circumstances, by allowing for the possibility that the New South Wales and ACT Gas Market Company may introduce a market-based gas-balancing scheme.

The commission noted that according to the definition of 'related business' in section 10.8 of the Code, purchasing or selling of natural gas by a pipeline service provider in this context is not required to be ring fenced from the business of providing pipeline services, to the extent that the purchasing or selling of natural gas is necessary:

(a) for the safe and reliable operation of a covered pipeline; or

(b) to enable a service provider to provide balancing services in connection with a covered pipeline.

The commission proposed to accept ActewAGL's arrangements for gas balancing as being reasonable.

Gas quality specifications

One of the general conditions requires users to ensure that gas meets appropriate specifications. ActewAGL proposes to revise the gas quality specifications in the access arrangement to make them consistent with the Gas Supply (Network Safety Management) Regulation 2002 in New South Wales.[16] The regulation is currently being reviewed by the New South Wales Department of Energy, Utilities and Sustainability. The commission considered the proposed revisions to gas quality specifications to be reasonable.

Establishment of receipt points

ActewAGL added an attachment to the proposed revised access arrangement to deal with the establishment of receipt points. The attachment sets out the matters to be included in an agreement between ActewAGL and any user wishing to establish a new receipt point. The commission considered these arrangements to be reasonable in terms of the Code.

4.2.3 Draft decision

The commission proposed to approve the terms and conditions on which ActewAGL proposes to provide services, subject to consideration of any comments on the terms and conditions received in response to the draft decision and to specific proposed amendments as described below.

The commission was not convinced, in relation to proposed curtailment of supply policy, that the benefits for the market as a whole of the proposed revision—that ActewAGL will not be liable for damages incurred by the user arising from load shedding, and that the user will be liable for and

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[16] A copy of the regulation can be obtained from the New South Wales Government legislation home page at http://www.legislation.nsw.gov.au.

indemnify ActewAGL against any loss ActewAGL suffers, incurs or is liable for arising out of its load-shedding procedures—outweigh the costs imposed on users. Accordingly, the commission proposed to require ActewAGL to amend its proposed access arrangement so that a user's liability to ActewAGL under conditions of load shedding would relate only to direct losses that the user causes to ActewAGL.

The commission proposed to accept the revisions to gas quality specifications, subject to a requirement that any changes to gas quality specifications arising from the review of the Gas Supply (Network Safety Management) Regulation 2002 being undertaken by the New South Wales Department of Energy, Utilities and Sustainability be reflected in the access arrangement.

4.3 Further submissions

In response to the commission's proposed amendments to the load-shedding provisions of the curtailment of supply policy (set out in the draft decision), ActewAGL submitted that it does not seek to recover from gas suppliers any consequential loss ActewAGL might suffer as a result of load shedding (for example, ActewAGL's loss of profits due to reduced gas consumption in the period of the load shedding). It also stated:

> However, it is possible that curtailment of supply under Load Shedding could result in an end customer (or User) incurring a loss if, for example, they are not adequately prepared to manage an interruption to their gas supply. Attempts by the customer to recover such a loss represents a potential exposure which ActewAGL Distribution has no capacity to measure or to manage except through its service agreements with Users.[17]

ActewAGL proposed that the indemnity in clause 1.17 of Attachment 4 of the access arrangement be amended so that it only applies to liability for:

- third-party claims made against ActewAGL as a result of load shedding
- loss that ActewAGL incurs as a result of a user's failure to take required action under the load-shedding provisions.

[17] ActewAGL's submission on the draft decision, p 10.

That is, ActewAGL proposes that the indemnity will apply only to direct loss to ActewAGL but will extend beyond losses caused by the user.

ActewAGL seeks this proposed amended revision to this aspect of the curtailment of supply policy because the user has a contractual arrangement with the end customer in which it can protect itself against claims from the customer regarding load shedding, whereas ActewAGL, as the distributor, does not have a contractual arrangement with the end customer, has no knowledge of an end user's circumstances or risks, and cannot protect itself from end-customer claims in these circumstances.

4.4 Further analysis

The commission considers that ActewAGL's proposed amended revisions to its curtailment of supply policy would create a more appropriate balance between the various interests and factors in section 2.24 of the Code than would the revisions ActewAGL had initially proposed, and thus represent a reasonable arrangement in terms of section 3.6 of the Code. However, the commission is concerned to ensure that ActewAGL's losses to be covered by the amended provisions clearly relate to direct losses and not consequential losses it might suffer as a result of load shedding. The commission's amendment (see below) will have the effect of clarifying the limitation of the provisions to direct losses of ActewAGL.

4.5 Final decision

In accordance with its analysis conducted in the draft decision, and taking into account ActewAGL's proposed amendment to the revision to clause 1.17 of Attachment 4, the commission approves ActewAGL's proposed revisions to the terms and conditions in its access arrangement, subject to the amendment specified below being adopted.

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendment is required:

Amendment 2

Clause 1.17 of Attachment 4 of ActewAGL's proposed access arrangement is to be amended so that it only applies to liability for:

- third-party claims made against ActewAGL as a result of load shedding
- direct loss that ActewAGL incurs as a result of a user's failure to take required action under the load-shedding provisions.

5 Reference tariff overview

As noted in Section 1 of this final decision, the Code sets out, among other matters, the elements and principles that must be included in an access arrangement in order for the commission to be able to approve the access arrangement. Those elements and principles are set out in sections 3.1 to 3.20 of the Code and include the following in relation to reference tariffs:

> 3.3 An Access Arrangement must include a Reference Tariff for:
>
> (a) at least one Service that is likely to be sought by a significant part of the market; and
>
> (b) each Service that is likely to be sought by a significant part of the market and for which the Relevant Regulator considers a Reference Tariff should be included.
>
> 3.4 Unless a Reference Tariff has been determined through a competitive tender process as outlined in sections 3.21 to 3.36, an Access Arrangement and any Reference Tariff included in an Access Arrangement must, in the Relevant Regulator's opinion, comply with the Reference Tariff Principles described in section 8.
>
> 3.5 An Access Arrangement must also include a policy describing the principles that are to be used to determine a Reference Tariff (a ***Reference Tariff Policy***). A Reference Tariff Policy must, in the Relevant Regulator's opinion, comply with the Reference Tariff Principles described in section 8.

In assessing a proposed access arrangement, the commission must take into account the factors set out in section 2.24(a) to (g) of the Code.

In accordance with the elements noted above, in assessing reference tariffs and a reference tariff policy contained in a proposed access arrangement, the commission is to assess whether the tariffs comply with the principles and objectives in section 8 of the Code. In this regard:

- the commission is required to take into account, where applicable and appropriate, the factors set out in section 2.24 of the Code. These factors are used by the commission for guidance in relation to the discretion and

options provided by the scope of the principles and objectives as set out in section 8[18]

- section 8.49 of the Code provides that the commission may determine its own policies for assessing whether a reference tariff meets the requirements of section 8, subject to the requirements for public consultation.

Section 8.1 of the Code provides that a service provider's reference tariffs and reference tariff policy should be designed with a view to achieving the following objectives:

> (a) providing the Service Provider with the opportunity to earn a stream of revenue that recovers the efficient costs of delivering the Reference Service over the expected life of the assets used in delivering that Service;
>
> (b) replicating the outcome of a competitive market;
>
> (c) ensuring the safe and reliable operation of the Pipeline;
>
> (d) not distorting investment decisions in Pipeline transportation systems or in upstream and downstream industries;
>
> (e) efficiency in the level and structure of the Reference Tariff; and
>
> (f) providing an incentive to the Service Provider to reduce costs and to develop the market for Reference and other Services.

To the extent that any of these objectives conflict in their application to a particular reference tariff determination, section 8.1 provides that the regulator may determine the manner in which they can best be reconciled, or which of them should prevail.

[18] This principle was evidenced in the decision by the Full Court of the Supreme Court of Western Australia in *Re Michael; Ex parte Epic Energy (WA) Nominees Pty Ltd* (2002) 25 WAR 511.

Section 8.2 of the Code sets out the following factors about which the commission must be satisfied in determining to approve a reference tariff and reference tariff policy:

(a) the revenue to be generated from the sales (or forecast sales) of all services over the access arrangement period (the ***Total Revenue***) should be established consistently with the principles and according to one of the methodologies contained in section 8;

(b) to the extent that the Covered Pipeline is used to provide a number of services, that portion of total revenue that a reference tariff is designed to recover (which may be based upon forecasts) is calculated consistently with the principles contained in section 8;

(c) a reference tariff (which may be based upon forecasts) is designed so that the portion of total revenue to be recovered from a reference service (referred to in paragraph (b)) is recovered from the users of that reference service consistently with the principles contained in section 8;

(d) Incentive mechanisms are incorporated into the reference tariff policy wherever the relevant regulator considers appropriate and such incentive mechanisms are consistent with the principles contained in section 8; and

(e) any forecasts required in setting the reference tariff represent best estimates arrived at on a reasonable basis.

Section 8.3 provides that the manner in which a reference tariff may vary within an access arrangement period through the implementation of a reference tariff policy is within the discretion of the service provider, subject to the commission being satisfied that it is consistent with the objectives in section 8.1 and section 8.3A[19].

By way of example, section 8.3 provides that a reference tariff policy may specify that reference tariffs will vary within an access arrangement period through the implementation of:

- a cost of service approach

[19] Under section 8.3A, a reference tariff may vary within an access arrangement period only through the application of the approved reference tariff variation method as provided for the sections 8.3B to 8.3H of the Code.

- a price path approach
- a reference tariff control formula approach
- a trigger event adjustment approach
- any variation or combination of the above.

Other reference tariff principles in section 8 of the Code provide guidance on the principles, procedures and parameters that may be applied in determining a reference tariff or reference tariff policy. The relevant provisions of section 8 of the Code, for example, relate to specific elements of cost and tariff calculations and are discussed in sections 6 to 12 of this final decision.

Under the reference tariff principles in section 8 of the Code, including the provisions which specify cost and tariff methodologies, there exists scope for different methodologies and values to be reasonably applied in determining reference tariffs.

Using the discretion available to it under the Code, and guided by the objectives and factors in the Code, the commission has assessed whether ActewAGL's proposed tariffs (including tariff components) and reference tariff policy are consistent with the requirements of the Code. Where, on this basis, the commission has considered that a proposed tariff component or tariff does not comply with the requirements of the Code, the commission has described the amendment (or nature of amendment) to the revision to the access arrangement that would result in the access arrangement being consistent with those requirements.

In particular, in determining the consistency of a tariff or tariff component with the requirements of the Code, the commission has considered whether the tariff or tariff component (including its effect on the broader access arrangement as revised) is consistent with the principles, procedures and parameters in section 8 of the Code. Where the reference tariff principles produce a tension in achieving the objectives of the Code, for example the tariff design objectives in section 8.1, the commission has taken into account and been guided by the factors described in sections 2.24(a) to 2.24(g) of the Code. The commission's decision-making process has also taken into account the interpretations and issues arising from other decisions in relation to the Code, including in particular the decisions of the Australian Competition Tribunal and the Supreme Court of Western Australia, as noted elsewhere in this decision.

6 Total revenue

6.1 Code requirements

The Code defines total revenue in section 8.2(a) as the revenue to be generated for the sales (or forecast sales) of all services over the access arrangement period. Total revenue represents the stream of revenue that reference tariffs are designed to deliver to the pipeline service provider over an access arrangement period. The principles in the Code equate total revenue to the efficient cost, or anticipated efficient cost, of delivering the pipeline services.

The majority of the costs incurred by a gas distribution business in delivering natural gas pipeline services are capital costs, reflecting the capital intensity of the natural gas supply industry. The key concepts in the Code used in determining capital costs are:

- the capital base, representing the value of the assets that form the covered pipeline or are otherwise used to provide the services (sections 8.8 to 8.14 of the Code)
- the rate of return, representing the opportunity cost of funds in relation to the capital base—i.e. the 'return on capital'—which may also be represented as the discount rate that the market would use to value the stream of income that the regulatory regime provides to the service provider (sections 8.30 to 8.31 of the Code)
- depreciation—the 'return of capital' invested in the capital base by the service provider (sections 8.32 to 8.35 of the Code).

Section 8.9 of the Code provides for the determination of the capital base at the commencement of each access arrangement period as the capital base at the start of the immediately preceding access arrangement period, plus new facilities investment, less depreciation and less redundant capital for the immediately preceding access period. Section 8.9 of the Code precludes the revaluation of assets at future reviews.

Non-capital costs included in the calculation of total revenue are operating, maintenance and other costs incurred in providing all services, and may include costs incurred for generic market-development activities aimed at increasing long-term demand for the delivery of the service.

In addition to setting out the principles for determining the components of efficient cost, the Code in section 8.4 provides a choice of methodologies that may be used to determine total revenue on the basis of those costs, namely:

- cost of service
- internal rate of return (IRR)
- net present value (NPV).

ActewAGL has adopted a cost of service methodology for the reference tariffs in its proposed access arrangement.

The relevant provisions of the Code are as follows:

> 8.4 The Total Revenue (a portion of which will be recovered from sales of Reference Services) should be calculated according to one of the following methodologies:
>
> **Cost of Service**: The Total Revenue is equal to the cost of providing all Services (some of which may be the forecast of such costs), and with this cost to be calculated on the basis of:
>
> (a) a return (***Rate of Return***) on the value of the capital assets that form the Covered Pipeline or are otherwise used to provide Services (***Capital Base***);
>
> (b) depreciation of the Capital Base (***Depreciation***); and
>
> (c) the operating, maintenance and other non-capital costs incurred in providing all Services (***Non-Capital Costs***).

The cost of service methodology is generally referred to as the ‘building block’ methodology. Sections 8.5 and 8.5A of the Code provide the following:

8.5 Other methodologies may be used provided the resulting Total Revenue can be expressed in terms of one of the methodologies described above.

8.5A Any of the methodologies described in section 8.4 or permitted under section 8.5, may be applied:

(a) on a nominal basis (under which the Capital Base and Depreciation are expressed in historical cost terms and all other costs and revenues are expressed in current prices and a nominal Rate of Return is allowed); or

(b) on a real basis (under which the Capital Base, Depreciation and all costs and revenues are expressed in constant prices and a real Rate of Return is allowed); or

(c) on any other basis in dealing with the effects of inflation,

provided that the basis used is specified in the Access Arrangement, is approved by the Relevant Regulator and is applied consistently in determining the Total Revenue and Reference Tariffs.

Section 8.4 of the Code and the other provisions of the Code relating to the general approach to determining total revenue provide the basis for the individual components of the cost of service methodology applied by ActewAGL to calculate the total revenues embodied in its proposed access arrangement. The individual cost of service components used by ActewAGL are assessed by the commission in sections 7 to 12 of this final decision; an assessment of cost of service components in aggregate is provided in Section 12.

Section 8.6 of the Code acknowledges that it is possible that a range of values may be attributed to the total revenue described in section 8.4 of the Code. Section 8.6 provides that, in order to determine an appropriate value within this range, the relevant regulator may have regard to any financial and operational performance indicators that it considers relevant in order to determine the level of costs within the range of feasible outcomes under section 8.4 that is most consistent with the objectives contained in section 8.1 of the Code.

6.2 Background and draft decision

6.2.1 2000 final decision

ActewAGL's 2001 access arrangement is based on the cost of service approach, as varied by the commission's 2000 final decision. The key elements of the existing approach applying to ActewAGL's natural gas distribution system are illustrated by the commission's determination of total revenue for the system, as shown in Table 6.1.

Table 6.1 ActewAGL's total revenue requirement, 2001–04

	$ million, real 2000–01			
Year ending 30 June	2001	2002	2003	2004
Final decision				
Return on capital base	15	15.7	15.8	15.8
Depreciation	5.9	6.3	6.5	6.8
Return on working capital	0.6	0.5	0.5	0.5
Operating costs	9.9	9.4	9	8.7
Total	31.4	31.9	31.9	31.8
ActewAGL's proposal				
Return on capital base	18.4	19.3	20	20.6
Depreciation	8	8.1	8.1	8.2
Return on working capital	0	0	0	0
Operating costs	11.5	11.4	11.1	10.9
Total	37.9	38.8	39.2	39.7

Table 6.1 shows that a cost component for return on working capital was included in the 2001 access arrangement. ActewAGL proposes to include a similar component in its proposed reference tariffs for the forthcoming access arrangement period. The commission's assessment of the ActewAGL proposal is discussed below.

6.2.2 ActewAGL proposal

Total revenues used in determining the reference tariffs in ActewAGL's proposed access arrangement are based on the cost of service methodology

that applied under the 2001 access arrangement, in that total revenue is determined based on the 'building blocks' of:

- return on capital, representing a rate of return on the capital base value
- return of capital, representing depreciation of the capital base
- non-capital costs.

In ActewAGL's proposal, as noted above, the return on capital applies to both fixed assets and current assets (i.e. working capital).

As in the 2001 access arrangement, the cost of service methodology used by ActewAGL is applied on a real basis, in that the capital base, depreciation and costs and revenues are expressed in constant prices and a real rate of return is applied.

ActewAGL considered that reference tariffs should incorporate a return on working capital. Its justification for seeking such a return was that, consistent with fixed capital, investors commit funds for working capital at a point in time and have those funds returned at a future time, but in the meantime require a return to compensate for the opportunity cost of the capital committed.

ActewAGL submitted that the key difference between the treatment of working capital and that of capital costs is the length of time for which the funds are tied up. ActewAGL considered that the same rate of return should apply to working capital as to fixed capital.

ActewAGL noted that a return on working capital was allowed by the commission in the 2000 final decision and that IPART also included an allowance for working capital in AGLGN's access arrangement and in regulated electricity distribution tariffs.

6.2.3 Draft decision

In its draft decision, the commission noted that the reference tariffs in ActewAGL's proposed access arrangement have been developed on the basis of the cost of service methodology, which has been applied on a real basis, and that on this basis the service provider tends not to bear inflation risks.

In relation to the inclusion of a return on working capital in the cost of service calculation, the commission noted that in its 2000 final decision it had stated that the issue of net working capital would be reconsidered at the next review[20] and that the Essential Services Commission of Victoria (ESCV) and the Australian Competition and Consumer Commission (ACCC) do not allow a return on working capital to be included, although other regulators, such as IPART, have permitted such a return.

A working capital requirement exists where expenditure is paid in advance of receipts, creating a financing cost which reflects the difference between current assets and current liabilities.

The commission noted that the regulatory model assumes that costs and revenues are received at the same time so that, if a specific return on working capital component were to be included, the model would need to be adjusted to take account of the divergence of the timing of these flows.

Similarly to the position reached by the commission in its 2004 final electricity and water and wastewater decisions, the commission was not persuaded that in calculating total revenue using the regulatory model that there is a justification for including a separate return on working capital (as the model is based on ordinary annuity principles, whereby cash inflows are assumed to occur at the end of the year—although they actually occur throughout the year) and proposed in its draft decision not to include such a return in the total revenue requirement.

6.3 Further submissions

ActewAGL in its response to the commission's draft decision reiterated the justifications provided in its earlier submissions for including a return on working capital in the total revenue requirement. It emphasised in particular that:

- working capital is required to provide for timing differences between cash inflows (revenues) and cash outflows (expenses) over the operating cycle of the entity and is universally accepted as a necessary and efficient cost incurred by businesses

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[20] 2000 final decision, p 60.

- the justification for a return on working capital is no different from the requirement for a return on capital assets, the only difference being the length of time during which funds are tied up within the regulated entity

- the inclusion of working capital in the revenue requirement recognises the capital committed to receivables and other normal business activities at any one point in time; the value of this committed capital should earn the same regulated return as capital invested in the system assets.[21]

6.4 Further analysis

The commission considered ActewAGL's justification for applying a separate return on working capital in arriving at its draft decision in the light of sections 8.4, 8.5 and 8.5A of the Code, and has taken into account the factors set out in sections 8.1, 8.2 and 2.24 of the Code. The commission considers that ActewAGL, in its response to the commission's draft decision, has not been able to provide additional information or justification for such a return to be included in the total revenue requirement. As stated in the draft decision, the implicit assumption included in the building-block methodology is that returns on assets are calculated on an ordinary annuity basis, in that compensating payments for these cost components are assumed to occur at the end of each year. In line with views also expressed by the ESCV, the commission considers that, in order to permit an allowance for working capital, an approach must be taken that is consistent with this annuity method to determine the regulated total revenue requirement. That is, the commission would need to be satisfied that the tariffs resulting from the building-block approach would provide a stream of cash flows with a net present value of zero, taking into account the true timing of cash flows within each year. ActewAGL has not demonstrated this to the commission.

6.5 Final decision

Subject to removing ActewAGL's proposed cost component for the return on working capital, the commission considers that ActewAGL's proposed

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[21] These reasons are set out on pages 11–12 of ActewAGL's submission.

methodology for calculating total revenue meets the requirements of sections 8.4, 8.5 and 8.5A of the Code.

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendment is required.

Amendment 3

ActewAGL is to remove the 'return on working capital' building-block component from its calculation of the total cost of service (total revenue requirement) of the ACT natural gas pipeline system for the forthcoming access arrangement period.

7 Operating cost forecasts

Operating (or non-capital) costs are those costs incurred in operating and maintaining the gas distribution network.

7.1 Code requirements

Under sections 8.36 and 8.37 of the Code, non-capital costs are described as the operating, maintenance and other costs incurred in the delivery of the reference service. Non-capital costs may include but are not limited to costs incurred for generic market-development activities aimed at increasing long-term demand for the delivery of the reference service. A reference tariff may provide for the recovery of all non-capital costs (or forecast non-capital costs, as relevant) except for any such costs that would not be incurred by a prudent service provider, acting efficiently, in accordance with accepted and good industry practice and with a view to achieving the lowest sustainable cost of delivering the reference service.

The determination of non-capital costs of providing reference services requires joint costs incurred in the provision of services to be allocated between reference services and other services.

Sections 8.38 to 8.42 of the Code relate to allocation of revenues between services and users. Sections 8.30 to 8.40 require consideration of all costs incurred that are directly attributable to the reference service, including capital costs. Capital costs are considered in Section 8 of this final decision.

Section 8.38 of the Code requires that, to the extent that is commercially and technically reasonable, the portion of the total revenue that a reference tariff should be designed to recover should include all of the total revenue that reflects costs incurred (including capital costs) that are directly attributable to the reference service, and a share of the total revenue that reflects costs incurred that are attributable to providing the reference service jointly with other services, with this share to be determined in accordance with a methodology that meets the objectives in section 8.1 and is otherwise fair and reasonable.

Section 8.39 of the Code states that if the commission requires that a different methodology be used to determine the portion of total revenue to be recovered from particular reference services than that proposed by the service provider and proposed in the access arrangement information, the commission shall, in its decision on the access arrangements (or revisions to the access arrangements) provide a detailed explanation of the methodology that it requires be used to allocate costs pursuant to section 8.38.

Section 8.40 of the Code sets out how total revenue recovered from a rebatable service is to be recovered, and section 8.41 allows that alternative approaches to allocating costs may be used provided they have substantially the same effect as the approach outlined in sections 8.38 and 8.40.

Section 8.42 provides that (to the extent that it is technically and commercially reasonable to do so), a reference tariff should be designed so that a particular user's share of the portion of total revenue to be recovered from sales of a reference service is consistent with the principles described in section 8.38, subject to prudent discounts permitted under section 8.43.

Section 8 of the Code generally provides that non-capital costs used in setting reference tariffs may be either current estimates of costs or forecast costs. For example, this is provided for in:

- the factors in section 8.2 about which the commission must be satisfied in determining to approve a reference tariff and reference tariff policy
- the cost of service methodology in section 8.4 for determining total revenue, which is equal to the cost of providing all services (some of which may be the forecast of such costs)
- section 8.37, relating to the level of non-capital costs (including forecast non-capital costs) which may be recovered by a service provider.

Forecasts of non-capital costs must also meet the requirements of section 8.2(e) of the Code, which requires that any forecasts required in setting reference tariffs represent best estimates arrived at on a reasonable basis.

Section 4 of the Code also provides that a service provider must establish arrangements to segregate or 'ring fence' its business of providing services using a covered pipeline from its other activities. This is to reduce the ability of the service provider to leverage its market power into upstream or

downstream markets, to ensure that commercially sensitive material is not used to improve the competitive position of the service provider in its related businesses, and to remove the incentive to allocate costs in an inappropriate manner to the detriment of competitors and customers. The commission may also require the service provider to meet additional ring fencing obligations above and beyond those set out in the Code.

In assessing ActewAGL's proposed revisions in this section, the commission has applied the relevant Code provisions discussed above, together with the general methodology described in Section 5 of this decision.

7.2 Background and ActewAGL proposal

7.2.1 2001 access arrangement

ActewAGL's non-capital costs over the 2001 access arrangement period were higher than originally forecast by the commission, as shown in Table 7.1.

Table 7.1 ActewAGL's non-capital costs, commission forecast and actual, 2001–04

	$ million, real 2004–05			
Year ending 30 June	**2001**	**2002**	**2003**	**2004**
Final decision	11.12	10.55	10.11	9.77
Actual	12.78	11.58	12.02	11.57
Difference	1.66	1.03	1.91	1.80

ActewAGL attributed the increased expenditure to:

- higher than forecast growth in customer numbers, and substantial growth in the size of the network
- unexpected costs associated with the January 2003 bushfires
- higher than anticipated insurance costs
- costs associated with establishing the new asset management arrangement with Agility

- the fact that the 2001 access arrangement and the prices and incentive structures associated with it did not become effective until January 2001, whereas the levels allowed in the 2000 final decision assumed that the prices and incentive structures would take effect from July 2000.

Although its actual costs were above the forecasts of the commission in its 2000 final decision, ActewAGL provided performance indicators to demonstrate that it achieved efficiencies over the current access arrangement period.

7.2.2 Forecast operating expenditure

ActewAGL's forecast non-capital costs for the forthcoming access arrangement period are shown in Table 7.2. ActewAGL has advised that the forecasts incorporate an efficiency improvement factor of 1.5%.

Table 7.2 ActewAGL's operating expenditure, actual 2004 and forecast 2005–10

			$ million, real 2004–05				
Year ending 30 June	**Actual 2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Controllable cost							
Asset services	4.18	4.46	4.52	4.75	4.80	4.84	4.87
Asset management	2.85	3.10	3.06	3.02	2.97	2.89	2.83
Corporate overheads	1.69	1.92	1.92	1.92	1.92	1.92	1.92
Non-system asset charge	0.48	0.48	0.48	0.48	0.48	0.48	0.48
Marketing	1.46	1.84	1.87	1.89	1.90	1.93	1.95
Other direct costs	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Total	10.90	12.04	12.09	12.30	12.31	12.30	12.29
Other allowable costs							
Government levies	0.34	0.55	0.55	0.55	0.55	0.55	0.55
Contestability costs[a]	0.00	0.45	0.46	0.46	0.46	0.46	0.45
Unaccounted for gas	0.10	0.26	0.26	0.28	0.29	0.29	0.31
Other	0.23	0.24	0.24	0.24	0.24	0.25	0.25
Total	0.67	1.50	1.51	1.53	1.54	1.55	1.56
Total non-capital costs	11.57	13.54	13.60	13.83	13.85	13.85	13.85

a Up to and including 2004, contestability costs were allowed as a cost pass-though. In 2003–04, contestability costs were $0.94 million.

A real increase in asset services costs was forecast over the forthcoming access arrangement period. ActewAGL attributes the increase to forecast growth in customer numbers and throughput. A one-off increase in operations and maintenance costs is included for 2007, when the Hoskinstown metering station will commence being operated and maintained by ActewAGL.

ActewAGL projected asset management service costs to fall in real terms across the forthcoming access arrangement period, following an initial increase which reflects the larger network and customer base compared with that of the previous period.

ActewAGL proposes an initial increase in corporate services costs, which it considers necessary to take account of additional legal and regulatory support services, although it submits that such costs are to be stable in real terms beyond 2004–05.

All controllable costs, with the exception of corporate overheads, are provided by Agility under contractual arrangements to ActewAGL.

ActewAGL considered that market growth would continue to be the key driver of non-capital costs in the forthcoming access arrangement period, and used the non-capital cost growth formula approved by the commission for the 2001 access arrangement to forecast non-capital costs for the forthcoming access arrangement period. It increased asset services and asset management costs in line with total market growth, with equal weightings for growth in customer numbers and volumes. Marketing costs were increased in line with growth in the tariff segment of the market only.

Corporate overheads do not increase with the growth formula, but are held constant at the real 2004–05 level. ActewAGL considered that this assumes an efficiency improvement, as no allowance is made for increases in employee costs above the CPI, despite current projections showing wage increases above inflation.

ActewAGL submitted that allowing a trend based on market growth, with adjustments for specific changes such as changes in the scope of operations, has been the approach adopted by most regulators of Australian gas networks, including IPART in New South Wales, the ESCV and the Queensland Competition Authority.

7.2.3 Unaccounted for gas

Unaccounted for gas (UAG) is gas necessary to make up for gas lost or unaccounted for in the network, and is treated as part of the network's operating costs.

Under existing UAG arrangements, reference tariffs were calculated on the assumption of a UAG rate of 0.7%. ActewAGL reimburses retailers for the difference between gas received at the receipt point and that delivered at delivery points. ActewAGL thus has a financial incentive to operate the system efficiently and minimise UAG. ActewAGL indicated to the commission that it had assumed a UAG level of 1.5% in developing its proposed access arrangement.

7.2.4 Cost allocation

ActewAGL submitted that its proposed reference tariffs were calculated in accordance with the principles in section 8 of the Code, using a price path approach, and fixed for the duration of the forthcoming access arrangement period. This approach provides incentives for ActewAGL to increase demand and reduce costs during the period.

ActewAGL also submitted that, as required by section 8.38 of the Code, the tariff for each reference service is designed to cover those costs which can be directly attributable to providing the service plus a share of joint costs, where the share is determined in line with the objectives of section 8.1 of the Code.

ActewAGL submitted that joint costs for ActewAGL's individual businesses are allocated in a way that ensures that costs are not inappropriately loaded onto ActewAGL's regulated activities, that the costs of assets used by more than one regulated business are allocated appropriately between the businesses, and that only the allocated cost is recovered from regulated charges.

According to ActewAGL, the costs have been allocated based on services provided to the various divisions under 'fixed price service contract' budgeted charges. These are agreed charges developed between the corporate divisions, service providers and various operating businesses of ActewAGL. ActewAGL submitted that, as far as possible, the costs of corporate areas and shared service areas are directly attributed to divisions using those services. Expenditure incurred relating to a specific division is

charged to that division. Costs not directly attributable to a division are attributed using the most appropriate and practicable cost driver (ActewAGL provided a table, contained in the draft decision as Table 7.7, which summarises the basis of cost attribution for shared services).

7.2.5 Ring fencing

ActewAGL submitted that the commission's requirements for ring fencing, set out in the Ring Fencing Guidelines for Gas and Electricity Network Service Operators in the ACT, are appropriate for a multi-utility operation and consistent with the requirements of the Code, and that no changes to the guidelines are warranted.

7.3 Draft decision

In its draft decision, the commission required ActewAGL to amend its forecast non-capital cost as shown in Table 7.3.

Table 7.3 ActewAGL and draft commission forecasts of ActewAGL's non-capital costs, 2005–10

	$ million, real 2004–05						
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**Total**
ActewAGL	13.5	13.6	13.8	13.9	13.9	13.9	82.5
Commission	12.2	12.4	12.6	12.8	13.1	13.3	76.3
Difference	–1.4	–1.2	–1.2	–1.0	–0.8	–0.6	–6.2

This resulted in a reduction of non-capital costs of $5.5 million from the amount originally proposed by ActewAGL over the 5.5 year period[22] of the forthcoming access arrangement.

In calculating the forecast non-capital costs, the commission accepted ActewAGL's forecast costs for:

- corporate overheads

[22] The 5.5-year period begins on 1 January 2005 and therefore only half the difference in 2005 is included.

- non-system asset charges
- other direct (controllable) costs
- government levies
- contestability costs
- other (uncontrollable) costs.

The commission did not accept ActewAGL's forecast costs as reasonable for:

- asset management and asset services costs (operating and maintenance costs)
- marketing costs
- unaccounted-for-gas costs.

7.3.1 Asset management and asset services costs

In the draft decision, the commission required ActewAGL to adjust its asset management and asset services costs as shown in Table 7.4.

Table 7.4 ActewAGL and draft commission asset management and services expenditure, forecast 2005–10

	$ million, real 2004–05						
Year ending 30 June	2005	2006	2007	2008	2009	2010	Total
ActewAGL	7.56	7.60	7.77	7.77	7.73	7.70	46.13
Commission	6.68	6.84	7.07	7.30	7.52	7.72	43.13
Difference	–0.88	–0.76	–0.70	–0.47	–0.21	0.02	–3.00

The commission adopted the forecasts in Table 7.4 based on calculated efficient asset management and asset services costs per customer and the growth rate recommended as reasonable by the commission's consultants, ECG.

7.3.2 Marketing costs

In the draft decision, the commission required ActewAGL to adjust its marketing costs as shown in Table 7.5.

Table 7.5 ActewAGL and draft commission projected marketing expenditure, 2005–10

	$ million, real 2004–05							
Year ending 30 June	2004	2005	2006	2007	2008	2009	2010	Total
ActewAGL	1.46	1.84	1.87	1.89	1.9	1.93	1.95	11.38
Commission	1.46	1.46	1.46	1.46	1.46	1.46	1.46	8.76
Difference	0	–0.38	–0.41	–0.43	–0.44	–0.47	–0.49	–2.62

The commission adopted the above marketing costs as efficient, based on advice from ECG.

7.3.3 Unaccounted for gas

In the draft decision the commission required ActewAGL to adjust its unaccounted-for-gas costs as shown in Table 7.6.

Table 7.6 ActewAGL and draft commission actual and projected unaccounted-for-gas expenditure, 2004–10

	$ million, real 2004–05							
Year ending 30 June	2004	2005	2006	2007	2008	2009	2010	Total 2005–10
ActewAGL	0.1	0.26	0.26	0.28	0.29	0.29	0.31	1.69
Commission	0.1	0.17	0.17	0.19	0.19	0.19	0.21	1.12
Difference	0	–0.09	–0.09	–0.09	–0.1	–0.1	–0.1	–0.57

The commission adopted the UAG figures in Table 7.6 based on a 1% UAG level and a cost of $2.50 per GJ. ActewAGL indicated that it was seeking tenders for the supply of UAG and would provide the commission with details when the tender process was complete. In the draft decision, the commission indicated that it would take this additional information into account in its final decision.

7.3.4 Cost allocation

The commission engaged MMA to review ActewAGL's corporate cost allocation policy. In its final report to the commission, MMA found:

> In general, it appears that ActewAGL has attempted to accurately reflect the costs incurred in their joint cost centres by allocating costs to the appropriate areas. There is no reason to believe that allocations from the CEO, Audit, Business Systems, Commercial Executive, Legal & Secretariat, Financial Services, Corporate Facilities and Electricity Networks are not reasonable. Benchmarking of certain aspects of the allocations shows that most of ActewAGL's allocation falls within the benchmark boundaries.
>
> Some concerns do arise from the allocation from Retail area. However, the allocation from this area either lies within the benchmark boundaries or are relatively minor such that any changes to the allocation will have little impact on the overall cost allocation. Accordingly, we do not recommend that any allocations need to be changed.[23]

Based on MMA's advice, the commission considered ActewAGL's cost allocation to be fair and reasonable.

7.3.5 Ring fencing

The commission accepted ActewAGL's submission that no material issues arising from the ring fencing guidelines impact on the assessment of ActewAGL's proposed access arrangement.

7.4 Further submissions

In its submission on the draft decision, ActewAGL acknowledged that the commission's draft decision on forecast non-capital costs was the outcome of an extensive process of review and consultation between ActewAGL, ECG and the commission. ActewAGL acknowledged that the commission

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[23] MMA, *Review of Expenditure, Demand Forecasts and Cost Attribution for ActewAGL Gas Distribution Network in the ACT, Queanbeyan and Yarrowlumla*, Final Report to Independent Competition and Regulatory Commission, 28 June 2004, p i. This report is available on the commission's website at http://www.icrc.act.gov.au.

had accepted some aspects of its proposal but that some aspects of the allowed non-capital costs in the draft decision were below the levels proposed by ActewAGL and endorsed as efficient and reasonable by ActewAGL's consultants, Parsons Brinckerhoff.

As part of its submission, ActewAGL provided additional detail to the commission on asset management and asset services costs (operating and maintenance costs) and unaccounted-for-gas costs. The commission has taken this additional information into account in arriving at its final decision. ActewAGL did not provide additional detail to the commission on marketing costs.

7.4.1 Asset management and asset services costs

ActewAGL strongly disagreed with the commission's draft decision to cut forecast asset management and asset services costs by $3.0 million (in 2004–05 dollars) over the access arrangement period, and believes that the commission has failed to indicate, as required by the Gas Code, how ActewAGL's forecasts are unreasonable.

ActewAGL stated that its proposed costs were based on the efficient (least cost) delivery of services. Analysis by ActewAGL's consultants, Parsons Brinckerhoff, confirmed that ActewAGL is performing efficiently, with costs comparing favourably with industry benchmarks. Based on an analysis of 2002–03 data, Parsons Brinckerhoff concluded that ActewAGL's controllable costs of $108 per customer were highly competitive, relative to other gas distribution businesses.

In its submission on the commission's draft decision, ActewAGL argued that because ActewAGL is already operating at an efficient cost level the commission's required cuts could only be delivered by reductions in service standards.

ActewAGL submitted that the commission had made an error when calculating ActewAGL's 'efficient' costs. As a result, its allowed asset management and asset services costs are too low.

The commission's approach to assessing the asset management and asset services costs proposed by ActewAGL is set out in Section 7.5.2 of the draft decision. As summarised by ActewAGL in page 15 of its response, the commission first calculated its efficient level of total controllable non-capital

costs (costs per customer multiplied by the number of customers) for 2003–04. The commission then subtracted the efficient levels of overheads, asset charges, marketing and other costs from the calculated total controllable non-capital costs, and then took the residual as the efficient level of asset management and asset services costs. The commission's estimate for the 2003–04 efficient asset management and asset services costs was then rolled forward to 2010, at the rate suggested by consultants ECG.

ActewAGL states:

> The commission takes the $108 per customer cost as the efficient cost multiplied by customer numbers to get the base for the forecasts. The commission says that this is appropriate because PB [Parsons Brinckerhoff] found that the $108 was prudent.
>
> The mistake is that the commission takes the $108 as the total controllable cost per customer in 2004–05 real dollars, but it is in fact in 2002/03 dollars. It must therefore be inflated. The corrected calculation of the base amount for asset services and asset management for 2003/04 (in 2004/05 dollars consistent with non-capital cost forecasts) is $113.47.

Based on this approach, ActewAGL forecast its asset management and asset services costs as shown in Table 7.7.

Table 7.7 ActewAGL's forecast asset management and asset services costs, 2005–10

	$ million, real 2004–05						
Year ending 30 June	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Operating and maintenance	7.06	7.21	7.39	7.64	7.89	8.12	8.35

ActewAGL stated:

> Efficiencies remain evident in this approach as asset services and asset management cost per customer reduces from $73.45 in 2004 to an average over the six years from 2005 to 2010 of $71.45 (in real 2004/05 dollars).
>
> ActewAGL maintains that its approach to determining efficient costs is appropriate. However, it is willing to accept the commission's approach, *provided* that the mistake is corrected and the costs [as shown in Table 7.7 of this final decision] … are allowed.

7.4.2 Marketing costs

ActewAGL provided no additional information on marketing costs.

7.4.3 Unaccounted for gas

In its proposed access arrangement, ActewAGL's forecast of costs for UAG was based on the assumption that the UAG level will be 1.5% of throughput. ActewAGL maintains that 1.5% is reasonable, based on values observed over the past four years. ActewAGL states that actual UAG values have been 1.1% in 2000, 1.6% in 2001, 0.9% in 2002 and 0.8% in 2003. ActewAGL also states that the accuracy of metering equipment is within the range of +/–2%, and therefore any UAG figure lower than 2% is impractical. ActewAGL has also argued that the tender price should be used to determine the cost of the UAG.

In the draft decision, the commission's forecasts assumed a UAG level of 1.0% of throughput and a cost of $2.50 per GJ (in the absence of formal advice on the results of the tendering process). The tender process has now been completed.

ActewAGL states that it is willing to accept the commission's draft decision that the UAG level should be 1.0% as long as the cost of UAG is increased to take account of the tender price received. The forecast cost of UAG under this approach is shown in Table 7.8.

Table 7.8 ActewAGL's revised UAG forecasts, 2005–10

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Unaccounted for gas	0.39	0.40	0.40	0.40	0.41	0.41

7.4.4 ActewAGL's revised non-capital cost forecast

ActewAGL's revised non-capital cost forecast, updated for the change to asset services and asset management costs and revised unit price for UAG, are shown in Table 7.9.

