FINAL DECISION
ActewAGL Distribution
Access Arrangement
2016 to 2021

Overview

May 2016

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's final decision on the access arrangement for ActewAGL Distribution for 2016–21. It should be read with all other parts of the final decision.

The final decision includes the following documents:

Overview

Attachment 1 - Services covered by the access arrangement

Attachment 2 - Capital base

Attachment 3 - Rate of return

Attachment 4 - Value of imputation credits

Attachment 5 - Regulatory depreciation

Attachment 6 - Capital expenditure

Attachment 7 - Operating expenditure

Attachment 8 - Corporate income tax

Attachment 9 - Efficiency carryover mechanism

Attachment 10 - Reference tariff setting

Attachment 11 - Reference tariff variation mechanism

Attachment 12 - Non-tariff components

Attachment 13 - Demand

Contents

Shortened forms

Shortened form	Extended form
AA	Access Arrangement
AAI	Access Arrangement Information
AER	Australian Energy Regulator
ASA	Asset Services Agreement
ATO	Australian Tax Office
capex	capital expenditure
CAPM	capital asset pricing model
CCP	Consumer Challenge Panel
CMF	construction management fee
CPI	consumer price index
DAMS	Distribution Asset Management Services
DRP	debt risk premium
EBSS	Efficiency Benefit Sharing Scheme
ECM	Efficiency carryover mechanism
EIL	Energy Industry Levy
ERP	equity risk premium
Expenditure Guideline	Expenditure Forecast Assessment Guideline
gamma	value of imputation credits
GSL	Guaranteed Service Level
GTA	Gas Transport Services Agreement
ICRC	Independent Competition and Regulatory Commission
MRP	market risk premium
NECF	National Energy Customer Framework
NERL	National Energy Retail Law
NERR	National Energy Retail Rules
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
NPV	net present value
opex	operating expenditure

Shortened form	Extended form
PFP	partial factor productivity
PPI	partial performance indicators
PTRM	post-tax revenue model
RBA	Reserve Bank of Australia
RFM	roll forward model
RIN	regulatory information notice
RoLR	retailer of last resort
RSA	Reference Service Agreement
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STTM	Short Term Trading Market
TAB	tax asset base
UAFG	unaccounted for gas
UNFT	Utilities Network Facilities Tax
WACC	weighted average cost of capital
WPI	Wage Price Index

1 Introduction

We, the Australian Energy Regulator (AER), are responsible for the economic regulation of covered gas pipelines[1] in all states and territories in Australia except for Western Australia.

ActewAGL Distribution (ActewAGL) provides gas distribution services to customers in the Australian Capital Territory (ACT), Queanbeyan and the Palerang Shire via a covered pipeline. As with other covered pipelines, we regulate ActewAGL's reference tariffs for these services, and through these, its revenue.

The National Gas Law (NGL) and National Gas Rules (NGR) provide the regulatory framework governing gas networks. In regulating ActewAGL, we are guided by the National Gas Objective (NGO), as set out in the NGL. The NGO is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.[2]

ActewAGL submitted an access arrangement revision proposal for its gas distribution network on 30 June 2015 for the 2016–21 access arrangement period. Our draft decision, released for consultation on 26 November 2015, did not accept ActewAGL's proposal and specified the nature of amendments required to make the proposal acceptable to us. ActewAGL submitted a revised proposal on 6 January 2016. We received submissions on both the draft decision and revised proposal, all of which are available on our website.[3]

1.1 Structure of overview

This overview provides a summary of our final decision and its individual components. It is structured as follows:

- Section 2 provides a high-level summary of our final decision, and highlights where we have made significant changes between our draft and final decisions.
- Section 3 sets out our final decision on ActewAGL's total revenue requirement.
- Section 4 provides a break-down of our revenue decision into its key components.
- Section 5 sets out our final decisions on demand forecasts, ActewAGL's reference services, reference tariff setting and the reference tariff variation mechanism that will apply to ActewAGL. It also sets out our final decision on the incentive

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1 Pipeline 'coverage' under the NGL determines the level of regulation that applies to a particular pipeline or network. ActewAGL's distribution network is a covered pipeline. Under section 132 of the NGL, ActewAGL must therefore submit for our approval an access arrangement in respect of the services it provides through the covered pipeline.

2 NGL, s. 23.

3 http://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/actewagl-act-queanbeyan-and-palerang-access-arrangement-2016-21/revised-proposal

mechanisms that will apply to ActewAGL for the 2016–21 access arrangement period.

- Section 6 sets out our final decision on the non-tariff components of ActewAGL's access arrangement.
- Section 7 explains our views on the regulatory framework and the NGO.
- Section 8 outlines the consultation process we undertook in reaching our final decision.

In our attachments we set out our detailed analysis of the individual components that make up our final decision.

2 Summary of final decision

Our final decision is that ActewAGL can recover $301.4 million ($nominal, smoothed) from consumers over the 2016–21 access arrangement period, which begins on 1 July 2016. This is a 21.2 per cent reduction from ActewAGL's revised proposed revenue of $382.6million ($nominal). Our final decision allows ActewAGL to recover 8.0 per cent more from its customers than our November 2015 draft decision of $279.1 million ($nominal).

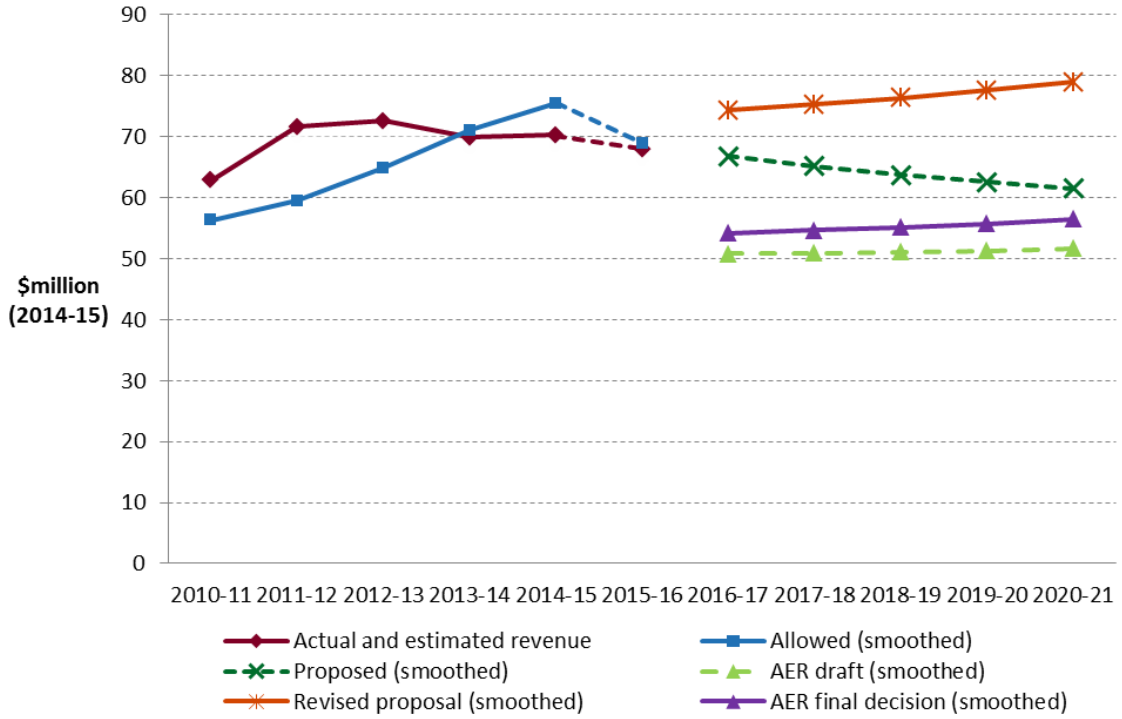
We accept that some aspects of ActewAGL's proposal are consistent with the requirements of the NGR. However, we have not approved all elements, and as such, have not approved ActewAGL's access arrangement proposal as a whole.[4] We have revised ActewAGL's proposed access arrangement having regard to our reasons for refusing to approve some elements of its proposal and the further matters identified in rule 64(2) of the NGR.[5] Our revisions are reflected in the *Approved Access arrangement for the ACT, Queanbeyan and Palerang gas distribution network 1 July 2016–30 June 2021*, which gives effect to this decision.

Figure 1 compares our final decision on ActewAGL's revenue for 2015–21 to its proposed revenue, and to the revenue allowed and recovered during the current access arrangement period.

[4] NGR, r. 41(2).

[5] Rule 64(2) provides that the AER's proposal for an access arrangement or revisions is to be formulated with regard to (a) the matters the Law requires an access arrangement to include, (b) the service provider's access arrangement proposal, and (c) the AER's reasons for refusing to approve that proposal.

Figure 1 ActewAGL's past total revenue[a], proposed total revenue and AER final decision ($million, 2014–15)



Source: AER analysis.

Notes: Includes ancillary reference services revenue.

The period between 1 July 2015 (the revision commencement date in the current access arrangement) and 1 July 2016, when revisions will actually take effect, constitutes an interval of delay for the purposes of rule 92(3) of the NGR. During that interval, the reference tariffs in place at 30 June 2015 continued to apply. This final decision therefore includes a reconciliation (or 'true-up') of revenues, to ensure that the interval of delay does not result in ActewAGL incurring a windfall gain or loss due to the delay of the access arrangement review.

(a) ActewAGL operates under a weighted average tariff cap. This means the tariffs we determine (including the means of varying the tariffs from year to year) are the binding constraint across an access arrangement period, rather than the total revenue requirement set in our decision. Tariffs are derived from the total revenue requirement *after* consideration of demand for each tariff category. Where actual demand varies from the demand forecast in the access arrangement, ActewAGL's actual revenue will vary from the revenue allowance determined in our decision. In general, if actual demand is above forecast demand, ActewAGL's actual revenue will be above forecast revenue, and vice versa.