Table 7.9 ActewAGL's revised non-capital cost forecasts, 2005–10

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Controllable cost						
Operating and maintenance	7.21	7.39	7.64	7.89	8.12	8.35
Corporate overheads	1.92	1.92	1.92	1.92	1.92	1.92
Non-system asset charge	0.48	0.48	0.48	0.48	0.48	0.48
Marketing	1.46	1.46	1.46	1.46	1.46	1.46
Other direct costs	0.24	0.24	0.24	0.24	0.24	0.24
Total	11.31	11.49	11.74	11.99	12.22	12.45
Other allowable costs						
Government levies	0.55	0.55	0.55	0.55	0.55	0.55
Contestability costs	0.45	0.46	0.46	0.46	0.46	0.45
Unaccounted for gas	0.39	0.40	0.40	0.40	0.41	0.41
Other	0.24	0.24	0.24	0.24	0.25	0.25
Total	1.63	1.65	1.65	1.65	1.67	1.66
Total non-capital costs	**12.94**	**13.15**	**13.38**	**13.64**	**13.90**	**14.11**

7.4.5 Level of non-capital costs

ActewAGL considered that the draft decision to cut non-capital expenditure does not take account of the operational and technical requirements necessary for the safe and reliable operation of a covered pipeline.[24] Information provided in Chapter 5 and Attachment A2 to ActewAGL's submission is presented by ActewAGL to indicate that the requirements for a safe and reliable system could be compromised if non-capital costs are below those proposed by ActewAGL.

ActewAGL also considered that the requirement for the service provider's legitimate business interests and investment in the covered pipeline to be recognised (under section 2.24 of the Code) had not been met under the commission's proposals. This issue is discussed in Chapter 1 and Attachment A1 of ActewAGL's submission.

[24] These reasons are set out on p 15 of ActewAGL's submission.

7.5 Further analysis

In its draft decision, the commission accepted ActewAGL's forecast corporate overheads, non-system asset charges, other direct controllable costs, government levies, contestability costs and other uncontrollable costs.

The commission did not accept ActewAGL's forecast asset services and asset management (operating and maintenance), marketing or unaccounted-for-gas costs.

7.5.1 Asset management and asset services costs

In its assessment in the draft decision of the asset management and asset service costs proposed by ActewAGL, the commission was concerned that ActewAGL's levels of asset management and asset services costs as at 2003–04 were above those proposed by the commission in the 2000 final decision and higher than those thought prudent by the commission's consultants. Accordingly, in the draft decision the commission attempted to establish an efficient level of asset management and asset services costs for 2003–04.

Based on information provided by the commission's consultants and ActewAGL, a value for controllable non-capital costs of $108 per customer was adopted. Previously determined costs for overheads, asset charges, marketing and other controllable costs were deducted and a value of asset management and asset services costs calculated. The efficient level of asset management and asset services costs in 2003–04 was calculated as $6.53 million, with this value being between that presented by ActewAGL and that recommended as efficient by the commission's consultants, MMA and ECG.

The commission was also concerned by ActewAGL's steep increase in asset management and asset services costs from 2003–04 to 2004–05 (see Figure 7.1). ActewAGL was not able to provide the commission with an adequate explanation for this increase. The commission therefore adopted a growth rate that resulted in an asset management and asset services cost for 2009–10 of $7.70 million, being equal to that proposed by ActewAGL in the 2001 access arrangement. The commission considered that this cost was efficient without including the significant cost increase proposed by ActewAGL for 2004–05.

In its submission on the draft decision, ActewAGL provided the commission with additional information on its level of efficient controllable asset management and asset services costs. ActewAGL supplied the commission with an updated report from its consultants, Parsons Brinckerhoff, which stated 'Controllable operating expenditures in 2002–03 represent $108 per customer which Parsons Brinckerhoff regards as prudent and competitive'.[25]

Having reviewed the available information, and considered it in the light of sections 8.1, 8.2, 8.37 and 2.24 of the Code, the commission accepts $108 per customer in 2002–03 as an efficient level of controllable operating costs. To calculate an efficient starting point for 2003–04, this value of $108 must be adjusted for inflation. The necessary calculation results in an efficient controllable cost per customer in 2003–04 of $110.70.[26]

In its submission on the draft decision, ActewAGL appears to have incorrectly calculated the 2003–04 efficient controllable costs per customer starting point as $113.70.[27] The commission considers that, as a result of this miscalculation, ActewAGL's forecast asset management and asset services costs do not reflect those that would be incurred by a prudent service provider, acting efficiently, in accordance with accepted and good industry practice and to achieve the lowest sustainable cost of delivering the reference service in accordance with section 8.37 of the Code.

Adopting the same methodology as that proposed by ActewAGL and used in the draft decision, and a 2003–04 efficient controllable cost per customer of $110.70, an efficient 2003–04 asset management and asset services cost of $6.76 million is calculated.

ActewAGL also provided the commission with additional information on the costs of the inclusion of the Hoskinstown metering station. ActewAGL is due to take over the operation and maintenance of the station from Alinta in 2007, and has forecast a one-off cost increase of $175,000.

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[25] Parsons Brinckerhoff report, p 25.

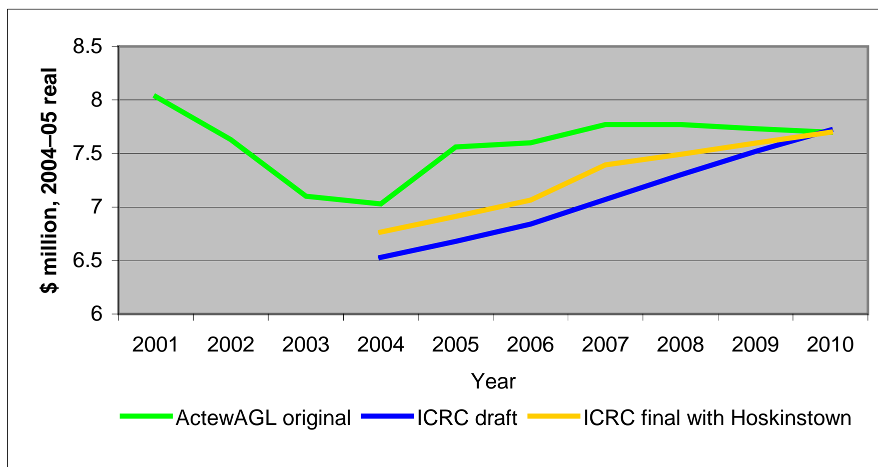
[26] $\$108 \times 1.025$ (inflation rate) = \$110.70

[27] ActewAGL appears to have inflated the $108 in 2002–03 to $113.70, which was the notional 2004–05 value, instead of to $110.70, which was the 2003–04 value (all values expressed in 2003–04 prices).

For the reasons set out above, the commission proposes to require ActewAGL to adopt the calculated efficient asset management and asset services cost of $6.76 million in 2003–04. This asset management and asset services cost is then to be adjusted at a rate which obtains a cost equal to that proposed by ActewAGL in 2009–10 ($7.70 million), with the inclusion of the one-off costs associated with the Hoskinstown metering station included in 2007. The commission considers that the proposed asset management and asset services cost will allow ActewAGL to maintain its current level of service standards and ensure the continued safe and reliable operation of the pipeline as required in section 8.1(c) of the Code.

The ActewAGL original, ICRC draft and ICRC final (with the inclusion of Hoskinstown metering station) forecast asset management and asset services costs are shown in Figure 7.1.

Figure 7.1 Asset management and asset services costs, 2001–10



The methodology required by the commission results in a reduction of ActewAGL's asset management and asset services costs of approximately $2 million over the length of the forthcoming access arrangement period. Table 7.10 shows the yearly adjustments required to ActewAGL's original submission. It should be noted that the 2005 year is only a half-year, although it is treated as a full year in the table.

Table 7.10 Commission and ActewAGL, asset management and asset services costs, 2005–10

Year ending 30 June	$ million, real 2004–05						
	2005	2006	2007	2008	2009	2010	Total (2005–10)
ActewAGL original	7.56	7.6	7.77	7.77	7.73	7.70	46.13
ICRC final, with Hoskinstown	6.91	7.06	7.39	7.49	7.60	7.70	44.16
Difference	–0.65	–0.54	–0.38	–0.28	–0.13	0.00	–1.97

7.5.2 Marketing

In its draft decision, the commission required a reduction of $2.62 million to ActewAGL's marketing budget over the forthcoming access arrangement period. ActewAGL adopted the commission's proposed marketing costs in its submission on the draft decision. The commission is confident that the marketing cost forecasts as proposed in the draft decision are consistent with section 8.37 of the Code.

ActewAGL accepted this amendment to its proposed access arrangement.[28]

Table 7.11 shows ActewAGL's original forecast of marketing costs, as well as those considered reasonable by the commission and subsequently accepted by ActewAGL.

Table 7.11 Commission and ActewAGL marketing costs, 2005–10

Year ending 30 June	$ million, real 2004–05							
	Actual 2004	2005	2006	2007	2008	2009	2010	Total
ActewAGL	1.46	1.84	1.87	1.89	1.90	1.93	1.95	11.38
Commission	1.46	1.46	1.46	1.46	1.46	1.46	1.46	8.76
Difference	0	–0.38	–0.41	–0.43	–0.44	–0.47	–0.49	–2.62

[28] ActewAGL submission in response to draft decision, p 62.

7.5.3 Unaccounted for gas

ActewAGL originally proposed a UAG level of 1.5% of total throughput and indicated that the cost for the supply of UAG would be determined as the result of a tender process.

In its draft decision, the commission required ActewAGL to reduce the forecast level of UAG to 1% of total throughput and adopt a price per GJ of $2.50 in the absence of formal advice on the tendering process.

ActewAGL has now completed the tender process and provided the commission with the required details. The commission accepts that the tender price received by ActewAGL is reasonable. The commission is concerned that the tender price is only for the 2004–05 financial year and therefore produces uncertainty beyond that time.

In its response to the draft decision, ActewAGL has stated that it is willing to adopt a UAG level of 1% of total throughput and the received tender price. This results in UAG costs as shown in Table 7.12, which the commission considers to be consistent with the costs that would be incurred by a prudent service provider, acting efficiently and in accordance with accepted and good industry practice in order to achieve the lowest sustainable cost of delivering the reference service, in accordance with section 8.37 of the Code.

Table 7.12 Draft decision and ActewAGL's revised UAG, 2005–10

	$ million, real 2004–05						
Year ending 30 June	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
ICRC draft	0.10	0.17	0.17	0.19	0.19	0.19	0.21
ActewAGL revised	0.10	0.39	0.40	0.40	0.40	0.41	0.41
Difference	–	0.22	0.23	0.21	0.21	0.22	0.20

7.5.4 Level of non-capital costs

As noted in Section 7.4.5, ActewAGL has submitted that the commission's rejection of ActewAGL's proposed access arrangement did not take into account the factors in section 2.24 in the Code and in particular the factors in sections 2.24(a) and 2.24(c), which relate respectively to the service provider's legitimate business interests and investment in the covered

pipeline and to the operational and technical requirements necessary for the safe and reliable operation of the covered pipeline.

The commission notes that these factors are only two factors which the commission must take into account in assessing a proposed access arrangement. The Code requires the commission to assess the proposed access arrangement in accordance with the Code's provisions and objectives, and take into account particular matters, which are set out in sections 1 and 5 of this final decision.

In assessing the consistency of the revised access arrangement with the requirements of the Code (including, in the case of non-capital costs, consistency with the requirements of sections 8.36 and 8.37), the commission considered whether the reference tariff principles in the revised access arrangement proposed by ActewAGL produce a tension in the achievement of the tariff design objectives in section 8.1 of the Code.

Based on the analysis conducted of ActewAGL's proposed non-capital costs in sections 7.3 and 7.4 above, the commission considers ActewAGL's proposed non-capital costs to be consistent with the objectives of:

- providing the service provider with the opportunity to earn a stream of revenue that recovers the efficient costs of delivering the reference service over the expected life of the assets used in delivering that service (section 8.1(a))
- ensuring the safe and reliable operation of the pipeline (section 8.1(c)).

However, for the reasons set out in sections 7.5.1, 7.5.2 and 7.5.3 of this final decision, the commission considers that key components of the proposed non-capital costs (as identified in those sections) are not consistent with section 8.37 of the Code and that recovery of such non-capital costs should not be provided for. The commission considers that such costs would not be incurred by a prudent service provider, acting efficiently and in accordance with accepted and good industry practice in order to achieve the lowest sustainable cost of delivering the reference service. Such an outcome is considered by the commission not to be consistent with the objective in section 8.1(e) of the Code.

The commission also considers that, based on ActewAGL's proposed non-capital costs, other objectives in section 8.1 of the Code[29] may not be achievable, or may be achievable only in a limited form. Section 8.1 of the Code provides that to the extent that any of the objectives conflict in their application to a particular reference tariff determination, the regulator may determine the manner in which they can best be reconciled or which of them should prevail. In resolving tensions, and generally in assessing the proposed access arrangement revisions, the commission has taken into account the factors described in sections 2.24(a) to 2.24(g) of the Code. The commission has also been guided by the principle enunciated in the Australian Competition Tribunal's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8, namely that where the element of the access arrangement in question produces a tension, the regulator has an overriding discretion to resolve the tension in a way which best reflects the statutory objectives and other legal requirements.[30] The commission is of the view that the identified tension is best resolved by setting non-capital costs at a lower level. This would give sufficient recognition to the interests of users and prospective users, but by not setting the costs at an unreasonably low level this also gives recognition to the service provider's legitimate business interests and investment in the covered pipeline and to the other factors in section 2.24 of the Code. The commission's amendments to non-capital costs determined consistently with the principles and objectives of the Code are set out in Table 7.13.

7.6 Final decision

The commission requires that ActewAGL adopt the non-capital costs shown in Table 7.13.

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[29] That is, putting to one side the objectives in sections 8.1(a) and 8.1(c) as discussed above.
[30] See paragraph 29 of the ACT's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8. See also *Re Michael; Ex parte Epic Energy (WA) Nominees Pty Ltd* (2002) 25 WAR 511.

Table 7.13 Commission's final decision on ActewAGL non-capital costs, 2004–10

	$ million, real 2004–05						
Year ending 30 June	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Controllable costs							
Operating and maintenance	6.76	6.91	7.06	7.39	7.49	7.60	7.70
Corporate overheads	1.69	1.92	1.92	1.92	1.92	1.92	1.92
Non-system asset charge	0.48	0.48	0.48	0.48	0.48	0.48	0.48
Marketing	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Other direct costs	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Total	10.63	11.01	11.16	11.49	11.59	11.70	11.80
Other allowable costs							
Government levies	0.34	0.55	0.55	0.55	0.55	0.55	0.55
Contestability costs	0.00	0.45	0.46	0.46	0.46	0.46	0.45
Unaccounted for gas	0.10	0.39	0.40	0.40	0.40	0.41	0.41
Other	0.23	0.24	0.24	0.24	0.24	0.25	0.25
Total	0.67	1.63	1.65	1.65	1.65	1.67	1.66
Total non-capital costs	**11.30**	**12.64**	**12.81**	**13.14**	**13.24**	**13.37**	**13.46**

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendments are required.

Amendment 4

ActewAGL is to adopt the forecast asset management and asset services costs as shown in Table 7.10.

Amendment 5

ActewAGL is to adopt the forecast marketing expenditure as shown in Table 7.11.

Amendment 6

ActewAGL is to adopt the revised forecast UAG expenditure as set out in Table 7.12.

Amendment 7

ActewAGL is to adopt the forecast non-capital costs as set out in Table 7.13.

8 Capital expenditure and the capital base

The 'return of capital' and 'return on capital' building-block components are partly determined by the value of the capital base.

The capital base is usually determined in a two-step review process.

The first step consists of updating the value of the capital base at the start of the preceding access arrangement period to calculate its value at the start of the new regulatory period. To do this, one must take account of capital expenditure, depreciation, asset disposals and inflation over the preceding access arrangement period. Key decisions involve:

- *determining whether the capital expenditure undertaken was prudent and efficient, and therefore should be included in the capital base*

  This requires an assessment of the reasonableness of the business's decision to make particular capital investments, given the information available at the time the decision was made. If new information that affected the prudence of the investment decision became available during the implementation of a capital project, the review would also consider the reasonableness of the business's response to the new information. The review would accept that a business may adapt its capital expenditure program during the preceding access arrangement period in response to new information or changed circumstances. As long as changes to the capital program are considered by the regulator to have been prudent and efficient, the revised capital expenditure would be included in the opening capital base for the new regulatory period.

- *deciding how to include the capital expenditure forecast for the final year of the preceding access arrangement period*

  The two main options are usually either to adopt the most recent forecast for the final year, or to use the forecast for the final year that was prepared at the beginning of the preceding access arrangement period.[31]

[31] However, in this case, because the 2001 access arrangement period was originally expected to end on 30 June 2004, no forecasts for 2004 were provided in the 2000 final decision.

- *determining how regulatory depreciation will be calculated*

  The options are to adopt the forecasts of regulatory depreciation made at the beginning of the preceding access arrangement period, or to recalculate depreciation based on actual capital expenditure in that period.
- *identifying whether any capital was made redundant over the preceding access arrangement period*.

In the second step, one must assess the proposed capital base over the new access arrangement period, taking into account:

- the opening value of the capital base calculated in the first step
- the forecasts of capital expenditure, to determine whether they are prudent and efficient, and hence can be included in the forecast capital base for the new access arrangement period
- forecasts of depreciation, disposals, inflation and asset redundancy (if any) over the new access arrangement period.

The second step typically involves a review by an expert consultant who provides advice on the efficient amount of capital expenditure required to achieve the proposed service levels. The efficient amount of capital expenditure is assessed by a combination of internal historical benchmarking, benchmarking against similar businesses, and expert analysis. The efficient capital expenditure allowance is used as the basis for determining the total revenue requirement in accordance with the cost of service approach described in Section 6.

The tests under this step also implicitly require an assessment of the appropriateness of the capital expenditure program to the delivery of service outcomes to customers. In relation to renewals and maintenance expenditure, or the delivery of mandatory standard outcomes, this may be easy to demonstrate. Difficulties can arise when the business decides to increase or decrease service standards without demonstrating a clear link to customers' willingness to pay for such changes.

8.1 Code requirements

8.1.1 Opening capital base

Section 8.9 of the Code provides generally for the opening capital base to reflect the capital base at the start of the preceding access arrangement period, adjusted for capital expenditure (which passes the tests in section 8.16 of the Code), depreciation and redundant capital.

The value of the regulatory capital base is used to establish the total revenue of the service provider in accordance with the approach discussed in Section 6 of this final decision. For the cost of service methodology, section 8.9 of the Code states that the capital base at the commencement of each access arrangement period after the first is determined as:

> (a) the capital base at the start of the immediately preceding access arrangement period; plus
>
> (b) subject to sections 8.16(b) and sections 8.20 to 8.22, the new facilities investment or recoverable portion (whichever is relevant) in the immediately preceding access arrangement period; less
>
> (c) Depreciation for the immediately preceding access arrangement period; less
>
> (d) Redundant capital identified prior to the commencement of that access arrangement period.

An effect of section 8.9 of the Code is that, once a pipeline has been initially valued under the Code, it cannot be subsequently revalued, save for the effects of the roll-forward process provided in section 8.9.

Consistent with section 8.5A, the values used in the roll-forward process can be expressed on a nominal basis, a real basis or any other basis in dealing with the effects of inflation.

The key provisions in the Code relating to the values used in the roll-forward process are as follows:

- new facilities investment (sections 8.15–8.17)
- redundant capital (section 8.27)
- depreciation (sections 8.32–8.35).

The specific requirements of these Code provisions are discussed below.

In assessing ActewAGL's proposed revisions to the capital expenditure and capital base provisions of its access arrangement, the commission has taken into account the Code provisions discussed above and adopted the methodology discussion in Section 5 of this decision.

8.1.2 Capital investment

Under section 8.16 of the Code, the capital base may be increased from the start of a new access arrangement period to recognise additional capital costs incurred in the preceding access arrangement period in constructing, developing or acquiring new facilities for the purpose of providing services. The criteria to be used are set out in section 8.16.

Section 8.16(a) requires that the new investment satisfy two tests, which for the purposes of this final decision are termed a 'prudence test' and a 'roll-in test'. Under the prudence test, the actual new facilities investment must not exceed the amount that would be invested by a prudent service provider, acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing the service.[32]

Under the roll-in test, the actual new facilities investment must satisfy one of the following conditions:

- the anticipated incremental revenue generated by the new facility exceeds the new facility investment
- the service provider and/or users satisfy the commission that the new facility has system-wide benefits that in the commission's opinion justify the approval of a higher reference tariff for all users

  or
- the new facility is necessary to maintain the safety, integrity or contracted capacity of services.[33]

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[32] Code section 8.16 (a)(i).
[33] Code section 8.16(a)(ii).

Section 8.16(b) provides that if the commission agrees under section 8.20 of the Code to reference tariffs being determined on the basis of forecast new facilities investment, the capital base may be increased by the amount of the new facilities investment that is forecast to occur within the new access arrangement period, provided that the investment is reasonably expected to pass the requirements in section 8.16(a) when it is forecast to occur.[34]

Where the commission agrees to reference tariffs being calculated on the basis of forecast new investment, for the purposes of calculating the capital base at the commencement of the subsequent access arrangement, section 8.22 of the Code provides that either the reference tariff policy should describe, or the commission should determine (when the commission considers revisions to an access arrangement submitted by a service provider), how the new facilities investment is to be determined for the purposes of section 8.9 of the Code (i.e. in order to determine the capital base at the start of that subsequent regulatory period). This includes the way in which the capital base at the commencement of the next access arrangement period will be adjusted if the actual new facilities investment is different from the forecast new facilities investment. This decision must be designed to best meet the objectives in section 8.1. The key options in this regard are to adopt the new investment amount as forecast, or to use the actual investment amount.

8.1.3 Depreciation

The Code requires that the depreciation schedule that is the basis upon which the assets that form part of the capital base are to be depreciated for the purposes of determining a reference tariff (the return of capital component of the cost of service methodology) should be designed so that:

- reference tariffs change over time in a manner consistent with the efficient growth of the market for the services (section 8.33(a))
- assets are depreciated over their economic lives (section 8.33(b)), which may differ from their tax or accounting lives

[34] Under section 8.20 of the Code, reference tariffs may be determined on the basis of new facilities investment that is forecast to occur within the access arrangement period, provided that the new facilities investment is reasonably expected to pass the requirements in section 8.16(a) when the new facilities investment is forecast to occur.

- to the maximum extent reasonable, they are adjusted over the life of an asset to reflect changes in the expected economic life of that asset (section 8.33(a))
- the sum of depreciation attributable to an asset over its life is equivalent to the value of the asset when it first entered the capital base, subject to the approach to inflation adopted pursuant to section 8.5A of the Code (section 8.33(d)).

In applying the Code principles in relation to depreciation, the regulator is to have regard to the service provider's reasonable cash flow needs for non-capital costs, financing cost requirements and similar needs (section 8.35).

8.1.4 Redundant capital

Section 8.27 of the Code provides that a reference tariff policy may include (and the regulator may require that it include) a mechanism that results in the capital base being reduced where assets cease to contribute to the delivery of services, or where sales volumes fall. This is known as a 'redundant capital policy'.

Before approving a reference tariff which includes such a mechanism, the commission is required to take into account the uncertainty such a mechanism would cause and the effect that uncertainty would have on the service provider, users and prospective users. If a reference tariff does include such a mechanism, the determination of the rate of return (under sections 8.30 and 8.31) and the economic life of the assets (under section 8.33) should take account of the resulting risk (and cost) to the service provider of a fall in the revenue received from sales of services or part of the covered pipeline.

As noted in Section 6 of this final decision, capital costs used in determining reference tariffs may be expressed on a real or nominal basis under section 8.5A of the Code.

8.2 Background and draft decision

8.2.1 2001 access arrangement period

An assessment of the commission's prior decision in relation to the capital base is directly relevant to the forthcoming access arrangement period. The commission is required to assess the opening capital base for the new period based on a roll-forward methodology which makes adjustments for the actual capital expenditure over the prior access arrangement period (assuming that it is deemed to meet the tests under section 8.16 of the Code), less depreciation and redundant capital over that period.

Initial capital base and roll-forward

In its 2000 final decision, the commission:

- set the initial capital base for ActewAGL's natural gas pipeline system at no higher than $175 million at 1 July 1999, in accordance with the principles in section 8.10 of the Code (relating to the setting of the capital base value for an existing pipeline when first determining tariffs for the pipeline under the Code)
- rolled forward the 1999 capital base value for the purpose of calculating the total revenue requirement over the 2001 access arrangement period, in accordance with the procedure in section 8.9 of the Code, allowing for the effects over that access arrangement period of:
  - forecast capital investment which the commission considered would meet the tests provided for in section 8.16 of the Code
  - depreciation on the capital base
  - the effects of forecast inflation.

The commission did not require the roll-forward of ActewAGL's capital base to include provision for redundant capital, although it did require specific provisions in relation to redundant capital to be incorporated into ActewAGL's reference tariff policy.

Forecast inflation was applied to the capital base and to depreciation for the pipeline over the forecast 2001 access arrangement period, on the basis that the cost of service methodology used to determine ActewAGL's total revenue was applied in real terms (where a real rate of return was applied to capital base values expressed in constant prices).

Table 8.1 summarises the cost of service elements determined by the commission in the 2000 final decision to provide the projected roll-forward of the initial capital base.

Table 8.1 Commission's projected capital base roll-forward, 2000–2004

	$ million, nominal				
Year ending June	**2000**	**2001**	**2002**	**2003**	**2004**
Opening balance	175	182.1	204.6	212.3	219.6
– add revaluation of assets	4.2	10.9	6.1	6.4	6.6
– add capital expenditure	8.4	17.4	8	7.9	6.8
– less depreciation	5.4	5.9	6.5	6.9	7.4
– less disposal	0	0	0	0	0
Indicative capital base rolled forward	182.1	204.6	212.3	219.6	225.6
Comparison with ActewAGL proposal[a]	245	250	254	257	261

a This is based on ActewAGL's Revised Access Arrangement Information (RAAI) by considering the proposed funds employed capital base adjusted by net working capital.

Source: IPARC, *Final Decision—Access Arrangement for ActewAGL Natural Gas System in ACT, Queanbeyan and Yarrowlumla*, November 2000.

Capital expenditure

In determining the capital value to be rolled forward for the 2001 access arrangement period, the commission determined among other things that historical capital expenditure for 1999–2000 and the commission's allowed capital expenditure would be used to roll forward the capital base and to set reference tariffs, and that EGP interconnection capital expenditure of $14.17 million would be allowed, and be recovered from all users of the ACT system.

In determining the forecast capital expenditure amount, the commission stressed that actual capital expenditure consistent with the forecast capital expenditure would not be included automatically in the capital base at the start of the next access arrangement period, and indicated that, as provided for in the Code, it would consider at the next review whether the investment decision had been prudent.

For the purposes of the current review, the commission employed MMA and ECG to assess the prudence of ActewAGL's actual and proposed capital expenditure program over the period from 2001 to 2010. As part of this process, ECG assessed the prudence and efficiency of actual capital

expenditure over the 2001 access arrangement period, as well as the forecast capital expenditure for the forthcoming period.

While noting that ActewAGL's actual capital expenditure was higher than forecast during the 2001 access arrangement period, ECG determined that all actual capital expenditure during that period was prudent. In its draft decision, the commission concluded that all capital expenditure incurred over the period was prudent investment and that it should be rolled into the opening capital base value.

Redundant capital

While no adjustment for redundant capital was made by the commission in relation to ActewAGL's capital base roll-forward for the 2001 access arrangement period, the commission required specific provisions in relation to redundant capital to be incorporated into ActewAGL's reference tariff policy under the 2001 access arrangement. Those provisions, which were designed to take effect from the start of the forthcoming access arrangement period, were inserted to permit the commission to adjust the capital base for redundant capital, for example where:

- any assets that, in the reasonable opinion of the commission, have ceased or are likely to cease contributing to the delivery of services
- any assets that, in the reasonable opinion of the commission, have decreased in value because of a likely decrease in their utilisation resulting from a decline or likely decline in the volume of sales of the service.

In adopting such a mechanism, the commission assessed the uncertainty that it would cause and its impact on ActewAGL, users and prospective users, and took this into account in determining the rate of return for the 2001 access arrangement period.

In its submissions to the current review, ActewAGL reduced the capital asset base by $1.9 million and $0.1 million for disposals of assets in 2001 and 2003, respectively. ActewAGL explained the $1.9 million amount as a transfer of non-system assets and the $0.1 million by the scrapping of assets affected by the January 2003 bushfires. In its draft decision, the commission was satisfied with ActewAGL's explanation for capital made redundant over the 2001 access arrangement period.

Depreciation

The commission's 2000 final decision required depreciation charges used in the capital base roll-forward process to be calculated based on:

- the capital base as established by the commission at 1 July 1999 and subsequently rolled forward according to the procedures set out in the 2000 final decision
- the economic asset lives of the relevant assets (see Table 8.2)
- the capital expenditure allowed by the commission in its 2000 final decision.

The commission's 2000 final decision required ActewAGL to adopt the economic asset lives listed in Table 8.2.

Table 8.2 Commission's 2000 estimates of economic life of assets

Asset	Life (years)
High-pressure and medium-pressure pipes	80
High-pressure services	80
Medium-pressure services	50
Regulators and valves	50
Contract and tariff meters	15
Non-system assets	To be consistent with the categories and lives adopted for financial reporting.

In the current review, the commission proposed to accept ActewAGL's depreciation charges for the 2001 access arrangement period.

Under the 2001 access arrangement, ActewAGL indexed its capital base over the 2001 access arrangement period by the CPI, inclusive of the goods and services tax (GST). The commission, in approving the 2001 access arrangement, emphasised that subject to the Code all the values it had determined for the capital base roll-forward over the 2001 access arrangement period were indicative only. At the expiry of that access arrangement period, the rolled-forward capital base would be reconsidered under the relevant provisions of the Code.

8.2.2 Forthcoming access arrangement period

Opening capital base value

ActewAGL proposes to determine the opening capital base for the natural gas distribution system for the forthcoming access arrangement period from the following elements:

- the capital base value at the start of the 2001 access arrangement period
- actual capital expenditure incurred during the 2001 access arrangement period (which, as noted above, has been judged by the commission's consultants to meet the tests in section 8.16 of the Code)
- the regulatory depreciation determined during the 2001 access arrangement period
- redundant capital since 2001
- inflation from 2001 to 2004.

ActewAGL's proposed opening capital base for the forthcoming access arrangement period, calculated on the basis of the above elements, is shown in Table 8.3.

Table 8.3 ActewAGL's capital base roll-forward, 2000–04

	$ million, nominal				
Year ending 30 June	**2000**	**2001**	**2002**	**2003**	**2004**
Opening balance	175.0	182.4	198.6	209.6	219.6
Plus capital expenditure	8.6	12.7	10.9	9.3	7.4
Less depreciation	5.5	5.8	5.8	6.3	6.7
Less disposals	0.0	1.9	0.0	0.1	0.0
Plus indexation	4.3	11.2	5.9	7.1	5.6
Roll-forward amount	**182.4**	**198.6**	**209.6**	**219.6**	**225.9**

In determining the opening capital base, ActewAGL:

- indicated that all expenditure undertaken met the requirements of section 8.16 of the Code
- based depreciation on the actual level of capital expenditure, rather than on the depreciation forecast made in 2000
- used the most recent forecast of capital expenditure for 2004
- netted off capital contributions
- adopted the actual (and forecast) CPI (all groups index for the weighted average of eight capital cities).

In aggregate, ActewAGL's capital expenditure in the 2001 access arrangement period was almost identical to that forecast in 2001 (as shown in Table 8.4), although annual differences occurred because of higher than expected growth capital (customer numbers exceeded projections by more than 5,000), and because of timing issues associated with connection to the EGP and ActewAGL's network reinforcement project.

Table 8.4 Commission forecast and actual ActewAGL capital expenditure, 2000–04

	$ million, real 2004–05					
Year ending 30 June	**2000**	**2001**	**2002**	**2003**	**2004**	**Total 2000–04**
Final decision	9.3	18.8	8.3	7.8	5.6	49.8
Actual capital expenditure	9.6	14.2	11.7	9.8	7.4	52.7
Difference	0.3	–4.6	3.4	2.0	1.8	2.9

Source: *MMA review of demand forecasts, cost allocation, and expenditure*, p. 106.

Based on its assessment of the matters in the sections above, in its draft decision the commission accepted ActewAGL's proposed opening capital base value of $225.9 million at 30 June 2004, as shown in Table 8.3.

Capital base roll-forward

ActewAGL's forecast capital base, as rolled forward over the forthcoming access arrangement period, is shown in Table 8.5. The capital values in Table 8.5 are based on the same cost of service methodology as applied during the 2001 access arrangement period.

Table 8.5 ActewAGL's forecast capital base, 2005–10

	$ million, nominal					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Opening balance	225.9	236.6	244.6	252.6	261.0	272.7
Plus capital expenditure	12.4	10.1	9.7	9.1	12.5	8.3
Less depreciation	7.4	8.1	8.6	8.4	8.8	9.0
Less disposals	0.1	0.1	0.1	0.1	0.1	0.1
Plus indexation	5.8	6.1	7.0	7.8	8.1	8.3
Roll-forward amount	**236.6**	**244.6**	**252.6**	**261.0**	**272.7**	**280.2**

Capital investment

ActewAGL's forecast capital expenditure by asset use category is shown in Table 8.6.

Table 8.6 ActewAGL's forecast capital expenditure, 2005–10

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Distribution system capex						
Growth market expansion	6.09	5.74	5.61	5.41	5.49	5.40
Growth capacity development	1.71	2.88	2.33	1.77	4.42	0.72
Stay in business	2.52	1.28	1.34	1.28	1.36	1.02
Total distribution system	**10.32**	**9.90**	**9.28**	**8.46**	**11.27**	**7.24**
Non-system capex						
Gas networks GIS	0.50	0.00	0.00	0.00	0.00	0.00
Capitalisation of regulatory costs	1.60	0.00	0.00	0.00	0.00	0.00
Total non-system capex	**2.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total capex	**12.42**	**9.90**	**9.28**	**8.46**	**11.27**	**7.24**

Source: ActewAGL, *Access arrangement for the ActewAGL gas distribution system, proposed revisions*, p 17.

In forecasting capital expenditure over the forthcoming access arrangement period, ActewAGL:

- based growth market expansion expenditure forecasts on market growth forecasts of annual quantity for the tariff and contract markets, and MDQ for the contract market
- based growth capacity development expenditure forecasts on network performance validation, used to identify the needs and opportunities to

reinforce the system to provide for growth, and enhance supply reliability and security

- based stay-in-business expenditure forecasts on detailed engineering and design analysis of condition of assets and on meeting statutory requirements.

ActewAGL submitted that its forecast expenditure does not exceed the amount that would be invested by a prudent service provider acting efficiently and in accordance with good industry practice.

The commission is required to assess the forecast capital expenditure that ActewAGL proposes should be taken into account in determining the capital base, in accordance with the tests in section 8.16 of the Code. In assessing whether the capital base should be increased by the amount proposed by ActewAGL, the commission is required to consider the amount of capital that would be invested by a prudent service provider, acting efficiently and in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services. In addition to the prudence test noted in section 8.16, the Code also requires the commission to decide whether the proposed capital program is efficient under the separate roll-in test.

While not directly defining efficiency, the Code states that each project within the capital program must satisfy at least one of the following conditions:

- the anticipated incremental revenue generated by the new facility exceeds the new facilities investment
- the service provider and/or the users satisfy the regulator that the new facility has system-wide benefits that, in the regulator's opinion, justify the approval of higher reference tariffs for all users
- the new facility is necessary to maintain the safety, integrity or contracted capacity of services.

Where ActewAGL is unable to provide satisfactory justification to support one of these conditions, the commission may seek to amend the amount by which the capital base may be increased to take into account a proposed capital program, to ensure that the amount by which the capital base is increased does not exceed the amount that would be invested by a prudent service provider acting efficiently and in accordance with accepted good

industry practice to achieve the lowest sustainable cost of delivering services (section 8.22 of the Code).

ActewAGL has provided the commission with forecasts of capital costs in the following categories:

- market expansion, which accounts for 58% of the capital program
- stay-in-business, which accounts for 24% of the capital program
- demand growth, which accounts for 15% of the capital program
- non-systems expenditure, which accounts for 3% of the capital program.

The commission's consultant, MMA, conducted a comprehensive review of ActewAGL's capital and operating cost forecasts. As part of this review, MMA reviewed the unit costs for each item in the forecast capital program. MMA found that the unit costs used in ActewAGL's forecasts were inappropriate and would not have been incurred by a prudent service provider acting efficiently and in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services.

In its draft decision, the commission required ActewAGL to adopt the forecast capital costs shown in Table 8.7, which were assessed as meeting the requirements of the Code.

Table 8.7 Commission's draft forecast capital expenditure, 2005–10

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Distribution system capex						
Growth market expansion	6.06	5.52	5.41	5.31	5.34	5.26
Growth capacity development	1.71	2.88	2.33	1.77	4.42	0.82
Stay in business	2.39	1.19	1.27	1.21	1.33	1.01
Total distribution system	**10.17**	**9.59**	**9.01**	**8.29**	**11.09**	**7.10**
Non-system capex						
Gas networks GIS	0.50	0.00	0.00	0.00	0.00	0.00
Capitalisation of regulatory costs	1.60	0.00	0.00	0.00	0.00	0.00
Total non-system capex	2.10	0	0	0	0	0
Total capex	**12.27**	**9.59**	**9.01**	**8.29**	**11.09**	**7.09**

The commission's draft decision reduced ActewAGL's forward-looking capital expenditure program by 2.8%.

In the draft decision, the commission accepted ActewAGL's proposed capital costs for:

- growth capacity development
- non-system assets expenditure.

The commission did not accept ActewAGL's proposed capital costs for:

- growth market expansion
- growth stay-in-business

Market expansion

In its draft decision, the commission required ActewAGL to adjust its domestic per unit mains costs from $663 to $567, its domestic per unit service costs from $723 to $659, and its domestic per unit meter costs from $129 to $180. Industrial and commercial per unit costs remained unchanged from those proposed by ActewAGL.

Stay in business

In its draft decision, the commission accepted all stay-in-business projects proposed by ActewAGL. The commission also accepted all unit costs proposed by ActewAGL for those projects, except those for industrial and commercial meters and water meters. The commission required a reduction of 20% on the unit costs for industrial and commercial meters and the adoption of a unit cost of $282 per water meter, unless ActewAGL could provide the commission with additional data to support its original stay-in-business unit cost claims.

Depreciation

ActewAGL's approach to calculating depreciation changes is a direct application of the methodology which applied during the 2001 access arrangement period, as approved by the commission in the 2000 final decision. The key elements of this methodology are the application of:

- a straight-line depreciation schedule

- asset lives as per the 2000 final decision
- inflation, applied to the calculated depreciation charge under section 8.33 of the Code (consistent with the real costing basis provided for under section 8.5A(b)).

The methodology is considered by the commission to be consistent with the requirements of the Code (including with section 8.33(d), which requires that the sum of depreciation attributable an asset over its life shall be equivalent to the value of the asset when it first entered the capital base).

However, the commission's required variations to ActewAGL's forecast capital expenditure have a consequential effect on projected annual depreciation charges over the forthcoming access arrangement period. Accordingly, the commission calculated revised depreciation charges for the purposes of its draft decision. The revised depreciation charges are shown in the roll-forward summary in Table 8.9.

Redundant capital

ActewAGL has submitted that the risk of asset redundancy should be allowed for in determining the regulated return, as the capital asset pricing model (CAPM) used to estimate the weighted average cost of capital (WACC) allows only for diversifiable risk. It submitted that the proposed capital redundancy policy reduces potential uncertainty about whether and how redundant assets may be treated.

ActewAGL has suggested that its proposal to remove the commission's ability to reduce the capital base on the basis of events that are 'likely' to occur is consistent with section 8.27 of the Code.

ActewAGL has also submitted that it is appropriate for the service cost building blocks to include an amount for accelerated depreciation. It has submitted that its proposed allowance for accelerated depreciation typically represents assets that have ceased to operate effectively before their assumed economic life has expired (largely faulty meters requiring replacement).

ActewAGL has proposed that there will be some minor reductions in the capital base over the forthcoming access arrangement period. Forecasting redundant capital is problematic from a regulatory perspective, given that events which result in capital redundancy are difficult to predict.

The commission notes that ActewAGL's estimates for capital redundancy are less than the capital that was made redundant in the 2001 access arrangement period. However, noting the difficulty in forecasting, the commission considers that the information provided by ActewAGL is appropriate.

ActewAGL's inflation forecasts are accepted by the commission to be consistent with the cost of service methodology applied by ActewAGL and with the requirement of section 8.2(e) of the Code that forecasts used in setting reference tariffs represent best estimates arrived at on a reasonable basis. ActewAGL's inflation forecasts are included in the roll-forward summary in Table 8.9.

8.3 Further submissions

In its submission on the draft decision, ActewAGL acknowledged that the capital costs proposed by the commission were the outcome of an extensive process of consultation and review between the commission and ActewAGL. ActewAGL acknowledged that in several areas the commission has accepted ActewAGL's proposals or, in the case of unit rates for market expansion capital expenditure, adopted a position between the draft recommendations of the commission's consultants and ActewAGL's proposals. ActewAGL maintains that the overall allowed capital expenditure is still below ActewAGL's proposals.

In its submission in response to the draft decision, ActewAGL has provided the commission with additional detail on both market expansion and stay-in-business capital expenditure.

8.3.1 Market expansion

In its submission on the draft decision, ActewAGL:

> acknowledges that the unit rates for market expansion capital expenditure were arrived at following extensive consultation between ActewAGL and consultants ECG. ActewAGL believes that the revised average cost per customer for mains of $567 will be difficult to achieve. If such a saving is not achieved during the forthcoming access arrangement period,

> ActewAGL should not be penalised in the next review (2010 to 2014) and should be allowed to roll forward the actual costs into the regulatory asset base.[35]

8.3.2 Stay in business

ActewAGL submitted that its proposal for stay-in-business capital expenditure is based on detailed modelling and analysis of the condition of assets and statutory service requirements and that the planning and approval processes have been examined by the commission's consultants and found to be sound.

It also submitted that the commission has decided to require a substantial cut in stay-in-business capital expenditure, without assessing likely implications.

ActewAGL submitted in response to the draft decision that its proposed expenditure is reasonable, and consistent with the Code requirement that 'the operational and technical requirements for the safe and reliable operation of the current system' be taken into account.

As part of its submission on the stay-in-business costs proposed by the commission, ActewAGL notes that its planning and approval processes have been examined by the commission's consultants and found to be sound. ActewAGL states that despite this, the commission has decided to require a substantial cut in stay-in-business capital expenditure, without assessing the likely implications.

To support this claim, ActewAGL refers to a study conducted by its consultants, Parsons Brinckerhoff, which concluded that ActewAGL's proposed stay-in-business expenditure was *below* the industry accepted level required to ensure that the network is reliable and secure over the long term.

The Parsons Brinckerhoff study finds that:

> The average [stay in business] expenditure represents approximately 0.6% per year of the total replacement cost of the ActewAGL gas network infrastructure (approximately $250 million). Considering that the weighted economic life of the network elements is of the order of 50 years, any long term replacement level below 2% will lead to gradual degradation of

[35] ActewAGL response to draft decision, p 20.

> quality of infrastructure. This may be acceptable in the short term as the network is relatively new and the majority of assets have considerable remaining life. However, should this lower level be maintained in the longer term there is likely to be an overall increase in the risk factors, and reduced safety and security of supply.
>
> PB is of the opinion that such an approach is not sustainable and may induce a disproportionately large impact on future capital requirements for the gas networks in order to provide secure and reliable gas infrastructure. A progressive move over a number of access arrangement periods towards a sustainable long term annual replacement expenditure level of 2% of the total asset value is recommended.

ActewAGL believes that the stay-in-business capital expenditure proposed in its revisions to the access arrangement is reasonable, and consistent with the Code requirement that the 'operational and technical requirements for the safe and reliable operation of the covered pipeline' be taken into account. ActewAGL therefore urges the commission to allow the full amount proposed for stay-in-business capital expenditure.

8.3.3 Level of capital expenditure

In its submission in response to the commission's draft decision, ActewAGL held that the commission's reduction in ActewAGL's proposed capital expenditure did not take account of the operational and technical requirements necessary for the safe and reliable operation of a covered pipeline.[36] ActewAGL submitted that the information provided in Chapter 6 and Attachment A to its submission indicates that the requirements for a safe and reliable system could be compromised if costs were below those proposed by ActewAGL. ActewAGL also considered that the requirement that the service provider's legitimate business interests and investment in the covered pipeline be recognised had not been met under the commission's proposals.

8.4 Further analysis

In its draft decision, the commission accepted the opening capital base of $225.9 million.

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[36] These reasons are set out on pages 19–20 of ActewAGL's submission.

The commission also accepted the capital costs proposed by ActewAGL for capacity development and non-system assets expenditure.

The commission accepted all market expansion and stay-in-business projects proposed by ActewAGL. However, the commission required ActewAGL to adjust the unit cost rates for several market expansion and stay-in-business items.

8.4.1 Market expansion

In its response to the draft decision, ActewAGL states that it will be difficult to achieve the unit cost rate proposed by the commission for mains of $567 per customer, compared with that proposed by ActewAGL of $663. ActewAGL submits that, if it cannot obtain this saving, it should be able to roll forward the actual capital costs into the regulatory asset base for the next access arrangement period.

ActewAGL has not provided the commission with additional information to support its original market expansion unit cost rates. In the absence of additional information, the commission has assessed ActewAGL's proposal against the section 8.16 of the Code and considers that ActewAGL's original market expansion unit cost rates exceed the amount that would be invested by a prudent service provider acting efficiently in accordance with accepted good industry practice.

Further, the commission has considered, against section 2.21 of the Code, ActewAGL's request to be permitted to roll forward the actual costs for market expansion capital expenditure for the purposes of the next review. Based on the material provided to the commission to date, the commission is unable to form the view that the full amount of ActewAGL's proposed forecast capital expenditure complies with section 8.16 of the Code (for the reasons set out in this section). However, the commission notes that for the next review (2010–2014), all capital expenditure incurred by ActewAGL during the upcoming access arrangement period (2005–2010) will be assessed in accordance with section 8.16 of the Code. Under that section, expenditure that meets the requirements of section 8.16 may be rolled into the opening capital base for the 2010–2014 access arrangement.

ActewAGL has, however, provided the commission with additional information in regard to the connection of a contract customer in 2005 that was not included in the draft decision. The commission, with advice from its

consultants, ECG, has concluded that this additional cost meets the prudence test under section 8.16(a)(i) of the Code, in that it does not exceed the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services. The commission also considers that the connection meets the requirement of section 8.16 (a)(ii)(A), in that the anticipated incremental revenue generated by the new facility exceeds the new facilities investment. The commission has included the amount in relation to this contract customer in ActewAGL's market expansion costs in this final decision.

Having considered the arguments made and additional information provided by ActewAGL, the commission requires ActewAGL to adopt the market expansion capital expenditure estimates as proposed in the draft decision, with the addition of the efficient costs associated with the connection of the 2005 contract customer. The commission proposes to require ActewAGL to adopt the market expansion capital expenditure forecasts shown in Table 8.8.

8.4.2 Stay-in-business

In its draft decision, the commission accepted all stay-in-business projects proposed by ActewAGL. The commission also accepted all unit costs for those projects provided by ActewAGL, except those for industrial and commercial meters and water meters. The commission required a reduction of 20% on the unit costs for industrial and commercial meters and the adoption of a unit cost of $282 per water meter unless ActewAGL could provide the commission with additional data to support its original stay-in-business unit cost claims.

ActewAGL has not provided the commission with any additional unit cost information, referring instead to a report it commissioned from consultants Parsons Brinckerhoff. The report makes the argument that the current capital cost expenditure proposed by ActewAGL, which represents approximately 0.6% of the capital base per annum, is insufficient. Parsons Brinckerhoff argues that as the weighted economic life of the gas network is approximately 50 years, a replacement level of below 2% of the capital base per annum will lead to the gradual degradation of the network.

The commission is committed to maintaining the quality of the gas distribution network, and in its draft decision granted all stay-in-business

projects proposed by ActewAGL. The observation by Parsons Brinckerhoff that 'the network is relatively new and the majority of assets have considerable remaining life', which indicates that a capital replacement level below 2% may be currently reasonable, leads the commission to be confident that the projects proposed by ActewAGL are sufficient to maintain the quality of the gas distribution network.

After considering the arguments presented by Parsons Brinckerhoff and the fact that ActewAGL has been unable to provide the commission with additional stay-in-business unit cost information, the commission remains satisfied that ActewAGL's proposal for stay-in-business capital expenditure does not meet the tests in section 8.16 of the Code. Accordingly, the commission requires ActewAGL to adopt the stay-in-business forecasts as published in the draft decision. The commission is satisfied that its forecast stay-in-business costs meet the tests in section 8.16(a)(i) of the Code. The costs do not exceed the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services, and the new facilities are required to maintain the safety, integrity or contracted capacity of services as specified in section 8.16(a)(ii)(C) of the Code. The forecast stay-in-business capital expenditure is shown in Table 8.8.

8.4.3 Level of capital expenditure

ActewAGL submitted that the commission's rejection of ActewAGL's proposed access arrangement did not take into account the factors in section 2.24 in the Code, and in particular the factors in sections 2.24(a) and 2.24(c).

ActewAGL submitted that its proposal for stay-in-business capital expenditure is based on detailed modelling and analysis of the condition of assets and statutory service requirements, and that the planning and approval processes have been examined by the commission's consultants and found to be sound.

It also submitted that the commission has decided to require a substantial cut in stay-in-business capital expenditure, without assessing likely implications.

In response to the draft decision, ActewAGL submitted that its proposed expenditure is reasonable, and consistent with the Gas Code requirement that

‘the operational and technical requirements for the safe and reliable operation of the current system’ be taken into account.

The commission notes that this factor, set out in section 2.24(c) of the Code, is only one of the factors that the commission must take into account in assessing a proposed access arrangement. As required by the Code, the commission has assessed the proposed arrangement in accordance with the Code’s provisions and objectives, and taking into account the matters set out in detail in sections 1 and 5 of this final decision.

The commission assessed the consistency of the revised access arrangement with the requirements of section 8 of the Code (including the requirement for capital expenditure to satisfy the tests in section 8.16) and considered whether the reference tariff principles in the access arrangement produced a tension in the achievement of the tariff design objectives in section 8.1 of the Code.

The commission’s view, based on the analysis conducted of ActewAGL’s proposed capital expenditure in sections 8.3 and 8.4 above, is that the reference tariff principles in the proposed revised access arrangement would produce a tension in the achievement of the Code objectives. On the basis of advice from the commission’s consultants, ECG, the tension arises because ActewAGL’s proposed stay-in-business capital expenditure does not to meet the requirements of section 8.16 of the Code. Section 8.16 provides, among other things, that the amount of capital expenditure is not to exceed the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services. The commission’s assessment of the information provided suggests that ActewAGL’s proposed capital expenditure is in excess of the requirement, largely as a result of its forecast unit costs for market expansion and stay-in-business costs, discussed above in sections 8.4.1 and 8.4.2.

The level of capital costs that result from the incorporation of ActewAGL’s proposed stay-in-business capital expenditure affects the level of reference tariffs more generally, using the cost of service approach adopted by ActewAGL. While the resulting reference tariffs may be considered to be consistent with the objectives in sections 8.1(a) and 8.1(c) of the Code, other objectives in section 8.1 of the Code may not be achievable, or may be achievable only in a limited form. For example, section 8.1(e) requires that

reference tariffs be designed with a view to achieving efficiency in their level and structure.

As also noted above, section 8.1 of the Code provides that, to the extent that any of the objectives conflict in their application to a particular reference tariff determination, the regulator may determine the manner in which they can best be reconciled or which of them should prevail. In resolving tensions, and generally in assessing ActewAGL's proposed revisions to the access arrangement, the commission has taken into account the factors in sections 2.24(a) to 2.24(g) of the Code.

After considering the tests in sections 8.16 of the Code and examining ActewAGL's proposed non-capital costs against the objectives of section 8.1, and guided by the factors in section 2.24, the commission is not satisfied that ActewAGL's proposed capital expenditure satisfies the relevant principles and objectives of the Code. The commission is of the view that ActewAGL's capital expenditure for the forthcoming access arrangement period should be set at a lower level. This gives sufficient recognition to the interests of users and prospective users, while also recognising the service provider's legitimate business interests and investment in the covered pipeline and the other factors in section 2.24 of the Code. The commission's amendments to capital costs, determined consistently with the principles and objectives of the Code, are described in Section 8.5 and set out in Table 8.8.

8.5 Final decision

The commission has accepted the opening capital base proposed by ActewAGL in accordance with the roll-forward methodology provided for under sections 8.9 and 8.5A of the Code. The value of the capital base at the start of the forthcoming access arrangement period is $225.9 million at 30 June 2004.

After considering the above issues, the commission's final decision is to apply a 1.5% reduction to ActewAGL's forward-looking capital expenditure program when determining the amount by which the capital base may be increased from the commencement of the forthcoming access arrangement period. Table 8.9 sets out the commission's roll-forward of the opening capital base over the forthcoming access arrangement period, taking into account the amount by which the forecast capital expenditure may be increased pursuant to section 8.16 of the Code.

The commission's adjustment to ActewAGL's forward-looking capital expenditure program has been based on the unit costs provided by its consultants, ECG, and on the additional information provided by ActewAGL on a contract customer that is soon to be connected (referred to in Section 8.4.1 of this final decision). On the information available to the commission, the commission considers that this adjusted forward-looking capital program meets the tests for capital expenditure in section 8.16 of the Code.

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendments are required.

Amendment 8

ActewAGL is to replace its capital program expenditure forecast with the capital expenditure forecast as shown in Table 8.8.

Amendment 9

Given that the commission's required variations to ActewAGL's capital expenditure forecasts have a consequential effect on projected depreciation charges over the forthcoming access arrangement period, ActewAGL is to adopt the revised depreciation charges as shown in Table 8.9.

Amendment 10

ActewAGL is to adopt the roll-forward of the opening capital base over the forthcoming access arrangement period, adjusted for the effects of capital expenditure, depreciation, disposals and inflation, as shown in Table 8.9.

Table 8.8 Commission's final decision, forecast capital expenditure, 2005–10

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Distribution system capex						
Growth market expansion	6.40	5.52	5.41	5.31	5.34	5.26
Growth capacity development	1.71	2.88	2.33	1.77	4.42	0.82
Stay in business	2.39	1.19	1.27	1.21	1.33	1.01
Total distribution system	**10.51**	**9.59**	**9.01**	**8.29**	**11.09**	**7.10**
Non-system capex						
Gas networks GIS system	0.50	0.00	0.00	0.00	0.00	0.00
Capitalisation of regulatory costs	1.60	0.00	0.00	0.00	0.00	0.00
Total non-system capex	**2.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total capex	**12.61**	**9.59**	**9.01**	**8.29**	**11.09**	**7.10**

Table 8.9 Commission's final decision, capital base roll-forward, 2005–10

	$ million, nominal					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Opening value	225.9	236.8	244.5	252.2	260.4	272.0
Plus capital expenditure	12.6	9.8	9.4	8.9	12.3	8.1
Less depreciation	7.4	8.1	8.6	8.4	8.7	9.0
Less disposals	0.05	0.05	0.05	0.05	0.06	0.06
Plus indexation	5.8	6.0	7.0	7.7	8.0	8.3
Roll-forward amount	**236.8**	**244.5**	**252.2**	**260.4**	**272.0**	**279.3**

9 Demand forecasts

ActewAGL's proposed access arrangement is based upon its gas demand forecasts for the tariff and contract markets. Demand forecasts are a key determinant of capital and operating expenditure, as they drive the level of new connections and the need to augment existing systems, as well as operational costs. More generally, they are also used to derive the prices needed to recover the required revenue over the regulatory period. Demand forecasts need to include estimates of consumption, peak demand and customer numbers, among other things.

Under the reference tariff policy proposed by ActewAGL, the service provider is exposed to volume risk. That is, if actual demand over the forthcoming access arrangement period exceeds the forecast demand, revenue will increase above the estimated revenue requirement. On the other hand, if actual demand is lower than forecast demand, revenue will be less than the estimated revenue requirement. In this light, ActewAGL has an incentive to promote usage over the forthcoming access arrangement period so that actual usage exceeds the forecasts for that period (or conversely, has an incentive to provide lower, rather than higher, forecasts for this access arrangement review).

9.1 Code requirements

Under section 8.2(e) of the Code, in determining whether to approve a reference tariff and reference tariff policy, the commission must be satisfied that any forecasts required in setting reference tariffs represent best estimates arrived at on a reasonable basis. The Code does not prescribe the manner in which demand forecasts must be arrived at by the service provider or assessed by the regulator.

The reference tariff and reference tariff policy should be designed with a view to achieving the objectives set out in section 8.1 of the Code (discussed in Section 5 of this decision).

In assessing the proposed access arrangement, the commission must take into account the factors set out in sections 2.24(a) to (g) of the Code.

9.2 Background and draft decision

9.2.1 2000 final decision

Residential tariff market

The commission's 2000 draft decision required ActewAGL to revise upward the residential market forecasts initially proposed by ActewAGL. ActewAGL translated the commission's draft decision volume forecasts into customer numbers by applying forecast average consumption to the draft decision requirement, which was considered by the commission to be reasonable.

The commission considered the effect of moving away from ActewAGL's linear extrapolation of new customers, and ActewAGL's assessment of the factors underlying new connections and the factors limiting them, and concluded that the evidence and arguments put forward by ActewAGL did not support the adoption of ActewAGL's proposed forecasts, but supported a lowering of the commission's draft decision requirement.

The commission required ActewAGL to adopt a 6% annual load growth for the residential market (representing the midpoint between ActewAGL's proposal and the commission's draft decision), to be applied from 2000–01.

Business tariff market

On the basis of the commission's analysis of information submitted by ActewAGL, zero load growth was applied to the business tariff market.

Contract market

The commission required ActewAGL to revise its contract market forecasts based on the actual 1998–99 figures and the load associated with the ACT urban bus fleet. After noting, among other factors, ActewAGL's advice that Action Buses did not intend to power its bus fleet with natural gas within the 2001 access arrangement period, the commission accepted ActewAGL's revised demand forecasts for the contract market.

9.2.2 ActewAGL proposal

ActewAGL provided volume forecasts for the residential tariff and business tariff markets, and volume and MDQ forecasts for the contract market. It

used 2002–03 as the base to forecast consumption for 2003–04 (the last year in the 2001 access arrangement period) and consumption over the forthcoming access arrangement period (2004–05 to 2009–10).

In some areas, ActewAGL subsequently amended its initial proposals, submitted to the commission in December 2003. The amendments made prior to the commission's draft decision are discussed in this section, and subsequent amendments are discussed in sections 9.3 and 9.4.

The residential tariff market

ActewAGL's forecast consumption and customer numbers for the residential tariff market (as proposed in December 2003) are set out in Table 9.1. The consumption forecast embodies an average growth rate of 3% per annum.

Table 9.1 Initial residential tariff customer numbers and volume demand, ActewAGL forecast, 2005–10

Year ending 30 June	2005	2006	2007	2008	2009	2010
Customers	98,527	101,803	104,946	107,971	110,889	113,713
Volume (TJ)	4,839	5,003	5,162	5,317	5,469	5,617

ActewAGL submitted that the key drivers of residential tariff market growth are:

- the number of new residences
- trends in average consumption by new customers
- the number of customers in existing residences converting from electricity to gas
- changes in consumption by existing customers
- consumption by new residential customers.

Its customer growth forecasts were estimated from independent sources, BIS Shrapnel and Queanbeyan City Council, and reflect average housing demand growth forecast over the forthcoming access arrangement period of 2,100 houses in the ACT (against 1,800 houses over the past few years), with 90.2% of new houses and 82% of other dwellings to be connected to gas. Growth in existing homes converting to gas was expected to continue to reduce, in line with recent history.

ActewAGL forecast that the average annual consumption per customer, both in new houses and in new medium-density and high-density dwellings, would reduce over the forthcoming access arrangement period. It argued that the reduction in gas consumption growth is driven by the introduction of more energy-efficient appliances, particularly hot water saving devices, and by increased awareness of energy efficiency.

Prior to the commission's draft decision, ActewAGL revised its initial consumption volumes as set out in Table 9.1, based on:

- reduction in forecast average usage growth for existing residential customers from 0.45% to 0.03% per year
- revision to forecast average annual consumption per customer in new houses and new medium-density and high-density dwellings, from 53.1 GJ in 2002–03 to 51.7 GJ in 2004–05 and 47.6 GJ thereafter, to 53.3 GJ in 2003–04, 51.7 GJ 2004–05 and 49.0 GJ thereafter
- revision to forecast average annual consumption per customer converting to gas from electricity, from 38.6 GJ over the forthcoming access arrangement period, to 36.4 GJ in 2003–04 and 2004–05, with an annual reduction of 0.5 GJ per annum thereafter.

Revised residential tariff customer numbers and volume forecasts as supplied by ActewAGL in June 2004 are shown in Table 9.2.

Table 9.2 Revised residential tariff customer numbers, volume demand, ActewAGL forecast, 2005–10

Year ending 30 June	2005	2006	2007	2008	2009	2010
Customers	98,126	101,576	104,894	108,092	111,184	114,181
Volume (TJ)	4,736	4,840	4,938	5,032	5,120	5,206

The business tariff market

In its December 2003 submission, ActewAGL submitted that consumption in the business tariff market was forecast to grow at an average rate of 1.4% per year between 2004–05 and 2009–10. For existing business tariff customers, the average consumption was forecast to fall by 0.06% a year (according to ActewAGL, this is the growth rate over the past four years). The net annual increase in business customers (new connections less disconnections) was

forecast to remain constant at 46 customers, the average for the past five years. Table 9.3 shows ActewAGL's original forecast business tariff market consumption for the forthcoming access arrangement period.

Table 9.3 Initial business tariff customer numbers, volume demand, ActewAGL forecast, 2005–10

Year ending 30 June	2005	2006	2007	2008	2009	2010
Customers	2,213	2,259	2,305	2,351	2,397	2,443
Volume (TJ)	1,473	1,494	1,515	1,535	1,556	1,577

ActewAGL subsequently amended the business tariff market forecasts in June 2004. It also emphasised that the forecast fall in average consumption for business tariff customers represents a continuation of historical trends which reflect the introduction of energy-efficiency measures, and that it is reasonable to assume that this trend will continue.

Revised business tariff customer number and volume forecasts as supplied by ActewAGL in June 2004 are shown in Table 9.4.

Table 9.4 Revised business tariff customer numbers, volume demand, ActewAGL forecast, 2005–10

Year ending 30 June	2005	2006	2007	2008	2009	2010
Customers	2,202	2,248	2,294	2,340	2,386	2,432
Volume (TJ)	1,426	1,426	1,427	1,427	1,427	1,427

The commission noted that ActewAGL's demand forecasts for the tariff market in the sections above take account of weather in two ways:

- ActewAGL's 'weather-normalised' consumption in the base year 2002–03, based on temperatures being warmer than average in this year
- ActewAGL's identified trend for reducing heating degree days (HDDs—a measure of coldness of climate) by 3.8 HDDs per year since 1976.

The commission also notes that weather has a major influence on residential and business gas demand. ActewAGL submitted that any significant trend to warmer (or cooler) temperatures should be taken into account in demand forecasts. Analysis by ActewAGL indicated a strong relationship between

the number of HDDs recorded at Canberra Airport and consumption by tariff customers on the ActewAGL distribution network. Based on 2003 data, each HDD increases consumption by 1.3 TJ.

ActewAGL submitted that its analysis confirms a trend to warmer temperatures in the ACT. The ActewAGL analysis is based on 37 years of historical data and shows a statistically significant declining trend in HDDs over time. HDDs recorded at Canberra Airport are reducing by an average of 5.4 HDDs per year. This trend is reflected in ActewAGL's revised business tariff volume forecasts.

The contract market

ActewAGL's December 2003 submission proposed that the total annual consumption quantity (ACQ) in the contract market is expected to decline at an average rate of 1.7% a year between 2004–05 and 2009–10. ActewAGL did not revise its forecasts for the contract market prior to the commission's draft decision.

Table 9.5 Contract market consumption, ActewAGL forecast, 2005–10

Year ending 30 June	2005	2006	2007	2008	2009	2010
ACQ (TJ)	1,057	1,040	1,023	1,007	990	973
MDQ booked (GJ)	5,695	5,604	5,512	5,419	5,327	5,235

ActewAGL expected the number of contract sites to increase by 1 to 39 sites over the forthcoming access arrangement period. Average consumption per contract customer was forecast to decline, as further energy efficiency initiatives, already introduced at some sites, are implemented in remaining sites and plant is upgraded.

9.2.3 Draft decision

The commission considered that the key drivers of gas demand in the ACT, Queanbeyan and Yarrowlumla relevant to assessing ActewAGL's demand forecasts are:

- economic factors relevant to ActewAGL's area, including gross state and regional product, changes to housing stock, household disposable income and employment

- changes to average use per customer related to trends in appliance penetration, efficiency and use—for example, use of space heater or gas central heating, gas cooking appliances and gas hot water (instantaneous or storage)
- fuel pricing—real price of gas, impacts of full retail contestability, pricing relative to other fuels (especially electricity) and price elasticity of demand
- major new industry or commercial developments
- new uses for gas—for example, cogeneration and natural gas for vehicles
- climate change and weather conditions that could affect winter demand
- numbers of single dwellings and multi-dwelling sites
- ACT Government or Australian Government energy policies, as well as town-planning requirements for reduced greenhouse gas emissions.

As set out in the draft decision, the commission engaged MMA to review ActewAGL's forecasts in accordance with the requirements of the Code. In assessing whether the forecasts are best estimates arrived at on a reasonable basis, the commission instructed MMA to investigate a number of matters[37] relating to the methodology, assumptions and other factors applied by ActewAGL in arriving at its forecasts.

After reviewing ActewAGL's initial and revised submissions, MMA prepared its own forecasts because it considered that the ActewAGL forecasts were not the best estimates arrived at on a reasonable basis. An explanation of the material differences in MMA's methodology, assumptions and forecast results from those of ActewAGL is provided in the draft decision.[38]

After considering the findings of MMA and the information provided by ActewAGL, the commission's preliminary view in the draft decision was that the latest ActewAGL forecasts at that time did not represent best

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[37] These matters are set out in Section 9.5 of the draft decision.
[38] Section 9.5 of the draft decision.

estimates arrived at on a reasonable basis, and the commission recommended that ActewAGL adjust the forecasts accordingly. In particular, the commission did not accept the average volume estimates for tariff customers provided by ActewAGL.

In its draft decision, the commission adopted the customer numbers and volumes shown in Table 9.6.

Table 9.6 Draft commission forecasts, customers and volume demand, 2004–10

Year ending 30 June	2004	2005	2006	2007	2008	2009	2010
Customers							
Tariff customers	96,320	100,328	103,824	107,188	110,432	113,570	116,613
Contract customers	38	39	39	39	39	39	39
Total customers	96,358	100,367	10,3863	107,227	110,471	113,609	116,652
Volumes							
Tariff (TJ)	5,996	6,198	6,371	6,534	6,692	6,847	6,999
Contract (GJ)	5,479	5,696	5,613	5,531	5,447	5,365	5,282

In calculating these figures, the commission:

- accepted ActewAGL's revised residential tariff customer number forecasts (and agreed to use an updated 30 June 2004 figure for the starting point in the final decision, along with the ActewAGL growth rate)
- accepted ActewAGL's business tariff customer numbers
- accepted ActewAGL's contract customer numbers
- adopted volumes per tariff customer calculated from MMA forecasts of residential and business customer numbers and volumes
- adopted interim contract customer volumes based on analysis by the commission's consultants MMA, subject to ActewAGL completing discussions with major customers and reporting results prior to the final decision.

9.3 Further submissions

ActewAGL recognised that the commission had rejected its forecast demand volumes and instead adopted volumes per customer recommended by the commission's consultants, MMA. ActewAGL states that it extensively discussed its demand forecasts with MMA and, while MMA did not agree with ActewAGL's forecasts, MMA was unable to present solid arguments as to why the ActewAGL forecasts were unreasonable. ActewAGL submitted that MMA has not provided ActewAGL with logic and reason for MMA's recommendations, predominantly with respect to the effect on new and existing customers of the implementation of BASIX[39], 'Think Water, Act Water' (TWAW) strategy, and savings from the use of hot water efficient appliances. ActewAGL submits that its forecast impacts of BASIX and TWAW are supported by several independent reports, and should therefore be considered reasonable.

ActewAGL believes that it has established that its forecasts meet the Code requirement that they be 'best estimates arrived at on a reasonable basis' and claims that this is supported by a review by consultants ACIL Tasman.

9.3.1 Submission on BASIX, TWAW and hot water appliances

ActewAGL states that it has undertaken extensive analysis of the forecast effects of BASIX, TWAW and the savings from the use of hot water efficient appliances. This analysis was presented to MMA in a separate report that drew upon three different studies to produce and validate its forecast. ActewAGL submits that it found that:

- MMA did not present solid arguments for disagreeing with the body of evidence in ActewAGL's report to substantiate its position regarding the reduction in gas usage from AAA fittings.
- MMA have the opinion that we have overestimated the introduction of AAA fittings. Their analysis of the ActewAGL position does not correlate to what we have submitted.

[39] The BASIX program requires all proposed residential developments to complete a BASIX certificate. The certificate is proof that the development meets the NSW Government's target to reduce water and energy use.

- There is reason to expect the take up rate for AAA fittings in new homes before 2007 [sic]. MMA have not taken into account the intent of the ACT Government with the TWAW Strategy in regards to the stated principles of equitability, best practice, and least cost. The least cost solution is to adopt the best practice of other states and mandate the use of AAA fittings before granting a Development Application. In fact, ActewAGL's position is already being validated. ACTPLA has implemented the Residential Sustainability Report (RSR) which determines the sustainability of a new development and renovations including AAA showerheads.

- MMA has not included the impact of TWAW across the whole market in their volume forecast, particularly existing dwellings, as indicated in ActewAGL's report. This grossly understates the impact of TWAW.

ActewAGL submits that as a result of these factors, the MMA demand forecast volumes understate the impact of TWAW and BASIX and do not represent the best estimate arrived at on a reasonable basis. ActewAGL urged the commission to consider ActewAGL's report on the impact of TWAW and BASIX in support of ActewAGL's forecast volumes.

ActewAGL also states that its approach to TWAW is being validated by the actions of the ACT Government via a recently announced water tune-up pilot program.

ActewAGL states that it should also be noted that the ActewAGL demand forecast is conservative because it:

- does not include the impact on the ACT business markets of TWAW, which would reduce gas consumption

- does not include the impact on Queanbeyan renovations under BASIX

- does not include the impact on Queanbeyan dwellings due to recent moves by the NSW government to review measures to enforce AAA fittings in existing dwellings.

9.3.2 Further submission on BASIX, TWAW and hot water appliances

As part of its submission on the draft decision, ActewAGL provided the commission with the model it used to calculate the impact on gas usage of BASIX, TWAW and the introduction of AAA hot water appliances.

After the commission received the model, the ACT Planning and Land Authority introduced new regulations requiring the installation of AAA showerheads and taps from 1 September 2004. The commission also identified some inconsistencies in the model received from ActewAGL, as well as additional information contained in various studies on the impact of AAA appliances on water usage. ActewAGL considered this additional information, and as the original model also excluded the impact of the BASIX program on new and existing dwellings in Queanbeyan, decided to submit a revised model utilising the additional information and more complete modelling of the impact of AAA devices on both ACT and Queanbeyan customers.

9.3.3 Submission on growth rate for volumes for existing customers

In its submission on the draft decision, ActewAGL maintains its position on the volume growth rate applied to existing customers but acknowledges that the growth value identified by MMA, and as used by the commission, is not significantly different from that used in its own forecasts.

9.3.4 Submission on volume for new customers

In its submission in response to the commission's draft decision, ActewAGL:

> … maintains that there is an identifiable trend downwards for the average volumes for new customers, and that given that trend ActewAGL has taken a conservative approach to forecasting new connection volumes by using the final year of actual data to project volumes into the future without continuing the downward trend. ActewAGL does however acknowledge that, should the average of the last few years be applied as recommended by MMA, it produces an average result not significantly different to that used by ActewAGL.

9.3.5 Submission on volume for business tariff market

ActewAGL noted that the commission has determined that the volume growth projected by MMA for the business tariff market is to be adopted. ActewAGL agreed that the longer term series, adjusted for the volume related to those customers identified as having transferred to contract status, is the most appropriate method to use. ActewAGL has noted, however, that 'the growth rate should be 0.9%, and not the rounded up 1% as disclosed by MMA in their final report of 28 June 2004'.

9.3.6 Submission on volume for contract market

ActewAGL has set out its views on MMA's recommendations previously and maintains that the forecast contract customer values included in the proposed access arrangement are reasonable.[40] ActewAGL completed a survey of major customers, as foreshadowed in the draft decision, and provided that survey to the commission in a separate confidential submission after the commission released its draft decision. The survey is discussed in Section 9.4.6 of this decision.

9.4 Further analysis

In determining the appropriate reference tariffs, customer numbers and volumes must be forecast for both the tariff market and the contract market. The tariff market consists of residential and small to medium-sized business customers. The contract market is typically made up of larger businesses.

9.4.1 Residential customer numbers

In its draft decision, the commission accepted ActewAGL's revised residential customer number forecasts, but proposed to use an actual 2004 starting number when the information became available. The growth rate proposed by ActewAGL and accepted by the commission was then to be applied to this updated starting figure to provide forecasts of customer numbers over the forthcoming access arrangement period.

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[40] MMA report, Chapter 7, contains a discussion on the recommended approach.

Since the release of the draft decision, ActewAGL has provided the commission with the actual residential customer number at 30 June 2004. After the growth rate proposed by ActewAGL and accepted by the commission is applied to that figure, the forecast residential customer numbers are those set out in Table 9.7. The commission considers these forecasts to be best estimates arrived at on a reasonable basis, as required by section 8.2 (e) of the Code. Table 9.7 also sets out the forecast residential numbers from the draft decision.

Table 9.7 Residential customer numbers

Year ending 30 June	2004	2005	2006	2007	2008	2009	2010
ICRC draft	94,164	98,126	101,576	104,894	108,092	111,184	114,181
ICRC final	93,913	97,875	101,325	104,643	107,841	110,933	113,930
Difference	–251	–251	–251	–251	–251	–251	–251

9.4.2 Business customer numbers

In its draft decision, the commission accepted ActewAGL's business customer numbers as best estimates arrived at on a reasonable basis. ActewAGL made no further submissions and provided no further information concerning business customer numbers, and no other party made submissions on this issue. The commission therefore remains of the view that the forecast business customer numbers proposed by ActewAGL, shown in Table 9.8, are best estimates arrived at on a reasonable basis.

Table 9.8 Business customer numbers

Year ending 30 June	2004	2005	2006	2007	2008	2009	2010
ActewAGL	2,156	2,202	2,248	2,294	2,340	2,386	2,432

9.4.3 Contract customer numbers

In its draft decision, the commission accepted ActewAGL's contract customer numbers as best estimates arrived at on a reasonable basis. ActewAGL made no further submissions and provided no further information concerning contract customer numbers, and no other party made submissions on this issue. The commission therefore remains of the view

that the forecast contract customer numbers proposed by ActewAGL, shown in Table 9.9, are best estimates arrived at on a reasonable basis.

Table 9.9 Contract customer numbers

Year ending 30 June	2004	2005	2006	2007	2008	2009	2010
ActewAGL	38	39	39	39	39	39	39

9.4.4 Residential customer volumes

ActewAGL submitted a revised model to the commission that attempted to capture the impact of the BASIX and TWAW programs in the ACT and Queanbeyan. The revised model contained assumptions based on information contained in various studies on the impact of AAA appliances on water usage and information from the ACT Government in relation to the mandating of AAA appliances. The assumptions used in the modelling included:

- a reduction in hot water usage due to the introduction of AAA showerheads and tap fittings
- 51% of existing residential gas customers have a gas hot water system
- a commencement date of 1 September 2004 for mandating the installation of AAA showerheads and taps within the ACT and Queanbeyan
- a current penetration rate of AAA showerheads of 32%
- a current penetration rate of AAA taps of 20%
- a gradual take-up rate of AAA showerheads and taps among existing customers and customers converting from electricity to gas.

The commission has reviewed the model and assumptions adopted by ActewAGL and considers the revised forecast residential demand volumes to be best estimates arrived at on a reasonable basis. These revised estimates, along with the commission's draft forecasts, are set out in Table 9.10.

Table 9.10 **Final residential volumes**

Year ending 30 June	2004	2005	2006	2007	2008	2009	2010
ICRC draft	4,574	4,763	4,923	5,074	5,219	5,361	5,501
ActewAGL revised	4,544	4,716	4,862	5,002	5,138	5,270	5,398
Difference	–30	–47	–62	–72	–81	–91	–103

9.4.5 Business customer volumes

In its draft decision, the commission adopted business tariff forecasts based on ActewAGL customer numbers and volumes per customer calculated from MMA data. In its submission on the draft decision, ActewAGL agrees that the methodology used by MMA in calculating the volumes is the most appropriate method to use if the growth rate adopted is 0.9% and not 'about 1.0%' as stated by MMA.[41] The commission has reviewed the MMA modelling and can confirm that the actual value of 0.9%, and not 1.0%, was used by MMA. The commission considers that the forecast business tariff volumes used in the draft decision and shown in Table 9.11 are best estimates arrived at on a reasonable basis.

Table 9.11 **Business customer tariff volumes**

Year ending 30	2004	2005	2006	2007	2008	2009	2010
ICRC draft	1,422	1,435	1,448	1,460	1,473	1,486	1,498

9.4.6 Contract customer volumes

In its draft decision, the commission adopted interim forecast contract customer volumes based on analysis by the commission's consultants, MMA. The commission adopted these forecasts subject to ActewAGL providing revised forecast contract customer volumes, based on completed discussions with the six major customers about ACQ and MDQ expectations for the forthcoming access arrangement period and a trend analysis of remaining customers.

[41] MMA report, p 70.

ActewAGL has provided the commission with the revised forecasts based on the discussions. The commission considers that these revised forecast contract customer volumes are the best estimates arrived at on a reasonable basis. Table 9.12 shows the forecast contract customer volumes set out in the draft decision and ActewAGL's revised figures, which the commission accepts.

Table 9.12 Contract customer volumes (GJ)

Year ending 30 June	2004	2005	2006	2007	2008	2009	2010
ICRC draft	5,479	5,696	5,613	5,531	5,447	5,365	5,282
ActewAGL revised	5,494	5,711	5,628	5,546	5,487	5,405	5,347
Difference	15	15	15	15	40	40	65

9.5 Final decision

In accordance with the analysis conducted in its draft decision, and taking into account the additional information submitted in response to the draft decision (as considered in sections 9.3 and 9.4 of this decision), the commission does not approve ActewAGL's original proposed revisions in relation to forecast tariff customer numbers and volumes (for residential and business customers) and requires the tariff customer numbers and volumes set out in Table 9.13 to be adopted in order for the revisions to the access arrangement to be approved. The commission accepted ActewAGL's original contract customer numbers as the best estimate arrived at on a reasonable basis. As discussed in Section 9.4.6 of this decision, the commission has also accepted ActewAGL's revised contract customer volumes. The commission considers the forecasts in Table 9.13 to represent best estimates arrived at on a reasonable basis and to achieve an appropriate balance between the various interests and factors in section 2.24 of the Code.

Table 9.13 Customer numbers and volumes

Year ending 30 June	2004	2005	2006	2007	2008	2009	2010
Customers							
Tariff customers	96,069	100,077	103,573	106,937	110,181	113,319	116,362
Contract customers	38	39	39	39	39	39	39
Total customers	96,107	100,116	103,612	106,976	110,220	113,358	116,401
Volumes							
Tariff (TJ)	5,966	6,151	6,310	6,462	6,611	6,756	6,896
Contract (GJ)	5,494	5,711	5,628	5,546	5,487	5,405	5,347

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendment is required.

Amendment 11

ActewAGL is to adopt the forecasts, including the tariff volume forecasts, shown in Table 9.13.

10 Cost of capital

10.1 Code requirements

Sections 8.30 and 8.31 of the Code provide that the rate of return used in determining a reference tariff should provide a return which is commensurate with prevailing conditions in the market for funds and the risk involved in delivering the reference service (as reflected in the terms and conditions on which the service is offered and any other risk associated with the delivering the service).

For example, the rate of return may be set on the basis of a weighted average of the return applicable to each source of funds (debt, equity and any other relevant source of funds)—that is, a weighted average cost of capital (WACC) approach—and determined on the basis of a well-accepted financial model, such as the capital asset pricing model (CAPM).

In general, the weighted average of the return on funds should be calculated by reference to a financing structure that reflects standard industry structures for a going concern and best practice.

However, other approaches may be adopted where the commission is satisfied that their use would be consistent with the objectives contained in section 8.1 of the Code.

In assessing the consistency of a WACC component and the overall rate of return with the requirements of the Code, the commission has considered whether the component and rate (including its effect on the broader access arrangement as revised) is consistent with the principles, procedures and parameters in section 8 of the Code.

The commission notes that where the reference tariff principles produce tension (for example in achieving the tariff design objectives in section 8.1 of the Code), the commission has an overriding discretion to resolve the

tension in a way which best reflects the statutory objectives of the law.[42] In resolving tensions, and generally in assessing the proposed revised access arrangement, the commission has taken into account the factors described in sections 2.24(a) to 2.24(g) of the Code.[43]

10.2 Calculating the WACC

ActewAGL's proposed revisions to the access arrangement, submitted in December 2003, and its response to the commission's issues paper and draft decision[44], set out ActewAGL's proposed WACC approach, WACC parameter values, material in support of the approach and values, and the single rate of return to be applied (in the form of a pre-tax real WACC).

ActewAGL's proposed WACC approach as it relates to key WACC formulas is essentially the same as that applied by the commission in its 2000 final decision and in its recent electricity and water and wastewater determinations. The commission accepted this approach in its draft decision. The approach, described in detail below, involves calculating a real pre-tax WACC that is then applied to the regulated asset base in order to determine the 'return on capital' component of the cost of service calculation.