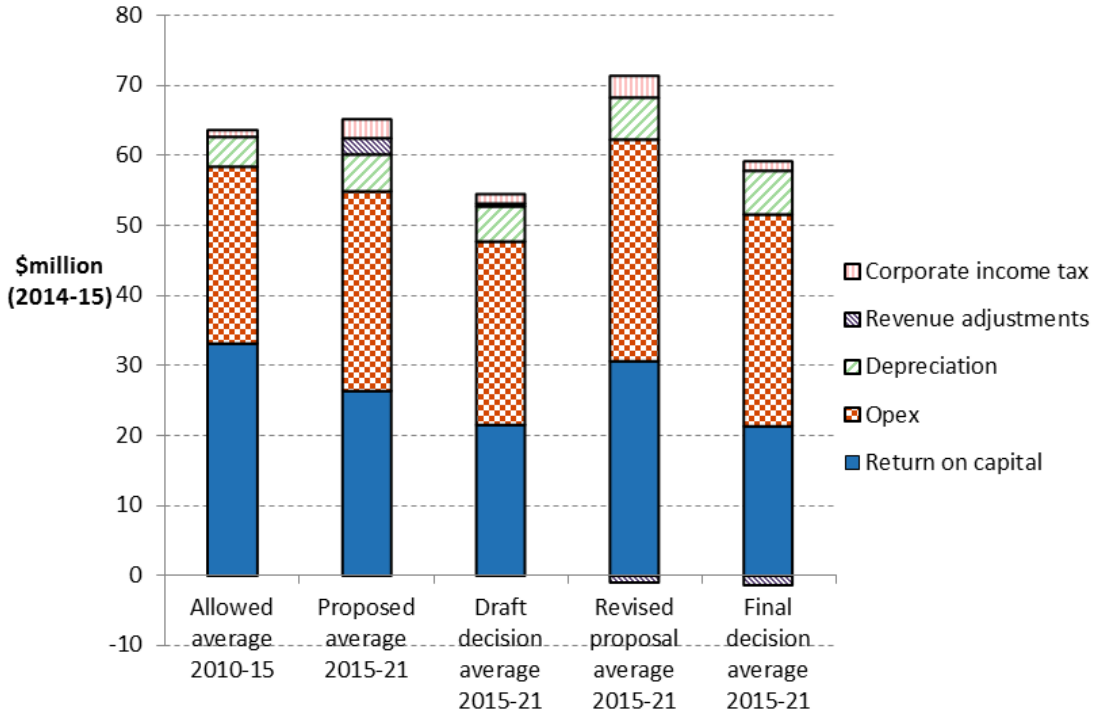
2.1 What is driving allowed revenue?

Consistent with our draft decision, we approve less revenue than that allowed—and recovered by—ActewAGL in the current access arrangement period. The total revenue we approve for the 2016–21 access arrangement period is $14.3 million ($ nominal)—

or 4.5 per cent—less than we approved in our decision for 2010–15.[6] We also approve 21.2 per cent less revenue than ActewAGL sought to recover in its revised proposal.

Figure 2 compares the average annual building block revenue from our final decision to that proposed by ActewAGL for both 2015–16 and the 2016–21 access arrangement period, as well as the approved average amount for 2010–15.

Figure 2 AER's final decision average annual revenue (unsmoothed) compared with ActewAGL's revised proposal average annual revenue for 2015–21 and approved average annual revenue from 2010–15 ($million, 2014–15)



Source: AER analysis.

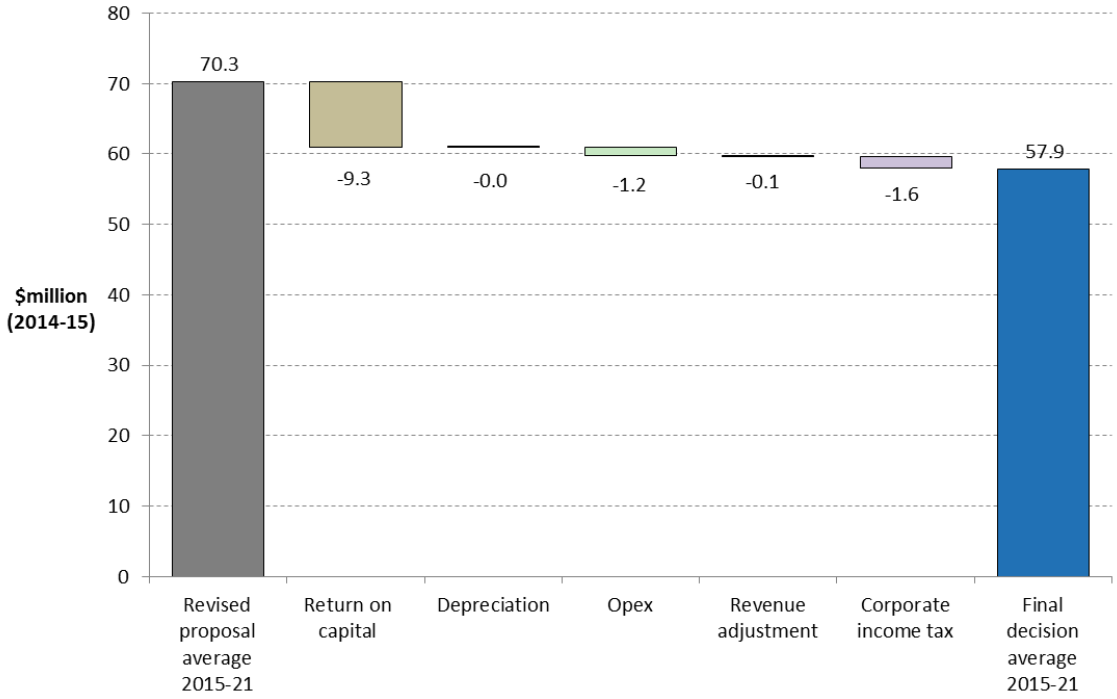
Note: Includes ancillary reference services revenue.

The period between 1 July 2015 (the revision commencement date in the current access arrangement) and 1 July 2016, when revisions will actually take effect, constitutes an interval of delay for the purposes of rule 92(3) of the NGR. During that interval, the reference tariffs in place at 30 June 2015 continued to apply. This final decision therefore includes a reconciliation (or 'true-up') of revenues, to ensure that the interval of delay does not result in ActewAGL incurring a windfall gain or loss due to the delay of the access arrangement review.

[6] In real terms ($2014–15), total revenue for 2016–21 is $51.1 million ($2014–15) or 15.6 per cent less than we approved for 2010–15.

Figure 3 compares our final decision to ActewAGL's revised proposal, broken down by the various building block components that make up the forecast revenue requirement.

Figure 3 ActewAGL's revised proposal and AER's final decision average annual building block costs ($million, 2014–15)



Source: AER analysis.

Note: Includes ancillary reference services revenue.

The period between 1 July 2015 (the revision commencement date in the current access arrangement) and 1 July 2016, when revisions will actually take effect, constitutes an interval of delay for the purposes of rule 92(3) of the NGR. During that interval, the reference tariffs in place at 30 June 2015 continued to apply. This final decision therefore includes a reconciliation (or 'true-up') of revenues, to ensure that the interval of delay does not result in ActewAGL incurring a windfall gain or loss due to the delay of the access arrangement review.

These figures highlight that the allowed rate of return—which feeds into the return on capital building block—is the key difference between our final decision and ActewAGL's revised proposal, and between our decision for the 2016–21 access arrangement period and that for the current period. The allowed rate of return provides ActewAGL with revenue to service the interest on its loans and give a return on equity to its shareholders. It is applied to ActewAGL's capital base to determine the return on capital building block.

Prevailing market conditions for debt and equity heavily influence the rate of return. Financial conditions have changed since our last decision for ActewAGL in April 2010. Interest rates are lower and financial market conditions are more stable. This means that the cost of debt and the returns required to attract equity are lower.

This is reflected in a lower rate of return in this decision. Our final decision is for a rate of return of 6.01 per cent for 2015–16—compared to ActewAGL's proposed 8.64 and the 10.04 per cent set for the current access arrangement period. For 2016–17, our final decision is for a rate of return of 6.03 per cent, compared to ActewAGL's proposed 8.58 per cent. While we have considered the information before us in ActewAGL's proposal and in submissions, our approach to the rate of return in this final decision is consistent with that in our draft decision and Rate of Return Guideline.

2.1.1 Revenue reconciliation for the 2015–16 interval of delay

The access arrangement we approved in March 2010 was intended to end on 30 June 2015. However, the review of the access arrangement that was to give effect to reference tariffs as of 1 July 2015 was delayed under transitional provisions,[7] approved by the AEMC to allow ActewAGL to stagger the submission of its proposals for its gas and electricity networks.[8] As a result, and in accordance with the NGR, the reference tariffs that were in place for 2014–15 were deemed to continue to apply until we approved a new access arrangement.

This decision approves a new access arrangement. New reference tariffs will apply as of 1 July 2016. This decision also provides for a reconciliation (or 'true-up') of revenues ActewAGL collected between 1 July 2015 and 30 June 2016 (the 'interval of delay') to those that it would have collected had new reference tariffs been in place on 1 July 2015.[9] By the end of the 2016–21 access arrangement period, this will put customers in the same situation they would have been if tariffs had been reset on 1 July 2015, as intended.

We have identified a difference of $16.8 million ($nominal) between the revenue that we estimate ActewAGL will recover in 2015–16 and our building block determination for that year in this decision. We have taken this into account in determining tariffs for the 2016–21 access arrangement period. Our final decision returns this difference in revenues for 2015–16 (adjusted for the time value of money) to customers over the five years of the 2016–21 access arrangement period. This is discussed in further detail in section 3.1.2.

2.2 Key differences between our draft and final decisions

While our approved forecast revenue requirement is less than ActewAGL proposed, it is higher than our draft decision.

Figure 4 compares our final decision on each of the revenue building blocks to our draft decision and ActewAGL's revised proposal

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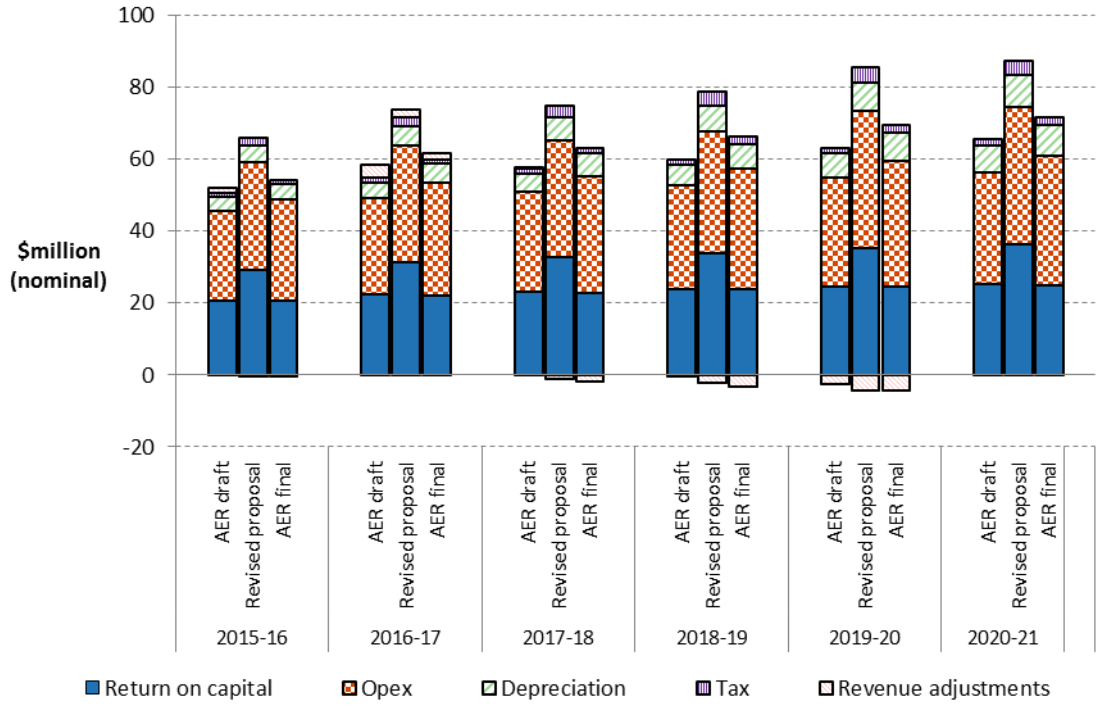
7 NGR, Schedule 1, cl. 35(3).