In general terms, the WACC is the weighted average of the return on debt and the return on equity. The weights are determined by the relative levels of debt and equity funding. It is important to note that the WACC calculation is affected by taxation and imputation credits. One first calculates a nominal pre-tax WACC using the formula:

$$Nominal\ WACC = R_d \times \frac{D}{V} + \frac{R_e}{1 - t \times (1 - \gamma)} \times \frac{E}{V}$$

where:

[42] From paragraph 29 of the Australian Competition Tribunal's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8.

[43] *Re Michael; Ex parte Epic Energy (WA) Nominees Pty Ltd* (2002) 25 WAR 511 at [61]; [62; [85] and [136].

[44] Including the report prepared for ActewAGL by Network Economics Consulting Group, *Weighted average cost of capital for ActewAGL on its gas distribution assets*, February 2004. ActewAGL also provided follow-up advice in a letter dated 2 July 2004.

- R_e is the nominal pre-tax cost of equity
- R_d is the nominal pre-tax cost of debt
- E is the total equity
- D is the total debt
- V is debt plus equity
- t is the tax rate
- γ is the percentage of imputation credits.

The nominal WACC is then transformed into a real WACC by using the market transformation whereby the nominal WACC is adjusted for inflation.

The following equation demonstrates this transformation:

$$WACC = \frac{1 + Nominal\, WACC}{1 + CPI} - 1$$

where CPI is the forward implied 10-year annual inflation rate.

To complete the calculation of the WACC, the return on debt and return on equity calculations need to be explained. The return on debt (R_d) is calculated by adding a debt margin, including issuance costs, to the risk-free market rate:

$$R_d = R_f + D_m$$

where D_m is the debt margin.

The return on equity (R_e) is calculated by application of the CAPM. The CAPM formula is presented in the formula:

$$R_e = R_f + \beta_e \times (R_m - R_f)$$

where:

- R_f is the risk-free rate

- β_e *is* a measure of the correlation between an asset's risk and that of the overall market (known as the equity beta)
- R_m is the market rate of return
- $R_m - R_f$ is the market risk premium.

The equity beta can itself be calculated in various ways. For the purposes of its assessment of ActewAGL's proposed revisions to the access arrangement, the commission has used the Monkhouse formula:

$$\beta_e = \beta_a + (\beta_a - \beta_d) \times \left(1 - \left(\frac{R_d}{(1 + R_d)}\right) \times t \times (1 - \gamma)\right) \times \frac{D}{E}$$

where:

- β_a is the correlation between return to assets of the business and the market (known as the asset beta)
- β_d is the correlation between return to debt and debt generally in the market (known as the debt beta).

In applying these formulas to calculate the WACC, the commission has considered the following parameters proposed by ActewAGL:

- the tax rate
- the impact of dividend imputation credits
- the debt margin
- the market risk premium
- the asset beta, debt beta and equity beta
- the gearing ratio
- the risk-free rate
- the inflation rate.

The risk-free rate and the real risk-free rate are determined from the returns on Commonwealth securities, which are published by the Reserve Bank of

Australia (RBA).[45] The inflation rate is calculated using the Fisher equation:below:

$$CPI = \frac{1 + R_f}{1 + RealR_f} - 1$$

where $RealR_f$ is the real risk-free rate.

This methodology is the same as that proposed by ActewAGL.

10.3 Background and draft decision

10.3.1 2000 final decision

In its 2000 final decision, the commission used a pre-tax real WACC to determine the cost of capital for ActewAGL's reference services. In that decision, the commission first calculated a WACC range of 5.2% to 8.0%; taking into account the provisions of the access arrangement, ActewAGL's financial projections and other matters, including the objectives and factors in the Code, the commission then calculated the single pre-tax real WACC of 7.75%.

10.3.2 ActewAGL proposal

ActewAGL calculated a pre-tax real WACC using the CAPM approach for the forthcoming access arrangement period, adopting a statutory tax rate. ActewAGL assesses the WACC range as lying between 7.62% and 8.22%, and from this range has selected 7.9% as the appropriate rate of return. ActewAGL's proposed WACC components and its overall proposed rate of return (along with such values adopted in selected recent regulatory decisions) are set out in Table 10.1.

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[45] The nominal risk-free rate is determined from 10-year Treasury bonds and the real risk-free rate is determined from Treasury indexed capital bonds. These rates are available on the RBA's website at http://www.rba.gov.au. The commission uses the average return over the last 20 days for the risk-free rate and the weighted 20-day average of the August 2010 and August 2015 indexed bonds for the real risk-free rate.

Table 10.1 WACC parameters, ActewAGL proposal and other regulatory decisions

Parameter	ActewAGL proposal[a]	ICRC water and electricity[b]	IPART electricity[c]	ACCC gas[d]
Risk-free rate	5.65%	5.62%	5.9%	5.29%
CPI	2.33%	2.17%	2.5%	2.19%
Real risk-free rate	3.49%	3.38%	3.3%	3.03%
Market risk premium	6.5–7.0%	6.0%	5.0–6.0%	6.0%
Debt margin	1.43%	1.245%	1.025–1.225%	0.92%
Gearing	60%	60%	60%	60%
Gamma	0.40	0.50	0.50	0.50
Asset beta	—	0.40	0.35–0.45%	—
Debt beta	0.00–0.06	0.06	0.06–0.00	—
Tax rate	30%	30%	30%	23.5%
Equity beta (calculated)	0.98–1.09	0.90	0.78–1.11	1.00
WACC (post-tax nominal)	7.09–7.52%	6.51%	6.1–7.1%	6.50%
WACC (pre-tax nominal)	10.12–10.74%	9.31%	—	8.80%
WACC (pre-tax real)	7.62–8.22%	7.0%	6.1–7.5%	6.56%

a ActewAGL, *Response to the Independent Competition and Regulatory Commission's Issues Paper*, April 2004.

b ICRC, *Final Report and Price Direction—Water and Wastewater Prices in the ACT*, March 2004, and *Final Decision—Investigation into prices for electricity distribution services in the ACT*, March 2004.

c IPART, *NSW Electricity Distribution Pricing 2004–05 to 2008–09, Final Report*, June 2004.

d ACCC, *Final Decision on Access Arrangement for the Moomba to Sydney Pipeline*, October 2003

10.3.3 The form of the WACC

ActewAGL submits that a real pre-tax WACC (based on market transformation) is appropriate as it is consistent with the commission's previous regulatory practice.

In its draft decision, the commission proposed to accept the pre-tax real WACC approach. The commission noted that the pre-tax real approach and the nominal roll-forward of the capital base ensure that inflation is not double counted in the total revenue calculation, consistent with the requirements of section 8.5A of the Code. This pre-tax real approach is consistent with the commission's treatment of the WACC in its recent regulatory decisions on electricity and water.

10.3.4 The tax rate used in the WACC

ActewAGL submitted that the statutory tax rate of 30 cents in the dollar is appropriate given the relative cost, intrusiveness and complexity of calculating a more technically correct effective tax rate. ActewAGL stated that the likely cost of calculating an effective tax rate would outweigh the benefits of using a more technically correct estimate of the WACC.

The commission proposed to adopt the statutory tax rate. This position is consistent with its position in the 2000 final decision and in its recent regulatory decisions on electricity and water.

10.3.5 Dividend imputation credits

ActewAGL proposed to use a dividend imputation utilisation factor (or gamma) of 0.40 when calculating the WACC. ActewAGL claimed that the marginal investor in the Australian context is more likely to be an international investor who does not have access to Australia's dividend imputation credit system. While ActewAGL submitted that a gamma of zero is consistent with the marginal investor being an international investor, it proposed to apply a gamma range based on the midpoint of the range used by the commission in the 2000 final decision, of 0.3 to 0.5. ActewAGL provided information from Network Economics Consulting Group (NECG) in support of this proposal. NECG felt that there was no credible case for the commission to shift above its established position in favour of a range of 0.3 to 0.5.[46]

NECG also made the argument that international investors are likely to be the marginal investors, and that these foreign investors set the price for Australian securities.[47] The commission considered that, if the NECG model of the Australian stock market were true, most of the trades on a daily basis would be made by international investors, which is not the case.

The commission was not convinced by the arguments of ActewAGL and its consultants in support of lowering the imputation credit factor below the midpoint of the feasible gamma values, which range from 0 to 1.0.[48] While

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[46] NECG report, p 35.
[47] NECG report, p 32.
[48] The feasible range of gamma lies between 0 and 1 as follows:

the commission proposed to accept the midpoint value of 0.5, in its draft decision it invited additional submissions on this matter.

10.3.6 Debt margin

ActewAGL's proposed debt margin is 1.425%, comprising a cost of debt component of 1.30% and a component for debt-raising costs of 0.125%.

In its response to the commission's issues paper, ActewAGL submitted that recent decisions by IPART and the ACCC applied CBA Spectrum data on debt margins using inappropriate short-term averages, and therefore do not provide good guidance. ActewAGL further held that, in applying CBA Spectrum data, the Essential Services Commission of South Australia (ESCOSA) used bonds with 10 years to maturity, rather than short-term averages, on advice provided by National Economic Research Associates (NERA).

The margins associated with longer term securities in the CBA Spectrum data tend to have higher debt margins. NERA noted that the only BBB+ observation in the CBA Spectrum database with maturity greater than three years is Snowy Hydro, which has a nine-year maturity and a debt margin of 1.37%, in line with ActewAGL's proposed cost of debt component of 1.30%.

The commission noted that in its final electricity and water and wastewater decisions it had adopted a debt margin of 1.245%. This incorporated a 0.125% margin for debt-raising costs.

It also noted that recent ACCC decisions on Murraylink and the Moomba to Sydney Gas Pipeline used debt margins of 0.86% (for an A credit rating) and 0.92% (for a BBB+ credit rating).[49] Using similar credit ratings, IPART's

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- if the marginal investor is an international investor, they receive no benefits from the dividend imputation credit, and gamma is 0
- if the marginal investor is a domestic investor that is able to obtain full value of dividend imputation credits, gamma is 1.

[49] In a recent decision of the Australian Competition Tribunal, the tribunal implicitly accepted the approach of basing the level of the debt margin on the credit rating of the business and using the calculated debt margin as provided by CBA Spectrum. The question raised in the recent decision concerned the appropriate credit rating to use when basing this credit rating on

draft determination in regard to electricity distribution assumed debt margins within the range of 0.9% to 1.1%, excluding debt-raising costs.[50]

The final electricity and water and wastewater decisions were released by the commission in March 2004. The commission determined the debt margin in those decisions based both on regulatory precedent (the ACCC and IPART had recently published decisions with debt margins in the range of 0.9% to 1.1%) and on evidence that observed debt margins had trended down to well under 1% for an A credit-rated company.

The commission was not convinced that the debt market had changed materially since the electricity and water and wastewater decisions in such a way as to justify a higher debt margin than that determined earlier in 2004.

The commission noted that the Australian Competition Tribunal's decision in relation to the GasNet access arrangement included a debt-raising cost component of 0.25%. However, the tribunal's decision on this issue needs to be viewed in the context of its overall decision in relation to GasNet (including the effective rate of return applied in that decision, versus the rate of return embodied in the commission's draft decision).

The commission considered a debt margin of 1.12% (at the upper end of the range used by IPART and the ACCC) and a debt issuance cost of 0.125%, determining a debt margin of 1.245% to be consistent with the requirements of the Code, and sought additional information from ActewAGL as to why a debt margin of 1.425% should be adopted.

10.3.7 Market risk premium

ActewAGL has proposed a range for the market risk premium (MRP) of 6.5% to 7.0%. NECG, ActewAGL's consultant on the WACC, has suggested that the generally accepted range for the MRP among corporate finance professionals in Australia has been 6% to 8%. ActewAGL claimed that an

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comparator businesses. AGL was reported to have a credit rating of A in the Australian Competition Tribunal decision (*Application by East Australian Pipeline Limited* [2004] ACompT 8.)

[50] IPART, *NSW Electricity Distribution Pricing 2004/05 to 2008/09, Final Report*, June 2004.

MRP towards the midpoint of this range is more appropriate than the MRP of between 5% and 6% traditionally favoured by Australian regulators.

The commission noted that the MRP represents an estimate of the additional return (over the risk-free rate) needed by investors to invest in a diversified equity portfolio, and noted the MRP values set in recent regulatory decisions.

The commission also noted the results from numerous studies that have attempted to quantify the actual or observed MRP in the market. Those studies resulted in a significant range of estimates which are dependent on the averaging period and the inclusion of specific events, such as stock market corrections. The results of a number of the studies are MRP values within a range of 5% to 7%. The commission considered an MRP 6% to be consistent with Australian regulatory decisions for gas distribution pipeline assets and with the results of studies into observed MRP values.

10.3.8 Equity, asset and debt betas

ActewAGL has proposed a range for the equity beta of 0.98 to 1.09, with a debt beta of 0.00 to 0.06 and an asset beta of 0.40 to 0.48. ActewAGL noted that the regulatory precedent for gas distribution businesses has been to adopt an equity beta of between 1.00 and 1.20, while for gas transmission businesses this range has been between 1.00 and 1.30. The NECG paper provided by ActewAGL in support of its submission used Bloomberg data on utilities listed in overseas markets to determine asset betas. Based on an assumed zero debt beta and effective gearing of 60%, NECG determined that the international data suggest that the equity beta is 1.00.

The commission was not convinced that the regulatory precedents and international evidence submitted by ActewAGL and its consultants supported ActewAGL's proposed equity beta of 0.98 to 1.09, based on a debt beta of 0.00 to 0.06 and an asset beta of 0.40 to 0.48.

The commission's most recent determinations on equity betas were made in March 2004 for electricity and water. For both of these decisions, the commission applied an equity beta of 0.9. The 2000 gas decision set the equity beta in a range of 0.9 to 1.1, and the 1999 electricity and water and sewerage decisions set the equity beta in the range of 0.74 to 0.79. The commission believes that retaining an equity beta of 0.9 is consistent with these decisions. The commission set the equity beta higher in the 2000 gas

decision than in the 1999 electricity and water and sewerage decisions, but the resulting WACCs were comparable (7.5% for electricity and water in 1999 and 7.75% for gas in 2000). The commission also notes that the choice of an equity beta of 0.9 is consistent with IPART's June 2004 electricity decision of an equity beta in the range 0.78 to 1.11 (midpoint 0.94).[51]

The commission has re-evaluated the NECG data to exclude non-OECD (Organisation for Economic Cooperation and Development) countries.[52] The average asset beta for the 54 observations from OECD countries is 0.33. Applying NECG's approach results in an asset beta in the range 0.34 to 0.42 and a calculated equity beta in the range 0.76 to 1.04. The commission has used an asset beta of 0.40, which is not inconsistent with the estimation derived from the NECG data.

In regard to international comparisons, the commission also noted comments in a report by Allen Consulting Group (ACG) to the ACCC, to the effect that evidence from the North American and United Kingdom markets would support a view that the Australian regulatory estimates of equity beta values may overstate the true betas for regulated activities.[53]

The commission considered that a debt beta of 0.06[54] and an asset beta of 0.40, resulting in a calculated equity beta of 0.90, are consistent with regulatory precedent, the relevant international evidence and the requirements of the Code.

10.3.9 Gearing ratio

ActewAGL has proposed a gearing ratio of 60%, consistent with the 2000 final decision.

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[51] IPART, *NSW Electricity Distribution Pricing 2004/05 to 2008/09, Final Report*, June 2004.

[52] Data in the NECG report include observations from Brazil, Chile and Morocco, among other countries. The commission's view is that they are poor comparators to the Australian economy. The average estimated asset beta of the 19 non-OECD countries is 0.57.

[53] Allen Consulting Group, *Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities*, July 2002.

[54] The commission's value for the debt beta, 0.06, is within regulatory precedent. In the October 2003 decision on the East Australian Pipeline Limited access arrangement, the ACCC also selected 0.06 as the appropriate value for the debt beta. Observed values for the debt beta are as high as 0.28 (Queensland Competition Authority, *Final determination—Regulation of Electricity Distribution*, May 2001).

10.3.10 Nominal and real risk-free rates, implied inflation

The commission applied the nominal 10-year risk-free rate, as published by the RBA, to determine the nominal risk-free rate. The commission used the average of the rates published over the 20-day trading period ending 30 June 2004 to arrive at a nominal risk-free rate of 5.897%.

The real risk-free rate was calculated from Treasury indexed capital bonds for August 2010 and August 2015. Using the same averaging period as for the nominal risk-free rate, the commission arrived at a real risk-free rate of 3.201%.

The commission used the Fisher equation to determine the implied inflation rate over the period (2.612%). The commission indicated that it would use a date close to the final decision date to calculate the risk-free and real risk-free rates.

10.3.11 Draft decision

Based on the pre-tax real WACC approach, the commission applied the WACC parameter values as calculated above to arrive at the proposed rate of return for ActewAGL's gas distribution assets. The parameter values were chosen after consideration of the submissions received from ActewAGL and its consultants, and considering the requirements of the Code in relation to the rate of return. Based on this process, the commission calculated the overall pre-tax real WACC to be 6.8%. The relevant parameter values and overall WACC calculations are shown in Table 10.2 (in this case, ActewAGL's proposed parameters are updated for the most recent risk-free rates prior to the draft decision).

Table 10.2 Draft decision: WACC parameters and overall rates of return

Parameter	ActewAGL's proposal (updated)	Commission's value
Risk-free rate	5.9%	5.9%
CPI	2.6%	2.6%
Real risk-free rate	3.2%	3.2%
Market risk premium	6.5–7.0%	6.0%
Debt margin	1.43%	1.245%
Gearing	60%	60%
Gamma	0.40	0.50
Asset beta	–	0.40
Debt beta	0.00–0.06	0.06
Tax rate	30%	30%
Equity beta (calculated)	0.98–1.09	0.90
WACC (nominal post-tax)	7.18–7.62%	6.73%
WACC (pre-tax nominal)	10.26–10.89%	9.62%
WACC (pre-tax real)	**7.46–8.07%**	**6.82%**

10.4 Further submissions

The commission received two submissions in relation to the amendments set out in the draft decision regarding the WACC, one each from ActewAGL and the Energy Networks Association. The submissions criticise the commission's general approach to calculating the amendments to the WACC, address the commission's draft decision on specific parameter values used to calculate the WACC, and provide some new information concerning some of those parameters. These submissions are discussed below.

ActewAGL

ActewAGL's submission claimed that the commission was acting outside the requirements of the Code in determining its proposed amendments to the rate of return on capital. ActewAGL claimed that the commission rejected ActewAGL's proposal in favour of its own calculation and in doing so acted contrary to the principle in the Australian Competition Tribunal's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8 that:

> the power of the relevant Regulator to require amendments, or to itself draft and approve its own AA, does not arise until it is of the opinion that the AA proposed by the service provider does not comply with the Code, and in determining the question of compliance, it must act in accordance with section 2.24.[55]

ActewAGL has submitted that it is not the task of the commission under sections 8.30 and 8.31 of the Code to 'determine' the rate of return, but to assess the proposals presented by the service provider in terms of the Code. ActewAGL maintains that its proposed WACC range is reasonable.

In addition, ActewAGL has claimed that the commission's cost of capital:

- is at the bottom end of regulatory precedent in Australia
- is at the low end of any reasonable range
- would be lower than any other final decision for a gas access arrangement
- would be a full 72 basis points lower than the average of the most recent ACCC, ESC, IPART and Queensland Competition Authority (QCA) decisions
- is harsh by international standards.

ActewAGL nominated the CAPM as the financial model for determining the rate of return (referred to in section 8.31 of the Code). The commission has considered whether the financial models proposed by ActewAGL are well-accepted financial models (that is, whether they are financing structures that reflect standard industry structures for a going concern and best practice). The commission has assessed whether the rate of return determined on the basis of the ActewAGL model satisfies section 8.30 of the Code and achieves the objectives set out in section 8.1 of the Code, taking into account the factors set out in sections 2.24(a) to (g).

In its submission, ActewAGL stated that the commission's draft decision failed to give sufficient weight to the uncertainty surrounding estimates of the cost of capital for regulated businesses. In support of this argument,

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[55] From paragraph 30 of the Australian Competition Tribunal's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 6; (2004) ATPR 41–978.

ActewAGL cited the Productivity Commission report on the gas access regime[56], which held that uncertainty and asymmetric costs are associated with underinvestment or overinvestment in essential infrastructure if the rate of return is set below a prudent level.

Based on those views, ActewAGL submitted that the commission should be careful in applying the CAPM, particularly where application of the CAPM results in a low cost of capital based on an historically low risk-free rate.

ActewAGL also stated that the costs to society of underestimating the cost of capital are much greater than the costs associated with overestimating it. ActewAGL claims that there are asymmetric costs associated with the calculation of a cost of capital which is too low and therefore distorts investment signals in critical infrastructure investments. It supports this claim by reference to the government's response to the 2001 Productivity Commission review of the national access regime, whereby the government agreed to include, in Part IIIA of the *Trade Practices Act 1974*, the principle that regulated access prices should be set so as to generate expected revenue for a regulated service (or services) that is at least sufficient to meet the efficient costs of providing access to the regulated service (or services).[57] Based on this information, ActewAGL considers that the commission should not set a rate of return which reflects the absolute minimum efficient cost of capital, but should include a margin for error in favour of the infrastructure provider.

ActewAGL has also criticised the commission's individual parameter values used in the calculation of the cost of capital under the CAPM, including:

- the value of the market risk premium
- the debt premium
- the value of dividend imputation credits
- the estimates of asset, debt and equity betas.

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[56] *Review of the Gas Access Regime*, Productivity Commission Inquiry Report No. 31, 11 June 2004.
[57] From page 31 of the ActewAGL submission

The issues ActewAGL has raised in relation to the draft decision are discussed in detail in Section 10.5.

In addition to its comments on the conclusions of the draft decision, ActewAGL submitted an amendment to its proposed revisions to the access arrangement in order to incorporate a cost (at 21.6 basis points) for raising equity finance.

Energy Networks Association

The Energy Networks Association considers that the commission may have erred in its draft decision by:

- mischaracterising its task under sections 8.30 and 8.31 of the Code incorrectly, as one which requires the commission to 'set' or 'determine' a rate of return
- failing to consider approval of ActewAGL's proposed rate of return as one which falls in a legitimate and plausible range open to a service provider to propose
- failing to consider approval of the proposed cost of capital component of the proposed access arrangement because it did not accord with the commission's 'preferred' cost of capital estimate.

The Energy Networks Association submitted that the WACC estimate adopted by the commission in its draft decision is inconsistent with the risk characteristics of the ActewAGL gas distribution network. The association also submitted that high risks of regulatory error and underinvestment are created by the low cost of capital estimate.

The association notes that the estimated WACC included in the draft decision of 6.82% (real pre-tax) is one of the lowest costs of capital estimates for gas or electricity distribution networks in Australia, and that it also represents a low estimate when compared to relevant international decisions.

10.5 Further analysis

The submissions made to the commission can be characterised as having two components. First, the submissions assert that the commission's approach to the determination of the WACC does not accord with the Code and does not

sufficiently take into account precedents and decisions that ActewAGL considers to be relevant to the commission's assessment. The process described generally in Section 1.2.2 of this final decision, which is followed throughout the decision, is designed to ensure that the commission acts in accordance with the Code and takes relevant matters into account in interpreting and applying the Code provisions and does not take irrelevant matters into account. The second component in the submissions on the commission's draft decision centres on the reasonableness of individual WACC parameter estimates.

The commission's role, in considering the rate of return proposed by ActewAGL, is to satisfy itself that the rate of return proposed is consistent with the provisions of sections 3.4, 3.5, 8.1, 8.30 and 8.31 of the Code. The commission must take into account the factors set out in sections 2.24(a) to (g) in assessing the access arrangement proposed by ActewAGL and in resolving any tensions arising between the various objectives set out in section 8.1 of the Code.

Where the commission considers that the method of calculation of the rate of return proposed by ActewAGL does not reflect standard industry practice, or that the rate of return proposed by ActewAGL or the values assigned by ActewAGL to individual parameters used in the calculation of the rate of return, do not provide a return which is commensurate with prevailing conditions in the market for funds and the risk involved in delivering the reference service, the commission must not accept that method or the estimates provided. To do so would result in the commission accepting a rate of return which in the commission's view did not comply with sections 8.1, 8.30 and 8.31 of the Code.

The commission is entitled to substitute its own value or range of values for the rate of return or for parameters used in the calculation of the rate of return in circumstances if it considers that the rate or values assigned by ActewAGL fail to satisfy those Code provisions.

As commented in Section 10.2 above, the submissions on the draft decision did not dispute the key WACC formulae proposed by ActewAGL and applied by the commission in that decision. Instead, the submissions raised issues regarding the commission's application of the Code and the parameter values applied in calculating the WACC recommended in the draft decision. The specific issues raised by ActewAGL and the Energy Networks

Association, and the commission's consideration of and response to those issues, are addressed below.

10.5.1 Risk-free rate

ActewAGL submits that there is an inverse relationship between the risk-free rate and the market risk premium which affects the absolute level of the WACC. On this basis, ActewAGL argues that the MRP should be increased based on the historically low level of the risk-free rate (this issue is discussed further below, under 'Use of current risk-free rate').

CPI calculation

In the draft decision, the commission calculated the risk-free rate, the real risk-free rate and the implied forward CPI using the same method employed for the recent electricity and water and wastewater final decisions.[58] There is a slight discrepancy in the commission's approach to these calculations in the draft decision, which is rectified in this final decision.

In the electricity and water and wastewater decisions, the commission determined the real risk-free rate as the 10-year Treasury bond rate as published by the RBA. This rate (current and historic) can be found on the RBA's website and is published daily in the *Australian Financial Review*. Treasury bonds pay fixed coupons semi-annually and return the face value of the bond at maturity. The yield on a Treasury bond is determined by equating the present value of future payments with the current traded price of the bond. This yield is used in this decision as a proxy for the (nominal) risk-free rate.[59]

The real risk-free rate is based on Treasury indexed capital bonds. Indexed bonds are similar to standard bonds, but the future coupons and maturity payment are indexed every six months by the observed inflation rate. While the payments made on Treasury bonds are nominal in being fixed in the future, payments on indexed bonds adjust with the inflation rate and are

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[58] It appears that other regulators such as IPART and the ACCC also make this small error.
[59] In *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8, the Australian Competition Tribunal was satisfied that the use of a 10-year Commonwealth bond rate was a correct use of the CAPM.

therefore real. The implied yield on an indexed bond is therefore a real return. This yield is used in this decision as a proxy for the real risk-free rate.

The CPI is calculated from the risk-free rate and the real risk-free rate. The accepted approach is to calculate the CPI using the Fisher equation:

$$CPI = \frac{1 + R_f}{1 + \mathrm{Re}alR_f} - 1$$

where:

- R_f is the risk-free rate; and
- $RealR_f$ is the real risk-free rate.

The CPI calculated on the above basis is an implied forward CPI, as it represents the CPI as projected forward by the financial markets. This CPI is not necessarily the same as the forecast CPI provided by ActewAGL and used in ActewAGL's financial model of the business to roll forward the asset base and discount cash flows.

In its past calculations of the CPI, the commission has used the risk-free rate as published by the RBA. There is a small discrepancy between the term of the risk-free rate the commission uses and the term of the rate used for the real risk-free rate. The effect of this discrepancy is that the commission has used bonds of differing maturities to calculate the CPI and ultimately the WACC. The RBA's reported 10-year Treasury bond is in fact the yield on the longest maturity Treasury bond with maturity less than or equal to 10 years. The current risk-free rate has been determined using an actual bond of 8 years and 7 months maturity, while the real risk-free rate is based on an interpolated 10-year maturity. To accurately measure the implied CPI, the maturity of the bonds should match.[60]

To rectify this discrepancy in this final decision, the commission has interpolated an implied 10-year maturity for the risk-free rate, thus equating

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[60] Matching the maturities of the nominal and real risk-free rates ensures a consistent calculation of the inflation rate. The coupon rates should also match. The bonds used to determine the real risk-free rate have a real 4.0% coupon rate. The 2013 Treasury bond has a 6.5% nominal coupon rate and the 2015 Treasury bond has a 6.25% nominal coupon rate. As the estimated CPI is around 2.5%, the nominal and real coupon rates also match.

the maturities of the risk-free rate and the real risk-free rate. To do so, the commission has used Treasury bonds maturing on 15 May 2013 and 15 October 2015 and linearly interpolated the 10-year rate.[61] On 30 September 2004, the yield on the 2013 bond was 5.43% and the yield on the 2015 bond was 5.47%. The interpolated 10-year yield was 5.459%, which is 0.029% higher than the reported 10-year Treasury bond rate (reported as 5.43%—the yield on the 2013 maturing bond). The impact of this adjustment could move the WACC by up to 0.02.[62]

Use of current risk-free rate

In its submission on the draft decision, ActewAGL raised several issues regarding the absolute level of the WACC, individual WACC parameters and the level of the current risk-free rate. Its contention that there is an inverse relationship between the risk-free rate and the MRP is discussed in Section 10.5.2. ActewAGL has also submitted:

- that the WACC should be invariant to changes in the risk-free rate[63]
- that the commission should be cautious of lowering the equity beta in times of low risk-free rates[64]
- that a low WACC causes a risk of underinvestment.[65]

The commission is aware that the risk-free rate and the real risk-free rate are falling and that, as a consequence, the WACC will also decrease. However, the commission does not accept the argument that the WACC calculation should be adjusted in times of low risk-free rates.

The relationship between the risk-free rate and the magnitude of the WACC illustrates the dichotomy between the incentives facing a regulated business and the regulator. All other things being equal, a business would desire a higher return on capital. In determining the consistency of a WACC

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[61] There are also Treasury bonds maturing on 15 June 2011 and 15 February 2017. The commission has decided to interpolate based on the bonds nearest to 10 years on either side.
[62] A 0.02 change in the WACC approximately represents a difference of $50,000 per year for ActewAGL or $250,000 over the course of the price direction.
[63] ActewAGL submission on the draft decision, p 29.
[64] ActewAGL submission on the draft decision, p 27.
[65] ActewAGL submission on the draft decision, p 29 and Energy Networks Association submission on the draft decision, p 8.

component or overall rate with the requirements of the Code, the commission has considered whether the component or rate (including its effect on the broader access arrangement as revised) is consistent with the principles, procedures and parameters in section 8 of the Code. In assessing these matters, the regulator is to take into account, among other things, the factors described in sections 2.24(a) to 2.24(g) of the Code. These factors include not only the service provider's legitimate business interests and investment in the covered pipeline (section 2.24(a)), but the interests of users and prospective users (section 2.24(f)). Therefore, the process under the Code is to involve a balancing of interests. The ultimate level of the WACC is discussed in Section 10.6 of this final decision, and takes into account these factors.

The commission has considered whether the WACC should adjust to changes in the risk-free rate. The commission concludes below that the MRP should not be adjusted in times of low risk-free rates. In investigating the relationship between the level of the risk-free rate and the WACC, the commission first investigated the role of the risk-free rate in the WACC calculation.[66]

The risk-free rate enters directly into the determination of the cost of equity and the cost of debt. The cost of debt is the risk-free rate plus the debt margin and the cost of equity is the risk-free rate plus the equity beta multiplied by the MRP. The WACC is simply the weighted average of the cost of equity and the cost of debt.

In regard to the debt component of the equation, the risk-free rate, and especially the current risk-free rate, enters in a consequential manner. The practice of regulators under the Code is to use the average of the most recent 20 days of government bond yields to determine the risk-free rate. This would seem to arrive at an efficient cost—where an efficient firm making investment decisions at the beginning of an access arrangement period could borrow at a rate based on the current risk-free rate. Changes in the risk-free rate should therefore be directly factored into changes in the cost of debt.

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[66] An adjustment of the WACC for changes in the risk-free rate is a two-edged sword. If it is contended that when the risk-free rates are unusually low the WACC should increase, it must also be true that when risk-free rates are unusually high the calculated WACC should be decreased.

The equity component is more complex. The cost of equity is the risk-free rate plus the equity beta multiplied by the MRP. If the equity beta does not change with changes in the risk-free rate, changes in the risk-free rate should flow through to the cost of equity and ultimately into the WACC. The issue then becomes the relationship between the level of the risk-free rate and the value of the equity beta of the firm. A fall in the risk-free rate would not necessitate an increase in the firm's beta, because the risk profile of the business would not be affected as the risk-free rate declines. Thus, changes in the risk-free rate would pass through, as they pass through in calculation of the WACC. Pass-through would not, however, be on a one-to-one basis, given the effects of taxes, dividend credits and adjustments for the CPI.

ActewAGL asserts that there is a precedent for not passing through changes in the risk-free rate. In this regard it appeals to NECG's report on international comparisons of WACCs. ActewAGL's submission contains a figure showing the relationship between the 10-year bond rate and the return-on-equity decisions in the United States.[67] The application of this figure in the Australian context of the current review is flawed. The figure shows that, as the 10-year bond rate falls over time, the return on equity remains constant. The appropriate risk-free rate for this analysis is the real risk-free rate, rather than the nominal risk-free rate as proposed. It is a fundamental principle of macroeconomics that the real risk-free rate, which is much less volatile than the nominal risk-free rate, drives investment.[68]

Based on the discussion above, the commission considers that the current risk-free rate should be used in the calculation of the WACC.

10.5.2 Market risk premium

The risk-free rate and the MRP

ActewAGL claims that there is an inverse relationship between the risk-free rate and the MRP and states that there are both theoretical and empirical justifications for this assertion. ActewAGL also states that there is regulatory

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[67] ActewAGL submission, Figure 1, p 29.

[68] The classic text on macroeconomics by Stephen Turnovsky (Turnovsky S, *Macroeconomic Analysis and Stabilization Policy*, Cambridge University Press, 1977) has a detailed discussion on the appropriateness on using the real risk-free rate on page 12 and in following chapters.

precedent in support of this relationship and refers to regulatory experience in the United States. The implication of such an inverse relationship is that, in an environment of relatively low risk-free rates, a corresponding increase in the MRP would be required.

The MRP is the difference between the real return on equity and the real return on short-term Treasury bills.[69] This is normally calculated as an average of the premium of returns to equity minus the returns on the risk-free asset over a long-term horizon.

In economic literature, the MRP is also known as the equity premium. Much of the literature on the equity premium has focused on the magnitude of the premium. Indeed, it is often referred to as the *equity premium puzzle,* as the level of the premium of equity over risk-free bills is larger than can be explained by risk preferences.[70] In attempting to explain the level of the equity premium, the literature has focused on relationships between the equity premium and other macroeconomic variables. The goal is to develop a theoretical model of equity prices that explains the premium and is consistent with empirical observations.

The primary relationship examined is the relationship between equity returns and consumption patterns.[71] Consumption patterns show very little volatility, while equity returns vary significantly over time. Therefore, there would appear to be a low correlation between equity returns and consumption levels. Nevertheless, Lettau and Ludvigson have found that deviations from trend levels of the consumption to wealth ratios provide a good predictor of future excess returns to equity.[72] As ActewAGL points out in its submission,

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[69] Principle from Mehra R and Prescott E (1985), The equity premium: a puzzle, *Journal of Monetary Economics*, 15:145–161.

[70] Mehra and Prescott (1985) first termed the equity premium as a puzzle. They found the equity premium over the period 1889–1978 to average 6%. Kocherlakota (1996) is an excellent survey of the equity premium puzzle literature and concludes that a resolution of the puzzle has not yet been found. Kocherlakota N (1996), The equity premium: it's still a puzzle, *Journal of Economic Literature*, 35:42–71.

[71] For a survey of this literature, see Campbell (2001). Consumption and equity returns are linked in that investment in equity today represents a postponement of consumption today in favour of future risky levels of consumption. Campbell J (2001), Consumption-based asset pricing, in forthcoming *Handbook of the Economics of Finance*.

[72] Lettau M and Ludvigson S (2001), Consumption, aggregate wealth, and expected stock returns, *Journal of Finance*, 56:815–849.

Lettau and Ludvigson also demonstrate that there is a negative relationship between short-term excess returns and the short-term Treasury bill rate.[73]

In support of this empirical observation, ActewAGL provides a simple static utility maximising model that demonstrates a result consistent with those of Lettau and Ludvigson. This model shows that in static equilibrium a representative consumer with decreasing absolute risk aversion would expect a higher market risk premium when the risk-free rate is low.

ActewAGL, through its consultant NERA, also cites an article by Campbell and Cochrane as providing additional evidence that there is indeed an inverse relationship between the risk-free rate and the MRP.[74] That paper also utilises a consumption-based model to explain excess returns. As in the paper by Lettau and Ludvigson, the primary focus is not on the relationship between the risk-free-rate and the MRP but on the relationship between consumption levels and equity prices. In fact, Campbell and Cochrane state:

> We choose our model's functional form and parameters so that the risk-free rate is constant. We do this for several reasons. First, there appears to be only limited variation in the real risk-free rate in historical U.S. data, and the variation that does exist is not closely related to the business cycle or to movements in stock prices. Second, we want to show how the model can explain stock market behaviour entirely by variation in risk premia without any movement in the risk-free rate.[75]

The commission can find no evidence in the paper by Campbell and Cochrane that supports ActewAGL's position, especially with respect to the real risk-free rate.

The commission has considered whether the empirical data and theoretical assertions presented by ActewAGL—to the effect that the MRP is inversely related to the risk-free rate—provide sufficient and reasonable justification to increase the MRP if, in fact, current risk-free rates are low. The commission has found no evidence that supports the contention that there is an inverse relationship between the risk-free rate and the MRP.

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[73] *NERA Critique of ICRC Draft Decision on the Cost of Capital: A Report for ActewAGL* (NERA Report), August 2004, p 18.
[74] Campbell J and Cochrane J (1999), By force of habit: a consumption based explanation of aggregate stock market behaviour, *Journal of Political Economy*, 107:205–251.
[75] Campbell and Cochrane (1999), p 207.

Market risk premium in other regulatory decisions

Regulators under the Code have generally adopted 6% as the appropriate value for the MRP. No regulator under the Code, or any other economic regulator in Australia of which the commission is aware, has adopted an MRP contingent on the level of the risk-free rate. ActewAGL has not provided the commission with any evidence of such a decision.

ActewAGL instead argues that regulatory precedent exists in the United States. Because of the different approaches taken in the Unites States and Australia in determining the return on capital, the commission does not find this evidence compelling.[76]

NERA submits in its paper that in the United States the return on capital is calculated using the dividend-growth model (DGM). However, the DGM does not build up the cost of capital from returns to debt and equity where the return to equity effectively includes the level of riskiness of the regulated business as a component. Rather, under the DGM, equity returns are calculated as the sum of the dividend yield and the expected growth in dividends, and to make the calculation the current price of equity is needed. Given that many regulated businesses in Australia are government owned, using the DGM is problematic. While it may be the case that the cost of capital, as determined in the United States under the DGM, does not vary directly with the risk-free rate, it appears that this relationship is due to the approach to determining the cost of capital. Given that an entirely different approach to calculating the rate of return is taken in Australia, the commission considers the regulatory precedent identified by ActewAGL to be of limited value. The commission is not convinced that applying United States regulatory precedent in Australia reflects the standard industry structure for a going concern or best practice.

Theoretical and empirical evidence and the MRP

The commission does not find the theoretical and empirical evidence that there is an inverse relationship between the risk-free rate and the MRP presented by ActewAGL to be compelling, for the reasons set out below. In particular, the commission is concerned by the way this relationship has been measured in the material presented by ActewAGL.

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[76] The approach taken in the United Kingdom is similar to the Australian approach.

The MRP as prepared by ActewAGL and used by the commission is generally viewed as a long-run average calculation. It is common to use a period of at least 50 years to determine a value for the MRP. For example, Mehra and Prescott calculate the MRP over a 90-year period. The nominal and real risk-free rates adopted by the commission are 10-year rates.[77] The empirical evidence from Lettau and Ludvigson uses 30-day treasury bills as its proxy for the risk-free rate and the relationship between the risk-free rate and the excess returns looks at returns one-quarter of a year in advance. That is, the risk-free rate is correlated with expected excess returns only 90 days ahead. Short-term measures do not imply a long-term relationship. The Lettau and Ludvigson study cited above uses deviations from long-term expected consumption to wealth ratios as the component relating to excess returns. In this regard, ActewAGL's consultants concede that:

> Other work has found an insignificant relation between long-term rates and the market risk premium.[78]

Accordingly, the commission is not convinced that the short-term relationship between the risk-free rate and expected excess returns presented by ActewAGL indicates any long-term relationship. The commission is therefore not convinced that the empirical evidence from Lettau and Ludvigson is sufficient justification to increase the MRP.

The commission has further considered whether the nominal risk-free rate or real risk-free rate is the appropriate benchmark.[79] The methodology that ActewAGL has proposed, consistent with the approach described in Section 10.2.1 above, is to calculate a pre-tax real WACC. The MRP used to determine the WACC is based on the real risk-free rate. Therefore, ActewAGL would need to demonstrate that the real risk-free rate is historically low and that the difference from the historical average over the past 50 years is statistically significant. ActewAGL has not provided this information.[80] The commission's own investigations show that, while the

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[77] Refer to *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8 at [48].
[78] NERA Report, p 17.
[79] The difference between the nominal and real risk-free rates is the expected level of inflation. For government securities of very short duration (30 days), the real returns and the nominal returns will be every close to each other as the effect of inflation or more accurately expected inflation will be small.
[80] ActewAGL has not provided any measurement of the adjustment to the MRP that should be made and therefore the commission has no guidance as to how large an adjustment the

real risk-free rate may be low compared to the past decade, it may actually be high compared to the real risk-free rate of 30 to 40 years ago.[81]

The commission considers the theoretical and empirical evidence presented by ActewAGL to be unconvincing. The model utilised by ActewAGL is a simple static model of utility maximisation. The commission accepts that in this simple model the relationship is theoretically valid, but considers the measurement issues not dealt with in the model to be significant, such that it is not a financing structure that reflects standard industry structure for a going concern and best practice. As a static model, the model does not capture the full complexities of dynamic phenomena. That is, the model only corresponds to short-term risk-free rates and excess returns. It does not demonstrate with any clarity whether short-term fluctuations in the risk-free rate correspond in any meaningful way to changes in a long-term measure, such as the MRP. Table 10.3 shows the returns and the standard deviation of returns from investing in 10-year Treasury bonds over the past three decades.

Table 10.3 10-year Treasury bond returns

Decade	Mean return	Standard deviation
1980s	11.25%	8.83%
1990s	11.94%	8.55%
2000s	7.38%	6.74%

As can be seen, the mean return in the 2000s is lower than the return in the 1980s and 1990s. However, it is also the case that the standard deviation of returns is lower in the 2000s than in the preceding decades. The effects of a

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commission would need to make in the current economic climate. While the commission has determined that this adjustment to the MRP is not reasonable given the economic evidence and the lack of any Australian precedent, the commission would be likely to make an imprecise adjustment without corresponding guidance from the business. The conclusion may have been that the commission would have accepted the arguments but not included the adjustment because of the measurement issues.

[81] See for example Fraser B (1991), Three decades of real interest rates, *Reserve Bank of Australia Bulletin*, October, pp 6–12. Fraser states that the historical average long-term real interest rate is around 1.5%, while he does acknowledge that there is considerable volatility in real interest rates (p 7).

lower risk-free rate would be counteracted by the relatively stable risk-free rate in the 2000s when determining the level of the MRP.

The commission considers that the theoretical and empirical evidence provided by ActewAGL is insufficient to demonstrate an inverse relationship between the risk-free rate and the MRP.

The commission does not consider that the information and argument presented by ActewAGL support an adjustment to the proposed MRP based on the current low risk-free rate. The commission considers that an MRP of 6.0% is supported by the available information. In reaching this view, the commission was informed by empirical evidence and regulatory practice.[82]

10.5.3 Debt margin

Setting the debt margin within the WACC approach described in Section 10.2.1 is a two-step process. The first step is to ascertain the credit rating (or range of credit ratings), and the second step is to apply this credit rating to the debt margin. There are two approaches for determining a regulated firm's credit rating:

- One approach is to use a benchmark. This approach was the subject of the recent decision by the Australian Competition Tribunal in the *Application by East Australian Pipeline Limited* (EAPL) [2004] ACompT 8.[83] In that case, the ACCC adopted a benchmark credit rating from comparable businesses.
- The alternative approach is to determine a credit rating based on financial modelling of ActewAGL's gas distribution business. This

[82] In its 2000 draft decision, the commission stated: 'Most estimates of the MRP are based on long term data series. The underlying assumption is the MRP is constant. However there is no reason for this to be so. Finance theory suggests the MRP is a function of investor risk preference and other variables such as interest rates, investment opportunities, savings patterns and wealth and wealth. These factors vary over time.' (p 46) This statement agrees with the observations in Mehra and Prescott and Lettau and Ludvigson that the MRP does vary over time and may vary observationally in a statistically significant manner with other economic variables. This statement does not endorse adjusting the long-term MRP to match changes in the level of short-term variables, as has effectively been proposed by ActewAGL. It merely states that in the short-term the MRP may be variable.
[83] Application by East Australian Pipeline Limited [2004] ACompT 6; (2004) ATPR 41–978.

would take into account, for example, the outcomes of the forthcoming access arrangement.

In its submission, ActewAGL addresses both approaches to determining the debt margin. Table 8.3 of ActewAGL's submission on the draft decision contains a list of 23 regulated businesses, the markets those businesses are engaged in, and their respective credit ratings. From this set of businesses, ActewAGL determines a reference group that ActewAGL could be benchmarked against. ActewAGL also claims that the commission's draft decision would result in a speculative-grade credit rating and that ActewAGL should therefore receive a higher debt margin. The commission addresses both of these approaches below, first demonstrating that ActewAGL has improperly applied the decision from *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8, and then calculating ActewAGL's hypothetical credit rating arising from the outcome of financial models based on advice from Standard & Poor's.

In relation to the first approach, the Australian Competition Tribunal in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8 ruled directly on the determination of the debt margin by the ACCC for EAPL's gas transmission business under the Code. The tribunal determined the appropriate benchmark credit rating for the determination of the debt margin. It did not reject the use of a benchmark approach for the determination of the debt margin. The commission notes that the Code expressly provides for such an approach to be adopted, requiring in general that the weighted average of the return on funds should be calculated by reference to a financing structure that reflects standard industry structures for a going concern and best practice (section 8.31 of the Code). The tribunal accepted the approach of benchmarking only against like businesses. Of the four businesses selected by the ACCC against which to benchmark EAPL, the tribunal found that only one was exclusively a gas transmission business akin to EAPL, and that that firm's credit rating was therefore the correct credit rating to use for benchmarking purposes. The implication of the decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8 is that, if the commission were to determine a credit rating, a benchmarking exercise against like businesses is the correct methodology.

In its submission, ActewAGL has included a table of the credit ratings of 23 utility businesses, of which nine are identified as being gas retail,

distribution or transmission businesses. To benchmark, ActewAGL adopts the following approach:

> Clearly, the dominant explanation of credit rating is government ownership—with all of the seven top ranked companies being government owned. When these businesses are excluded there are six privately owned businesses with either gas distribution or gas transmission assets. Five of those six have a credit rating of BBB or BBB–. Only AGL, with a credit rating of A, has a credit rating of above BBB. (Moreover, this credit rating is largely explained by the fact that AGL has a substantially lower debt gearing than both other gas companies and the assumed regulatory gearing of 60%.) This is strong evidence that ActewAGL would have a BBB credit rating if it were a standalone gas transport business.[84]

The commission notes that ActewAGL's benchmark businesses exclude government businesses, although ActewAGL is itself 50% owned by the ACT Government. ActewAGL also includes GasNet Australia and Duke Energy Australia, which, according to ActewAGL's information, are transmission businesses.

After adjusting the ActewAGL data by adding back government-owned businesses and by excluding transmission businesses, the commission is left with seven comparable businesses. These businesses and their credit ratings are Country Energy (AA), EnergyAustralia (AA), AGL (A), Origin Energy Ltd. (A–), Alinta Ltd (BBB), Envestra Ltd (BBB), and TXU Australia Holdings Ltd (BBB). The simple average credit rating of these seven comparable businesses would be a minimum of A–.

The alternative approach to determining ActewAGL's credit rating is to use a credit rating based on indicative financial ratios. These financial ratios are calculated based on the outcomes of the current review. ActewAGL claimed that the commission's draft decision would result in a credit rating of B. This is not consistent with the commission's analysis (presented in Section 11 of this final decision), which calculates ActewAGL's credit rating to be within a range of BBB to A.[85]

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[84] ActewAGL submission, p 44.

[85] The commission's determination of ActewAGL's credit rating in Chapter 11 is an A credit rating for five of the next six years, with one year rated as BBB. Standard & Poor's credit ratings, as set out in table 11.1, do not provide for a credit rating of BBB+. However, as the

If the range of credit ratings of BBB+ to A is adopted, the next step is to obtain the debt margins associated with these rankings. The commission has obtained debt margins based on CBA Spectrum data. The most recent CBA Spectrum data is given in Table 10.4.

Table 10.4 CBA Spectrum data on debt margins

Credit rating	A	A–	BBB+	BBB
Debt margin (%)	0.82	0.90	0.99	1.09

Note: corporate bond yields taken from Standard & Poor's CreditFocus, September 2004, p 39, corresponding risk-free rate as at 24 August 2004 of 5.618%.

Adding ActewAGL's proposed debt-raising costs of 0.125% results in debt margins in the range of 0.945% (for an A rating) to 1.215% (for a BBB+ rating). ActewAGL sought advice from Westpac Institutional Bank, which reported an 'all-in spread to CGS' (Commonwealth Government securities) of 1.27–1.32% for an A rating to 1.47–1.52% for a BBB+ rating.[86] These percentages are significantly higher than the CBA Spectrum data for the reason that these values do not necessarily represent the competitive cost of debt financing. ActewAGL points out that the Westpac range for a BBB credit rating is entirely above its proposed value of 1.43%. Given that this is only one quote on debt margins and CBA Spectrum effectively represents the competitive level of debt margins, the commission concludes that there is no reason to consider a debt margin above 1.43%. The commission has reached this conclusion based on its interpretation of the level of the debt margin as provided by the CBA Spectrum data as evidence of the level of the prevailing market conditions, as required by section 8.30 of the Code. The commission does not consider a single quoted rate as indicative of prevailing market conditions, and notes that the CBA Spectrum data is based on actual corporate bond rates.

On the basis of the above, noting in particular the possibility that the debt margin may be well below 1.43%, the commission does not consider that the information presented by ActewAGL supports its proposed debt premium of 1.43%, but considers a range for the debt margin of 1.245% to 1.43% to be

weighted average score calculated in table 11.5 is 7.7, the commission interprets this as a BBB+ rating.

[86] 13 August 2004, letter to Maria Storti (CFO, ActewAGL) from Westpac Institutional Bank.

supportable. The commission bases this conclusion on its determination that ActewAGL's credit rating should be in the range of BBB+ to A, and that the corresponding debt margin associated with businesses with credit ratings of BBB to A would be in the range of 1.245% to 1.43%. This represents the range originally proposed in ActewAGL's December 2003 submission.

10.5.4 Dividend imputation credits

The commission notes that ActewAGL argued in its original submission in favour of a range for gamma of 0.4 to 0.5 and that, based on the material set out in its submission on the draft decision (including work by NERA and Professor Grundy), it subsequently revised the range to 0 to 0.5 (with 0.25 being a reasonable value). The commission has considered the material presented in ActewAGL's submission on the draft decision.

In the WACC approach described in Section 10.2.1, the gamma parameter attempts to capture the proportion of franking credits used by shareholders. Franking credits are used by shareholders to offset tax liabilities. The value of gamma used is an issue in considering returns to investors, because franking credits can be claimed by domestic shareholders but not international investors. If gamma is set to one, this implies that shareholders receive the full benefit of tax paid at the corporate level. If it is set to zero, shareholders cannot receive any benefit from corporate tax paid. Domestic investors can potentially benefit from the tax being paid at the corporate level, whereas international investors cannot.

Two approaches may be taken to determine the level of gamma:

- One approach is to argue on theoretical grounds that the value of gamma must be in equilibrium, consistent with the CAPM. The theoretical evidence on the appropriate level of gamma is often polarised, with theoretical values of either zero or one most commonly given as the 'true' value.

- The alternative approach is to estimate the value of gamma from stock market (or related market) data. This approach also yields estimates of gamma from zero to one.[87]

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[87] See IPART, *Electricity Distribution, 2004*, p 227, Table A7.5 discussed below.

In its submissions to the commission, ActewAGL has provided evidence based on both of these approaches. The commission's consideration of that evidence is detailed below.

The theoretical argument over the level of gamma often focuses on the definition of the marginal investor. In equilibrium, under CAPM all investors are marginal investors—whether the marginal investor is a domestic investor or an international investor is not relevant. ActewAGL's consultant, NERA, has accepted this argument, although it asserts that dividend imputation credits received by domestic shareholders have no value in relation to the calculation of the WACC.[88] NERA argues that because the Australian stock market represents only a fraction of the international market, and Australian investors represent only a fraction of international investors, the value of Australian franking credits is insignificant.

An alternative view on the level of gamma is expressed by Lally.[89] This view is based on the apparent anomaly of using the Australian market to set some components of the CAPM while using the international market to set others. For example, an MRP value of 6% is applied in Section 10.5.2. This is appropriately based solely on Australian evidence, not on international evidence where the rate is lower and is influenced by factors not relevant to the current Australian circumstances. Lally argues that it seems incongruent to apply an MRP based on Australian experience (which appears high against international MRP values), while at the same time claiming that the internationalisation of capital markets results in a theoretically appropriate level of gamma at zero.

Within Australia, imputation credits are available to, and used by, domestic investors. While it can be assumed that domestic investors in Australian businesses will take into account the level of imputation credits when making their optimal investment decisions in equilibrium, the level of expected franking credits is a factor in the expected return for investments in Australian businesses. Accordingly, gamma cannot be zero for domestic investors. In fact, Lally argues that the level of gamma should be close to one.

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[88] NERA, *Value of Gamma for Regulatory Purposes*, August 2004, p 10.
[89] Lally M (2002), The cost of capital under dividend imputation, report prepared for the ACCC.

The range of theoretical views on the level of gamma is mirrored by the range of empirically estimated levels of gamma. ActewAGL and its consultant NERA cite a recent paper by Cannavan, Finn and Gray which argues that the value of gamma should be zero.[90] Cannavan et al use the prices of derivative securities to infer the value of gamma. While the methodology and results presented by Cannavan et al are interesting, and could potentially shed light on this complex issue, there is no other evidence to support the extreme view that gamma should be equal to zero. In fact, Cannavan et al conclude that:

> Further research into the value of imputation tax credits is of great practical importance to reliably estimate a firm's cost of capital. Of particular importance is the need to estimate the value of these credits for individual companies. As the market for ISFs, LEPOs, and other derivatives becomes more liquid for more companies, it will become increasingly possible to estimate the value of imputation credits for more individual companies using the framework developed in this paper.[91]

In the absence of company-specific or industry-specific evidence (at either the broader utility level or at the narrower gas distribution level) the commission does not accept that there is sufficient evidence at this time to support the view that the appropriate empirically estimated level of gamma is equal to zero.

IPART cites seven studies on the level of gamma (including the previously discussed paper by Cannavan et al) and finds the level of empirically estimated gamma to be between zero and one, with most studies estimating a gamma close to 0.5. Only Cannavan et al estimate gamma to be below 0.3. The empirical evidence on gamma is therefore no more compelling than the theoretical evidence.

When assessing the appropriate level for gamma, the commission considers that gamma cannot be treated in isolation. It is reasonable for there to be consistency between the parameters in the WACC in terms of whether they represent domestic or international parameters.

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[90] Cannavan D, Finn F and Gray S (2004), The value of dividend imputation credits in Australia, *Journal of Financial Economics*, 73:167–197.
[91] Cannavan et al, p 193.

Based on the above considerations, the commission is not convinced that the evidence put forward by ActewAGL shows that the value of gamma should be equal to zero. Nor is the commission convinced that gamma should be set to one. The conclusion reached by most regulators in Australia has been to set gamma at 0.5.

Having considered the theoretical and empirical evidence discussed above, the commission considers that the background material and analysis support a gamma range of 0.3 to 0.5.

10.5.5 Equity beta

ActewAGL's submission of December 2003 argued that the reasonable level for the equity beta was within the range of 0.98 to 1.09. The commission did not consider that this range satisfied the requirements of the Code, and in its draft decision proposed an equity beta value of 0.9 in accordance with the requirements of the Code. ActewAGL's submission in response to the draft decision argued that an equity beta of 0.9 would not adequately compensate ActewAGL for systematic risk. In addition, ActewAGL submitted that a value of 0.9 would be contrary to regulatory precedent, reflects an improper evaluation of empirical evidence on equity betas, and would not take into account the contention that gas distribution is riskier than electricity distribution.

Gearing and the equity beta

In its response to the draft decision, ActewAGL expressed concerns about the commission's consideration of the relationship between the level of gearing and the equity beta. The commission accepts the criticism of ActewAGL in that the commission's wording in the draft decision in characterising the equity beta as a measure of systemic risk is imprecise. ActewAGL, however, extends its argument to submit that an equity beta of 1.5 would be justified, based on the 60% gearing assumption.

The equity beta measures non-diversifiable risk faced by investors in a particular stock, relative to the risk of the market portfolio. Since debt holders have a prior claim on a business's cash flows before equity holders, higher gearing implies a higher equity beta when all other factors are held constant. That is, two businesses identical in every respect except for the level of gearing would have different equity betas, with the higher geared business having the a higher equity beta. Conversely, two businesses with

the same equity beta of 1 but different levels of gearing would possess the same level of systematic risk, as faced by equity holders compared to the market portfolio. The commission takes the view when describing ActewAGL's equity beta that implicit in this statement is the underlying assumption of a 60% gearing ratio. Therefore, the commission's statement in the draft decision regarding equity betas greater than 1 should correctly be qualified with a statement of the degree of leverage.

ActewAGL points out that the average beta in the former infrastructure and utilities group was 1.0, as reported in the ACCC's Powerlink and Electranet electricity transmission decisions.[92] The average level of gearing for this group is reported as 40%.[93] Based on these specific pieces of information, and ActewAGL's notional gearing of 60%, ActewAGL is correct in calculating the equity beta to be 1.5. However, while the commission accepts ActewAGL's calculation methodology, it rejects the data applied by ActewAGL. The infrastructure and utilities group cited by ActewAGL includes a much broader selection of businesses than gas and electricity transmission and distribution. The infrastructure and utilities group includes railroads, ports, airports and other infrastructure providers. The commission does not consider this to be an appropriate reference group for arriving at a return which is commensurate with prevailing conditions in the market for funds and the risk involved in delivering the reference service (section 8.30 of the Code). As noted below under 'Examination of the empirical evidence', the empirical evidence supports much lower estimates for comparable equity betas.

Regulatory precedent

In its submission, ActewAGL makes several statements with respect to the commission's draft decision on the equity beta and regulatory precedence. ActewAGL claims that the commission, in choosing an equity beta of 0.9, chose an equity beta below that of all other energy regulators in Australia except for the QCA in 2001, and that no regulator has chosen a debt beta of 0.06 and an asset beta of 0.40 concurrently.[94] The commission accepts that its draft decision has resulted in an equity beta that appears to be outside regulatory precedent, noting the exceptions of the QCA's 2001 decision and

[92] ActewAGL submission, p 33.
[93] ActewAGL submission, p 33.
[94] ActewAGL submission, pp 34–35.

the commission's 2004 final electricity decision. The commission also notes that IPART's 2004 electricity decision adopted a range for the equity beta of between 0.78 and 1.11, and that 0.9 is only slightly below the midpoint of this range. The commission's final decision on the equity beta results in a range of 0.9 to 1.09, which is not inconsistent with regulatory precedent.

Examination of the empirical evidence

In its response to the draft decision, ActewAGL argues that the commission has incorrectly interpreted the NECG data on asset and equity betas by improperly re-levering the asset beta using a positive debt beta. Further, NERA goes on to attach confidence intervals to the NECG data and the evidence from the Allens Consulting Group (ACG) report cited in the commission's draft decision. NERA also questions the appropriateness of the commission's restriction of the NECG data to OECD countries.

As part of ActewAGL's original submission of proposed revisions to the access arrangement, NECG provided an analysis of the WACC for gas distribution assets.[95] The NECG report contained a sample of the asset and equity betas for 73 gas distribution businesses around the world. NECG found the mean asset beta to be 0.39, and from this recommended that the range of the asset beta should be from 0.40 to 0.48. The commission removed from this set of businesses the non-OECD observations, reducing the number of gas distribution businesses to 54. NERA comments on his approach, stating:

> The Commission appears to believe that the NECG sample could be improved by removing observations from non-OECD countries. We do not necessarily agree with this assumption …[96]

The commission considers its approach to be reasonable, as it is based on the standard economic practice when making international comparisons of separating developed from developing countries.

ActewAGL's consultant, NERA, also states that the commission improperly used the Monkhouse formula when re-levering the asset beta to calculate the equity beta. The commission found the mean asset beta from the OECD

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[95] NECG, *Weighted mean cost of capital for ActewAGL on its gas distribution assets*, February 2004.
[96] NERA Report, p 6.

subset of the NECG data to be 0.33. The commission then proposed a range for the asset beta from 0.34 to 0.42, mimicking NECG's process for selecting a range for the asset beta strictly above the point estimate for that parameter. The commission's approach in its draft decision was to re-lever the asset beta using a debt beta of 0.06 for the bottom of the range and a debt beta of zero for the top of the range.[97] NERA argues that the correct methodology would be to use a debt beta of zero for the entire range when re-levering using the Monkhouse formula, as the asset betas were de-levered using a debt beta of zero.

The commission acknowledges that it was in error when re-levering the asset beta into an equity beta in the draft decision. Having accepted a value for the debt beta of 0.06, the commission believes that the correct approach is to calculate the equity beta from the range of asset betas (0.34 to 0.42) using the debt beta of 0.06 for the entire range, not zero as argued by NERA.

The above analysis, as contained in the commission's draft decision, did not seek to endorse the NECG approach, but sought only to replicate the methodology adopted by NECG. Therefore, it is important to correctly interpret the asset beta range of 0.34 to 0.42 used by the commission. The range calculated by the commission is an indicative range of possible asset betas for ActewAGL's gas distribution business, calculated using the same approach as NECG. The mean of the OECD gas distribution business asset betas, from which the asset beta range above this mean was adopted, is simply the mean of the observations from other gas distribution businesses.

Given the application of a debt beta of 0.06, re-levering an asset beta from the range 0.34 to 0.42 into an equity beta yields a range for the equity beta of 0.76 to 0.96, with a mean of 0.86. It should be noted that the calculations in this case represent an indicative equity beta range for ActewAGL, not an equity beta range for a randomly selected business from within NECG's sample.

In addition to the issue of the application of the Monkhouse formula, NERA also calculated confidence intervals for ActewAGL's equity beta.[98] In the commission's view, NERA's statistical analysis is incorrectly applied. For

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[97] The commission used this method, as it was following NECG's approach, in which NECG had chosen a range of 0.0 to 0.06 for the debt beta.

[98] See the discussion on pp 5–7 of the NERA Report and the comments on pp 39–40 of ActewAGL's submission.

both the NECG data and the four observations in the ACG report, NERA constructs confidence intervals around the mean of the observations and argues that the commission should consider at least the 60% confidence upper bound when determining the level of the equity beta. In the discussion below, the commission focuses on NECG's analysis in this regard (the discussion and conclusion below are also applicable to the ACG report[99]).

NERA's analysis involved using the equity betas for 53 businesses to calculate the mean and standard deviation of these observations. Given the mean and standard deviation, confidence intervals were constructed. Implicitly, NERA assumed that the 53 observations were drawn from a normal distribution with unknown mean and variance. However, a 60% one-tailed confidence interval was then constructed using standard techniques, which is not consistent with the foregoing assumption.

The NERA analysis implicitly assumes that there is a 'true' mean equity beta. The commission, however, considers it reasonable to hold the view that every business has its own equity beta, based on its unique financial and market characteristics. The estimation of a business's equity beta itself is a statistical exercise that generates a confidence interval around the observed value of the mean. This is commonly reported by most econometric packages used to estimate businesses' equity betas. Each business's equity beta is estimated separately, with the assumption that there is no correlation between the error terms across businesses. It is thus reasonable to use the confidence interval around the individual estimated equity betas when determining the level of variation applied to the analysis, rather than around the sample mean, as calculated by NERA.[100]

The commission's preferred approach is to use this empirical evidence as an indication of ActewAGL's equity beta. All of the estimates of equity betas for gas distribution and transmission businesses are well below 0.90. The average equity beta in ACG's report is 0.68, and the average equity beta for the OECD sample of the NECG report is 0.62. Bloomberg reports the equity beta of AGL (50% owner of ActewAGL) as 0.44, and IPART reports AGL's

[99] ACG looked at domestic gas transmission businesses, of which there are four in Australia with data to calculate their equity beta, and found that the mean was 0.68.

[100] For example, Bloomberg reports that AGL's equity beta is 0.44 over the period 30 August 2002 to 20 August 2004. Bloomberg also reports that the standard error of the beta is 0.13. 0.70 roughly represents the upper bound on a 95% confidence interval on this estimate.

equity beta as negative using the Australian Graduate School of Management's (AGSM) information. It is noted that OFGEM (United Kingdom) proposes using equity betas in the range of 0.6 to 1.0 for electricity distribution businesses, and in doing so shows that equity betas for those businesses have been falling over the past several years, consistent with the information in IPART's electricity decision.[101] In the United States, Professor Roger Morin, when discussing the beta of electricity utilities businesses in testimony before the Public Utilities Commission of the State of California, stated:

> … the majority of electric utility betas therefore range from approximately 0.60 to 0.80. By virtue of their regulated natural monopoly status, it stands to reason that T&D (transmission and distribution) intensive electric utilities would have betas near the lower end of the beta distribution at 0.60 and that generation-intensive electric utilities would have betas near the upper end of the distribution.[102]

Professor Morin goes on to say, when discussing betas for natural gas distribution businesses, 'The average beta for the natural gas distribution group is 0.61.'[103]

Finally, Professor Morin concludes that in the United States the risk profiles of natural gas utilities are comparable to those of electric utilities.[104]

The commission has arrived at two conclusions in response to the comments by ActewAGL and its consultant, NERA. First, the commission believes that NERA has incorrectly interpreted the commission's intention when analysing NECG's data and that NERA and ActewAGL have applied incorrect statistical analysis to this same data. Second, the commission finds that there is sufficient evidence that equity betas for gas (and electricity) distribution businesses are generally well below 1.0, or even below 0.9. The commission considers that an equity beta range of 0.90 to 1.09 (which encompasses the equity beta range proposed by ActewAGL) would include an appropriate safety margin, given the uncertainty inherent in the estimation

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[101] OFGEM, *Electricity Distribution Price Control Review: Background information on the costs of capital*, March 2004.
[102] Roger A Morin, San Diego Gas & Electric Company, testimony before the Public Utilities Commission of the State of California, 7 October 2003, pp 12–13.
[103] Morin, p 15.
[104] Morin, p 16.

of equity betas. The commission also notes that this range is consistent with regulatory precedent on equity betas established by other energy regulators.

Is gas distribution riskier than electricity distribution?

In its 2000 final decision, the commission made the following observation:

> Gas distribution utilities are regarded as relatively low risk operations. However, they are considered to be slightly more risky than electricity distribution utilities as they are considered to be an energy source of choice.[105]

The uncertainty in this statement does not arise from volatility in usage patterns but instead reflects the possibility that there may be risk in the take-up rate of customers. All new houses in the ACT are connected to the electricity network, but households (and businesses) must make a decision as to whether to connect to gas. Hence, gas is a fuel of choice. For this reason, the commission accepted in its 2000 decision that gas is slightly riskier than electricity. In the draft decision the commission applied an equity beta of 0.9 to the gas distribution network. This also represents the value determined by the commission in its recent decisions on electricity and water and wastewater. The commission did not apply the equity beta of 0.9 to the gas distribution network on the basis that risks in relation to gas are the same as risks in relation to electricity or water, but under the unstated assumption that the difference in the levels of risk between the respective industries was negligible.

ActewAGL and its consultant present a considerable amount of empirical evidence in support of the assertion that gas is indeed riskier than electricity. Their approach does not focus on the uncertainty surrounding gas as an energy of choice but instead examines uncertainty due to variability in monthly volumes. The commission has several reservations about the analysis as undertaken by NERA. These reservations relate to the use of monthly data and the correct application of statistical models.

NERA's approach to testing whether gas is riskier than electricity is to determine the covariance and correlation of the unexpected percentage volumes with the market return as measured by the return on the ASX 200 index. The primary result derived by NERA is that there is a greater degree

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[105] 2000 final decision, p 52.

of sensitivity of monthly sales volumes in gas to the market return than for electricity, with the implication being that gas deserves a higher beta than electricity.

The data used by NERA to investigate this relationship are monthly gas and electricity volumes. Presumably if the volume data were available, weekly or even daily data could have been used. The commission does not regulate ActewAGL on a monthly basis. The building-block approach and the corresponding 'X factor' are calculated on the basis of yearly costs and revenue requirements, not monthly costs and revenues. The cost of service approach provided for in the Code is focused on yearly costs and revenues. It could be the case that short-time horizon volatility is statistically correlated to market movements but longer time horizon movements are not correlated. The equity beta of a business is usually calculated over a much longer time horizon than one month in order to average out the short-term volatility in the estimated parameters.

The monthly data on gas volumes begin in August 1997. The commission notes that ActewAGL argued that many of the gas forecasting results derived by the commission's consultant were faulty due to the use of data from 1997–98. Accordingly, the commission questions whether these data are appropriate to use. The data on electricity volumes begin on 1 July 1998; therefore, the starting points for gas and electricity volumes differ.

The modelling used by NERA seasonally adjusts the monthly volume data. Seasonal adjustment adds an error term to the estimated level of unexpected monthly volume. If this error term is correlated to the monthly stock market return, the estimated covariances and correlations are biased. The commission has examined the approach taken to seasonally adjust the data and is concerned that this approach may lead to an inflation of the standard deviation of unexpected gas volumes.

The data used (electricity volumes, gas volumes, and stock market returns) are time series data. No tests were reported by ActewAGL or its consultants to determine whether these times series are cointegrated.[106] If the time series are cointegrated, all of the results are potentially biased. The commission has

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[106] A good description of cointegration at a non-technical level can be found in Murray M (1994), A drunk and her dog: An illustration of cointegration and error correction, *The American Statistician*, 48:37–39.

performed statistical tests on the data used by NERA and has found evidence of cointegration among the three variables.[107]

Finally, NERA reports its results in the following fashion:

> The result from applying this procedure is a conclusion that there is only a 9.93% chance of obtaining, in samples of the size here, an estimate for the sensitivity of gas that is so much larger than the estimate for electricity if in fact the true sensitivities are the same.[108]

Notwithstanding the earlier concerns about the statistical methodology, the approach here is contrary to the usual approach adopted by statisticians. The generally accepted approach would be to report that the differences between the sensitivities of gas and electricity were statistically significant at the 90% confidence level. The usual level of confidence reported in econometric studies would be at the higher level of 95%. An alternative valid conclusion would be to report that one fails to reject that the sensitivities are statistically different at the 95% confidence level.

The commission has considered all of the abovementioned information presented to it by ActewAGL and for the reasons set out above has concluded that there is no compelling evidence that gas deserves a higher beta than electricity.

Concluding comments on equity beta

The commission considers the supportable equity beta to be in the range of 0.9 to 1.09. In reaching this view, the commission was informed by empirical evidence and regulatory practice.

10.5.6 Equity-raising costs

In its proposed access arrangement, ActewAGL did not include compensation for equity-raising costs. ActewAGL states that this was an oversight rather than a deliberate policy and has requested that equity-raising costs be included in the final decision.

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[107] The test used by the commission is the augmented Dickey–Fuller test as described in Elliot G, Rothenberg T and Stock J (1996), Efficient tests for an autoregressive unit root, *Econometrica*, 64:813–836.
[108] NERA Report, pp 27–28.

Equity-raising costs are the costs associated with informing investors of the value of the firm and establishing legal equity instruments. The transaction costs per dollar of equity finance tend to be greater than the costs associated with debt because of the greater level and variety of risks that equity investors must be induced to take on. The costs of raising equity include asset valuation costs, advisory fees, and due diligence and other legal costs.

ActewAGL gives three reasons in support of including equity-raising costs. First, ActewAGL cites regulatory precedent, referring to the 2002 decision of the ACCC on SPI PowerNet, in which the ACCC allowed a return on equity-raising costs based on the entire value of regulated equity.[109] The ACCC used benchmark data to estimate the costs of raising equity in its SPI PowerNet decision, in which it allowed a margin of 21.5 basis points for the costs of raising equity.

Second, ActewAGL refers to the Code, and in particular to section 8.1(b), which states that a reference tariff policy should be designed with a view to replicating the outcomes of a competitive market.

Finally, ActewAGL claims that equity-raising costs are legitimate business costs and should be recovered.

The commission is not convinced that a precedent has been established by the ACCC's decision on SPI PowerNet. The ACCC granted equity raising costs to SPI PowerNet in 2002, but has since altered its approach to granting equity-raising costs, adopted a case-by-case approach, and indicated that more research needs to be performed.[110]

In reference to section 8.1(b) of the Code, ActewAGL states:

> In a competitive market price is set by reference to the cost of a new entrant. New entrants require equity to finance an expansion/entry into new markets. Firms will only enter a new market when prices are expected to cover all their costs of entry – including the costs of raising debt *and* equity to finance entry.[111]

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[109] ACCC decision, *Victorian Transmission Network Revenue Caps 2003–08*, 2002, p 86.
[110] ACCC *Statement of Principles for the Regulation of Electricity Transmission Revenues – Background Paper*, 2004, pp 185–186.
[111] ActewAGL submission, p 47.

The commission notes, however, that equity-raising costs may not be factored into pricing in a competitive market. Consider a potential entrant contemplating entry into an existing market. This entrant, when deciding on whether to enter the market, will enter if and only if the expected returns it anticipates earning in the market cover the sunk costs of entering the market. Equity-raising costs would be sunk costs once the business has entered the market. It is a well-known economic principle that sunk costs do not factor into the price set in a competitive market.[112] While the level of sunk costs may deter entry, once entry has occurred, sunk costs do not enter into the determination of equilibrium prices for a competitive market. This is true whether the market is perfectly or imperfectly competitive. As quoted above, ActewAGL states that in a competitive market, price is set by reference to the cost of a new entrant. The commission does not agree with this statement. Equilibrium prices in a competitive market depend on the level of marginal costs, the structure of demand and the scope and degree of rivalry in the market. It is a common misconception that the current price in a competitive market depends on the level of a potential entrant's costs, as the entrant's decision on whether to enter depends not on the current price but on the equilibrium price the entrant expects after entry.[113] The conclusion is that prices in a competitive market do not depend on the level of an entrant's sunk costs (including equity-raising costs). Therefore, equity-raising costs would not be factored into the prices set in a competitive market.

ActewAGL also states that:

> The legitimate business interests of ActewAGL also require that it be compensated for the costs of raising equity. In 2000 the ActewAGL Joint Venture was formed where ACTEW effectively raised equity from AGL to purchase a share of AGL's gas assets and *vice versa* for AGL's purchase of a share of ACTEW's electricity assets.

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[112] Carlton and Perloff state: 'A sunk cost is like spilt milk: once it is sunk there is no use worrying, and it should not affect any subsequent decisions.' Carlton D and Perloff J (1994), *Modern Industrial Organization, Second Edition*, Harper Collins, p 51.

[113] Scherer and Ross, while discussing whether the current price can deter entry, state: 'However, unless a potential entrant lacks information about demand and cost conditions (more on this below), it is hard to rationalize why the entrant will be influenced by the prevailing price. It is the *post entry* price and the entrant's market share that determine the attractiveness of entry.' Scherer FM and Ross D (1990), *Industrial Market Structure and Economic Performance,* third edition, Houghton Mifflin, p 374.

> ActewAGL has effectively foregone a return on these costs during the current regulatory period but does not believe that it should continue to do so.[114]

The commission has two concerns about considering equity-raising costs as a legitimate business cost. The commission does not accept that costs that are incurred when an ongoing regulated business changes ownership should be included in the business's operating costs or included in the WACC. ActewAGL is a joint venture between ACTEW and AGL. Its formation is fundamentally no different from a merger, takeover or other change in ownership. If the equity-raising costs involved in the ownership change were included as part of the level of costs for the regulated business every time an ongoing regulated business changed ownership, this would create an inefficiency in the market for corporate ownership. In general, ownership changes, whether through merger, takeover or even joint venture, should occur if the synergies gained from the ownership change exceed the transactions costs of changing ownership. The market for corporate ownership is efficient when this condition holds. If the transactions costs of the ownership change were included in the regulated price, excessive ownership change would occur. Indeed, one could imagine the perverse outcome in which the combined transactions costs of repeated ownership changes drive the price of a regulated service ever upward. The commission considers that the costs of raising equity that ActewAGL claims to have incurred should not be included in the calculation of the WACC (or as an operating cost), as they do not represent legitimate costs of providing the reference service. Including these costs would distort the outcomes of a competitive market, namely the market for corporate control.

The commission also has concerns about the methodology for calculating the level of equity-raising costs. In its submission, ActewAGL refers to the methodology adopted by the ACCC in the SPI PowerNet decision. In that decision, the ACCC determined equity-raising costs based on the value of the business's current regulatory asset base. In general, this figure is not related to the actual equity-raising costs of the business. Consider a hypothetical regulated business with a regulatory asset base of $500 million and a gearing ratio of 60:40. This implies a current equity level of $200 million. The actual equity-raising costs incurred by the business may

[114] ActewAGL submission, p 46.

have occurred many years ago and would have been much smaller. It is possible that a significant proportion of the current equity in the business would have been raised through retained earnings. The commission considers that it is inappropriate for a business to receive an additional return on equity generated through retained earnings. To allow this return would reward the business doubly, as the retained earnings are simply the sum of past profits of the business less the dividends paid to owners.

For the reasons given above, the commission does not agree with ActewAGL's proposal that an equity-raising component be included either in the WACC or as an operating cost. However, consistently with the approach adopted by the ACCC, the commission will examine claims by ActewAGL for actual equity-raising costs in the future on a case-by-case basis.

10.5.7 Overall WACC

In sections 10.3 to 10.5 of this final decision, the commission has considered the WACC components proposed by ActewAGL and the information provided in support of those components. The information and arguments submitted by ActewAGL include information developed by its consultants and third parties, and were provided by ActewAGL with its initial submission of December 2003 and in its responses to the commission's issues paper and draft decision. The commission has considered those submissions (as discussed in sections 10.3 to 10.5) and the proposed access arrangement, taking into account the factors in sections 8 and 2.24 of the Code.

In relation to a number of the proposed WACC parameter values, the commission considers that the particular values proposed by ActewAGL were not supported by the information and arguments provided, and do not satisfy the requirements of section 8.30 of the Code, having regard to the objectives set out in section 2.24 of the Code. The commission considers that different parameter values, or ranges of values, were supported by the information and by relevant regulatory precedent and satisfy the requirements of the Code.

The results of applying the different parameter values, or ranges of values, within the WACC framework as proposed by ActewAGL are as follows.

The commission's WACC calculation

Table 10.5 shows the commission's 'low' and 'high' range for the WACC, with parameter values as discussed below. The commission calculated a range for individual parameters to generate an indicative WACC. The commission's range for the WACC is 6.35% to 7.40% (as at 30 September 2004). The commission must then consider whether this range satisfies the relevant objectives and factors in the Code, and nominate a value within the range that it considers achieves the objectives of section 8.1, having regard to the factors set out in section 2.24 of the Code. This consideration is provided below.

ActewAGL's proposed WACC calculation

ActewAGL's WACC inputs (in this case incorporating changes in the nominal and real risk-free rates since ActewAGL's initial submission) derive a range for the WACC of 7.10% to 7.70% (as at 30 September 2004).

Table 10.5 Final decision: WACC parameters and overall rates of return

	Commission's range		ActewAGL's original submission[a]	
Parameter description	**Low**	**High**	**Low**	**High**
Risk-free rate	5.41%	5.41%	5.41%	5.41%
Real risk-free rate	2.77%	2.77%	2.77%	2.77%
Consumer price index	2.57%	2.57%	2.57%	2.57%
Debt funding	60%	60%	60%	60%
Equity funding	40%	40%	40%	40%
Total funding	100%	100%	100%	100%
Market risk premium	6.0%	6.0%	6.5%	7.0%
Debt margin	1.245%	1.430%	1.430%	1.430%
Gamma	50%	30%	40%	40%
Effective tax rate	30%	30%	30%	30%
Equity beta	0.90	1.09	0.980	1.090
Cost of equity (nominal)	10.81%	11.95%	11.78%	13.04%
Cost of debt (nominal)	6.66%	6.84%	6.84%	6.84%
Pre-tax nominal WACC	9.08%	10.16%	9.85%	10.47%
Pre-tax real WACC	**6.35%**	**7.40%**	**7.10%**	**7.70%**

a Updated for the risk-free rate as at 30 September 2004.

10.6 Final decision

In assessing the appropriate rate of return to apply to ActewAGL's natural gas distribution network, the commission has taken into account that ActewAGL's proposed total revenue calculation requires a single rate of return value to be applied (in the form of a pre-tax real WACC). In assessing the single pre-tax real WACC value, the commission has considered the WACC approach adopted by ActewAGL and the appropriate ranges for the WACC parameter values (given, among other factors discussed in sections 10.3 to 10.5 above, the inherent uncertainty associated with arriving at such values[115]) in terms of the principles and approaches in sections 8.30 and 8.31 of the Code, having regard to the objectives set out in section 8.1 and taking into account the factors set out in sections 2.24(a) and (g) of the Code.

In the discussion below, the commission considers whether the WACC and its effect on the reference tariff principles produce a tension in the achievement of the objectives of the Code, for example the tariff design objectives in section 8.1. In resolving tensions, and generally in assessing the proposed revised access arrangement, the commission has taken into account the factors described in sections 2.24(a) to 2.24(g) of the Code. The commission has also taken into account and been guided by the interpretations and issues arising from other decisions in relation to the Code, including in particular the decisions of the Australian Competition Tribunal and the Supreme Court of Western Australia, as noted elsewhere in this decision.