8 AEMC 2012, *Economic Regulation of Network Service Providers, and Price and Revenue Regulation of Gas Services, Final Rule Determination*, 29 November 2012, Sydney, p. 251

9 NGR, r. 92(3)(b).

Figure 4 AER's final decision and ActewAGL's revised proposal building block components of total revenue – unsmoothed ($million, nominal)



Source: AER analysis.

In response to our draft decision we received further information from a number of sources. ActewAGL submitted a revised proposal on 6 January 2016. It also provided further material in a submission on 4 February 2016, and in response to our information requests about its revised proposal. We received submissions from ActewAGL's users and other stakeholders on our draft decision and ActewAGL's revised proposal (listed in Appendix A to this Overview). We have had regard to all of this information in reaching our final decision.

A number of aspects of our decision on ActewAGL's forecast revenue have therefore changed since our draft decision, resulting in a higher revenue forecast.

In its original proposal ActewAGL proposed a rate of return of 7.15 per cent, which we did not accept. In its revised proposal, ActewAGL changed its approach to the calculation of the rate of return and increased its proposed rate of return to 8.64 per cent. The higher rate of return in ActewAGL's revised proposal is largely driven by a change in its approach to estimating the return on debt. ActewAGL previously proposed to calculate its return on debt using a hybrid transition which combines a gradual transition of the base rate to a trailing average and a backwards looking debt risk premium. However, in its revised proposal it proposed an immediate transition to a trailing average (using both a backwards looking base rate and debt risk premium). This approach is more favourable to ActewAGL in revenue terms than the approach that it originally proposed.

While our approach to the rate of return has not changed, updated data means that the 6.01 per cent rate of return approved for the 2015–16 interval of delay year in this final decision is lower than our draft decision of 6.09 per cent (see section 4.2).

Other components of our decision that have changed include:

- Operating expenditure—our approved total opex forecast of $156.9 million ($2015–16) is 17.9 per cent higher than our draft decision. Our final decision adopts a higher base year as a starting point for our approved opex forecast. It also adopts a higher rate of change and higher category specific forecasts. (see section 4.6)
- Forecast inflation is lower than our draft decision from 2016 onwards. This results in a decrease to the indexation of the capital base component over the 2016–21 access arrangement period, causing a net increase in the regulatory depreciation allowance. (see section 4.4)
- Capital expenditure—our approved total capex forecast of $80.7 million ($2015–16) is 5 per cent higher than our draft decision (see section 4.5).

2.3 Expected impact of decision on gas bills

The distribution charges from our final decision are lower on average over the 2016–21 access arrangement period than what ActewAGL has proposed.

For customers on ActewAGL's network, distribution charges account for approximately 34 per cent of an annual gas bill.[10] Other factors, such as a customer's consumption, their choice of retail tariff, and transmission pipeline and wholesale costs, will also affect gas bills. We cannot say with certainty how these factors may change over the 2016–21 access arrangement period.

For illustrative purposes, however, if we hold other components of the bill constant and assume that retailers pass the lower distribution charges that would flow from this final decision through to customers, we estimate that:

- The average annual gas bill for residential customers in the ACT would be expected to reduce by approximately $107 (or 6.7 per cent) in 2016–17, followed by average increases of $18 (or 1.2 per cent) per year over 2017–21 ($nominal). By comparison, had we accepted ActewAGL's revised proposal, the average annual gas bill for residential customers would increase by approximately $33 or (2.1 per cent) in 2016–17, followed by average increases of $13 (or 0.8 per cent) per year over 2017–21 ($nominal).[11]
- The average annual gas bill for a small business customer in the ACT would be expected to reduce by approximately $849 (or 6.7 per cent) in 2016–17, followed

10 ActewAGL, *2016–21 access arrangement information: Attachment 12: Reference tariffs*, June 2015, p. 31.

11 Our estimate of the potential impact our final decision will have for ActewAGL's residential customers is based on the typical annual gas usage of around 45 GJ per annum for a residential customer in the ACT (See: ActewAGL, *Reset RIN*, June 2015). Customers with different usage will experience different changes in their bills; our estimate of the potential impact reflects the final decision forecast inflation of 2.18 per cent.

by average increases of $142 (or 1.2 per cent) per year over 2017–21 ($nominal). By comparison, had we accepted ActewAGL's revised proposal, the average annual gas bill for small business customers would increase by approximately $264 or (2.1 per cent) in 2016–17, followed by average increases of $104 (or 0.8 per cent) per year over 2017–21 ($nominal).[12]

We discuss the indicative impact of our final decision on annual gas bills in section 3.1.5 of this overview.

12 Our estimate of the potential impact our final decision will have for ActewAGL's small business customers is based on the typical annual gas usage of around 478 GJ per annum for a small business customer in the ACT (See: ActewAGL, *Reset RIN*, June 2015). Customers with different usage will experience different changes in their bills; our estimate of the potential impact reflects the final decision forecast inflation of 2.18 per cent.

3 Total revenue

The total revenue requirement is a forecast of the efficient cost of providing gas distribution services over the access arrangement period. Our forecast total revenue requirement for ActewAGL also reflects the reconciliation of revenue for the 2015–16 interval of delay.

ActewAGL operates under a weighted average tariff cap. Tariffs are derived from the total revenue requirement *after* consideration of demand for each tariff category. This means the tariffs we determine (including the means of varying the tariffs from year to year) are the binding constraint across the 2016–21 access arrangement period, rather than the total revenue requirement set in our decision.[13]

3.1.1 The building block approach

We use the building block approach to determine ActewAGL's total revenue requirement—that is, we base the total revenue requirement on our estimate of the efficient costs that ActewAGL is likely to incur in providing gas distribution network services. The building block costs, as shown in Figure 5, include:[14]

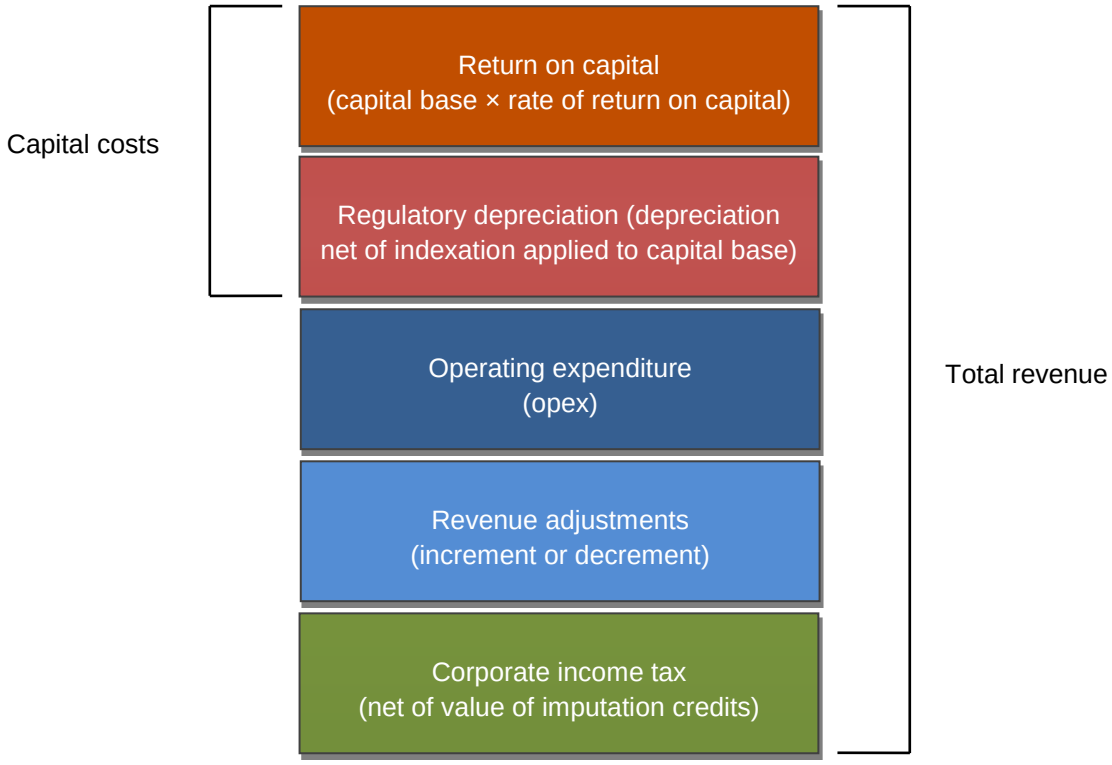
- return on the projected capital base (return on capital)
- depreciation of the projected capital base (return of capital)
- the estimated cost of corporate income tax
- revenue increments or decrements resulting from incentive schemes such as the efficiency carryover mechanism
- forecast opex.

Our assessment of capex directly affects the size of the capital base and therefore the revenue generated from the return on capital and depreciation building blocks.

[13] Where actual demand across the 2016–21 access arrangement period varies from the demand forecast in the access arrangement, ActewAGL's actual revenue will vary from the revenue allowance determined in our decision. In general, if actual demand is above forecast demand, ActewAGL's actual revenue will be above forecast revenue, and vice versa.

[14] NGR, r. 76.

Figure 5 The building block approach for determining total revenue



3.1.2 Revenue reconciliation for 2015–16

As discussed in section 2.1.1, this final decision includes a reconciliation (or 'true-up') of revenue for the 2015–16 interval of delay. This is to ensure that the interval of delay between 1 July 2015 (the revision commencement date in ActewAGL's current access arrangement) and 1 July 2016 (the actual date on which revisions will take effect) does not result in ActewAGL incurring a windfall gain or loss due to the delay in the access arrangement review.

Consistent with the approach employed in our draft decision and ActewAGL's revised proposal, we do this using a net present value (NPV) neutral mechanism to account for the difference between:

- the revenue that ActewAGL will recover in 2015–16,[15] and
- the building block revenue that we have determined for 2015–16 in this final decision.[16]

[15] To estimate the revenue that ActewAGL will recover in 2015–16, we set the X factor for 2015–16 to 2.13 per cent in the PTRM so that tariffs in 2015–16 remain the same (in nominal terms) as the tariffs in force at 30 June 2015. We then multiplied the tariffs for 2015–16 by the demand for that year to determine an estimate of $70.5 million ($nominal) in revenue that ActewAGL would recover for 2015–16. This is slightly more than the estimate in ActewAGL's revised proposal ($70.4 million, $ nominal), because our estimated revenue reflects our final decision on 2015–16 demand.