The commission has assessed the derived WACC ranges against the objectives, in section 8.1 of the Code, that a service provider's reference tariffs and reference tariff policy should be designed to achieve:

> (a) providing the Service Provider with the opportunity to earn a stream of revenue that recovers the efficient costs of delivering the Reference Service over the expected life of the assets used in delivering that Service;
>
> (b) replicating the outcome of a competitive market;

[115] This characteristic of WACC calculation is also noted by ActewAGL at page 26 of its submission in relation to the draft decision.

(c) ensuring the safe and reliable operation of the Pipeline;

(d) not distorting investment decisions in Pipeline transportation systems or in upstream and downstream industries;

(e) efficiency in the level and structure of the Reference Tariff; and

(f) providing an incentive to the Service Provider to reduce costs and to develop the market for Reference and other Services.

In its consideration of these objectives, the commission has been guided by the interpretation of section 8.1 of the Code provided by the Supreme Court of Western Australia in *Re Michael; Ex parte Epic Energy (WA) Nominees Pty Ltd* (2002) 25 WAR at [72] 511.

When considering the appropriate WACC, the commission has attempted to provide ActewAGL with the opportunity to earn a stream of revenue that recovers the efficient cost that would exist in a competitive market.

Adopting a WACC value at the upper end of the commission's range is not necessarily inconsistent with the objective in section 8.1(b) of the Code. Similarly, it is feasible to consider that adoption of a value at the lower end of the range may not be inconsistent with this objective.

While a range of WACC values may be consistent with a workably competitive market at particular points in time (for example, in a market in transition), a workably competitive market provides discipline, so that where a rate of return does not properly reflect the risks associated with the service (for example, where it embodies an excess return), the excess return would not be able to be recovered. It is reasonable in this context that a single WACC value to be applied in the total revenue calculation should be towards the midpoint of the commission's range, as a workably competitive market would tend towards an equilibrium position.

The objective in section 8.1(c) may be considered to have little direct relevance to the consideration of the appropriate single WACC value to adopt from within the feasible range (although a WACC at the upper end of the range would not be inconsistent with this objective).

In relation to section 8.1(d) of the Code, precedents established by the regulatory treatment of one pipeline may affect investment in other new or existing pipelines. If a higher WACC (and hence higher regulated tariffs)

could be achieved by investment in an existing pipeline rather than by construction of a new pipeline (all other things being equal), there is potential distortion of investment incentives away from investment in new pipelines to investment in existing pipelines. This could potentially be at a substantial cost to the public through distortion of investment incentives away from investment in new infrastructure towards investment that comprises a mere refinancing and change of ownership of existing infrastructure. In this context, a consideration of objective 8.1(d) would seem to support a WACC value not at the high or low end of the potential range, but towards the midpoint of the range.

Section 8.1(e) of the Code requires that a reference tariff and reference tariff policy should be designed with a view to efficiency in the level and structure of the reference tariff.

To the extent that reference tariffs reflect a WACC in excess of efficient costs, the reference tariffs themselves would not be efficient (contrary to the objective in section 8.1(e)). The commission considers it unlikely that a single WACC value selected from the feasible range of values calculated by the commission could be judged to be inconsistent with this objective.

Section 8.1(f) creates a degree of tension in the setting of a single WACC value. A WACC at the lower end of the range could be expected to provide a greater incentive for the entity to achieve operating efficiencies and thereby increase its actual rate of return through cost savings. A rate at the higher end of the range may provide less incentive. A WACC at the lower end of the range may encourage the development of the market for other unregulated services as a way of compensating for the lower WACC. However, it may be less likely to encourage the development of the market for reference services.

On the basis of the above considerations, different WACC values selected from the feasible range of values calculated by the commission can be considered to result in a rate of return which is inconsistent, or likely to be inconsistent, with some of the objectives of section 8.1 of the Code.

Section 8.1 of the Code provides that, to the extent that any of the objectives set out in that section conflict in their application to a particular reference tariff determination, the regulator may determine the manner in which they can best be reconciled or which of them should prevail. In resolving tensions, and generally in assessing the proposed access arrangement

revisions, the commission has taken into account the factors described in sections 2.24(a) to 2.24(g) of the Code. The commission has also been guided by the principle enunciated in the Australian Competition Tribunal's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8, namely that where the element of the access arrangement in question produces a tension, the regulator has an overriding discretion to resolve the tension in a way which best reflects the statutory objectives of the law.[116]

Section 2.24(a) has been addressed as part of the process of arriving at the WACC range considered by the commission. The commission notes that a single WACC for the business at the upper end of the range under consideration would, at face value, appear to meet the requirements of section 2.24(a). However, the commission notes that a single WACC taken at the lower level within the range will still result in ActewAGL retaining a BBB to A investment-grade credit rating (as discussed in Section 11 of this final decision).

Section 2.24(b) of the Code does not have any significance in considering the selection of an individual WACC point in the ACT context, as there are no firm and binding contracts. However, section 2.24(c) of the Code requires the commission to consider the overall operational and technical requirements of the distribution business. The commission notes that operating and capital expenditure requirements have been fully considered by the commission, separately from the assessment of the WACC. The selection of a WACC at the lower end of the range may discourage the funding of the projected new investment included in the access arrangement. However, as demonstrated in Section 11 of this decision, a point WACC in the midsection of the WACC range would not be inconsistent with ActewAGL retaining its BBB to A investment-grade credit rating and thereby having access on reasonable terms to credit by which new investment could be funded.

Section 2.24(d) of the Code has also been considered in the context of the operating and capital expenditure projections provided in the access arrangement. To the extent that the WACC affects the decisions of

[116] This principle is from paragraph 29 of the Australian Competition Tribunal's decision in *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 8.

ActewAGL to implement its expenditure programs, an appropriate point WACC should be neutral in terms of the options ActewAGL will consider when operating the distribution network. Thus, a rate of return towards the lower end of the range may encourage ActewAGL to delay new capital expenditure while at the same time seeking to reduce operating costs as a means of increasing its actual return on investment. This may not be conducive to an economical operation of the distribution network, particularly in the long term.

At the same time, a point WACC at the higher end of the range may encourage overinvestment in capital works or a less diligent approach to meeting operating cost budgets. The evidence from the analysis of the credit rating of ActewAGL, discussed in Section 11 of this decision, suggests that a point WACC between these two extremes would ensure access to debt funding for new capital works while still providing an incentive for ActewAGL to seek greater operating cost efficiencies as a way of improving its actual profit results by comparison to the WACC used in setting tariffs under the access arrangement.

Sections 2.24(e) and 2.24(f) of the Code deal with the wider matters of the public interest and the interests of users and prospective users. The commission has considered these wider public and user interests in the context of the reliable and safe availability of gas services at a reasonable price and in a form that potentially allows for further downstream benefits to the economy.

The access arrangement as a whole involves these issues, and therefore consideration of the public and user interests cannot be made in isolation. However, the commission notes that the public and user interests are not served simply by the lowest possible price for gas distribution services.

The public interest and that of users are also served by the availability of safe and reliable gas distribution services, in which service standards are maintained and customers can have confidence in the service.

This suggests that a point WACC at the lower end of the range is not necessarily in the public and user interests. However, a point WACC which ensured that the requirement of sections 2.24(c) and (d) of the Code were met, for example, would be consistent with meeting the requirements of sections 2.24(e) and (f).

Section 2.24(g) of the Code allows the commission to take into account other matters which it considers relevant in approving a proposed access arrangement. In the light of this section, the commission also considered its recent decision in relation to electricity distribution services in the ACT. In that decision, the commission adopted a pre-tax real WACC of 7.0%. The commission therefore considered the possibility that setting a gas WACC different from the electricity WACC may lead to inefficient investment decisions because of the differential returns available.

ActewAGL also argued that its gas distribution business is riskier than its electricity distribution business and as such should receive a higher WACC to compensate for this additional risk. The commission does not necessarily agree with this argument but notes that if the same parameters as those used in the electricity decision were adopted and the most recent risk-free rate used, the pre-tax real WACC for electricity would, if set by the commission in October 2004, be below the 7.0% granted earlier in 2004.

As part of its submission to the commission on the proposed access arrangement to apply to the ActewAGL gas distribution network, ActewAGL adopted the use of the CAPM to determine the cost of capital. In its draft decision, the commission accepted the use of the CAPM as reasonable. In its submission on the draft decision, ActewAGL states that the 'CAPM is not revealed truth'[117] and that there is considerable theoretical and conceptual uncertainty as to how well the CAPM explains the real world. ActewAGL states that, when adopting the final cost of capital, it is appropriate to take account of the uncertainty surrounding both the explanatory power of the CAPM and the value of the individual CAPM parameters. The commission has taken into account the uncertainty associated with the use of the CAPM, under section 2.24(g) of the Code, when selecting a point WACC.

ActewAGL also highlighted the asymmetric costs of regulatory error in setting the WACC.[118] In its submission, ActewAGL states that it is widely recognised that the costs of underestimating the WACC far exceed the costs of overestimating the WACC. The commission accepts that the potential

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[117] ActewAGL submission on draft decision, p 26.
[118] ActewAGL submission on draft decision, p 30.

costs associated with underestimating the cost of capital are greater than those of overestimation.

ActewAGL's proposed revisions nominated a single pre-tax real WACC of 7.9%. This point is outside the WACC range that the commission considers meets the Code's requirements.

Having considered the objectives of section 8.1 and the factors set out in section 2.24 of the Code against the WACC range of 6.35% to 7.40% as calculated using the CAPM modelling approach, the commission considers that a single pre-tax real WACC of 7.0% is appropriate. This is the rate that the commission adopted for the electricity distribution activities of ActewAGL in the ACT (although if the calculation for electricity were made using current risk-free rates, the electricity WACC would be lower).

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendment is required.

Amendment 12

ActewAGL is to adopt a pre-tax real WACC of 7% in calculating the return on capital component within the cost of service methodology.

11 Financial analysis

11.1 Code requirements

Section 2.24 (a) of the Code requires that the relevant regulator take into account the service provider's legitimate business interests and investment in the Covered Pipeline, together with the factors set out in section 2.24(b) to (g), in assessing a proposed access arrangement.

11.2 Submissions

In its submission in response to the draft decision, ActewAGL has provided the commission with a financial analysis of the draft decision and asked the commission to have consideration to the impact of the final decision on the financial viability of ActewAGL.

The commission considers it appropriate to consider the impact of the final decision on the financial viability of ActewAGL. The analysis contained in this section is based on the final decisions contained in this report, which as noted in the preceding sections have been reached with reference to sections 2.24(a) to 2.24(g) of the Code. The discussions concerning each element of the final decision are contained within the relevant sections of this final decision and are not repeated here. This section provides an assessment of the effects of the provisions of the final decision on the financial viability of ActewAGL.

As part of its submission in relation to the draft decision, ActewAGL made specific comments on the debt premium, as follows:

> ActewAGL has asked Deloitte to review its model that estimates the credit rating that would apply to a standalone company operating ActewAGL's gas assets. Deloitte has advised that an appropriate gearing is BBB, based on regulatory precedent. Using regulatory assumptions and a regulatory gearing of 60% the Commission's draft decision results in a speculative grade rating of B for each year of the access arrangement period. Even when using the actual gearing of ActewAGL's joint venture partners, the credit rating remains a speculative grade for 3 of the five and a half years of the access arrangement. The initial ActewAGL proposal using the joint venture partners' actual gearing results in a BBB rating for the period of the access arrangement.

Tables 11.2 to 11.4 show the credit ratings under different scenarios provided by ActewAGL, based on the possible ratings provided in Table 11.1.

Table 11.1 Possible ratings (Standard & Poor's 2003)

Grade	Possible ratings
Investment grade	AA
	A
	BBB
Speculative grade	BB
	B

Table 11.2 Credit rating based on draft decision and regulatory gearing (60%)

	Weighting	2005	2006	2007	2008	2009	2010
EBIT interest coverage	20.00%	BB	BB	BB	BB	BB	BB
		6	6	6	6	6	6
FFO interest coverage	20.00%	B	B	B	B	B	B
		5	5	5	5	5	5
Return on common equity	20.00%	BB	B	B	B	B	B
		6	5	5	5	5	5
FFO/total debt	20.00%	B	B	B	B	B	B
		5	5	5	5	5	5
Total debt/capital	20.00%	BBB	BBB	BBB	BBB	BBB	BBB
		7	7	7	7	7	7
Weighted average		5.8	5.6	5.6	5.6	5.6	5.6
Total score rating		**B**	**B**	**B**	**B**	**B**	**B**

EBIT = earnings before interest and tax; FFO = funds from operation

Table 11.3 Credit rating based on draft decision and actual gearing (34.7%)

	Weighting	2005	2006	2007	2008	2009	2010
EBIT interest coverage	20.00%	BBB	BBB	BBB	BBB	BBB	BBB
		7	7	7	7	7	7
FFO interest coverage	20.00%	BB	BB	BB	BB	BB	BB
		6	6	6	6	6	6
Return on common equity	20.00%	BB	BB	B	BB	B	B
		6	6	5	6	5	5
FFO/total debt	20.00%	BBB	BBB	BBB	BBB	BBB	BBB
		7	7	7	7	7	7
Total debt/capital	20.00%	AA	AA	AA	AA	AA	AA
		9	9	9	9	9	9
Weighted average		7.0	7.0	6.8	7.0	6.8	6.8
Total score rating		**BBB**	**BBB**	**BB**	**BBB**	**BB**	**BB**

EBIT = earnings before interest and tax; FFO = funds from operation

Table 11.4 Credit rating based on ActewAGL's proposed access arrangement and actual gearing (34.7%)

	Weighting	2005	2006	2007	2008	2009	2010
EBIT interest coverage	20.00%	BBB	BBB	A	A	A	A
		7	7	8	8	8	8
FFO interest coverage	20.00%	BB	BB	BB	BB	BBB	BBB
		6	6	6	6	7	7
Return on common equity	20.00%	BB	BB	BB	BB	BB	BB
		6	6	6	6	6	6
FFO/total debt	20.00%	BBB	BBB	A	A	A	A
		7	7	8	8	8	8
Total debt/capital	20.00%	AA	AA	AA	AA	AA	AA
		9	9	9	9	9	9
Weighted average		7.0	7.0	7.4	7.4	7.6	7.6
Total score rating		**BBB**	**BBB**	**BBB**	**BBB**	**BBB**	**BBB**

EBIT = earnings before interest and tax; FFO = funds from operation

Based on its analysis of data contained in the above tables, ActewAGL concluded that:

> the draft decision, even when adjusted to reflect actual rather than regulatory gearing, does not provide an investment grade credit rating. The ActewAGL proposed access arrangement provided an outcome closer to the appropriate outcome for distribution businesses. This analysis of the overall outcome of the draft decision provides further evidence that the draft decision package would not allow for the legitimate business interests of ActewAGL.

11.3 Analysis

The commission initially had reservations in relation to the speculative grade rating obtained for the commission's draft decision based on the Standard & Poor's (S&P) ratings for 2003 as provided by ActewAGL.

In order to clarify this issue, the commission sought advice from S&P on several issues relating to the calculation of the credit ratings. First, it wished to establish the most relevant credit ratios for analysing a regulated gas distribution utility. Second, it was concerned that once the most appropriate ratings were established they should be calculated correctly by the credit rating model provided to the commission by ActewAGL.

The commission considered *International Utility Ratings and Ratios*, a report released by S&P.[119] This report provided information on relevant financial ratios for transmission, distribution and generation utilities specifically in Continental Europe and Australasia. The report listed the most relevant ratios for distribution utilities as follows:

- pre-tax (earnings before interest and tax) interest coverage
- FFO (funds from operation) interest coverage
- FFO to total debt
- total debt to total capital.

[119] Standard & Poor's, *Research: International Utility Ratings and Ratios*, 5 September 2001.

These ratios corresponded with those provided by ActewAGL, except that ActewAGL also included a return on common equity ratio.

Return on common equity is a measure of a business's ability to provide a return to equity holders of the business. However, the purpose of the S&P credit ratings is to establish a business's ability to fund its interest and debt costs. On that particular basis, the commission does not consider return on common equity to be a relevant ratio.

The commission also sought further advice from S&P on whether return on common equity was an appropriate ratio to consider. S&P confirmed that it does not typically use return on common equity in its analysis of debt raising capability. The commission also noted that the ACCC does not include return on common equity as one its financial ratios in its statement of principles for the regulation of electricity transmission revenues.[120]

On the basis of the foregoing, the commission considers the following to be the most relevant ratios to consider for a distribution utility:

- pre-tax (earnings before interest and tax) interest coverage
- FFO interest coverage
- FFO to total debt
- total debt to total capital.

Once the commission had determined the most appropriate ratios, the correct calculation of the ratios was considered.

The commission agreed with the methodology adopted by ActewAGL for calculating pre-tax interest coverage, FFO to total debt and total debt to total capital. However, it did not agree with the way in which FFO interest coverage was calculated in the ActewAGL model.

In the ActewAGL model, FFO is calculated as net profit after tax (and interest expense) plus depreciation and amortisation. However, the commission considers that, for the purpose of an FFO to interest coverage

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[120] ACCC draft decision, *Statement of Principles for the Regulation of Electricity Transmission Revenues*, 18 August 2004, pp 189–190.

ratio, application of an FFO based on net profit after tax (and interest expense) is incorrect. This is because the FFO interest coverage ratio is aimed at indicating a company's ability to pay interest costs from earnings. It is therefore inconsistent to calculate this ratio using an FFO after interest costs have been paid.

The commission clarified in discussion with ActewAGL that the calculation of FFO to interest coverage in the credit rating model was incorrect and should be adjusted to calculate this ratio based on an FFO before interest expenses. ActewAGL amended its credit rating model accordingly.

The commission was also concerned that interest cost was being incorrectly calculated in the model used by ActewAGL. The interest cost was being calculated as if the total amount of receivables (35% as of 30 June) was outstanding for the entire year. The commission sought clarification on this point from ActewAGL, which advised that, on average, 21% of receivables are outstanding at any given time. ActewAGL's credit rating model was amended to apply the latter percentage.

The commission also considered whether regulatory gearing (60%) or actual gearing (34.7%) is most appropriate to use in calculating the relevant credit ratings. Preferably, the gearing ratios used for the financial ratio analysis should reflect the actual gearing of the business, because the purpose of the credit ratings is to assess whether the business will be able to retain its credit standing in financial markets with the regulated price path proposed. Therefore, for purposes of the financial analysis in this section, the commission has used the actual gearing of the business as provided to the commission by ActewAGL.

After taking into account the most appropriate credit rating ratios, updating the model for various incorrect calculations and adopting the actual gearing level, the commission is confident that the modelling of credit ratings now gives a more accurate interpretation of the financial viability of the business based on different access pricing outcomes. This allows the commission to have greater confidence in the outcomes of this final decision, and in particular that they are consistent with maintaining ActewAGL's investment-grade credit rating.

By applying the appropriate S&P ratios combined with the outcomes of this final decision, the commission obtained the revised credit ratings for ActewAGL set out in Table 11.5.

Table 11.5 Standard & Poor's 2003 credit rating using final decision

	Weighting	2005	2006	2007	2008	2009	2010
EBIT interest coverage	25.00%	A	A	BBB	A	A	A
		8	8	7	8	8	8
FFO interest coverage	25.00%	A	A	A	A	A	A
		8	8	8	8	8	8
FFO/total debt	25.00%	BBB	BBB	BBB	BBB	BBB	BBB
		7	7	7	7	7	7
Total debt/capital	25.00%	AA	AA	AA	AA	AA	AA
		9	9	9	9	9	9
Weighted average		8.0	8.0	7.7	8.0	8.0	8.0
Total score rating		**A**	**A**	**BBB**	**A**	**A**	**A**

The commission also believes that the NSW Treasury (2002) credit ratings, which are specifically designed to apply to government-owned entities, are instructive when undertaking financial analysis of a regulated utility. The commission tested the results shown above, using the NSW Treasury credit ratings set out in Table 11.6 to obtain the ratings shown in Table 11.7.

Table 11.6 Possible ratings (NSW Treasury 2002)

Grade	Possible ratings
Investment grade	AAA
	AA+
	AA
	A+
	A
	BBB+
	BBB
Speculative grade	BB+
	BB
	B+
	B

Table 11.7 NSW Treasury 2002 credit rating using final decision

	Weighting	2005	2006	2007	2008	2009	2010
EBITDA interest coverage	0.25	AA	AA	AA	AA+	AA	AA+
		8	8	8	9	8	9
Internal financing ratio	0.25	AA+	AAA	AAA	AAA	AAA	AAA
		9	10	10	10	10	10
Funds flow net debt payback	0.25	BBB	BBB	BBB	BBB	BBB	BBB+
		4	4	4	4	4	5
Debt gearing	0.25	A+	A+	A+	A+	A+	A+
		7	7	7	7	7	7
Weighted average		7.0	7.25	7.25	7.5	7.25	7.75
Total score rating		**A+**	**A+**	**A+**	**A+**	**A+**	**A+**

11.4 Final decision

Having regard to the factors set out in section 2.24 of the Code, the commission considers that this final decision will allow ActewAGL to maintain its strong financial position, as measured by the overall credit ratings based on the S&P (2003) and NSW Treasury (2002) credit rating criteria.

However, it should be noted that the calculations and assessments in this section are those of the commission, and are not the calculations and assessments of S&P or the NSW Treasury. As such, the ratings shown here should be used as a guide only.

12 Reference tariffs and reference tariff policy

12.1 Code requirements

Section 3.3 of the Code requires an access arrangement to include a reference tariff for at least one service that is likely to be sought by a significant part of the market and each service that is likely to be sought by a significant part of the market and for which the commission considers a reference tariff should be included. Once those services are defined, section 3.4 requires the commission to determine whether the reference tariffs for the services comply with the reference tariff principles described in section 8 of the Code.

Section 3.5 of the Code requires an access arrangement to include a reference tariff policy which describes the principles to be used to determine a reference tariff. The reference tariff policy must also comply with the reference tariff principles described in section 8 of the Code.

Section 8 of the Code establishes the principles for setting reference tariffs and the reference tariff policy. These principles provide for considerable flexibility, and the role of the commission is to assess whether the proposed pricing methodology is consistent with those principles.

In broad terms, the principles in section 8 of the Code require the tariffs to generate sufficient revenue to enable the service provider to make a commercial return on its investment in pipeline assets over the life of those assets, and to provide it with an incentive to expand the system in a timely manner to meet market needs. At the same time, the return is to be set to mimic outcomes in a competitive market and to be efficient in level and structure. Therefore access arrangements may include revenue incentives to improve efficiency, the benefits of which are to be shared by the service provider with users and prospective users.

Section 8.1 of the Code states that a reference tariff and a reference tariff policy should be designed with a view to achieving a number of

specific objectives. These objectives are shown in Section 5 of this final decision.

Importantly, section 8.1 of the Code provides the commission with discretion to determine, where individual objectives are in conflict in relation to a particular determination, the manner in which the conflicting objectives can best be reconciled, or which of them should prevail.

As discussed in Section 5 above, section 8.3 of the Code also provides that the manner in which a reference tariff may vary within an access arrangement period through the implementation of a reference tariff policy is within the discretion of the service provider, subject to the commission being satisfied that the manner of variation is consistent with the objectives in section 8.1. Examples of reference tariff policies provided in section 8.3 of the Code are:

- a cost of service approach
- a price path approach
- a reference tariff control formula approach
- a trigger event adjustment approach
- any variation or combination of the above.

There is also scope for different methodologies and values to be reasonably determined under other provisions in section 8, such as in section 8.3. In this regard, section 8.49 of the Code provides the commission with discretion to determine its own policies for assessing whether a reference tariff meets the requirements of section 8.

Under the Code, the reference tariff policy may provide that certain principles (called 'fixed principles') are fixed for a specified 'fixed period' and not subject to change when a service provider submits reviews to an access arrangement, without the agreement of the service provider (section 8.47).

A fixed principle may include any ‘structural element’ but cannot be a ‘market variable element’.[121] In assessing whether any structural element may be a fixed principle, and determining a fixed period, regard must be had to the interests of the service provider and the interests of users and prospective users (section 8.48).

12.2 2000 final decision

In its 2000 final decision, the commission accepted ActewAGL’s proposed price path approach, which involved predetermining tariffs in real terms (with the annual real change in tariffs being defined by an ‘X factor’) and then adjusting the predetermined tariffs each year during the access arrangement period by the change in the CPI. The commission required ActewAGL to make specific changes to its reference tariff policy before the commission could approve the access arrangement. The changes included amendments to the ‘pass-through’ provisions in section 3 of the access arrangement (Impost and other statutory charges). The pass-through provisions under the 2001 access arrangement are discussed in Section 12.3.4.

12.3 ActewAGL proposal and draft decision

12.3.1 Total revenue

As noted in Section 6, ActewAGL determined a cost of service for the ACT natural gas pipeline system using building blocks based on the cost of service methodology. ActewAGL’s proposed building blocks for the forthcoming access arrangement period, which include a return on working capital, are shown in Table 12.1.[122]

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[121] A structural element is any principle or methodology that is used in the calculation of a reference tariff where that principle or methodology is not a market variable element and has been structured for reference tariff making purposes over a longer period than a single access arrangement period. A market variable element is a factor that has a value assumed in the calculation of a reference tariff, where the value of that factor will vary with changing market conditions.

[122] The proposed inclusion of a component for working capital in ActewAGL’s cost of service calculation is discussed in Section 6 of this decision. The commission does not consider there

Table 12.1 **ActewAGL, proposed total revenue, cost allocation, 2005–2010**

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Return on capital base	18.2	18.5	18.6	18.7	18.8	19.0
Depreciation	7.4	7.9	8.2	7.7	7.9	7.8
Redundant capital (accelerated depreciation)	0.1	0.1	0.1	0.1	0.1	0.1
Return on working capital	0.5	0.6	0.6	0.7	0.8	0.8
Non-capital costs	13.5	13.6	13.8	13.8	13.8	13.8
Total cost of service	**39.7**	**40.7**	**41.3**	**41.0**	**41.4**	**41.5**
Revenue from tariff customers	36.5	37.7	38.9	40.1	41.2	42.4
Revenue from contract customers	1.4	1.4	1.4	1.4	1.4	1.4

ActewAGL submitted that its proposed reference tariffs are calculated in accordance with the principles in section 8 of the Code, using a price path approach, and fixed for the duration of the forthcoming access arrangement period. It considered that this approach provided it with incentives to increase demand and reduce costs during the period.

ActewAGL submitted that, as required by section 8.38 of the Code, the tariff for each reference service is designed to cover those costs which can be directly attributable to providing the service plus a share of joint costs, where the share is determined in line with the objectives of section 8.1 of the Code.

In its draft decision, as in this final decision, the commission's consideration of ActewAGL's proposed total revenue is contained in the separate assessments of the individual components of the cost of service calculation as used by ActewAGL to determine its proposed reference tariffs and reference tariff policy. These assessments are based on:

- the cost of service methodology and its application on a real basis under sections 8.4 to 8.5A of the Code (contained in Section 6 of the draft decision and this final decision)

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to be sufficient justification for such a return to be included in the total revenue requirement for the forthcoming access arrangement period.

- prudent and efficient non-capital costs, as defined in section 8.37 of the Code (contained in Section 7 of the draft decision and this final decision)

- capital expenditure considered to be consistent with the prudence and roll-in tests under section 8.16 of the Code, and calculation of depreciation charges consistent with sections 8.32 to 8.35 of the Code (contained in Section 8 of the draft decision and this final decision)

- a rate of return applied to the relevant capital assets of the pipeline that is considered to be commensurate with prevailing conditions in the market for funds and the risk involved in delivering reference services in accordance with sections 8.30 and 8.31 of the Code (in Section 10 of the draft decision and this final decision).

In the draft decision, the commission's consideration of the above components within the cost of service framework resulted in the calculation of the total revenue requirement for ActewAGL's natural gas distribution system over the forthcoming access arrangement period as set out in Table 12.2.

Table 12.2 Commission, proposed total revenue and cost allocation, 2005–2010

	$ million, real 2004–05					
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Return on capital base	15.78	16.00	16.06	16.10	16.23	16.32
Depreciation	7.40	7.94	8.20	7.72	7.85	7.84
Redundant capital (accelerated depreciation)	nil	nil	nil	nil	nil	nil
Return on working capital	nil	nil	nil	nil	nil	nil
Non-capital costs	12.19	12.36	12.61	12.84	13.07	13.28
Total cost of service	35.36	36.30	36.87	36.66	37.16	37.44
Revenue from tariff customers	34.96	35.15	35.26	35.32	35.34	35.34
Revenue from contract customers	1.45	1.45	1.45	1.45	1.45	1.45

The total revenue requirement shown in Table 12.2 represented an approximate 10.5% reduction to the total revenue requirement as proposed by ActewAGL in Table 12.1.

12.3.2 Tariffs

ActewAGL's proposed 'smoothed' tariffs are designed to result in the forecast net present value of the total cost of service (the total revenue requirement) being recovered over the forthcoming access arrangement period. Under this arrangement, forecast revenue and costs in any year will not necessarily match.

For the tariff market, ActewAGL proposed a pricing structure that is the same as in the 2001 access arrangement, in that it comprises:

- a fixed charge
- a throughput charge, with a number of different tariff 'blocks'
- a basic metering equipment charge.

ActewAGL proposed changing the structure of tariffs so that the block tariff rates decline with throughput. Under the current access arrangement, block tariff rates do not reduce consistently with throughput. The effect of the proposed change would result in increased tariffs for customers using 5–25 GJ per quarter, relative to other customers.

ActewAGL's proposal also incorporated:

- the specific changes in tariffs between 2003–04 and 2004–05 set out in Table 12.3
- annual real increases in tariffs of 1% to 1.5% for the contract market, given that contract revenue is to remain constant over the forthcoming access arrangement period but that ActewAGL has forecast volumes to fall
- annual increases of around 0.3% in real terms for fixed charges and throughput charges for the tariff market
- no change in charges in real terms for basic metering equipment and metering charges for tariff customers
- ancillary charges (fees for processing a request for service, special meter reading and connection and disconnection) to remain constant in real terms
- overall, tariffs to rise in real terms by 0.4% per annum over the forthcoming access arrangement period.

ActewAGL's proposed reference tariffs can be characterised as embodying a CPI + 0.4% price path. This is discussed in the section below on the form of the (average) price path.

Table 12.3 ActewAGL's proposal for tariff changes, 2003–04 to 2004–05

Tariff	$ real 2003–04 2003–04	 2004–05	% change
Contract charges			
Network unit charge ($ per GJ per MDQ per annum)	210.237	211.547	0.6
Throughput charge ($ per GJ)	4.608	3.100	–32.7
Capped rates ($ per GJ)			
First 20 TJ	4.120	2.888	–29.9
Next 30 TJ	3.570	2.507	–29.8
All additional TJ	3.020	2.117	–29.9
On-site data and communication equipment ($ per delivery station)	980.000	982.439	0.2
Meter reading charge ($ per delivery station)	419.000	420.488	0.4
Tariff market charges			
Fixed charge ($ per annum)	45.400	44.528	–1.9
Throughput charges ($ per GJ)			
First 1.25 GJ per month or 3.75 GJ per qtr	5.940	5.826	–1.9
Next 1.5 GJ per month or 4.5 GJ per qtr	4.244	4.601	8.4
Next 5.75 GJ per month or 17.25 GJ per qtr	4.514	4.427	–1.9
Next 75 GJ per month or 225 GJ per qtr	4.691	4.311	–8.1
Next 333.5 GJ per month or 1000.5 GJ per qtr	3.856	3.782	–1.9
All additional GJ	2.701	2.649	–1.9
Meter provision charges			
Meters < $6m^3$ per hour ($ per annum)	21.55	18.862	–12.5
Meters > $6m^3$ per hour ($ per GJ)	0.167	0.146	–12.4
Meter reading charge ($ per annum)			
Quarterly	3.730	3.500	–6.2
Monthly	35.600	33.406	–6.2
Ancillary service charges			
Request for service (rate per hour)	50	53.220	6.4
Special meter read	40	39.912	–0.2
Reconnection fee	n.a.	75.385	n.a.
Disconnection fee	100	102.000	2.0

12.3.3 Form of price path

In addition to the initial price changes shown in Table 12.3, ActewAGL's proposed access arrangement sets out prices (expressed in real 2004–05 terms) for each year of the access arrangement period.

ActewAGL's approach of predetermining tariffs in real terms (with the annual real change in tariffs being defined by an X factor), and then

adjusting the predetermined tariffs each year during the access arrangement period by the change in the CPI, is consistent with the approach adopted in the 2001 access arrangement.

The CPI used is the all groups index for the weighted average of eight capital cities, in this case calculated as the sum of the quarterly index values for the 12-month period to December prior to the relevant year, divided by the sum of the quarterly index values for the 12 months to December immediately prior to the aforementioned period.

The proposed tariffs:

- at 1 January 2005 do not vary the (average) tariff level applying to the final year of the 2001 access arrangement period (that is, ActewAGL is not proposing to apply a 'P_0' at the start of the forthcoming access arrangement period)

- embody an annual 0.4% real increase applied at 1 July each year of the forthcoming access arrangement period

- assume that at 1 July each year the CPI adjustment is applied, based on the approach noted above, to determine the nominal prices to apply over the following 12 months.

ActewAGL's proposed reference tariffs thus embody a CPI + 0.4% price path.

In its draft decision, the commission noted that ActewAGL's approach of predetermining tariffs in real terms and then adjusting the predetermined tariff by the change in the CPI provides relative certainty for users (subject to changes in the CPI and the impact of pass-through events) and simplicity of calculation. Under this approach, any realignment or rebalancing of individual tariffs to reflect unanticipated shifts in costs and demand can only occur at the end of an access arrangement period.

The commission considered that ActewAGL's price path approach provided an incentive to ActewAGL to reduce costs and to develop the market for services within the access arrangement period. In this regard, ActewAGL had not proposed any across-period arrangements for the sharing of efficiency gains and losses. The effect is that ActewAGL will have a relatively greater incentive to reduce costs in the early years of the forthcoming access arrangement period compared with the later years

because it will be able to retain any gains for a relatively longer time. While access arrangements approved in other jurisdictions, including those approved by the ACCC and the ESCV, include a mechanism that attempts to remove this bias and give the service provider an equal and continuous incentive to reduce costs and develop the market, such across-period mechanisms give rise to a number of practical problems before they can be implemented. In this regard, other regulators (including IPART) have cast doubt on whether the benefits of such arrangements outweigh the costs. The commission accepted that ActewAGL's price path approach did not require across-period arrangements for the sharing of efficiency gains and losses.

As noted above, ActewAGL's general CPI-related price path mechanism is consistent with the mechanism currently applying to the 2001 access arrangement period. This mechanism could be characterised in terms of section 8.3 of the Code as being a price path approach, or a reference tariff control formula approach. The incentive benefits from ActewAGL's CPI-related price path mechanism were considered by the commission to be consistent with the objectives contained in section 8.1 of the Code. In the context of the particular mechanism, the use of a lagged CPI value (to provide certainty in the tariff changes to take effect some four months after the publication of the last input data for the CPI calculation) was also considered reasonable.

While the commission accepted the CPI-related price path mechanism proposed by ActewAGL because it has calculated a lower total revenue requirement (see Section 12.3.1 above), the commission considered that the underlying real tariff path to be applied by the mechanism should be varied from that proposed by ActewAGL.

ActewAGL had proposed to apply:

- a zero P_0 at the start of the forthcoming access arrangement period
- an annual 0.4% real increase at 1 July each year of that period (i.e. the CPI + 0.4% price path as noted above).

However, based on the commission's calculation of a 10.5% reduction in the total revenue requirement compared to that proposed by ActewAGL, the commission required ActewAGL to amend its CPI-related price path mechanism so that:

- if a zero P_0 is to apply at the start of the forthcoming access arrangement period (1 January 2005), then an annual 2.2% real reduction should apply at 1 July in each year of that period

  or

- if the X factor is fixed at 0% (i.e. tariffs may vary only by CPI each year), then a negative 8.5% P_0 shall apply at the start of the forthcoming access arrangement period (1 January 2005).

In the draft decision, the commission invited ActewAGL to propose a price path based on a different combination of X factor and P_0 adjustments to those noted above, provided that the effect of the revised price path mechanism was designed to recover no more than ActewAGL's total revenue requirement as calculated by the commission (see Table 12.2). Where ActewAGL proposes to meet the commission's requirements by applying a P_0 adjustment, ActewAGL must also amend its proposed tariff changes to take effect on 1 January 2005 (as shown in Table 12.2) so that the weighted average tariff variation is consistent with ActewAGL's P_0 adjustment.

12.3.4 Pass-through events

ActewAGL's 2001 access arrangement permits changes in the cost of its annual authorisation fee to be automatically passed through to customers at the same time as the annual tariff variation. Authorisation fees associated with the implementation of full retail contestability may be passed through at any time. Changes in government fees, taxes or charges may also be passed through at any time, provided the commission has been notified of the proposed change and given a reasonable opportunity to review the change.

Clause 6.10 of ActewAGL's proposed revised access arrangement provides for five pass-through events:

- *capital cost event*—where capital expenditure on a project is greater than forecast, or where expenditure is incurred on a project not included in the capital expenditure forecast. Although not stated in the access arrangement documentation, ActewAGL clarified that this provision is intended to work in parallel with the regulatory pass-through event (see below), and has been designed to apply primarily where external events such as changes in standards require increased expenditure. Such events

are expressly limited to capital investments that satisfy the requirements of section 8.16 of the Code.

- *change in tax event*—a change in tax or introduction or removal of a tax
- *regulatory event*—an event which imposes a change in minimum standards and substantially alters the way in which ActewAGL must provide services, including a change in authorisation fee, or a change in ActewAGL's obligations under the Code
- *insurance event*—including an event in which insurance becomes more costly, unavailable, or available only on less favourable terms
- *unforeseen external event*—any unforeseen external event beyond ActewAGL's control, including natural disasters, such as bushfires, and terrorism.

Under ActewAGL's proposal:

- reference tariffs may be varied only if there is a material impact on costs (although the term 'material' is not explicitly defined)
- changes in tariffs that do occur as a result of a pass-through event will occur at the same time as the annual tariff variation
- the commission may initiate a variation to tariffs as a result of a pass-through event if ActewAGL does not do so
- the process for seeking approval of the pass-through is generally as provided in the Code (that is, on the basis that the commission determines that the proposed pass-through arrangements represent an approved reference tariff variation method).

ActewAGL did not believe that it is reasonable to establish a minimum 'materiality' threshold. The appropriate threshold will vary, depending on the type of event, the costs associated with the event and the costs of preparing and processing the claim.

ActewAGL submitted that its proposed mechanism for dealing with pass-through events is reasonable in that it meets the requirements of sections 8.3A to 8.3H of the Code, which have been added since the 2001 access arrangement was approved.

In assessing ActewAGL's proposed pass-through events in the draft decision, the commission first noted that pass-through events are addressed in sections 2.49 and 8.3 of the Code[123] and that the pass-through events proposed to apply by ActewAGL represent a form of trigger event adjustment approach as contemplated by section 8.3 of the Code. The commission noted that ActewAGL is seeking to apply this approach in the forthcoming access arrangement period as an approved reference tariff variation method. In determining to accept such an arrangement, the commission must be satisfied that the arrangement is consistent with the objectives in section 8.1 of the Code and that the implementation of the approved reference tariff variation method will meet the requirements of sections 8.3B to 8.3H of the Code.

In assessing this matter, the commission has noted that:

- pass-through events reduce the risk faced by the regulated business and thus, it may be submitted, reduce the cost of capital and hence overall costs to customers in the long term
- pass-though events may also replicate the outcome of a competitive market where these cost impacts can typically be passed directly through to customers in the short term
- at the same time, overuse of pass-through items can dull the incentive properties of the regulatory regime, impose additional administrative costs on the business and the regulator, and create uncertainty for users.

The commission noted that the proposed pass-through events represent a significant extension of the events treated as pass-throughs under the 2001 access arrangement. It also noted that some of the events (e.g. a capital cost event, or a regulatory event) may require more comprehensive consultation, analysis and consideration than can be accommodated by the simplified annual assessment process, relative to the broader access arrangement revision process provided by section 2 of the Code.

The commission considered that such broadly applied pass-through provisions may undermine the incentives to reduce costs (where such incentives, on the other hand, would be promoted by ActewAGL's proposed price path mechanism).

[123] The Code was recently amended to provide specific guidance on the manner in which pass-through events should be treated.

In assessing ActewAGL's proposed arrangements, the commission also noted that under section 2 of the Code, a service provider is not generally precluded from seeking an access arrangement revision at any time. The general process in the Code could thus be considered appropriate for major events, such as a capital cost event, or a regulatory event requiring comprehensive consultation, analysis and consideration beyond that which could be accommodated by an annual assessment process. Moreover, the events, and the materiality of their effects necessary to give rise to a pass-through application, were not sufficiently well defined in ActewAGL's proposed access arrangement.

The commission noted that some pass-through mechanisms may produce bias in favour of the service provider because only the service provider is able to lodge pass-through applications. However, the commission recognised that ActewAGL had sought to deal with this potential concern by providing the commission with the ability to lodge pass-through applications, pursuant to the terms of the access arrangement. The commission considered that such an arrangement would reduce, rather than remove, such bias in favour of the service provider—given that the service provider would generally have more detailed knowledge of the pass-through event, including the fact that it had occurred or was occurring.

Given the information before it, the commission was not satisfied that a trigger event adjustment approach for the full range of pass-through events proposed by ActewAGL would be consistent with the objectives set out in section 8.1 of the Code. In its draft decision, the commission therefore proposed to accept an access arrangement which contained only the pass-through events already contained in the 2001 access arrangement.

12.3.5 Link between tariffs and service standards

In other jurisdictions and other regulated industries, some regulators have required that a formal link be established between tariffs and service standards. These arrangements have included:

- the requirement to make payments to customers where levels of service to individual customers fall below acceptable levels (often known as guaranteed service level payments, or GSLs)
- a formal link between the annual change in tariffs and overall network service levels (known as an 'S factor').

ActewAGL has not proposed to apply any new GSLs or apply any S factors to the price path formula in its proposed access arrangement revisions.

ActewAGL did not believe that it is appropriate to include a formal link between service standards and tariffs in the access arrangement, although it considers that options for the development of a service standard incentive scheme should be examined.

The development of such a scheme would require resolution of a number of difficult issues, which ActewAGL has suggested would be best resolved over the term of the next access arrangement. ActewAGL has signalled that it would be prepared to work with the commission to develop an appropriate S-factor regime, or some other appropriate mechanism. It suggests that the results from its willingness-to-pay study will provide useful input into the development of a service incentive scheme via a service quality index.

The commission agreed with ActewAGL's comments that the development of such a scheme would require the resolution of a number of difficult issues, including:

- the appropriate measures of service performance to use
- the practicalities of obtaining data on these measures
- the levels at which the incentive rates should be set
- how the impact of external events (such as bushfires) on service should be treated.

The commission indicated that it would embark on a paper trial monitoring a potential S factor over the remaining years of the forthcoming access arrangement period. The costs and benefits of an S factor would be reviewed before its introduction as part of the adjustment mechanism for the subsequent access arrangement period is confirmed.

12.3.6 Fixed principles

ActewAGL included in its proposed access arrangement three sections which it has designated as 'fixed principles'. Under the Code, fixed principles are not subject to review by the regulator at the time an access arrangement is revised, and hence they continue to apply (unless the service

provider agrees) until the end of a designated fixed period. The three proposed fixed principles are:

- ActewAGL may increase the capital base for the network for any part of the new facilities investment that satisfies section 8.16 of the Code.

- ActewAGL may undertake new facilities investment that does not satisfy section 8.16 of the Code. Where ActewAGL does so, ActewAGL may increase the capital base for any part of that new facilities investment that does satisfy section 8.16(a) of the Code.

- The amount that does not satisfy the requirements of section 8.16 of the Code forms part of the Speculative Investment Fund (as contemplated by the Code). ActewAGL may increase the capital base if a part of the Speculative Investment Fund subsequently satisfies the requirements of section 8.16 of the Code.

Clause 4.10 of the proposed access arrangement, which contains fixed principles, appeared in fundamentally the same form in the 2001 access arrangement (as Section 4.2.2). However, it was not denoted as a fixed principle.

The commission considers the fixed principles proposed by ActewAGL to be consistent with the Code. However, because the principles as specified in the proposed access arrangement are incomplete, in that ActewAGL has not proposed a fixed period for which the fixed principles will apply, the commission does not consider that it is able to approve ActewAGL's proposed provisions relating to fixed principles as they stand.

12.4 Further submissions

12.4.1 Total revenue and price path

ActewAGL has accepted that the CPI-related price path will need to be amended.

12.4.2 Fixed principles

ActewAGL in effect accepted the commission's condition in relation to fixed principles and proposes that the fixed principles apply for the term of the access arrangement.

12.4.3 Tariffs and service standards

ActewAGL agreed with the commission's draft decision to work towards the determination of an appropriate S factor for the subsequent access arrangement period. ActewAGL expressed concerned about the comment that the commission would embark on a paper trial and considered that decisions on whether and how to proceed towards implementing an S factor should be made after a process of consultation and analysis.

12.4.4 Pass-through events

ActewAGL raised its concerns regarding the commission's proposed approach to cost pass-throughs, stating that the commission failed to recognise that the cost pass-through events are either:

- no longer relevant (for example, the Utilities Act and full retail contestability have already been introduced and there has been a change in the heating value measurement, all of which are specified in the current access arrangement as pass-through events)

  or

- would benefit from clarification of their nature and extent (e.g. authorisation fees and government taxes).

In addition, ActewAGL has argued that the commission has not addressed each pass-through event and has not taken regulatory precedent into account in considering the key issues associated with the proposed pass-through events. ActewAGL claims that the regulatory event proposed for gas is similar to the service standard event in electricity and therefore that disallowing the regulatory event for gas does not take into account the precedent set in electricity.

ActewAGL has agreed that a capital cost event should not be allowed as a pass-through event. ActewAGL has restated its belief that the other proposed

pass-through events should be considered reasonable and therefore accepted. In addition, in its submission on the commission's draft decision, ActewAGL has stated that if its insurance cost pass-through event proposal is rejected it must be compensated for the additional risks associated with the other potential pass-through events with a higher WACC.

ActewAGL submitted that the proposed revisions to the pass-through provisions in the 2001 access arrangement are designed to provide an updated and more detailed list of the types of events to be covered and to ensure that the procedures for processing pass-through claims are consistent with changes to the Code.

ActewAGL argues that its proposed definitions of pass-through events reflect the complicated and changing business and regulatory environment ActewAGL faces, and that the definitions of the types of events which can trigger cost pass-throughs in the 2001 access arrangement do not cover all reasonable possibilities.

ActewAGL originally submitted that it is not reasonable to establish a minimum 'materiality' threshold. It has argued that the appropriate threshold will vary, depending on the type of event, the costs associated with the event and the costs of preparing and processing the claim. ActewAGL has reconsidered this and has submitted that a materiality threshold of 1% of revenue, or $350,000, is reasonable.

ActewAGL states that its proposed mechanism for dealing with pass-through events is reasonable in that it meets the requirements of sections 8.3A to 8.3H of the Code, which have been added since the 2001 access arrangement was approved.

12.5 Further analysis

12.5.1 Total revenue and price path

The commission's required amendments in relation to the individual cost components in the cost of service approach adopted by ActewAGL result in the total revenue requirement for ActewAGL's natural gas distribution system over the forthcoming access arrangement period shown in Table 12.4. The forecast total revenue is considered by the commission to be appropriate for the ACT natural gas distribution system after assessment of

the component costs and overall approach to the cost of service calculation, and taking into account ActewAGL's interests as shown in the analysis in Section 11 of this decision, which assesses potential effects on ActewAGL's credit rating of an access arrangement based on the commission's required amendments.

Table 12.4 Commission's final decision, total revenue and cost allocation, 2005–2010

						$ million, real 2004–05
Year ending 30 June	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Return on capital base	16.19	16.43	16.50	16.53	16.67	16.76
Depreciation	7.41	7.96	8.22	7.75	7.88	7.85
Redundant capital (accelerated depreciation)	nil	nil	nil	nil	nil	nil
Return on working capital	nil	nil	nil	nil	nil	nil
Non-capital costs	12.64	12.81	13.14	13.24	13.37	13.46
Total cost of service	36.25	37.21	37.86	37.52	37.91	38.07
Revenue from tariff customers	35.04	35.51	35.92	36.30	36.64	36.94
Revenue from contract customers	1.45	1.45	1.45	1.45	1.45	1.45

The total revenue requirement in Table 12.4 represents an approximate 8.2% reduction to the total revenue requirement as proposed by ActewAGL in Table 12.1. Given this reduction, the commission requires ActewAGL to amend its CPI-related price path mechanism so that that mechanism is designed to recover no more than ActewAGL's total revenue requirement as shown Table 12.4. ActewAGL may achieve this requirement by a combination of X factor and P_0 adjustments of its choosing. However:

- if no P_0 adjustment is to apply at the start of the forthcoming access arrangement period, an annual 1.2% real reduction in revenue should apply at 1 July each year of that period

  or

- if the X factor is fixed at zero per cent (i.e. tariffs may vary only by CPI each year), a negative 4.3% P_0 shall apply at the start of the forthcoming access arrangement period.

Where ActewAGL proposes to meet the commission's requirements by applying a P_0 adjustment, it must also amend its proposed tariff changes to take effect on 1 January 2005 (as shown in Table 12.4) so that the weighted average tariff variation is consistent with ActewAGL's chosen P_0 adjustment.

12.5.2 Pass-through events

The commission has reconsidered pass-through events in the light of the provisions of sections 2.49, 8.3 and 8.3B to 8.3H of the code and in light of sections 8.1, 8.2 and 2.24 of the Code. In so doing, the commission has considered whether the various pass-through events outlined by ActewAGL in its submission are still applicable. The commission notes that in the draft decision the commission set out two pass-through events that relied on changes to the regulatory arrangements, which have since been introduced:

- the introduction of the Utilities Act
- the introduction of retail contestability.

Given that both changes have successfully occurred and ActewAGL has been able to pass through the costs associated with these events, the commission considers that the events are no longer relevant and therefore they do not satisfy the provisions outlined in the code. Therefore, the commission agrees with ActewAGL in relation to the need to amend the pass-through provision to exclude any reference to either event.

The cost pass-through events that ActewAGL maintains are reasonable are:

- change in tax event
- insurance event
- regulatory event
- unforeseen external event.

Change in tax event

In its submission, ActewAGL suggest a change in tax event similar to that adopted by the commission in its recent electricity decision.[124] The commission is conscious of its decision to include a change in tax event in that decision and considers the inclusion of such an event as a cost pass-through event to be reasonable. Therefore, the commission proposes to adopt a change in tax event that is consistent with that adopted in the electricity decision, but refined to better reflect the provisions of the Code.

To this end, the commission proposes to better define the type of tax event that will be included in a pass-through application, to include relevant state and territory taxes where appropriate. In relation to the objective in section 8.1(a) of the Code (to give the service provider the opportunity to earn a stream of revenue that recovers the efficient costs of delivering the reference service over the expected life of the assets used in delivering the service), the commission has been guided by the interpretation of this objective provided by the Supreme Court of Western Australia in *Re Michael; Ex parte Epic Energy (WA) Nominees Pty Ltd* (2002) 25 WAR 511.

In this regard, the Court emphasised that section 8.1(a) refers to an *opportunity* for the service provider to earn a 'stream of revenue' that recovers efficient costs over the expected life of the assets used and that this should not be interpreted as implying that the service provider be allowed 'at least' efficient costs, or limited to 'at most' efficient costs. In relation to 'efficient costs', the commission considers that this includes all relevant taxes and that therefore any change should be included as a pass-through event. In addition, section 8.1(e) of the Code requires that a reference tariff and reference tariff policy should be designed with a view to efficiency in the level and structure of the reference tariff.

Insurance event

In its submission on the draft decision, ActewAGL maintains that an insurance event should be included as a pass-through event, based on uncertainties associated with the insurance market in the current global environment.

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[124] ICRC 2004, *Final decision—Investigation into prices for electricity distribution services in the ACT.*

ActewAGL states that the ACCC has approved similar pass-through arrangements for unexpected changes in insurance costs for SPI PowerNet, GasNet, Powerlink and Murraylink.

ActewAGL also states that, if an insurance event pass-through is excluded, the commission should allow ActewAGL an increase in the WACC it receives in order to compensate it for the additional risk it would bear.

In its 2004 final decision on prices for electricity distribution services in the ACT, the commission excluded insurance events from the range of possible cost pass-through events. The commission noted in that decision that insurance costs have increased in recent years. However, given the recent rises, the potential for further increases in future is probably less than it has been in the current regulatory period. The commission is also concerned that allowing pass-throughs for external insurance costs may distort ActewAGL's decisions about whether to self-insure or seek external insurance. The commission also believes that including an insurance event could limit the incentives for ActewAGL to 'shop around' to secure the most appropriate insurance package. Including an insurance event may also reduce the incentive for ActewAGL to take actions that could reduce risks associated with the operation of the business and thereby reduce insurance costs.

Section 8.1(b) of the Code requires that a reference tariff and reference tariff policy should be designed with a view to replicating the outcome of a competitive market. It is the commission's consideration that the costs of insurance events in a competitive market would normally be borne by service providers. If the cost of insurance were to increase as a result of the mismanagement of one competitor in comparison to another, the price of services reflects the lower rate and not the higher rate.

The commission has also considered the submission by ActewAGL that the WACC should be increased if an insurance event is not included as a pass-through event. The commission does not believe that increasing the WACC is appropriate, as the commission considers that the variety of pass-through events proposed is adequate to compensate ActewAGL for any additional risk it may bear because of factors outside its control.

The commission has considered the additional information provided by ActewAGL and, based on the above discussion and in the light of sections 8.1, 8.2 and 2.24 of the Code, the commission does not support ActewAGL's proposal for an insurance pass-through event.

Regulatory event

In its submission on the draft decision, ActewAGL states that the decision not to allow its proposed regulatory event is inconsistent with the commission's own precedent set in the 2004 final decision on prices for electricity distribution services in the ACT. ActewAGL appears to accept that the commission's final electricity decision is relevant and applicable to this aspect of the commission's assessment of the proposed access arrangement under the Code. In the electricity network decision, the commission stated that there is a likelihood that a change resulting from a 'service standard' event could result in a material cost increase. ActewAGL submits that the regulatory event proposed is similar to the service standard event adopted in the commission's electricity decision.

The commission has considered the regulatory event proposed by ActewAGL and the service standard event adopted by the commission in its electricity decision. In the light of ActewAGL's submission, the commission considers that the regulatory event proposed by ActewAGL and the service standard event adopted in the electricity decision are similar. The commission is conscious of its decision to include a service standard event in its electricity decision and considers the inclusion of such an event reasonable as a cost pass-through event in the forthcoming gas access arrangement, as there is a likelihood that a change resulting from such an event could result in a substantial cost increase.

The commission does not consider that the commission's definition of a service standard event in the electricity decision could be construed to be an all-encompassing regulatory pass-through event. However, the commission considers the service standard event adopted in the electricity decision to be not only applicable to this gas access arrangement, but also more detailed and exhaustive than the regulatory event proposed by ActewAGL for inclusion in the revised access arrangement. The commission considers that the regulatory event, if defined in a manner consistent with the service standard event, satisfies the requirements of sections 2.4 and 8.3 and the objectives set out in section 8.1 of the Code, taking into account the factors set out in section 2.24 of the Code. Therefore, the commission proposes to require ActewAGL to adopt the service standard pass-through as adopted in the commission's electricity decision.

In relation to the pass-through associated with a movement towards heating value measurement, ActewAGL has noted that such a measure is not

currently undertaken in the ACT. ActewAGL has noted that if there were a change which warranted the measurement of gas in this manner it would be more appropriate for the commission to consider introducing a regulatory pass-through event to ensure that any associated cost increases could be subject to a pass-through provision. The commission considers that a change of this nature would be adequately covered by the proposed service standard event.

Unforeseen external event

In its electricity decision, the commission adopted a pass-through event for 'terrorism or major natural disaster events'. The commission considers this event to be more detailed and specific than the 'unforeseen external event' proposed in ActewAGL's proposed revisions to the access arrangement. Therefore, the commission proposes to require ActewAGL to adopt the terrorism or natural disaster event adopted in the electricity decision.

Materiality

The commission and ActewAGL both acknowledge that before a cost pass-through event is permitted, a materiality threshold must be reached. The commission also acknowledges the recent IPART decision that determined a materiality threshold equivalent to 1% of average annual 'smoothed' revenue.[125] ActewAGL submitted that if this approach were adopted, it would result in a materiality threshold of $350,000.

In determining the appropriate level for the materiality threshold, it is important that the commission consider the costs associated with a pass-through event. These include the administrative costs associated with the business assessing the impact of a particular event and preparing a pass-through application, as well as the costs of the regulator in investigating and approving or denying that application. In addition to these costs, there are also costs imposed on customers and retailers through uncertainty regarding tariff levels, and economic costs associated with the 'dulling' of the incentive properties of the regulatory regime, particularly if the threshold is set too low. The commission accepts that this second category of costs is difficult to measure but nevertheless believes they have the potential to significantly outweigh the direct administrative costs.

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[125] IPART, *NSW Electricity Distribution Pricing 2004/05 to 2008/09, Final Report*, June 2004 p 129.

The commission also takes into consideration the threshold level at which the impact of a possible pass-through event would have no serious financial impact upon the business if it had to wait until the next review for these higher costs to be included in the business's revenue requirements. Furthermore, it is important to note that the materiality threshold of 1% of average annual revenue used by IPART (and relied on by ActewAGL) relates to distribution businesses in New South Wales which are relatively larger than ActewAGL and therefore risk more money. As an example, if the New South Wales materiality threshold were applied to ActewAGL's closest competitor, Country Energy, the total value deemed to be material would have been on average around $5 million per annum. The amount considered material by IPART for Country Energy ($5 million) and that proposed by ActewAGL's definition of materiality ($0.35 million) are significantly different.

As noted above, the commission is seeking to set a meaningful definition of materiality such that ActewAGL is provided with the appropriate incentive to manage pass-through events and at the same time is not materially disadvantaged as a result of an event completely outside its control.

Section 8.1(e) of the Code requires that a reference tariff and reference tariff policy should be designed with a view to efficiency in the level and structure of the reference tariff. The commission considers that this should be extended to include the relative impact of the events specified above. The commission considers that the business should be provided with the appropriate incentives to achieve economic efficiency and considers that defining materiality at a higher rate than proposed by ActewAGL will strengthen the incentives provided to ActewAGL.

Therefore, the commission has decided to increase the materiality threshold to 1.5% of revenues, or $0.5 million (in 2004–05 dollars). Considering the total value of dollars at risk, the commission considers that this is a more appropriate threshold. Further, the commission considers that ActewAGL is still provided with an appropriate opportunity to seek compensation for the pass-through events as defined above.

12.5.3 Other issues

Under section 7 of the ICRC Act, the commission has the following objectives in relation to regulated industries, access regimes, competitive neutrality complaints and government-regulated activity:

- promote effective competition in the interests of consumers
- facilitate an appropriate balance between efficiency and environmental and social considerations
- ensure non-discriminatory access to monopoly and near-monopoly infrastructure.

If all other costs were held constant and ActewAGL adopted a CPI – 1.2% price path, the result would be a real decrease in the cost of gas distribution. A CPI – 1.2% price adjustment for distribution charges from 1 January 2005 represents a nominal increase in gas distribution charges of approximately 1.3%, assuming a CPI increase of 2.5% in 2004–05. As the retail market for gas supply in the ACT has been contestable since 1 January 2002, it is expected that this real price reduction will be passed through to consumers through competitive pressures. As gas distribution accounts for approximately 50% of the final price of gas, there will be an approximate 0.65% nominal increase in the price of gas, which in real terms, assuming an inflation rate of 2.5%, would result in a real 1.85% decrease in gas prices.

The commission is required to adhere to the principles of ecologically sustainable development (ESD) under section 3 of the Utilities Act. ESD requires integration of economic and environmental considerations in decision-making processes through the implementation of the following principles:

- the precautionary principle (if there is a threat of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation)
- the intergenerational principle (the present generation should ensure that health diversity and productivity of the environment is maintained or enhanced for the benefit of future generations)
- conservation of biological diversity and ecological integrity
- improved valuation and pricing of environmental resources.

The commission notes that the real decrease in prices may act to increase the attractiveness of gas relative to electricity. As greenhouse gas emissions associated with the use of gas as a source of hot water generation, heating and cooking are less than those related to the use of electricity generated from coal, the commission believes that the tariffs calculated from this final decision will encourage the continued use of gas and the associated reduction in greenhouse gas emissions.

The commission has taken into account the principles and key environmental standards established for ActewAGL's operations by Environment ACT in accordance with the ACT *Environment Protection Act 1997* and the Environment Protection Regulations 1997. The commission believed that its draft decision would not adversely affect ActewAGL's ability to meet those requirements.

12.6 Final decision

12.6.1 Total revenue and price path

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendments are required.

Amendment 13

ActewAGL must adopt the total revenue requirement set out in Table 12.4.

Amendment 14

ActewAGL must revise the parameter values (in the form of P_0 and the X factor) incorporated into its CPI-related formula, in order that this price path mechanism be designed to recover no more than ActewAGL's total revenue requirement as specified in Amendment 13. This required amendment is to flow directly through to the real tariffs contained in ActewAGL's access arrangement.

Amendment 15

Where ActewAGL proposes to amend the access arrangement in compliance with Amendment 14 by amending the P_0 factor incorporated into its CPI-related price path formula, in addition to the required changes to real tariffs contained in ActewAGL's access arrangement, ActewAGL is required

make commensurate adjustments to its proposed 2004–05 tariffs as set out in tables 2.7 and 12.3 of this decision.

12.6.2 Fixed principles

In accordance with the analysis conducted in its draft decision, and taking into account that no further submissions were received in relation to this issue (noting that ActewAGL has, in effect, accepted the proposed amendments in the draft decision and will specify that the fixed principles shall apply for the term of the access arrangement), the commission approves ActewAGL's proposed revisions to its access arrangement to include fixed principles, subject to the term of the fixed principles being specified in the access arrangement.

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendment is required to the revisions.

Amendment 16

ActewAGL is to specify the fixed period for which the fixed principles are to apply.

12.6.3 Pass-through events

ActewAGL has agreed that a capital cost event should not be allowed as a pass-through. In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendments are required to the revisions.

Amendment 17

ActewAGL is to adopt the following definition of pass-through event in its access arrangement.

Change in tax event

A change in tax event is:

- a change in the way or rate at which a relevant tax is calculated (including a change in the application or official interpretation of a relevant tax)

  or
- the removal of a relevant tax or imposition of a new relevant tax

which, in either case, occurs on or after 1 December 2004, and satisfies the materiality test below.

A 'relevant tax' is any tax, rate, duty, charge or levy or other like or analogous impost that is imposed by or payable directly or indirectly by ActewAGL to any authority of the Commonwealth of Australia or relevant state and territory governments (including goods and services tax), excluding:

- income tax (or ACT-equivalent income tax) or capital gains tax
- stamp duty, financial institutions duty, bank account debits tax or similar taxes or duties
- penalties and interest for late payment relating to any tax
- any tax which replaces the taxes referred to above, where 'tax' includes any rate, duty, charge or other like or analogous impost.

Service standard event

A service standard event represents a decision made by the commission or any other authority, or any introduction of or amendment to an applicable law, after the revisions commencement date that has the effect of:

- imposing or varying minimum standards on ActewAGL relating to reference services that are more onerous than the minimum standards applicable to ActewAGL in respect of reference services at the revisions commencement date
- altering the nature or scope of services that comprise the reference services

  or

- substantially varying the manner in which ActewAGL is required to undertake any activity forming part of reference services from the revisions commencement date;

and results in ActewAGL incurring (or being likely to incur) materially higher costs in providing reference services than it would have incurred but for that event.

Terrorism or major natural disaster event

A terrorism or major natural disaster event is an act of terrorism or a major natural disaster (including, but not limited to, fire, flood or earthquake) which results in costs which are substantially different from those reasonably foreseen by the commission and ActewAGL and incorporated in this price direction.

Materiality test

The effect of the cost pass-through events outlined above must be such that the cost incurred, or forecast to be incurred, by ActewAGL as a result of the event, is at least $0.5 million (in 2004–05 dollars) in any one year above the costs reasonably foreseen by the commission and ActewAGL and incorporated in this final decision.

13 Extensions and expansions policy

The Code requires an access arrangement to set out an extensions and expansions policy, which under section 3.16 of the Code represents a policy for determining whether an extension to the covered pipeline or an expansion of the capacity of the covered pipeline is to be treated as part of the covered pipeline.

An ‘extension’ is generally considered to be an addition to the existing pipeline to provide services to customers that currently do not have a service. An ‘expansion’ is an increase in the capacity of the existing pipeline.

The key issues which arise in relation to an extensions and expansions policy are:

- whether an extension or expansion should be treated as part of the covered pipeline
- if the extension or expansion is to be treated as part of the covered pipeline, how that will affect reference tariffs.

13.1 Code requirements

Section 3.16 of the Code requires the extensions and expansions policy to set out:

- a method for determining whether an extension or expansion of the pipeline should be treated as part of the covered pipeline for all purposes under the Code or should not be treated as part of the covered pipeline for any purpose under the Code
- how any extension or expansion will affect reference tariffs
- if the service provider agrees to fund new facilities under certain conditions, a description of the new facilities and the conditions on which the service provider will fund these facilities.

Sections 8.25 and 8.26 of the Code relate to surcharges, which may be levied on users of incremental capacity in order for a service provider to recover some or all of the cost of new facilities that cannot be recovered at the prevailing reference tariff (and so cannot be included in the capital base in subsequent access arrangement periods). To be binding on the parties in an access dispute, surcharges are required to be approved by the commission before being implemented.

A service provider may levy a surcharge on users of incremental capacity provided:

- the surcharges are designed to recover only that part of the new facilities investment that satisfies the requirement in section 8.16(a) of the Code
- the costs that the surcharges are designed to recover do not include any costs that are included in the Speculative Investment Fund (defined in section 8.19 of the Code)
- the structure of the surcharges reflects a fair and reasonable sharing of the total recoverable cost between incremental users (and for this purpose any user who is paying a capital contribution should be assumed to be paying a surcharge).

In assessing a proposed access arrangement, the commission must take into account the factors set out in section 2.24(a) to (g) of the Code.

13.2 Background and draft decision

13.2.1 2000 final decision

In its 2000 final decision, the commission concluded that expansions and extensions should normally be covered automatically and regulated under a single access arrangement. However, a 'duplicate pipeline' should not be included as part of the existing covered pipeline unless ActewAGL reasonably regards the duplicated pipeline as having system-wide benefits and provides the commission with written notice of the reasons for its view. If a duplicated pipeline is included as part of the covered pipeline, the capital base of ActewAGL's natural gas pipeline system would not be increased by the capital expenditure amount unless ActewAGL can demonstrate that the new facility investment satisfies the tests set out in section 8.16 of the Code.

13.2.2 ActewAGL proposal

ActewAGL's proposed extensions and expansions policy is set out in Section 7 of its proposed access arrangement. The policy provides for:

- extensions or expansions that are included in the calculation of reference tariffs (that is, including those in the capital forecast discussed in Section 8 of this decision) to be automatically covered
- all other extensions and expansions to be automatically covered unless ActewAGL gives the commission written notice that the extension or expansion will not be a covered pipeline
- if the extension or expansion is covered, the reference services to be generally offered at reference tariffs, although ActewAGL may charge users a surcharge or seek a capital contribution where permitted by the Code.

In the proposed access arrangement, ActewAGL deleted reference to duplicate pipelines. It submitted that the most appropriate way to deal with duplicate pipelines is to treat them like any other pipeline, in that they should enter the capital base only if they pass the tests in section 8.16 of the Code. In this regard, it considered that the commission's concern in its 2000 final decision—that duplicate pipelines may be uneconomic—would be addressed through the application of the tests in section 8.16.

The proposed access arrangement provides ActewAGL with the flexibility to exclude some extensions and expansions from coverage. ActewAGL considered that the flexibility to exclude some extensions and expansions was reasonable, permitted under the Code, and consistent with the policies in other revised gas access arrangements (for example, GasNet, and Envestra in Victoria, Queensland and South Australia).

The proposed access arrangement provides additional clarity regarding tariff arrangements for extensions and expansions. Under the 2001 access arrangement, reference tariffs would not be affected by an extension or expansion, although a surcharge may apply. In addition, in allowing ActewAGL to set a surcharge (where permitted by the Code), the revised policy makes clear that:

- ActewAGL may seek a capital contribution from users (a once-off contribution towards the cost of the extension or expansion) where permitted by the Code
- even if the whole of an extension or expansion does not pass the test in section 8.16 of the Code, the capital base may be increased by that amount of expenditure that does so.

13.2.3 Consideration of issues

In considering ActewAGL's proposal in relation to coverage of extensions and expansions, the commission considered a range of issues, including:

- the requirements of the Code, including sections 2.24, 3.16 and 8.16
- the fact that, if extensions or expansions were excluded from coverage, reference tariffs would not apply to users of services provided by the extensions or expansions
- regulatory issues, including the need to quarantine costs and revenues attributable to extensions and expansions.

Treating extensions and expansions as part of the existing distribution system was considered to have a number of advantages, including the following.

- It avoids the possibility that a number of access arrangements covering a single pipeline system will exist, which may make it difficult for users to understand the terms and conditions of access.
- It eliminates the need for costs and revenues to be quarantined and allocated across different regulatory instruments.
- It would reduce delays to users obtaining access to services provided by the extension or expansion, which may occur if it were necessary to go through the coverage process in the Code (section 1) for each extension or expansion.

On the other hand, allowing a service provider to have an expansion or extension separately assessed for coverage under section 1 of the Code is likely to be in the interests of the service provider. As noted by the Australian Competition Tribunal in its decision in an application by Epic

Energy South Australia[126], the legitimate business interests of the service provider must be taken into account in assessing an access arrangement, including an assessment of the extension/expansion policy, such as the impact on reference tariffs of including expansions in the covered pipeline.

On balance, the commission considered that there are advantages in expansions and extensions being covered automatically and regulated under a single access arrangement. However, it was considered reasonable for ActewAGL to have the option of a significant extension or expansion being treated as a stand-alone pipeline and therefore not covered automatically, subject to providing written notice to the commission prior to the extension or expansion entering service. The assessment of whether significant extensions or expansions should be covered under section 1 of the Code will mean that such extensions or expansions will be assessed individually, in accordance with the Code's coverage provisions. The commission considers that the assessment of significant extensions or expansions under those provisions is reasonable, having regard to the factors set out in section 2.24 of the Code.

In relation to how an extension or expansion that is automatically covered should be priced, the commission considered it appropriate that reference services for the extension or expansion be offered at the reference tariffs.

In relation to the capital base, the commission considered that the capital base should be increased only where the extension or expansion meets the tests in section 8.16 of the Code. Where the extension or expansion does not meet these tests, ActewAGL may charge users a surcharge or capital contribution.

The tariff arrangements as proposed by ActewAGL were considered by the commission to be consistent with provisions in the Code relating to new facilities investment, capital contributions and surcharges.

13.2.4 Draft decision

In its draft decision, the commission proposed to approve ActewAGL's proposed extensions and expansions policy, subject to the issue of

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[126] *Application by Epic Energy South Australia Pty Ltd* [2003] ACompT 5.

‘significance’ (whereby significant extensions and expansions may be excluded from coverage under the access arrangement, on ActewAGL giving notice to the commission) being decided by the commission case by case. The commission also proposed amendments to the access arrangement to require ActewAGL to give the commission written notice prior to an extension or expansion entering service.

13.3 Further submissions

ActewAGL accepted the proposed amendments set out in the commission’s draft decision in relation to the extensions and expansions policy in the proposed access arrangement.

13.4 Final decision

In accordance with the analysis conducted in its draft decision, and taking into account that no further submissions were received in relation to this issue (other than ActewAGL’s acceptance of the proposed amendments in the draft decision, as noted above), the commission approves ActewAGL’s proposed revisions to its extensions and expansions policy, subject to the amendments to this policy as specified in the draft decision being adopted.

In order for the commission to approve the revisions to ActewAGL’s access arrangement, the following amendments are required.

Amendment 18

ActewAGL is to amend the extensions/expansions policy in its access arrangement as follows.

- Whether an extension or expansion is ‘significant’ (in terms of ActewAGL being able to provide written notice to the commission that a significant extension or expansion is treated as a stand-alone pipeline and not covered under the access arrangement for ActewAGL’s natural gas pipeline system) shall be decided by the commission on a case-by-case basis.

- ActewAGL is to give the commission written notice prior to such an extension or expansion entering service.

14 Capacity management, trading and queuing policies

Under the Code, service providers are required to establish policies that set out how capacity on the covered pipeline can be accessed and how it will be allocated between users, particularly where available capacity is insufficient to meet demand.

One of the reasons the Code requires these policies to be in place is to allow the development of ‘secondary’ markets. If existing users are able to trade their capacity, and potential new users are confident that they can get access to spare capacity when required, this will encourage participation in the gas market. The market will therefore become more competitive, efficient and responsive to customer needs.

These Code requirements, particularly the trading and queuing policy provisions, are also designed to ensure that the service provider does not unfairly favour one user over another in enabling access to capacity.

14.1 Capacity management policy

14.1.1 Code requirements

Section 3.7 of the Code requires that an access arrangement must include a statement (a capacity management policy) which states whether the covered pipeline is either a contract carriage pipeline or a market carriage pipeline.

Section 10.8 of the Code, in defining ‘contract carriage’ and ‘market carriage’, provides examples of four points of distinction between the two methods of managing capacity on a pipeline, as summarised in Table 14.1.

Table 14.1 Methods of managing capacity on a pipeline

Feature	Contract carriage	Market carriage
Contractual entitlement	Users normally enter a contract that entitles them to a specified quantity.	Users are normally not required to enter into a contract that specifies a quantity.
Capacity management methodology	The service provider normally manages capacity by requiring that users not exceed their contracted quantities.	As contracts do not specify a quantity, this mechanism is not available. Service providers would be expected, instead, to buy interruptibility when required.
Basis for charging	Most of the charge is normally set on the basis of the contracted quantity.	Charges are normally based on actual use.
Tradability	Users normally have the right to trade the contracted quantity to others.	There are no rights to trade in capacity.

Section 3.8 of the Code provides that the commission must not accept an access arrangement which states that the covered pipeline is a market carriage pipeline unless the relevant minister of each scheme participant in whose jurisdictional area the pipeline is wholly or partly located has given a notice to the commission permitting the covered pipeline to be a market carriage pipeline. Such permission has not been sought or granted in the ACT.

In assessing a proposed access arrangement, the commission must take into account the factors in section 2.24 of the Code.

14.1.2 Background and draft decision

ActewAGL proposed in submitting its 2001 access arrangement that the distribution system be a contract carriage pipeline. In its 2000 final decision, the commission noted that ActewAGL's capacity management policy accorded with the Code.

Consistent with the 2001 access arrangement, in Section 10 of its proposed access arrangement ActewAGL specifies that its distribution system is a contract carriage pipeline.

In its draft decision, the commission proposed to approve the revised capacity management policy.

14.2 Trading policy

14.2.1 Code requirements

If a pipeline is a contract carriage pipeline, as is proposed here, section 3.9 of the Code requires the access arrangement to include a policy that explains the rights of a user to trade its right to obtain a service with another person (the 'trading policy'). Under section 3.10 of the Code, the trading policy must comply with the following principles:

(a) A User must be permitted to transfer or assign all or part of its Contracted Capacity without the consent of the Service Provider concerned if:

(i) the User's obligations under the contract with the Service Provider remain in full force and effect after the transfer or assignment; and

(ii) the terms of the contract with the Service Provider are not altered as a result of the transfer or assignment (a ***Bare Transfer***).

In these circumstances the Trading Policy may require that the transferee notify the Service Provider prior to utilising the portion of the Contracted Capacity subject to the Bare Transfer and of the nature of the Contracted Capacity subject to the Bare Transfer, but the Trading Policy must not require any other details regarding the transaction to be provided to the Service Provider.

(b) Where commercially and technically reasonable, a User must be permitted to transfer or assign all or part of its Contracted Capacity other than by way of a Bare Transfer with the prior consent of the Service Provider. The Service Provider may withhold its consent only on reasonable commercial or technical grounds and may make its consent subject to conditions only if they are reasonable on commercial and technical grounds. The Trading Policy may specify conditions in advance under which consent will or will not be given and conditions that must be adhered to as a condition of consent being given.

(c) Where commercially and technically reasonable, a User must be permitted to change the Delivery Point or Receipt Point from that specified in any contract for the relevant Service with the prior written consent of the Service Provider. The Service Provider may withhold its consent only on reasonable commercial or technical grounds and may make its consent subject to conditions only if they are reasonable on commercial and technical grounds. The Trading Policy may specify conditions in advance under which consent will or will not be given and conditions that must be adhered to as a condition of consent being given.

In the case of a bare transfer, the trading policy may require that the transferee notify the service provider prior to utilising the portion of the contracted capacity subject to the bare transfer and of the nature of the contracted capacity subject to the bare transfer, but must not require any other details to be provided.

In the case of other transfers, consent may be withheld by the service provider only on reasonable commercial or technical grounds, and the trading policy may specify conditions under which consent will or will not be granted and any conditions attached to that consent.

Section 3.11 of the Code provides the following examples of things that would be reasonable for the purposes of section 3.10(b) and (c):

> (a) the Service Provider refusing to agree to a User's request to change its Delivery Point where a reduction in the amount of the Service provided to the original Delivery Point will not result in a corresponding increase in the Service Provider's ability to provide that Service to the alternative Delivery Point
>
> (b) the Service Provider specifying that, as a condition of its agreement to a change in the Delivery Point or Receipt Point, the Service Provider must receive the same amount of revenue it would have received before the change.

In assessing a proposed access arrangement, the commission must take into account the factors set out in section 2.24 of the Code.

14.2.2 Background and draft decision

2000 final decision

In its 2000 final decision, the commission required ActewAGL to amend its trading policy by including the following statement:

> ActewAGL will reply to any request from a User for ActewAGL's consent to a transfer (other than a Bare Transfer), or for a change of Receipt Point or Delivery Point, within 14 business days of receiving the request accompanied by information which is reasonably necessary to enable ActewAGL to consider the request.
>
> If at the time the request is made, the User informs ActewAGL that due to hardship the User requires an urgent reply to its request, ActewAGL will use reasonable endeavours to respond to the request within two business days of receiving the request.

ActewAGL proposal

Section 8 of the proposed revised access arrangement sets out ActewAGL's proposed trading capacity. It provides for:

- bare transfers to be made, with the transferee being required to notify ActewAGL of certain details of the transfer
- other transfers to be made, subject to ActewAGL giving or withholding its consent, or imposing conditions on the transfer, on reasonable commercial and technical grounds.

No details of what might be considered to be 'reasonable commercial and technical grounds' are provided in the proposed access arrangement, although Section 8.5 does refer to section 3.11 of the Code, which provides examples of things that would be reasonable.

The proposed trading policy is very similar to the existing trading policy, the key difference being that ActewAGL proposes to respond to urgent requests for trade in five days, rather than two days as in the 2001 access arrangement.

ActewAGL submitted that there have been no trades or requests for trades during the 2001 access arrangement period, and for this reason it is difficult to judge whether the policy is sufficiently detailed for users. ActewAGL suggested that its intention in drafting the policy has been to meet the needs of users while satisfying the Code, and it believes the policy does both. ActewAGL also considered the timelines to be reasonable.

Draft decision

While the commission considered that, overall, the proposed trading policy complied with the Code, it was concerned that the proposed increased response time for urgent requests for trade from two to five days might not be commercially acceptable to users. The commission therefore proposed to require ActewAGL to amend its trading policy to provide that it will take reasonable steps to respond to urgent requests for trade within two business days of receiving the request. In this regard, the commission noted that AGLGN's proposed access arrangement in New South Wales states that 'AGLGN will use reasonable endeavours to respond to the request within two business days of receiving the request', and that this requirement is consistent with the 2001 access arrangement.

14.3 Queuing policy

14.3.1 Code requirements

System constraints and hence the benefits and need for trading in a distribution system are generally fewer than those in a transmission system. Therefore, section 3.12 of the Code does not mandate an access arrangement to have a policy for determining the priority that a prospective user has, as against any other prospective user to obtain access to spare capacity and developable capacity (a queuing policy) unless the commission requires it.[127]

If an access arrangement is to include a queuing policy, that policy must:

- set out sufficient detail to enable users and prospective users to understand in advance how the queuing policy will operate
- accommodate, to the extent reasonably possible, the legitimate business interests of the service provider and of users and prospective users
- generate, to the extent reasonably possible, economically efficient outcomes.

The regulator may require the queuing policy to deal with any other matter, taking into account the matters listed in section 2.24 of the Code, and the service provider must comply with the queuing policy (notwithstanding anything else contained in the Code).

14.3.2 Background and draft decision

2000 final decision

The queuing policy proposed in ActewAGL's 2001 access arrangement was as follows:

- where there is insufficient capacity to satisfy a request for service, a queue will be formed

[127] Prior to the Fourth Amending Agreement coming into effect on 6 February 2003, a queuing policy was mandatory under the Code for all pipelines.

- when capacity becomes available to meet the needs of any prospective user in a queue, capacity will be offered progressively to each prospective user in order of priority
- priority is given to requests for reference services over requests for negotiated services.

Within these categories, a 'first come, first served' basis is observed. In its 2000 final decision, the commission noted that ActewAGL's queuing policy accorded with the Code.

ActewAGL proposal

ActewAGL has included a queuing policy in Section 9 of its proposed access arrangement. The proposed queuing policy is broadly consistent with the queuing policy in the 2001 access arrangement.

However, the proposed policy is more detailed than the existing policy and incorporates a number of amendments, including the following.

- In the 2001 access arrangement, a user was allowed a fixed 30 days after an offer was made to enter into a service agreement, failing which the request would lapse or lose priority. In the proposed access arrangement, additional flexibility has been added and ActewAGL may agree to reserve capacity for a nominated time to allow a transport services agreement to be finalised.
- The requirement in the 2001 access arrangement that users compensate ActewAGL for costs of holding capacity has been changed slightly. In the proposed access arrangement, users must reimburse ActewAGL within 30 days of receipt of a notice setting out the details specified in the access arrangement.
- The proposed access arrangement clarifies arrangements for priority on the queue. The commission's interpretation of the policy is that the following priority of services is proposed:

    1. all reference services other than short-term capacity
    2. negotiated services, including the embedded network connection service
    3. short-term capacity.