Calculating the difference between the revenue that ActewAGL will recover during the interval of delay and that it would have recovered if the new access arrangement had been approved in time to have new tariffs in place on 1 July 2015 results in ActewAGL having to return $16.8 million ($ nominal) to customers. We have smoothed this over-recovery over the 2016–21 access arrangement period by adjusting the X factors for each year of the 2016–21 access arrangement period. This approach returns the difference in revenues for 2015–16 (adjusted for the time value of money) to customers over the five years of the 2016–21 access arrangement period.

3.1.3 Final decision

We do not approve ActewAGL's revised proposed total revenue requirement (smoothed) of $382.6 million ($nominal) for reference services over the 2016–21 access arrangement period.[17] Our final decision on total revenue has been determined using the building block approach set out in rule 76 of the NGR. Based on our assessment of the building block costs, we determine a total revenue requirement (smoothed) of $301.4 million ($nominal) for ActewAGL over the 2016–21 access arrangement period.[18] This total smoothed revenue requirement is $81.2 million (or 21.2 per cent) lower than ActewAGL's revised proposal.

We do not approve ActewAGL's revised proposed 2016–21 tariffs, which would result in increase of 3.8 per cent (in real terms) in weighted average tariffs in 2016–17, and no real changes for the remaining years of the 2016–21 access arrangement period. As a result of our lower total revenue requirement, our final decision is for a real decrease in weighted average tariffs of 21.2 per cent for 2016–17, and then real increases of 1.6 per cent for each subsequent year of the 2016–21 access arrangement period. The lower tariffs in our final decision also reflect the revenue reconciliation for 2015–16 (discussed in section 3.1.2 above).

Table 1 sets out our final decision on ActewAGL's revenue requirement by building block costs for 2015–16 and for each year of the 2016–21 access arrangement period, the total revenue after equalisation (smoothing) and the X factors for use in the tariff variation mechanism.

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16 We have determined that the 2015–16 building block revenue would have been $53.6 million ($nominal) had the decision been made as intended by 1 July 2015. Section 4 discusses our decision by building block.

17 This amount includes revenues for ancillary services. This proposed amount also reflects the revenue true-up for the 2015–16 interval of delay.

18 This is calculated by smoothing the unsmoothed building block revenue for 2015–16 and the 2016–21 access arrangement period as set in this final decision. The unsmoothed building block revenue for 2015–16 for the true-up purposes is $53.6 million. The total unsmoothed building block revenue is $321.6 million ($nominal) for the 2016–21 access arrangement period.

Table 1 AER's final decision on ActewAGL's smoothed total revenue and X factors for 2015–16 and the 2016–21 access arrangement period ($million, nominal)

Building block	2015–16[c]	2016–17	2017–18	2018–19	2019–20	2020–21	Total 2016–21
Return on capital	20.3	22.0	22.8	23.6	24.3	24.7	117.4
Regulatory depreciation	4.4	5.4	6.2	6.9	7.8	8.7	35.0
Operating expenditure	28.4	31.3	32.4	33.7	35.2	36.0	168.6
Revenue adjustments	–0.4	1.8	–1.8	–3.3	–4.6	0.0	–7.9
Corporate income tax	0.9	1.1	1.5	1.9	2.0	2.0	8.5
Building block revenue – unsmoothed	53.6	61.7	61.0	62.7	64.7	71.5	321.6
Building block revenue – smoothed	**70.5**	**56.6**	**58.3**	**60.1**	**62.1**	**64.3**	**301.4**
X factor[a]	2.13%[b]	21.18%	–1.61%	–1.61%	–1.61%	–1.61%	n/a
Inflation forecast	2.18%	2.18%	2.18%	2.18%	2.18%	2.18%	n/a
Nominal price change	0.00%	–19.46%	3.83%	3.83%	3.83%	3.83%	n/a

Source: AER analysis.

n/a: not applicable.

(a) Under the CPI–X form of control, a positive X factor is a decrease in price (and therefore in revenue).

(b) We set the X factor for 2015–16 at 2.13 per cent so that the tariffs are equal (in nominal terms) to the tariffs as in force at 30 June 2015.

(c) The period between 1 July 2015 (the revision commencement date in the current access arrangement) and 1 July 2016, when revisions will actually take effect, constitutes an interval of delay for the purposes of rule 92(3) of the NGR. During that interval, the reference tariffs in place at 30 June 2015 continued to apply. This final decision therefore includes a reconciliation (or 'true-up') of revenues, to ensure that the interval of delay does not result in ActewAGL incurring a windfall gain or loss due to the delay to the access arrangement review.

3.1.4 Revenue equalisation (smoothing) and tariffs

Our assessment of ActewAGL's total building block revenue (unsmoothed revenue) yields a lumpy revenue profile. In order to smooth out reference tariffs, we determine a smoothed revenue profile across 2015–16 and the 2016–21 access arrangement period. ActewAGL operates under a weighted average tariff cap as its tariff variation mechanism. This means we determine the weighted average tariff change each year such that the NPV of unsmoothed and smoothed revenue across the entire period is the same. This weighted average tariff change is labelled the 'X factor'. The mechanics of the tariff variation mechanism are addressed in attachment 11.

Table 2 presents our final decision X factors, and compares them to ActewAGL's revised proposal.

Table 2 Weighted average tariff change across the access arrangement period (X factors) — comparison of ActewAGL's revised proposal and AER's final decision (per cent)

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21
Real price change (X factor)						
ActewAGL proposal[a]	2.49	1.70	1.70	1.70	1.70	1.70
AER draft decision	2.44	25.68	–1.00	–1.00	–1.00	–1.00
ActewAGL revised proposal	2.14	–3.78	0.00	0.00	0.00	0.00
AER final decision[b]	2.13	21.18	–1.61	–1.61	–1.61	–1.61
Nominal price change (CPI–X)						
ActewAGL proposal	0.00	0.80	0.80	0.80	0.80	0.80
AER draft decision	0.00	–23.82	3.53	3.53	3.53	3.53
ActewAGL revised proposal	0.00	6.05	2.19	2.19	2.19	2.19
AER final decision	0.00	–19.46	3.83	3.83	3.83	3.83

Source: ActewAGL, Proposed PTRM – alternative approach, June 2015; ActewAGL, *Revised proposed PTRM*, January 2016; AER analysis.

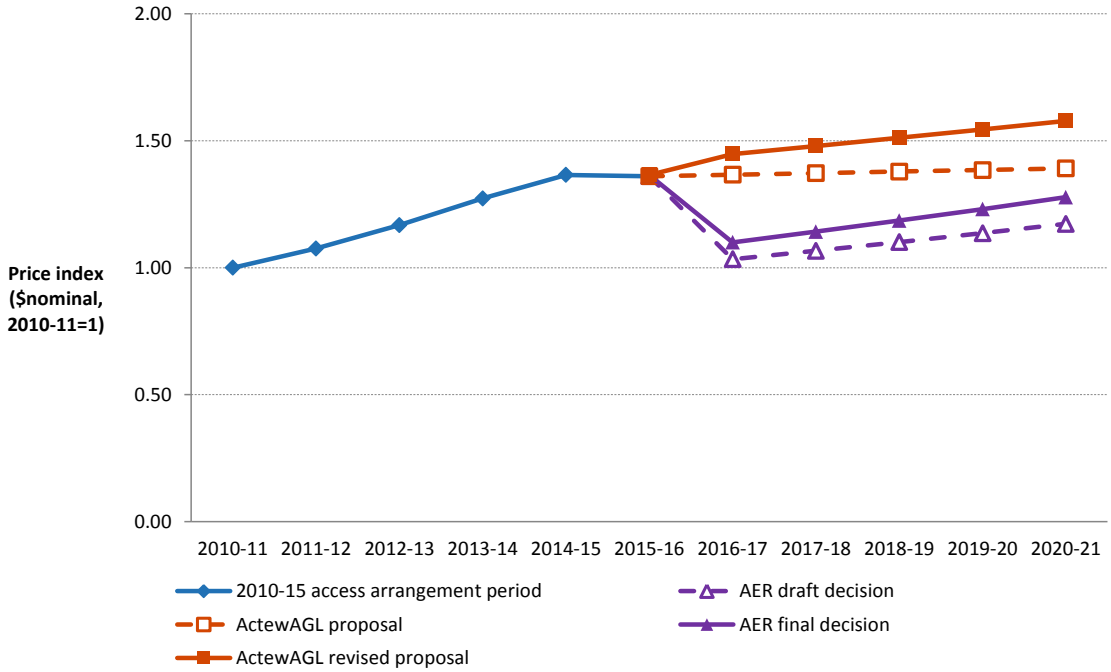
(a) Under the CPI–X form of control, a positive X factor is a decrease in price (and therefore in revenue). For example, an X factor of 1.7 per cent in 2016–17 means a real price decrease of 1.7 per cent that year. After consideration of inflation (assumed at 2.50 per cent) this becomes a nominal price increase of 0.8 per cent.

(b) To give effect to the revenue reconciliation for 2015–16, the X factor for 2015–16 is set at 2.13 per cent so that the tariffs for 2015–16 are equal (in nominal terms) to the tariffs as in force at 30 June 2015.

Figure 6 shows the indicative tariff paths for ActewAGL's reference services across the 2010–21 period. It compares ActewAGL's proposed tariff path with that approved in the 2010–15 access arrangement and with this final decision.[19] This provides a broad overall indication of the average movement in tariffs across this period.

[19] The tariff path for 2010–21 uses inflation outcomes for the 2010–15 period, and estimated inflation for 2015–21.

Figure 6 Indicative reference tariff paths for ActewAGL's reference services from 2010 to 2021 (nominal index)



Source: AER analysis.

The tariff path in ActewAGL's revised proposal was an increase of 6.05 per cent in tariffs (in nominal terms) in 2016–17, followed by an increase of 2.19 per cent (in nominal terms) for each subsequent year of the 2016–21 access arrangement period. Because our final decision provides for lower smoothed and unsmoothed revenue than ActewAGL's revised proposal, a decrease to the tariff path is required over the 2016–21 access arrangement period to reflect the change in revenue from the 2010–15 access arrangement period. Our final decision tariff path therefore shows a *decrease* of 19.46 per cent in tariffs (in nominal terms) in 2016–17, followed by an increase of 3.83 per cent (in nominal terms) for each subsequent year of the 2016–21 access arrangement period.

In determining an appropriate smoothing profile for this final decision we have balanced a number of competing objectives:

- Equalising (in NPV terms) unsmoothed and smoothed revenue.
- Providing price signals through reference tariffs that reflect the underlying efficient costs.
- Minimising variability in tariffs from the current period to 2016–21, and within the 2016–21 access arrangement period.
- Minimising the likelihood of variability in tariffs at the start of the 2021–26 access arrangement period.
- Recognising stakeholder preferences for a particular tariff path.

Each of these points is discussed in turn.

First, we are satisfied that our final decision tariff path for ActewAGL's 2016–21 access arrangement period achieves revenue equalisation as required by rule 92(2) of the NGR.[20] As set out above, we have made substantial reductions to the revised unsmoothed revenue proposed by ActewAGL. Accordingly, we set the tariff path so that it adjusts the smoothed revenue downward to better reflect the unsmoothed building block costs. The reconciliation of revenue for 2015–16 is an important factor here. ActewAGL's smoothed revenue currently being recovered in this year is expected to be $16.8 million ($ nominal) more than its unsmoothed building block costs. Hence, smoothed revenue in later years needs to be reduced below unsmoothed revenue to offset this initial over-recovery.

Second, but closely related to the first point, our smoothing allows closer alignment of tariffs and costs. This aids the achievement of the NGO and the revenue and pricing principles, including through providing a price signal that facilitates efficient use of natural gas services.[21] Our final decision tariff path shows a large decrease in the first year of the 2016–21 access arrangement period, reflecting the reduction in unsmoothed building block costs of providing those services relative to the current period.

Third, in setting the tariff path, we aim to minimise tariff volatility within the 2016–21 access arrangement period. Our chosen tariff path reflects this objective, but also reflects the consideration we must give to competing objectives. For instance, adopting a relatively flat tariff path would better minimise within-period volatility, but would not achieve revenue equalisation. Another proposal that would minimise within-period volatility would be to gradually reduce prices by the same percentage each year across the 2016–21 access arrangement period. This would mean a reduction of 7.0 per cent each year for five years, but by 2020–21, annual smoothed revenue would be 26 per cent below unsmoothed revenue. If we assume that unsmoothed revenue in 2020–21 is an indicator of likely unsmoothed revenue in 2021–22, this implies a substantial tariff increase at the start of the next access arrangement period, and so conflicts with the next objective.

Fourth, in setting the tariff path, we also aim to minimise the likelihood of tariff volatility between this access arrangement period and the next. We do not know what ActewAGL's efficient costs will be in 2021–22, or across the 2021–26 access arrangement period more generally. The unsmoothed building block costs for 2020–21 (the last year of the 2016–21 access arrangement period) are the best available proxy. Hence, this objective requires minimising the divergence between the smoothed and unsmoothed revenues for the last year of the access arrangement period. If there were no significant changes in forecast costs from 2020–21 to 2021–22, this final year divergence gives us an estimate of the size of the tariff change at the start of the 2021–

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[20] The revenue equalisation occurs in NPV terms, discounting the yearly cash flows at the rate of return to reflect the time value of money.

[21] NGL, ss. 23, 24.

26 access arrangement period. For this final decision, this final year divergence is 10 per cent, which is more than our usual target. Overall, however, we consider this a reasonable gap given the need to balance our competing objectives. We note that if there are significant changes in costs at the start of the 2021–26 access arrangement period, this might increase or decrease the required tariff change at that time.[22]

Finally, we also considered the customer preferences expressed in ActewAGL's original proposal.[23] We note that stakeholders' preference was to have an initial step decrease in tariffs followed by flat profile of tariffs, if tariffs are being reduced.[24] We consider that the final decision tariff path largely reflects this preference. Our tariff path provides for an initial decrease in 2016–17 and then allows a 1.6 per cent increase per year (in real terms) in the last four years of the 2016–21 access arrangement period. However, if we were to provide for an initial decrease in 2016–17 and then set a flat tariff profile for the last four years (that is, no change in prices in real terms), this would require the difference between the last year smoothed and unsmoothed revenues to exceed 10 per cent. We consider this is not optimal as it will further increase the risk of tariff volatility at the start of the 2021–26 access arrangement period.

We are satisfied that our final decision tariff path reflects our balanced consideration of these competing objectives.

3.1.5 Indicative impact of distribution charges on annual gas bills

Our final decision on ActewAGL's weighted average tariff cap ultimately affects the prices consumers pay for gas. The weighted average price changes (X factors) presented above provide the indicative changes (in real terms) in distribution charges.

For customers on ActewAGL's network, distribution charges account for approximately 34 per cent of an annual gas bill.[25] We also note that there are other factors, such as transmission pipeline costs, wholesale and retail costs, which affect gas bills.

Our final decision will result in lower distribution charges on average over the 2016–21 access arrangement period compared to ActewAGL's revised proposal, as discussed above. However, it is difficult to predict how these other factors may change over the 2016–21 access arrangement period.

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22 In particular, we give consideration to the possibility that there could be a cumulative effect if the revealed costs for 2021–22 are above the current estimate (for example, by 10 per cent), and we have set smoothed revenue to be below unsmoothed revenue in 2020–21 (by 10 per cent, as in this final decision). These differences operate in the same direction, so there would be an implied 20 per cent increase in tariffs at the start of the 2021-26 access arrangement period.

23 We did not receive further submissions on the price path in response to the draft decision.

24 ActewAGL, *2016–21 access arrangement information: Attachment 11: Revenue requirement*, June 2015, pp. 6–7.

25 ActewAGL, *2016–21 access arrangement information: Attachment 12: Reference tariffs*, June 2015, p. 31.

To illustrate the bill impact due to our final decision we have taken the typical annual gas usage of around 45 GJ per annum for a residential customer in the ACT,[26] and an average small business customer using approximately 478 GJ of gas per annum.[27]

If we also assume, for the sake of illustration, that all other components of the bill stay the same, and the lower distribution charges from our final decision are passed through to customers, the average annual gas bill for residential customers would be expected to reduce by $107 (or 6.7 per cent) in 2016–17, followed by average increases of $18 (or 1.2 per cent) per year over 2017–21 ($ nominal). By comparison, had we accepted ActewAGL's revised proposal, the average annual gas bill for residential customers would increase by approximately $33 (or 2.1 per cent) in 2016–17, followed by average increases of $13 (or 0.8 per cent) per year over 2017–21 ($ nominal).

Similarly, for an average small business customer in the ACT, our final decision for ActewAGL is expected to lead to lower average annual gas bills. We estimate that if the distribution charges from our final decision are passed through to customers, the average annual gas bill for small business customers would be expected to reduce by $849 (or 6.7 per cent) in 2016–17, followed by average increases of $142 (or 1.2 per cent) per year over 2017–21 ($nominal). Had we accepted ActewAGL's revised proposal, the average annual gas bill for small business customers would increase by about $264 (or 2.1 per cent) in 2016–17, followed by average increases of $104 (or 0.8 per cent) per year over 2017–21 ($nominal).

Table 3 summarises the estimated annual average impacts of our final decision and ActewAGL's revised proposal on the average residential customer and small business customers' annual gas bills.

[26] ActewAGL, *Reset RIN*, June 2015.

[27] ActewAGL, *Reset RIN*, June 2015.

Table 3 Estimated impact of ActewAGL's revised proposal and the AER's final decision on annual gas bills for the 2016–21 access arrangement period ($nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21
AER final decision						
Residential annual gas bill[a]	1597	1490	1507	1525	1543	1562
Annual change		–107 (–6.7)	17 (1.1%)	18 (1.2%)	18 (1.2%)	19 (1.2%)
Small business annual gas bill[b]	12687	11837	11972	12112	12257	12407
Annual change		–849 (–6.7%)	135 (1.1%)	140 (1.2%)	145 (1.2%)	151 (1.2%)
ActewAGL revised proposal						
Residential annual gas bill[a]	1597	1630	1643	1656	1669	1683
Annual change		33 (2.1%)	13 (0.8%)	13 (0.8%)	13 (0.8%)	14 (0.8%)
Small business annual gas bill[b]	12687	12951	13052	13155	13260	13368
Annual change		264 (2.1%)	101 (0.8%)	103 (0.8%)	105 (0.8%)	108 (0.8%)

Source: AER analysis; ActewAGL, *Reset RIN*, June 2015.

Notes: These estimated bill impacts are calculated by assuming that all other components of the bill stay the same, and the lower distribution charges from our final decision are passed through to customers. Numbers may not add due to rounding; our estimated bill impacts reflect the final decision forecast inflation of 2.18 per cent per year.

(a) AER, Energy made easy; 2015–16 annual bill is based on an average annual consumption of 45 GJ. ActewAGL, *Reset RIN*, June 2015.

(b) AER, Energy made easy; 2015–16 annual bill is based on an average annual consumption of 478 GJ. ActewAGL, *Reset RIN*, June 2015.

4 Key elements of the building blocks

The components of our decision include the building blocks we use to determine the revenue ActewAGL may recover from its customers.

In determining our overall total revenue requirement of $375.2 million ($nominal, unsmoothed) for 2015–16 and the 2016–21 access arrangement period,[28] we:

- apply relevant tests under the NGR, the assessment methods and tools developed as part of our Better Regulation guidelines.[29]
- consider information provided by ActewAGL, the Consumer Challenge Panel (CCP), consultants and stakeholder submissions.
- consider our overall revenue decision against section 23 of the NGL, including the constituent decisions and the interrelationships we discuss in sections 4 and 7.1.1.

The following section summarises our decision by building block and provides our high level reasons and analysis. The attachments provide a more detailed explanation of our analysis and findings.

4.1 Capital base

We are required to make a decision on ActewAGL's opening capital base as at 1 July 2015. We are also required to make a decision on ActewAGL's projected capital base for the 2016–21 access arrangement period.

The capital base roll forward accounts for the value of ActewAGL's regulated assets over the access arrangement period. The level of the capital base substantially impacts the service provider's revenue and the price consumers ultimately pay. It is an input into the determination of the return on capital and depreciation (return of capital) allowances.[30] Other things being equal, a higher capital base increases both the return on capital and depreciation allowances. In turn, it increases the service provider's revenue, and prices for its services.

We determine an opening capital base of $338.4 million ($nominal) as at 1 July 2015 for ActewAGL. This is $0.3 million (or 0.1 per cent) more than the revised proposed amount. This is because we have updated the capital base roll forward for the conforming capex for 2014–15.

Table 4 summarises our final decision on the roll forward of ActewAGL's capital base from 2010 to 2015.

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[28] $53.6 million ($nominal) for 2015–16 plus $321.6 million ($nominal, unsmoothed) for 2016–21.

[29] http://www.aer.gov.au/Better-regulation.

[30] The size of the capital base also impacts the benchmark debt raising cost allowance. However, this amount is usually relatively small and therefore not a significant determinant of revenues overall.

Table 4 AER's final decision on ActewAGL's capital base roll forward for 2010–15 access arrangement period ($million, nominal)

	2010–11	2011–12	2012–13	2013–14	2014–15
Opening capital base	278.1	288.6	302.2	313.8	326.9
Net capex	12.0	15.0	18.7	18.6	24.6
Indexation of capital base	7.9	9.8	5.3	7.7	8.1
Depreciation	–9.4	–11.2	–12.5	–13.2	–13.7
Closing capital base	288.6	302.2	313.8	326.9	345.9
Adjustment for difference between estimated and actual capital expenditure in 2009–10[a]					–7.5
Opening capital base at 1 July 2015					**338.4**

Source: AER analysis.

(a) Comprising the difference between the actual and estimated capex for 2009–10 and the return on that difference.