- The following provisions have been added:
  - where a request is made for a service to a delivery point and ActewAGL is satisfied the request is for the same tranche which is already provided to the user or another user, ActewAGL may make that tranche available before satisfying any other requests in a queue
  - if either party raises a dispute under the Code in connection with a request, the request will not lapse and will retain its priority in the queue
  - if a request is placed in a queue, the user will demonstrate to ActewAGL on request that the user will have access to a sufficient supply of gas at the time it is anticipated that access will be offered
  - ActewAGL will advise a user if their request for capacity is incomplete, and if the user completes the request within seven days the priority for queuing purposes will be based on the time and date the request was first received by ActewAGL.
- The following provisions in the 2001 access arrangement have been removed:
  - ActewAGL will advise prospective users of its plans to make capacity available, and of the terms and conditions on which capacity will be available
  - where ActewAGL determines that two or more requests relate to the same tranche of capacity for the same delivery point, all those requests will have the priority date of the earlier request.

ActewAGL submitted that, given that no queues have formed during the 2001 access arrangement period, it is difficult to judge whether the queuing policy is sufficiently detailed for users. However, it suggested that the proposed policy, which has been revised to set out queuing procedures and rights and obligations both of users and of ActewAGL in more detail than the 2001 access arrangement, accommodates the legitimate business interests of the service provider and users.

Draft decision

The commission noted that ActewAGL's proposed queuing policy was broadly consistent with the queuing policy in the 2001 access arrangement, which the commission found was consistent with the Code. The commission considered that the proposed revisions to the queuing policy provide further clarity and flexibility compared with the queuing policy in the 2001 access arrangement, and are consistent with the requirements of the Code. Accordingly, the commission proposed to approve the revised queuing policy.

14.4 Further submissions

ActewAGL accepted the proposed amendments set out in the commission's draft decision in relation to the trading policy in the proposed access arrangement, which required ActewAGL to provide in the revised access arrangement that it will take reasonable steps to respond to urgent requests for trade within two business days of receiving the request (rather than five business days, as proposed).

ActewAGL provided no further submissions or information concerning the queuing policy, and no other person made any submission about this issue.

14.5 Final decision

In accordance with the analysis conducted in its draft decision, and taking into account that no further submissions were received in relation to this issue (other than ActewAGL's acceptance of the proposed amendments in the draft decision in relation to the trading policy, as noted above), the commission approves ActewAGL's proposed revisions to its extensions and expansions policy, subject to the amendment to the trading policy as specified in the draft decision being adopted.

In order for the commission to approve the revisions to ActewAGL's access arrangement, the following amendments are required.

Amendment 19

ActewAGL is to amend the trading policy in its proposed access arrangement to provide that it will take reasonable steps to respond to urgent

requests for trade within two business days of receiving the request (rather than five business days, as proposed).

15 Term of access arrangement

15.1 Code requirements

Section 3.17 of the Code requires an access arrangement to set out the date at which the service provider will submit revisions to the access arrangement (a revisions submission date) and a date on which the next revisions are intended to commence (a revisions commencement date).

Section 3.18 of the Code requires that, if the access arrangement period is longer than five years, the regulator must not approve the access arrangement without considering whether mechanisms should be included to address the risk that forecasts on which the access arrangement was based and approved prove incorrect. These mechanisms can include:

- requiring the service provider to include revisions to the access arrangements prior to the revisions submissions date if certain events occur, for example if the service provider's profits are outside a specified range or if the type or mix of service changes in a certain way

  or

- a service provider returning some or all revenue or profits in excess of a certain amount to users, whether in the form of lower charges or in some other form.

Section 3.19 of the Code provides that nothing in section 3.18 of the Code shall be taken to imply that the regulator may not approve an access arrangement period longer than five years if the regulator considers this appropriate, having regard to the objectives of section 8.1.

In assessing a proposed access arrangement, the commission must take into account the factors set out in sections 2.24(a) to (g).

15.2 Background and draft decision

15.2.1 2000 final decision

In the 2001 access arrangement, ActewAGL sought a five-year access arrangement period from 1 July 1999 to 30 June 2004, and proposed a revisions submission date of 10 December 2003.

In its 2000 final decision, the commission decided that the new access arrangement would commence after the final approval (which specified a commencement date of 1 February 2001) and expire on 30 June 2004. The commission also required ActewAGL to set the revisions submission date at or before 30 June 2003.

As noted in Section 1, after a submission by ActewAGL the commission approved an extension of the term of the 2001 access arrangement to 31 December 2004.

15.2.2 ActewAGL proposal

The revised access arrangement is proposed by ActewAGL to apply from 1 January 2005 to 30 June 2010 and includes a revisions submission date of 30 June 2009.

This provides for a five-and-a-half-year access arrangement period and will give the commission 12 months to assess revisions. This proposed timing is to provide for the access arrangement period to be based around a financial year, rather than a calendar year, to achieve consistency with ActewAGL's reporting timeframes.

ActewAGL proposed that, should the revisions commencement date be later than 1 July 2010, reference tariffs and terms and conditions in place at 30 June 2010 will continue to apply until the revisions commencement date.

15.2.3 Consideration of issues

In considering the proposed term of the revised access arrangement, the commission had regard to the objectives set out in section 8.1 of the Code, among other factors.

In its draft decision, the commission noted that access arrangement periods are typically five years. Shorter periods provide for greater certainty of outcomes to users and service providers, and may be particularly appropriate where rapid industry change is occurring, or where forecasts are known to be uncertain. However, shorter periods increase the frequency of regulatory reviews and hence impose costs on the regulator and business, and of themselves create some uncertainty. Longer periods provide greater incentives for achieving efficiency and may lead to lower business risk and better investment decisions.

As required under section 3.18 of the Code, the commission considered whether the proposed access arrangement should include mechanisms to address the risk that the forecasts on which the arrangements are based and approved prove to be incorrect. As discussed in Section 12 of this final decision, the proposed access arrangement includes a number of pass-through events which may cause changes to reference tariffs during the access arrangement period if they occur. For the reasons discussed in Section 12, the commission does not accept the full range of pass-throughs proposed by ActewAGL.

The commission notes that ActewAGL's proposed term of five-and-a-half years is not materially greater than five years. Further, it does not appear that the level of uncertainty about ActewAGL's longer term operating and capital expenditure projections warrants a reduction in the term of the access arrangement.

The commission held the view that the pass-through events included in the access arrangement will manage some of the risk associated with external events and that, in any case, ActewAGL is not precluded from utilising the general access arrangement revision process under section 2 of the Code in order to deal with the effects of major unforeseen events.

15.2.4 Draft decision

In its draft decision, the commission proposed to approve ActewAGL's proposal for a regulatory period from 1 January 2005 to 30 June 2010, with a revisions submission date of 30 June 2009.

15.3 Further submissions

The commission did not receive any submissions on the issue of its treatment of the term of the access arrangement in the draft decision.

15.4 Final decision

In accordance with its analysis conducted in the draft decision, and bearing in mind that the commission received no further submissions in relation to this issue, the commission approves ActewAGL's proposed revisions in relation to the term of the forthcoming access arrangement period.

Appendix 1 Final decision

The commission has considered ActewAGL's proposed access arrangement revisions and its responses to the commission's issues paper and draft decision, and has also taken account of further information provided by ActewAGL in support of its proposed revisions. The commission has commented on matters raised where this has been considered appropriate.

Pursuant to section 2.38 of the Code, the commission does not approve ActewAGL's proposed access arrangement revisions as lodged with the commission. The reasons why the commission does not to approve the revisions are provided fully in this final decision.

The amendments (or nature of the amendments) that would have to be made to the revisions in order for the commission to approve them are set out in the relevant sections of this final decision and are listed below.

ActewAGL is requested to resubmit its proposed revisions to the access arrangement, incorporating the required amendments specified in this final decision.

The commission requires ActewAGL to resubmit its proposed revisions incorporating the required amendments set out in this decision by 3 November 2004.

In order for ActewAGL's proposed access arrangement revisions to be approved, the commission requires the following amendments.

Amendment 1

ActewAGL must include the following wording in its access arrangement:

> The Meter Data Service, or relevant elements of that service, will cease to be offered as a Reference Service, and at ActewAGL's discretion as a Service, on the date of the commencement of any Gas Law (or the lawful adoption of any requirement by any person or group of people appointed by Government or industry to implement retail contestability in the gas industry in the Australian Capital Territory or New South Wales) where that Gas Law or requirement permits the provision of gas meter reading or on-site data and

communication equipment in the ACT, Queanbeyan and Yarrowlumla by a person other than ActewAGL.

If such a Gas Law or requirement is introduced in either the Australian Capital Territory or New South Wales, but not in both jurisdictions, then this clause will apply to the Meter Data Service only in so far as it relates to the area affected by the Gas Law or requirement.

Amendment 2

Clause 1.17 of Attachment 4 of ActewAGL's proposed access arrangement is to be amended so that it only applies to liability for:

- third-party claims made against ActewAGL as a result of load shedding
- direct loss that ActewAGL incurs as a result of a user's failure to take required action under the load-shedding provisions.

Amendment 3

ActewAGL is to remove the 'return on working capital' building-block component from its calculation of the total cost of service (total revenue requirement) of the ACT natural gas pipeline system for the forthcoming access arrangement period.

Amendment 4

ActewAGL is to adopt the forecast asset management and asset services costs as shown in Table 7.10.

Amendment 5

ActewAGL is to adopt the forecast marketing expenditure as shown in Table 7.11.

Amendment 6

ActewAGL is to adopt the revised forecast UAG expenditure as set out in Table 7.12.

Amendment 7

ActewAGL is to adopt the forecast non-capital costs as set out in Table 7.13.

Amendment 8

ActewAGL is to replace its capital program expenditure forecast with the capital expenditure forecast as shown in Table 8.8.

Amendment 9

Given that the commission's required variations to ActewAGL's capital expenditure forecasts have a consequential effect on projected depreciation charges over the forthcoming access arrangement period, ActewAGL is to adopt the revised depreciation charges as shown in the asset roll-forward summary table, Table 8.9.

Amendment 10

ActewAGL is to adopt the roll-forward of the opening capital base over the forthcoming access arrangement period, adjusted for the effects of capital expenditure, depreciation, disposals and inflation as shown in the asset roll-forward summary table, Table 8.9.

Amendment 11

ActewAGL is to adopt the forecasts, including the tariff volume forecasts, shown in Table 9.13.

Amendment 12

ActewAGL is to adopt a pre-tax real WACC of 7% in calculating the return on capital component within the cost of service methodology.

Amendment 13

ActewAGL must adopt the total revenue requirement set out in Table 12.4.

Amendment 14

ActewAGL must revise the parameter values (in the form of P_0 and the X factor) incorporated into its CPI-related formula, in order that this price path mechanism be designed to recover no more than ActewAGL's total revenue requirement as specified in Amendment 13. This required amendment is to flow directly through to the real tariffs contained in ActewAGL's access arrangement.

Amendment 15

Where ActewAGL proposes to amend the access arrangement in compliance with Amendment 14 by amending the P_0 factor incorporated into its

CPI-related price path formula, in addition to the required changes to real tariffs contained in ActewAGL's access arrangement, ActewAGL is required make commensurate adjustments to its proposed 2004–05 tariffs as set out in tables 2.7 and 12.3 of this decision.

Amendment 16

ActewAGL is to specify the fixed period for which the fixed principles are to apply.

Amendment 17

ActewAGL is to adopt the following definition of pass-through event in its access arrangement.

Change in tax event

A change in tax event is:

- a change in the way or rate at which a relevant tax is calculated (including a change in the application or official interpretation of a relevant tax)

  or

- the removal of a relevant tax or imposition of a new relevant tax

which, in either case, occurs on or after 1 December 2004, and satisfies the materiality test below.

A 'relevant tax' is any tax, rate, duty, charge or levy or other like or analogous impost that is imposed by or payable directly or indirectly by ActewAGL to any authority of the Commonwealth of Australia or relevant state and territory governments (including goods and services tax), excluding:

- income tax (or ACT-equivalent income tax) or capital gains tax
- stamp duty, financial institutions duty, bank account debits tax or similar taxes or duties
- penalties and interest for late payment relating to any tax
- any tax which replaces the taxes referred to above, where 'tax' includes any rate, duty, charge or other like or analogous impost.

Service standard event

A service standard event represents a decision made by the commission, or any other authority or any introduction of or amendment to an applicable law after the revisions commencement date that has the effect of:

- imposing or varying minimum standards on ActewAGL relating to reference services that are more onerous than the minimum standards applicable to ActewAGL in respect of reference services at the revisions commencement date
- altering the nature or scope of services that comprise the reference services

  or

- substantially varying the manner in which ActewAGL is required to undertake any activity forming part of reference services from the revisions commencement date;

and results in ActewAGL incurring (or being likely to incur) materially higher costs in providing reference services than it would have incurred but for that event.

Terrorism or major natural disaster event

A terrorism or major natural disaster event is an act of terrorism or a major natural disaster (including, but not limited to, fire, flood or earthquake) which results in costs which are substantially different from those reasonably foreseen by the commission and ActewAGL and incorporated in this price direction.

Materiality test

The effect of the cost pass-through events outlined above must be such that the cost incurred, or forecast to be incurred, by ActewAGL as a result of the event, is at least $0.5 million (in 2004–05 dollars) in any one year above the costs reasonably foreseen by the commission and ActewAGL and incorporated in this final decision.

Amendment 18

ActewAGL is to amend the extensions/expansions policy in its access arrangement as follows:

- Whether an extension or expansion is 'significant' (in terms of ActewAGL being able to provide written notice to the commission that a significant extension or expansion is treated as a stand-alone pipeline and not covered under the access arrangement for ActewAGL's natural gas pipeline system) shall be decided by the commission on a case-by-case basis.

- ActewAGL is to give the commission written notice prior to such an extension or expansion entering service.

Amendment 19

ActewAGL is to amend the trading policy in its proposed access arrangement to provide that it will take reasonable steps to respond to urgent requests for trade within two business days of receiving the request (rather than five business days, as proposed).

Glossary and abbreviations

ACCC	Australian Competition and Consumer Commission
ACG	Allen Consulting Group
ACQ	annual consumption quantity
AGLGN	AGL Gas Networks Ltd
CAPM	capital asset pricing model
COAG	Council of Australian Governments
Code, the	National Third Party Access Code for Natural Gas Pipeline Systems
commission	Independent Competition and Regulatory commission
CPI	consumer price index
DGM	dividend-growth model
EAPL	East Australian Pipeline Limited
EBIT	earnings before interest and tax
ECG	Energy Consulting Group
EGP	Eastern Gas Pipeline
ESCOSA	Essential Services Commission of South Australia
ESCV	Essential Services Commission of Victoria
ESD	ecologically sustainable development
FFO	funds from operation
GIS	geographic information system(s)
GJ	gigajoules
GSLs	guaranteed service level payments
GST	goods and services tax
HDDs	heating degree days (a measure of climate)
ICRC Act	*Independent Competition and Regulatory commission Act 1997*

IPART	Independent Pricing and Regulatory Tribunal (New South Wales)
IRR	internal rate of return
kPa	kilopascals
MCE	Ministerial Council on Energy
MDQ	maximum daily quantity
MHQ	maximum hourly quantity
MMA	McLennan Magasanik Associates Pty Ltd
MRP	market risk premium
NECG	Network Economics Consulting Group
NERA	National Economic Research Associates
NPV	net present value
OBA	operational balancing agreement
OECD	Organisation for Economic Cooperation and Development
QCA	Queensland Competition Authority
RBA	Reserve Bank of Australia
TJ	terajoule
TWAW	Think Water, Act Water
UAG	unaccounted for gas
WACC	weighted average cost of capital

Index

2000 final decision *see also* 2001 gas access arrangement
- capital base, 103–104
- cost of capital, 147
- demand forecasts, 126
- depreciation, 106, 112
- market risk premium (MRP), 170
- price path mechanism, 209, 213–215
- queuing policy, 248–249
- relative risk of gas and electricity distribution business, 183
- trading policy, 246
- weighted average cost of capital (WACC), 147

2001 gas access arrangement *see also* 2000 final decision
- capacity management policy, 244
- capital base, 103–104
- capital expenditure, 104–105
- customer numbers, 108
- depreciation, 106, 112–113
- equity beta, 152
- extension of period, 254
- extensions and expansions policy, 34, 238, 239
- fixed principles, 221
- gearing ratio, 153
- meter data service, 42
- operating costs, 77–78
- partial use of the network service, 42–43
- pass-through events, 209, 218–219, 223
- provisions for interconnection services, 42–43
- queuing policy, 249–250
- redundant capital, 103, 105
- reference services, 41
- reference tariff policy, 209
- return on working capital, 70–71
- revisions commencement and submission dates, 13
- services policy, 40
- tariff structure, 33–34
- tax rate used to calculate WACC, 149
- terms and conditions, 54–57
- total revenue, 70
- trading policy, 247

2004 draft decision *see* draft decision

2004 final decision *see* final decision

2004 review process *see* review process

access arrangements *see also* 2001 gas access arrangement; forthcoming gas access arrangement
- statutory framework, 13–17

ACT gas market
- ActewAGL joint venture, 25
- gas balancing arrangements, 58–59
- significant changes, 25–26, 77–78
- customer numbers, 48
- full retail contestability, 25–26

ACT Planning and Land Authority, 48, 135

ActewAGL concerns about draft decision, 20–22, 155–156

ActewAGL joint venture, 25, 187–188

ActewAGL proposed gas access arrangement, *see also* amendments; demand forecasts; forecasts; response to draft decision
- ancillary charges, 32–33, 212–213
- ancillary services, 43, 48
- capacity management policy, 35, 244
- capital base, 104–114
- capital base opening value, 107–108
- capital base roll forward, 107–109
- capital expenditure, 29, 109–114
- commencement date, 11, 13
- consumption forecasts, 30

cost allocation, 80–81, 210
cost ‘building blocks’, 31, 71
cost of capital, 30, 147–148
cost of service methodology, 68–71
curtailment of supply, 57–58
demand forecasts, 30, 126–130
depreciation, 31, 70–71, 112–113, 209–210
efficiency improvements, 28
extensions and expansions policy, 34, 239–241
fixed principles, 220–221
force majeure, 54–56
gas quality specifications, 59
gearing ratio, 153
increased expenditure, 27–28
interconnection of embedded network service, 42
level of operating costs, 88
load shedding, 57–59
meter data service, 27, 41–42
metering charges, 32–33
non-capital expenditure *see* operating costs
non-reference services, 27, 42–43
non-tariff reference services, 44–45, 49
operating costs, 78–81, 88
operating costs forecasts, 27–28, 78–79, 87–88
overview, 25–30
partial use of the network service, 43
pass-through events, 34, 216–217
price path, 213–216
queuing policy, 35, 249–250
redundant capital, 105
reference services, 27, 40–42
reference tariff and reference tariff policy, 31–34
removing commission’s ability to reduce the capital base, 113
requests for service, 43
return on capital assets, 70–71
return on common equity ratio, 203
return on working capital, 4, 70–72, 209–210
revisions to proposal, 26, 31, 127, 204, 223, 251
ring fencing, 81
service standards, 34, 43–44
services policy, 27, 40–44, 48–50
supporting documents, 26, 54
tariff changes, 32–34, 212–213
tariff structure, 212–220
term, 35
terms and conditions, 27, 54–59
total revenue, 31–32, 70–71, 72–73, 209–211
trading policy, 35, 247
weighted average cost of capital (WACC), 144, 150, 151, 152–153, 155–158

Agility, 25–26, 28, 77, 79

amendments, 257–262
capital base, 121–123
capital expenditure, 121–123
cost of capital, 197
demand forecasts, 141
depreciation, 122
extensions and expansions policy, 242
meter data service, 52
operating costs, 96
reference tariff policy, 232–235
services policy, 52
terms and conditions, 61–62
total revenue, 74
trading policy, 251–252
weighted average cost of capital (WACC), 197

ancillary charges, 32–33, 212–213

appendix, 257–262

assets
management arrangement with Agility, 77
return on capital assets, 7–8, 67, 70–71
revaluation, 67

Australian Competition and Consumer Commission (ACCC), 72, 150–151, 156, 158, 186, 203, 215, 227

Australian Competition Tribunal, 21, 66, 95, 144, 150–151, 156, 158, 170, 194, 240–241

BASIX initiative, 133–135, 138
'building block' methodology, 31, 68, 70–71, 73–74, 97–98, 99, 209–210
bushfires, 28, 34, 48, 77, 105, 214, 220

capacity management policy, 243–244
- 2001 gas access arrangement, 244
- ActewAGL proposed gas access arrangement, 35, 244
- Code requirement, 15, 243–244
- commission responsibilities under the Code, 244
- draft decision, 244
- final decision, 251–252

capacity trading policy *see* trading policy
capital asset pricing model (CAPM), 113, 147
capital base
- 2001 gas access arrangement, 103–104
- amendments, 121–123, 259
- calculation of, 97–123
- Code requirement, 99–100
- costs, 99–100
- extensions and expansions policy, 241
- opening value, 5, 107–108
- roll-forward, 5–6, 108–109

capital cost event, 222 *see also* pass-through events
- definition, 216–217

capital costs
- definition, 67

capital expenditure, 5
- 2001 gas access arrangement, 104–105
- amendments, 121–123, 259
- assessing appropriateness, 97–98, 100–101
- Code objectives, 120
- Code requirement, 100–101
- commission responsibilities under the Code, 110–111
- forecasting efficient expenditure, 97–123
- prudence test, 100
- roll-in test, 100

change in tax event, 226 *see also* pass-through events
- definition, 217
- final decision, 233–234

Code requirement
- for queuing policy, 248
- for revisions commencement date, 253
- for revisions submission date, 253
- for trading policy, 245–246

commencement date for forthcoming gas access arrangement, 2, 8, 11–12, 13, 81
commission required amendments to ActewAGL proposal *see* amendments
commission draft decision *see* draft decision
commission responsibilities under the Code, 143–144
- capacity management policy, 244
- capital expenditure, 110, 120
- capital investment, 100–102
- extensions and expansions policy, 238, 240
- fixed principles, 220–221
- operating costs, 76–77
- reference tariff policy, 208–211, 231–232
- reference tariffs, 63–66
- reviewing gas access arrangements, 13–20
- reviewing terms and conditions, 53, 58
- services policy, 40
- weighted average cost of capital (WACC), 159, 162–164, 194–197

commission responsibilities under the ICRC Act, 17

consultancies, use of, 22–23 *see also* consultants
consultants
  Allen Consulting Group (ACG), 153, 179, 181
  Clayton Utz, 22
  Energy Consulting Group (ECG), 22, 82, 83, 84, 86, 89, 104–105, 120
  McLennan Magasanik Associates (MMA), 22, 84, 89, 104, 111
  Network Economics Consulting Group (NECG), 149
  Parsons Brinckerhoff (PB), 85–86, 90, 115, 118–119
  PricewaterhouseCoopers, 22
consumer price index (CPI)
  calculation of, 161
  definition, 214
contact officer, 147, iv
contestability of the meter data service, 45–46, 51
contract customers
  ActewAGL proposed reference services, 40–41
  ActewAGL proposed tariff structure, 33
  forecast consumption, 30
  new in 2005, 117–118
contract market *see also* demand forecasts
cost allocation
  ActewAGL proposed gas access arrangement, 80–81, 210
  draft decision, 84, 211
  further analysis following draft decision response, 224
cost forecasts *see* forecasts
cost of capital, 7–8, 143–197 *see also* weighted average cost of capital (WACC)
cost of service methodology, 68 *see also* 'building block' methodology; return on working capital; total revenue
  2001 access arrangement, 70–71
  ActewAGL proposed total revenue, 209–210
  capital base, 99
Council of Australian Governments reform of energy market, 37
credit ratings, 150–151, 170–174, 199–206
  based on final decision, 205–206
current gas access arrangement *see* 2001 gas access arrangement
curtailment of supply
  ActewAGL proposed gas access arrangement, 57–58
customers *see also* contract customers; demand forecasts; service standards
  business tariff market, 126, 128–130, 136
  commission forecasts, 132
  consumption per customer, 128
  forecast demand, 6–7
  forecast numbers, 136–138
  forecast volume demand, 138–140
  forecast volume growth, 135
  numbers growth during 2001 gas access arrangement, 77
  numbers in 2003, 48
  residential tariff market, 126–127, 138–139
  volumes, 6–7
  'willingness to pay' study, 43–44, 48

dates, iii–iv, 13, 19–20, *see also* revisions commencement and submission dates; term of forthcoming gas access arrangement
demand, 125–141 *see also* demand forecasts; energy efficiency initiatives
  effect of housing growth, 127
  effect of weather, 30, 129–131
demand forecasts
  ActewAGL proposed gas access arrangement, 125–129
  amendments, 141, 259
  business customer numbers, 137
  business tariff market, 30, 126, 128–130, 136, 137

calculation of, 126–141
Code requirement, 125
contract customer numbers, 137, 137–138
contract market, 126, 130, 131, 136–137, 137–138
final decision, 140–141
residential customer numbers, 136–137
residential customer volumes, 138–139
residential tariff market, 30, 126, 127–128
summary, 6–7

depreciation
2001 gas access arrangement, 106
amendments, 122, 259
calculation of, 97–98, 112–113
Code requirement, 67–69, 101–102, 113

dispute resolution under the Code, 14

dividend imputation utilisation factor (gamma)
calculation of, 174–177
economic literature, 175–177
regulatory precedents, 175–177
used to calculate WACC, 149–150

draft decision
ActewAGL concerns about commission approach, 20, 155, 177–179
ActewAGL proposed price path mechanism, 214–216
ancillary services, 46
asset management and asset services costs, 82
capacity management policy, 244
capital expenditure, 111–112
cost allocation, 84
cost of service methodology, 71
date for submissions in response, 13
date of release, 13
demand forecasts, 130–133
depreciation, 112–113
extensions and expansions policy, 241–242
fixed principles, 220–221
interconnection of embedded network service, 46
marketing costs, 82–83
meter data service, 45–46
non-reference services, 46–47
operating costs, 81–84
partial use of the network service, 47
pass-through events proposed by ActewAGL, 218–219
price path, 214–216
queuing policy, 251
redundant capital, 113–114
reference services, 44–46
reference tariff policy, 209–221
requests for service, 47
return on working capital, 71–72
revisions submission date, 255
ring fencing, 84
service standards, 47–48
term of forthcoming gas access arrangement, 255
terms and conditions, 59–60
total revenue, 71–72, 211
trading policy, 247
unaccounted for gas (UAG), 82–83
weighted average cost of capital (WACC), 154–155

Eastern Gas Pipeline (EGP), 26, 29, 104, 108

ecologically sustainable development (ESD)
commission responsibilities under the Code, 231
principles, 231–232

economic literature
market risk premium (MRP), 165–166
risk-free rate, 164

efficiency improvements, 78, 79, 86

energy efficiency initiatives
appliances, 128, 133–135, 138
effect on demand, 30, 128–129, 133–135, 138
government policies, 133–135, 138

Energy Networks Association
submission re draft decision on WACC, 155, 158
Environment Protection Act 1997, 232
equity beta, 177–185
calculation of, 146
international comparisons, 179–182
regulatory precedents, 177–178
relationship with gearing, 177–178
relationship with risk-free rate, 164
relative risk of gas and electricity distribution businesses, 183–185
equity-raising costs
calculation of, 188–189
definition, 186
Essential Services Commission of South Australia (ESCOSA), 150–151
Essential Services Commission of Victoria (ESCV), 72, 73, 79, 156, 215
executive summary, 1–12
extensions and expansions policy, 11, 237–243
2001 gas access arrangement, 238
amendments, 242, 260
Code requirement, 15, 237–238
definitions, 237
draft decision, 241–242
final decision, 242
price, 241
reference tariff policy, 241
response to draft decision, 242

final decision
amendments, 257–262
capacity management policy, 251–252
capital base, 120–121
capital expenditure, 121–122
demand forecasts, 140–141
extensions and expansions policy, 242
fixed principles, 233
key issues, 2–12
load shedding, 62
operating costs, 95–96
overview, 1–12
pass-through events, 233–235
price path mechanism, 232–233
queuing policy, 251–252
reference services, 52
reference tariff policy, 232–235
report outline, 23–24
return on working capital, 73–74
revisions commencement and submission dates, 256
services policy, 52
term of forthcoming gas access arrangement, 256
terms and conditions, 61–62
total revenue, 73–74, 232–233
trading policy, 251–252
unaccounted for gas (UAG), 95–96
weighted average cost of capital (WACC), 191–197
financial analysis, 199–206
Code requirement, 199
Fisher equation, 147, 154, 161
fixed principles
2001 gas access arrangement, 221
ActewAGL proposed gas access arrangement, 220–221
Code definition of, 208–209
draft decision, 220–221
final decision, 233
response to draft decision, 222
force majeure, 54–56
forecasts *see also* demand forecasts
asset management and asset services costs, 78–79, 82, 86, 89–92
capital base, 6, 107–109
capital expenditure, 29, 104–112
corporate costs, 78–79
households converting to gas, 127–128
housing demand, 126
inflation, 114, 123
lives of assets, 106
marketing costs, 78–79, 82–83, 92

operating costs, 4–5, 27–28, 75–96, 87–88
total revenue, 224
total revenue requirement, 31–32
unaccounted for gas (UAG), 83, 87, 93
foreword, iii–iv
forthcoming gas access arrangement
see also ActewAGL proposed gas access arrangement; draft decision; final decision; further analysis following draft decision response; response to draft decision
term, 11–12, 13, 253–256
further analysis following draft decision response
ancillary services, 50
asset management costs, 89–92
asset services costs, 89–92
'building block' methodology, 73
capital base opening value, 116
cost allocation, 224
curtailment of supply, 61
debt margin, 170–174
dividend imputation utilisation factor (gamma), 174–177
equity beta, 177–185
equity-raising costs, 185–189
financial analysis, 202–206
interconnection of embedded network service, 50
level of capital expenditure, 119–121
level of operating costs, 93–95
load shedding, 61
market expansion expenditure, 117–118
market risk premium (MRP), 164–170
marketing costs, 92
meter data service, 51
non-reference services, 51
non-tariff reference services, 49–51
operating costs, 89–95
overall WACC parameters, 189–190
pass-through events, 225–230
price path mechanism, 223–225
reference services, 50–52
reference tariff policy, 223–232
requests for service, 51
return on working capital, 73
risk-free rate, 160–170
service standards, 51–52
services policy, 50–52
stay-in-business expenditure, 118–119
terms and conditions, 61
total revenue, 73, 223–225
unaccounted for gas (UAG), 93
weighted average cost of capital (WACC), 158–190

gamma *see* dividend imputation utilisation factor
gas access arrangement, current *see* 2001 gas access arrangement
gas access regime, 14–16
Productivity Commission review, 17, 35–36
gas balancing, 53
ActewAGL proposed gas access arrangement, 55, 58–59
gas market in the ACT *see* ACT gas market
Gas Pipelines Access Act 1998, 14
Gas Pipelines Access (ACT) Law, 13–14
glossary, 263–264
government securities, 173
Treasury bonds, 147, 154, 160–162, 169
growth
customer numbers, 77, 79
gas market, 79, 82

Hoskinstown metering station, 79, 90–92

Independent Competition and Regulatory Commission Act 1997 (ICRC Act), 14, 16–17

Independent Pricing and Regulatory Tribunal (NSW) (IPART), 41, 71, 79, 150–151, 153, 156, 176, 181, 215, 230
inflation, 79
insurance event, 223, 226 *see also* pass-through events
  definition, 217
international comparisons
  financial analysis, 202
  market risk premium (MRP), 167
  use in credit ratings, 202
  use in equity beta calculation, 179–182
  use in gamma calculation, 175–176
  weighted average cost of capital (WACC), 152–153, 156, 158, 164

July 2004 draft decision *see* draft decision

legal framework for gas regulation, 13–17
load shedding
  ActewAGL proposed gas access arrangement, 58–59
  draft decision, 59–60
  final decision, 61–62
  further analysis following draft decision response, 61
  response to draft decision, 60–61

market risk premium (MRP), 151–152
  definition, 165
  economic literature, 165–166
  regulatory precedents, 167
  relationship with risk-free rate, 164–170
materiality threshold
  final decision, 235
meter data service, 26, 42, 45–46, 51–52
Ministerial Council on Energy (MCE), 37
Monkhouse formula, 146, 179–180

National Economic Research Associates (NERA), 150–151, 179–181, 183–185
national energy market
  market reform, 37
national energy regulator proposal, 37
national gas access regime *see* gas access regime
National Third Party Access Code for Natural Gas Pipeline Systems (the Code)
  cost of capital, 143–144
  objectives, 16, 63–66, 75–77, 94–95, 120–121, 191–192
  principles, 14–16, 39, 63–66, 67–69, 75–77, 207–208
  Productivity Commission review of the gas access regime, 36
  requirements for gas access arrangement, overview, 13–16
  requirements for review process, 17–20
  requirements for services policy, 39–40
  weighted average cost of capital (WACC), 194–197
Network Economics Consulting Group (NECG), 144, 151–153, 164, 179–182
non-capital expenditure *see* operating costs
non-reference services
  Code definition of, 40
non-tariff customers *see* contract customers

operating costs
  2001 gas access arrangement, 77–78
  amendments, 96, 258
  Code definition of, 68
  Code requirement, 75–76
  draft decision, 81–84
  final decision, 95

forecasts, 4–5, 75–96
further analysis following draft decision response, 89–94
increased expenditure, 77–78
response to draft decision, 84–88
pass-through events *see also* capital cost event; change in tax event; insurance event; regulatory event; unforeseen external event
2001 gas access arrangement, 218–219
final decision, 233–235
further analysis following draft decision response, 225–230
materiality threshold, 217, 223, 229–230, 235
regulatory precedents, 226–230
response to draft decision, 222–223
pass-through events proposed by ActewAGL, 218–219, 225
pass-through provisions
2001 gas access arrangement, 209
price
extensions and expansions policy, 241
fee for requests for service, 43, 47, 51
relationship with equity-raising costs, 186–187
relationship with service standards, 195, 219–220
retail, 35, 231
'willingness to pay' study, 44
price path mechanism
2001 gas access arrangement, 209
ActewAGL proposed gas access arrangement, 213–216
draft decision, 214–216
final decision, 232–233
further analysis following draft decision response, 223–225
reference tariffs, 80
response to draft decision, 221
Productivity Commission review of the gas access regime, 17, 157
Queensland Competition Authority (QCA), 79, 153, 156, 178
queuing policy, 11
2000 final decision, 248–249
2001 gas access arrangement, 249–250
ActewAGL proposed gas access arrangement, 249–250
Code requirement, 14, 243, 248
draft decision, 251
final decision, 251–252
response to draft decision, 251

redundant capital, 97–98
2001 gas access arrangement, 105
Code requirement, 102
reference services
ActewAGL proposed gas access arrangement, 40–42
Code definition of, 39
Code requirement, 14
draft decision, 44–46
final decision, 52
further analysis following draft decision response, 50–52
response to draft decision, 44–46
reference tariff policy, 8–11, 33–34, 207–235
amendments, 232–235, 259–261
Code requirement, 14, 15, 207–209
extensions and expansions policy, 241
overview, 63–66
pass-through events proposed by ActewAGL, 216–217
relationship with service standards, 219–220
volume risk, 125
'X factor', 209, 216, 224
reference tariffs, 8–11, 207–235
Code requirement, 14, 63–66
overview, 63–66
regulatory event, 228–229 *see also* pass-through events
definition, 217
regulatory precedents, 79
ancillary services, 46

application of the Code, 20–22
debt margin, 170–174
equity beta, 177–178
equity-raising costs, 186
extensions and expansions policy, 239, 240–241
financial analysis, 202–203
non-capital costs, 79
non-reference services, 41
operating costs, 95
pass-through events, 222, 226–230
price path mechanism, 215
reference tariff policy, 64, 66
relative risk of gas and electricity distribution businesses, 183
return on working capital, 71–72
trading policy, 247
weighted average cost of capital (WACC), 144, 147–148, 150, 152–153, 155–158, 167, 192, 196
requests for service and connection, 43
Reserve Bank of Australia, 146–147, 154, 160–161
response to draft decision
ancillary services, 48
asset management and asset services costs, 85–86
capital base, 114–116
capital expenditure, 114–116
curtailment of supply, 60–61
demand forecasts, 133–136
extensions and expansions policy, 242
financial analysis, 199–202
fixed principles, 222
level of capital expenditure, 116
load shedding, 60–61
market expansion expenditure, 114–115
meter data service, 49
non-reference services, 49–50
operating costs, 84–88
partial use of the network service, 50
pass-through events, 222–223
price path mechanism, 221
queuing policy, 251
reference services, 44–46, 48–49
reference tariff policy, 221–223
return on capital assets, 72–73
return on working capital, 72–73
service standards, 49–50
services policy, 49–50
stay-in-business expenditure, 115–116
term of forthcoming gas access arrangement, 256
terms and conditions, 60–61
total revenue, 72–73, 221
trading policy, 251
unaccounted for gas (UAG), 87
weighted average cost of capital (WACC), 155–158
return of capital *see* depreciation
return on capital assets, 7–8, 67
return on common equity ratio, 203
return on working capital
ActewAGL proposed gas access arrangement, 70–71, 209–210
draft decision, 72
final decision, 73–74
further analysis following draft decision response, 73
response to draft decision, 72–73
review process *see also* ActewAGL proposed gas access arrangement; dates; draft decision; final decision; further analysis following draft decision response; response to draft decision
ActewAGL concerns about draft decision, 20–22
Code requirement, 14–16
commission responsibilities under the Code, 17–19
contact officer, iv
extension of period, iii, 18
overview, iii–iv, 1–12, 19–20
statutory framework, 13–17
revisions commencement and submission dates
2001 gas access arrangement, iii, 13, 254

ActewAGL proposed gas access arrangement, 254
Code requirement, 15, 253
draft decision, 255
final decision, 256
ring fencing, 58–59, 76–77, 81, 84
risk, 53, 113, 125, 156, 227, 253, 255
risk-free rate, 146–147
CPI calculation, 159–162
economic literature, 164
nominal, 146–147
real, 146–147
relationship with equity beta, 164
relationship with investment, 164
relationship with MRP, 161–170
use of current, 162, 168–170
roll-forward methodology
2001 gas access arrangement, 103–104
Code requirement, 5, 99–100

'S factor', 51–52, 219–220, 222
service standards *see also* 'S factor'
'current', 3, 43–44, 47–48, 49, 51
incentive scheme, 44, 48, 49–50, 219–220, 222
link to prices, 34, 51
relationship with tariffs, 219–220
'willingness to pay' study, 43–44, 48
service standards event
final decision, 234 *see also* pass-through events; regulatory event
services policy, 2–3, 39–52
Code requirement, 15
Speculative Investment Fund, 221, 238
statutory framework for gas access arrangements, 13–17
Supreme Court of Western Australia, 21–22, 64, 192

tariff customers *see* customers
tariff structure *see* reference tariff policy; reference tariffs
term of forthcoming gas access arrangement, 253–256
ActewAGL proposed gas access arrangement, 254
Code requirement, 253
draft decision, 255
final decision, 256
response to draft decision, 256
terms and conditions, 3–4
2000 final decision, 53–54
ActewAGL proposed changes, 54–59
amendments, 61–62, 258
Code requirement, 15
terrorism or major natural disaster event, 235 *see also* unforeseen external event
Think Water, Act Water (TWAW) initiative, 133–135, 138
total revenue, 4, 67–74
ActewAGL proposed gas access arrangement, 210
amendments, 74, 258
calculation methodologies, 68
Code requirement, 67–69
draft decision, 211
final decision, 232–233
forecasts, 224
further analysis following draft decision response, 223–225
response to draft decision, 221
Trade Practices Act 1974, 157
trading policy, 11
2000 final decision, 246
2001 gas access arrangement, 247
ActewAGL proposed gas access arrangement, 247
amendments, 251–252, 262
Code requirement, 15, 243, 245–246
draft decision, 247
final decision, 251–252
regulatory precedents, 247

unaccounted for gas (UAG), 80, 83, 87, 93, 95–96

unforeseen external event, 229 *see also* terrorism or major natural disaster event
definition, 217
Utilities Act 2000 (Utilities Act), 14, 16, 222, 225

weather, 30
weighted average cost of capital (WACC), 144–197
ActewAGL proposed gas access arrangement, 144, 150, 151, 152–153, 155–158
amendments, 197, 259
calculation of, 143–147
capital asset pricing mechanism (CAPM), 156–157, 196
Code requirement, 194–197
definition, 163
dividend imputation utilisation factor (gamma), 149–150
draft decision, 154–155
equity beta, 152–153, 177–185
equity-raising costs, 185–189
final decision, 191–197
further analysis following draft decision response, 158–190
gearing ratio, 153
market risk premium (MRP), 151–152
nominal and real risk-free rate, 154, 160–170
pre-tax real WACC approach, 148
response to draft decision, 155–158
tax rate used to calculate WACC, 149
'willingness to pay' study, 43–44, 48

'X factor', 216, 224
definition, 209

yield on Treasury bonds *see* government securities