We determine a projected closing capital base of $417.8 million ($nominal) as at 30 June 2021. This is $14.9 million (or 3.4 per cent) lower than ActewAGL's revised proposal. This difference results from our final decision on other elements of ActewAGL's revised proposal, which have:

- reduced ActewAGL's revised proposed forecast inflation for 2015–16 and the 2016–21 access arrangement period from 2.19 per cent per annum to 2.18 per cent per annum
- reduced ActewAGL's revised proposed forecast net capex for 2015–16 and over the 2016–21 access arrangement period by $15.4 million ($nominal) or 11.5 per cent
- reduced ActewAGL's revised proposed forecast straight-line depreciation for 2015–16 and the 2016–21 access arrangement period by $0.9 million ($nominal) or 1.0 per cent.

Table 5 sets out the projected roll forward of the capital base during 2015–16 and the 2016–21 access arrangement period.

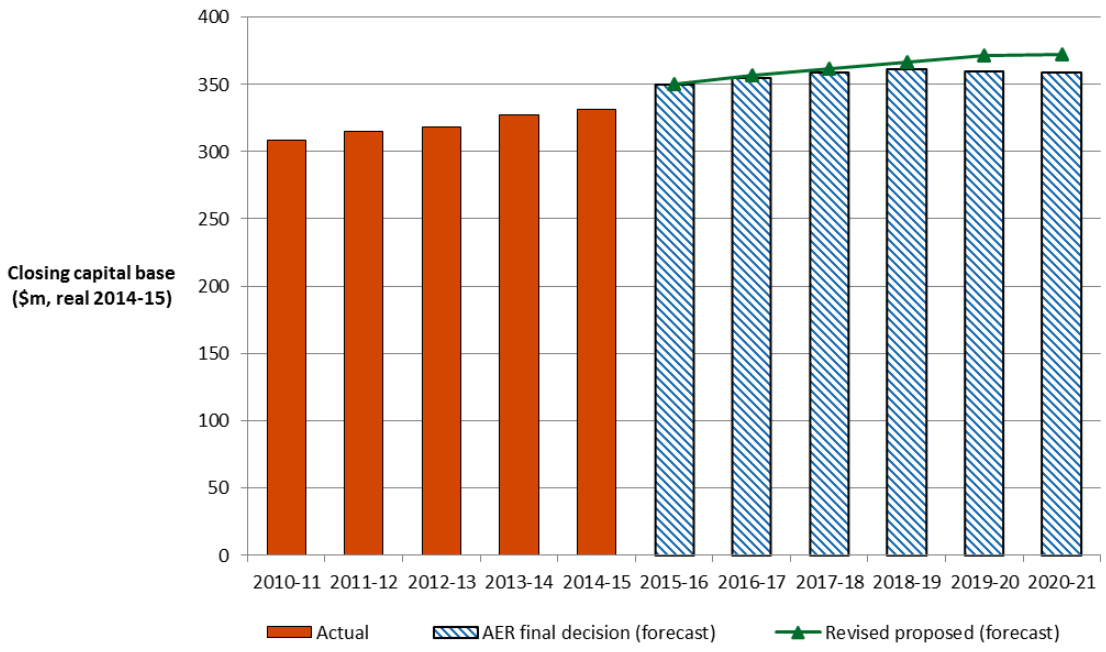
Table 5 AER's final decision on projected capital base roll forward for 2015–16 and the 2016–21 access arrangement period ($million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21
Opening capital base	338.4	365.3	378.7	391.1	402.7	409.9
Net capex	31.4	18.8	18.6	18.5	15.0	16.6
Indexation of capital base	7.4	8.0	8.3	8.5	8.8	8.9
Depreciation	–11.8	–13.4	–14.4	–15.5	–16.6	–17.6
Closing capital base	365.3	378.7	391.1	402.7	409.9	417.8

Source: AER analysis.

Figure 7 compares our final decision on ActewAGL's forecast capital base to ActewAGL's revised proposal and actual capital base in real dollar terms.

Figure 7 ActewAGL's actual capital base, revised proposed forecast capital base and AER final decision forecast capital base ($ million, 2014–15)



Source: AER analysis.

4.2 Rate of return (return on capital)

The allowed rate of return provides a service provider a return on capital to service the interest on its loans and give a return on equity to investors. The return on capital building block is calculated as a product of the rate of return and the value of the capital base.

We are satisfied that the allowed rate of return of 6.01 per cent (nominal vanilla) we determined for 2015–16 contributes to the NGO and achieves the allowed rate of return objective set out in the NGR.[31] That is, we are satisfied that this allowed rate of return is commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to ActewAGL in providing reference services.[32]

This allowed rate of return has been used to calculate the allowed revenue for ActewAGL for the 2015–16 interval of delay. For the 2016–17 regulatory year, we will apply a rate of return of 6.03 per cent. This is because we update the return on debt component of the rate of return each year to partially reflect prevailing debt market conditions. Similarly, a different rate of return will apply to ActewAGL in each remaining regulatory year of the 2016–21 access arrangement period. We discuss this annual update further below.

In its initial and revised proposals ActewAGL proposed that we depart from the Rate of Return Guideline (the Guideline) and our draft decision on the allowed rate of return for ActewAGL. ActewAGL provided further information in support of its revised proposal, which included a change in methodology to the calculation of return on debt. The Australian Competition Tribunal (the Tribunal) also recently reviewed several of the aspects of our approach to estimating the rate of return that have been contested in our assessment of ActewAGL's proposed access arrangement. While it upheld a number of these, it found error in other aspects of our approach and remitted these matters back to us. On 24 March 2016, we applied to the Federal Court for judicial review of these aspects of the Tribunal's decision.

With respect to the current decision before us, we have considered the information provided by ActewAGL as well as submissions from stakeholders on ActewAGL's initial and revised proposals. However, we are not satisfied that a change in our approach would produce an allowed rate of return that better achieves the allowed rate of return objective. Our reasons are highlighted below and explained in further detail in Attachment 3 to this final decision.

We agree with the following aspects of ActewAGL's revised rate of return proposal:

- adopting a weighted average of the return on equity and return on debt (WACC) determined on a nominal vanilla basis (as required by the NGR)
- adopting a 60 per cent gearing ratio
- adopting a 10 year term for the return on debt
- estimating the return on debt by reference to a third party data series

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31 NGR, r. 87(2).

32 NGR, r. 87(3).

- estimating the risk free rate for the return on equity using nominal Commonwealth government securities averaged over 20 business days as close as practical to the commencement of the access arrangement period
- estimating an allowed rate of return for the purpose of the true-up for the interval of delay that impacts on total revenues for the 2016–21 access arrangement period.

However, we are not satisfied that ActewAGL's proposed 8.64 per cent rate of return for 2015–16 (the interval of delay) has been determined such that it achieves the allowed rate of return objective. Similarly, we are not satisfied that ActewAGL's proposed (indicative) 8.58 per cent rate of return for the 2016–17 regulatory year has been determined such that it achieves the allowed rate of return objective.[33]

Our allowed rate of return is a weighted average of our return on equity and return on debt estimates (WACC) determined on a nominal vanilla basis that is consistent with our estimate of the value of imputation credits.[34] In arriving at our decision we have taken into account the revenue and pricing principles (RPPs) set out in the NGL and are also satisfied that our decision will or is likely to contribute to the achievement of the NGO.[35] Our rate of return and ActewAGL's proposed rate of return are set out in Table 6.

[33] ActewAGL, *Revised 2016 to 20201access arrangement proposal: Appendix 5.01 rate of return, gamma, and inflation*, 6 January 2016, p. 143.

[34] NGR, r. 87(4).

[35] NGL, s. 28.

Table 6 Final decision on ActewAGL's rate of return (% nominal)[(a)]

Component	Previous allowed return (2010–15)	ActewAGL revised proposal (2015–16)	ActewAGL revised proposal (2016–17)	AER final decision (2015–16)	AER final decision (2016–17)	Allowed return over 2016–21
Return on equity (nominal post–tax)	10.83	9.89	9.89	7.1	7.1	Constant (7.1%)
Return on debt (nominal pre–tax)	9.52	7.81	7.7	5.29	5.31	Updated annually
Gearing	60	60	60	60	60	Constant (60%)
Nominal vanilla WACC	10.04	8.64	8.58	6.01	6.03	Updated annually for debt
Forecast inflation	2.52	2.19	2.19	2.5	2.18	Constant (2.18%)

Source: AER analysis; ActewAGL, *Appendix 5.01: Detailed response to rate of return, gamma and inflation*, 6 January 2016; ActewAGL, *Access Arrangement Information for the ACT, Queanbeyan and Palerang gas distribution network: Amended by order of the Australian Competition Tribunal*, April 2010.

(a) ActewAGL's revised proposals for the 2016–17 return on debt and the risk free rate used in the return on equity are based on a placeholder averaging period of 20 business days to 30 September 2015.

Our return on equity estimate is 7.1 per cent. Consistent with the Guideline, the return on equity remains constant over the access arrangement period. Our return on equity point estimate and the parameter inputs are set out in Table 7. ActewAGL proposed departing from the approach in the Guideline. We are not satisfied that doing so would result in an outcome that better achieves the allowed rate of return objective.[36] We do not agree with ActewAGL that our method applied in the draft decision will result in a return on equity which is inconsistent with the allowed rate of return objective.[37] Our return on equity draft decision and this final decision are largely consistent with the views in the Guideline.

[36] NGR, r. 87(6).

[37] ActewAGL, *Appendix 5.01: Detailed response to rate of return, gamma and inflation*, 6 January 2016, p. 142.

Table 7 Final decision on ActewAGL's return on equity (nominal)

	Previous access arrangement (2010–15)	ActewAGL revised proposal (2015-21)	AER final decision (2015–21)
Nominal risk free rate (return on equity only)	5.63%	2.75%*	2.57%**
Equity risk premium	5.20%	7.19%	4.55%
MRP	6.50%	7.9%	6.50%
Equity beta	0.8	0.91	0.7
Nominal post–tax return on equity	10.83%	9.89%	7.1%

Source: AER analysis; ActewAGL, Appendix 5.01: Detailed response to rate of return, gamma and inflation, 6 January 2016; ActewAGL, Access Arrangement Information for the ACT, Queanbeyan and Palerang gas distribution network: Amended by order of the Australian Competition Tribunal, April 2010.

* Calculated with a placeholder averaging period of 20 business days to 30 September 2015.

** Calculated with an averaging period of 20 business days up to 24 March agreed upon in advance of its commencement.

The return on debt estimate for 2015–16 (the interval of delay) is 5.29 per cent. Our return on debt estimate for the 2016–17 regulatory year is 5.31 per cent. We will continue to update our return on debt estimate each year as we partially update the return on debt to reflect prevailing interest rates over ActewAGL's debt averaging period in each year. Our return on debt estimate for future regulatory years will be determined in accordance with the methodology and formulae we have specified in this decision. As a result of updating the return on debt each year, the overall rate of return and consequently ActewAGL's revenue will also be updated.

Consistent with our draft decision, we agree there should be a transition from the on-the-day approach to the trailing averaging approach. However, we disagree with the hybrid form of transition proposed in ActewAGL's (initial) access arrangement proposal.[38] In its revised proposal, ActewAGL departed from its initial position to apply a transition to the trailing averaging approach.[39] It now proposes to not apply a transition (that is, to immediately move to a trailing average approach). We also disagree with ActewAGL on this approach.

Consistent with our draft decision, we apply a transition to both the base rate and debt risk premium components of the return on debt as per the Guideline.

Our final decision on the return on debt approach is to:

[38] ActewAGL, *Attachment 8: Rate of return, gamma and inflation,* June 2015, p. 5.

[39] ActewAGL, *Revised 2016–21 access arrangement proposal appendix 5.01 rate of return, gamma and inflation*, January 2016, p. 4.

- estimate an on-the-day rate (that is, based on prevailing market conditions) in 2015–16 (the interval of delay), and
- gradually transition this rate into a trailing average approach (that is, a moving historical average) over 10 years.[40]

4.3 Value of imputation credits (gamma)

Under the Australian imputation tax system, investors can receive an imputation credit for income tax paid at the company level.[41] These are received after company income tax is paid, but before personal income tax is paid. For eligible investors, this credit offsets their Australian income tax liabilities. If the amount of imputation credits received exceeds an investor's tax liability, that investor can receive a cash refund for the balance. Imputation credits are therefore valuable to investors and are a benefit to investors in addition to any cash dividend or capital gains they receive from owning shares.

However, the estimation of the return on equity does not take imputation credits into account.[42] Therefore, an adjustment for the value of imputation credits is required. This adjustment could take the form of a decrease in the estimated return on equity itself. An alternative but equivalent form of adjustment, which is employed under the NGR, is via the revenue granted to a service provider to cover its expected tax liability. Specifically, the NGR require that the estimated cost of corporate income tax be determined in accordance with a formula that reduces the estimated cost of corporate tax by the 'value of imputation credits' (represented by the Greek letter, γ, 'gamma').[43] This form of adjustment recognises that it is the payment of corporate tax which is the source of the imputation credit return to investors.

We adopt a value of imputation credits of 0.4 for this decision, based on our conceptual approach and a wide range of relevant evidence. Estimating the value of imputation credits is a complex and imprecise task, and as such, requires the use of regulatory judgement. There is no consensus among experts on the appropriate value or estimation techniques to use. Conceptually, the value of imputation credits must be between 0 and 1, and the range of expert views on the value of imputation credits is almost this wide.

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40 This final decision determines the return on debt methodology for 2015–21 (the interval of delay and the 2016–21 access arrangement period). This period covers the first six years of the 10 year transition period. This decision also sets out our intended return on debt methodology for the remaining four years. However, we do not have the power to determine in this decision the return on debt methodology for those years. Under the NGR, the return on debt methodology must be determined in future decisions that relate to that period.

41 *Income Tax Assessment Act 1997*, parts 3–6.

42 While the return on equity is not reduced to take into account the value of imputation credits, we note our estimate of the MRP does consider the value we use for imputation credits to ensure it reflects the value to investors in the domestic Australian market inclusive of credits.

43 NGR, rr. 76(c), 87A.

We do not accept ActewAGL's proposed value of imputation credits of 0.25.[44] We assessed its reasoning in its revised proposal, and respond in detail in Attachment 4. After ActewAGL submitted its revised proposal, a number of service providers made late submissions.[45] These late submissions asked us to take into account a range of issues identified in the recent Australian Competition Tribunal (the Tribunal) decisions for ActewAGL Distribution, Ausgrid, Endeavour Energy, Essential Energy and Jemena Gas Networks.[46] We have considered these submissions as fully as possible in the limited time permitted, and we set out our response in Attachment 4. We also sought expert advice from Dr Martin Lally (Lally), in response to the issues raised in these submissions.[47]

In light of the above, in coming to a value of imputation credits of 0.4:

- We adopt a conceptual approach consistent with the Officer framework, which we consider best promotes the objectives and requirements of the NGR. We consider this conceptual approach allows for the value of imputation credits to be estimated on a consistent basis with the allowed rate of return and allowed revenues under the post-tax framework in the NGR.[48]
- We use the widely accepted approach of estimating the value of imputation credits as the product of two sub-parameters: the 'distribution rate' and the 'utilisation rate'. We use a wide range of relevant evidence to estimate these parameters, having regard to expert advice on each source of relevant evidence.
- Overall, the evidence suggests a range of estimates for the value of imputation credits might be reasonable. With regard to the merits of the evidence before us, we choose a value of imputation credits of 0.4 from within a range of 0.3 to 0.5.
- Lally's latest advice recommended a value of imputation credits of at least 0.5. This is higher than the estimate of 0.4 we adopt in this decision. We maintain our approach and final estimate because we consider it meets the requirements of the NGR, taking into account the importance of regulatory certainty and predictability.

We elaborate on our reasons for this decision in Attachment 4.

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44 ActewAGL, *Revised access arrangement proposal: Appendix 5.01—Detailed response to rate of return, gamma and inflation*, January 2016, pp. 106–129.

45 United Energy, *Submission on AER preliminary determination - Submission on gamma*, 26 April 2016; CitiPower/Powercor, *Submission on implications of recent Australian Competition Tribunal Decision*, 18 April 2016; ActewAGL, *Implication of recent Tribunal decisions for final decision and updates to the allowed rate of return and forecast inflation estimate*, 12 May 2016.

46 For example, see Australian Competition Tribunal, *Applications by Public Interest Advocacy Centre Ltd and Ausgrid [2016] ACompT 1*, 26 February 2016, para 1(c).

47 Lally, *Gamma and the ACT Decision*, May 2016.

48 In finance, the consistency principle requires that the definition of the cash flows in the numerator of a net present value (NPV) calculation must match the definition of the discount rate (or rate of return / cost of capital) in the denominator of the calculation (see Peirson, Brown, Easton, Howard, Pinder, *Business Finance*, McGraw-Hill, Ed. 10, 2009, p. 427). By maintaining this consistency principle, we provide a benchmark efficient entity with an ex ante total return (inclusive of the value of imputation credits) commensurate with the efficient financing costs of a benchmark efficient entity.

4.4 Regulatory depreciation (return of capital)

Regulatory depreciation is a component of the annual building block revenue requirement.[49] When determining the total revenue for ActewAGL, we must decide on the depreciation for the projected capital base (otherwise referred to as 'return of capital').[50] Regulatory depreciation is used to model the nominal asset values over the 2016–21 access arrangement period and the depreciation forecast in the total revenue requirement.

A service provider can only recover the capex it has incurred on assets once. The depreciation forecast reflects how quickly the capital base is being recovered and is based on the remaining and standard asset lives used in the depreciation calculation. Higher (quicker) depreciation leads to higher revenues over the access arrangement period. It also causes the capital base to reduce more quickly (assuming no further capex). This reduces the return on capital building block, although this impact is usually less than that of the increased depreciation forecast.

In coming to a decision on the proposed depreciation schedule, we assess the compliance of the proposed depreciation schedule with the depreciation criteria set out in the NGR.[51] We must also take into account the NGO and the revenue and pricing principles.[52] If a proposed depreciation schedule complies with the depreciation criteria, we must approve it.

Our final decision on ActewAGL's regulatory depreciation allowance is $39.4 million ($nominal) over 2015–16 and the 2016–21 access arrangement period as set out in Table 8.[53]

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[49] Under our standard approach, the distinction is made between straight-line depreciation and regulatory depreciation. The difference being that regulatory depreciation is the straight-line depreciation minus the indexation adjustment.

[50] NGR, r. 76(b).

[51] NGR, r. 89.

[52] NGL, s. 28; NGR, r. 100(1). The NGO is set out in NGL, s. 23. The revenue and pricing principles are set out in NGL, s. 24.

[53] This reflects the total of the regulatory depreciation amount for 2015–16 and the 2016–21 access arrangement period. The amount for 2015–16 is $4.4 million ($ nominal) and the total amount for the 2016–21 access arrangement period is $35.0 million ($ nominal).

Table 8 AER's final decision on ActewAGL's regulatory depreciation allowance for 2015–16 and the 2016–21 access arrangement period ($million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	Total
Straight-line depreciation	11.8	13.4	14.4	15.5	16.6	17.6	89.2
Less: indexation on capital base	7.4	8.0	8.3	8.5	8.8	8.9	49.9
Regulatory depreciation	**4.4**	**5.4**	**6.2**	**6.9**	**7.8**	**8.7**	**39.4**

Source: AER analysis.

Our final decision on ActewAGL's regulatory depreciation allowance is a reduction of $0.3 million ($nominal) (or 0.6 per cent) from ActewAGL's revised proposal for 2015–16 and the 2016–21 access arrangement period. This reduction is mainly because of our final decisions on other components of ActewAGL's revised proposal which affect the calculation of the regulatory depreciation allowance.[54] These include:

- a reduction to ActewAGL's revised proposed forecast net capex for 2015–16 and the 2016–21 access arrangement period of $15.4 million ($nominal) or 11.5 per cent
- a slight reduction to ActewAGL's forecast inflation for 2015–16 and the 2016–21 access arrangement period to 2.18 per cent from the revised proposal value of 2.19 per cent.

Consistent with our draft decision, we accept ActewAGL's revised proposed standard asset lives for its asset classes. We also accept ActewAGL's proposed weighted average method to calculate the revised proposed remaining asset lives as at 1 July 2015. However, we have updated ActewAGL's remaining asset lives as at 1 July 2015 to reflect the amended capital base roll forward for the 2010–15 access arrangement period.

In the draft decision, we rejected ActewAGL's proposal that its regulatory depreciation approach was contingent on meeting certain BBB to BBB+ credit metrics.[55] We considered that the proposed regulatory depreciation approach which we accepted allows reference tariffs to vary, over time, in a way that promotes efficient growth in the market for reference services.[56] We note ActewAGL's revised proposal adopted our draft decision and did not make further submissions on this matter.

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54 NGR, rr. 88–90.

55 ActewAGL specifically mentioned the credit metric *Funds From Operations (FFO) to Debt*, which is a financial ratio used by credit rating agencies. See AER, *Draft decision Australian Gas Networks access arrangement - Attachment 5 - Regulatory depreciation*, November 2015

56 NGR, r. 89(1)(a).

4.5 Capital expenditure

Capital expenditure (capex) refers to the capital expenses incurred in the provision of network services. The return on and of forecast capex for reference services are two of the building blocks we use to determine a service provider's total revenue requirement.

We must make two decisions regarding ActewAGL's capex. First, we are required to assess past capex and determine whether it meets the criteria set out in the NGR to be added to the opening capital base.[57] Where capex meets these criteria, it is referred to as "conforming capex".[58] Secondly, we are required to assess ActewAGL's forecast of required capex for the 2016–21 access arrangement period to determine whether it is conforming capex.

We consider that $102.1 million ($2015–16) of total net capex for the period 2009–15 is conforming capex.[59] This is consistent with our draft decision and ActewAGL's revised proposal. This amount will be rolled into ActewAGL's opening capital base as at 1 July 2015.

Our final decision approves $80.7 million ($2015–16) of total net forecast capex for the 2016–21 access arrangement period as conforming capex.

Table 9 compares the capex forecast for 2016–21 in ActewAGL's revised proposal to that approved in our final decision.

[57] NGR, r. 77(2)(b).

[58] NGR, r. 79.

[59] Capex for 2015–16 will be assessed as part of our next review, when actual data for that year will be available.

Table 9 Final decision on ActewAGL's total capex for 2016–21 ($million, 2015–16)

Category	Proposed	Approved	Difference
Market expansion (connections)	42.2	42.2	0.0
Capacity development (augmentation)	14.4	6.0	-8.4
Stay in business			
- network renewal & upgrade	16.7	14.0	-2.8
- meter renewal	13.7	13.7	0.0
Non–system	0.5	0.5	0.0
Escalation	4.4	3.7	-0.7
Overheads	5.5	4.8	-0.7
GROSS TOTAL CAPEX	**97.3**	**84.8**	**-12.6**
Contributions	4.1	4.1	0.0
Asset disposals	0.0	0.0	0.0
NET TOTAL CAPEX	**93.2**	**80.7**	**-12.6**

Source: AER analysis.

The total capex forecast in our final decision is an increase of five per cent ($3.9 million) from our draft decision.

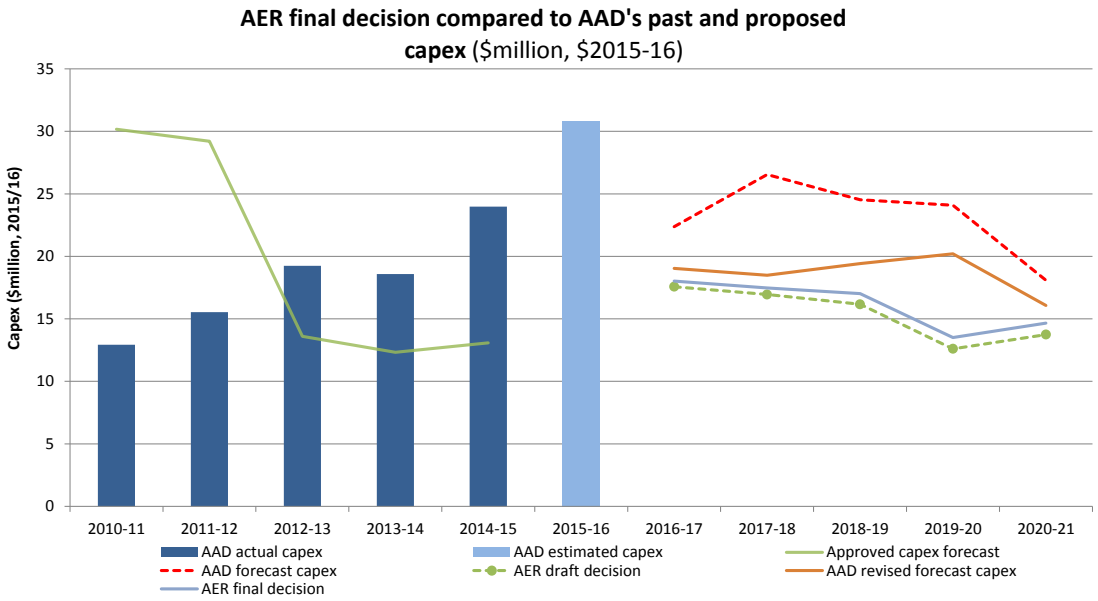
The increase from our draft decision largely reflects our acceptance of ActewAGL's revised tariff V connection numbers for medium density/high rise (MD/HR) dwellings (discussed further in section 5.1 below). The forecast of connection capex in our draft decision was largely driven by our lower alternative estimate of connections numbers for MD/HR dwellings. Our final decision accepts the higher connection numbers in ActewAGL's revised proposal. Our final decision on market expansion capex is 3.8 per cent higher than our draft decision, and 24 per cent lower than the forecast in ActewAGL's original proposal.

The total forecast capex we approve in our final decision is nonetheless a reduction of 13.5 per cent from ActewAGL's revised proposal of $93.2 million ($2015–16). The main difference between our alternative capex estimate and ActewAGL's revised proposal relate to augmentation capex—a reduction of $8.4 million (or 58.3 per cent) from ActewAGL's proposed $14.4 million. Our final decision is that a prudent operator, acting efficiently, would not require ActewAGL's forecast capex associated with the Molonglo Primary and Molonglo Secondary network expansions during the 2016–21

access arrangement period.[60] The reasons for our decision are set out in Attachment 6 to this final decision.

Figure 8 shows the difference between ActewAGL's past and proposed forecast capex as well as the forecasts we approved in our previous decision for 2010–15 and this final decision for 2016–21.

Figure 8 AER final decision compared to ActewAGL's past and proposed capex ($million, $2015–16)



Note: There was no approved capex allowance for 2015–16 because the access arrangement was intended to be revised from 1 July 2015.

Source: AER analysis.

4.6 Operating expenditure

Forecast opex is the forecast of operating, maintenance and other non–capital costs incurred in the provision of reference services.

Our approved opex forecast for the 2016–21 period is $156.9 million, which is 3.3 per cent lower than ActewAGL's forecast of $162.2 million. Our final opex decision for 2015–16 and for the 2016–21 period is shown in Table 10.

[60] NGR, rr. 79(1)(a), 79(2)(c)(ii) and (iv).

Table 10 Final decision on ActewAGL's total opex ($million, 2015–16)

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	Total (2016–21)
ActewAGL's initial proposal	n/a	27.3	27.3	28.1	30.9	30.2	143.8
AER draft decision	24.7	26.0	26.1	26.5	27.1	27.3	133.0
ActewAGL's revised proposal[61]	29.7	31.4	31.0	31.6	35.0	34.0	162.2
AER final decision	28.2	30.5	30.8	31.4	32.1	32.1	156.9

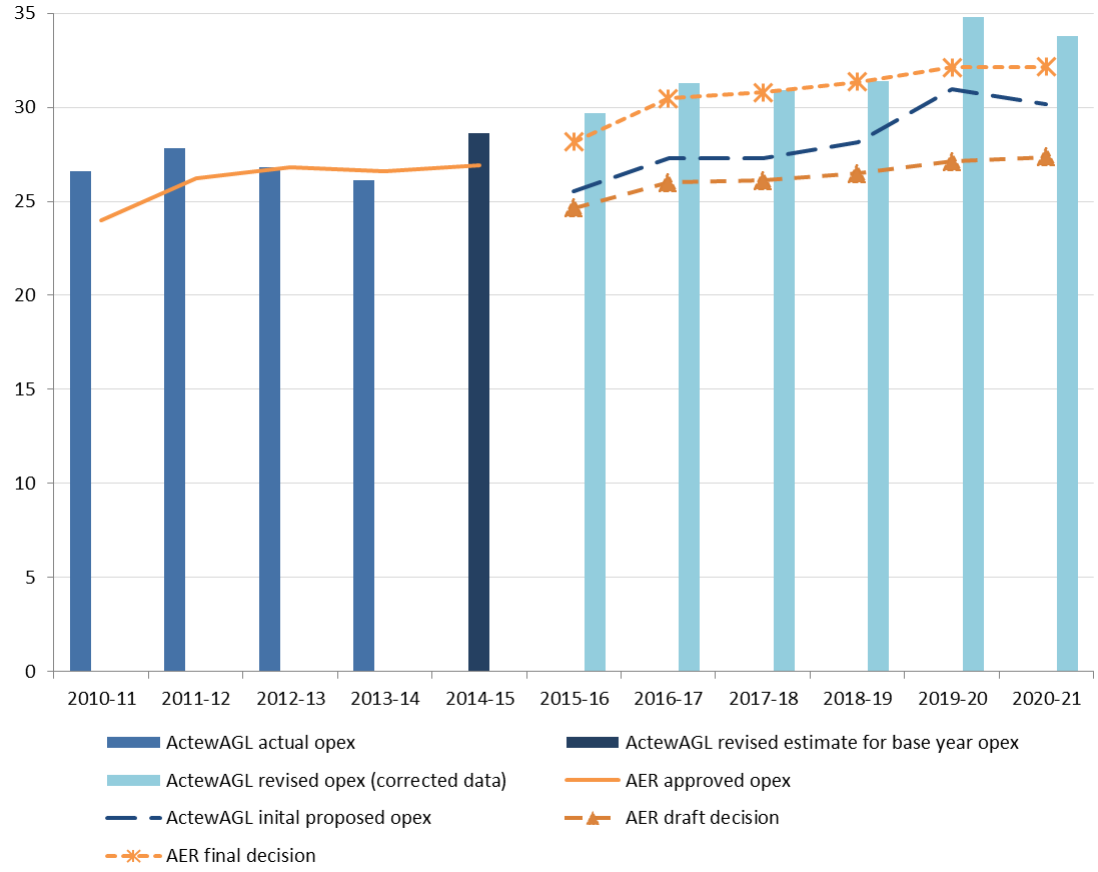
Note: Excludes debt raising costs.

Source: AER analysis; ActewAGL Distribution, *Gas network Access Arrangement 2016–21 Opex model*; ActewAGL Distribution, *Revised 2016-21 access arrangement proposal - Appendix 7.01 Revised proposal opex model*, January 2016; AER, *Draft Decision ActewAGL Distribution Access Arrangement 2016-21 Attachment 7-Operating expenditure*, November 2015. Numbers may not add due to rounding.

Figure 9 shows our draft and final decisions compared to ActewAGL's original and revised proposals as well as its forecast and actual opex in the current period.

[61] The opex model that ActewAGL submitted on 6 January 2016 used incorrect customer demand and customer consumption data which impacted on its forecast rate of change, Utilities Network Facilities Tax (UNFT), Unaccounted for Gas (UAG) and Energy Industry Levy (EIL). These revised proposal numbers correct for these errors and are consistent with ActewAGL's response to AER information request 44 (ActewAGL, *Response to AER information request 044* [email to AER], 21 January 2016).

Figure 9 Final decision compared to ActewAGL's past and proposed opex ($ million, 2015–16)



Note: Number may not add due to rounding.

Source: AER analysis; ActewAGL Distribution, *Gas network Access Arrangement 2016–21 Opex model*; ActewAGL Distribution, *Revised 2016-21 access arrangement proposal - Appendix 7.01 Revised proposal opex model,* January 2016; AER, *Draft Decision ActewAGL Distribution Access Arrangement 2016-21 Attachment 7 - Operating expenditure*, November 2015.

ActewAGL's revised opex forecast is 13 per cent higher than its initial proposal of $143.8 million. The primary reason for this is the increase in ActewAGL's adjusted base opex from $16.9 million in its original proposal to $21.4 million in its revised proposal. ActewAGL used our standard revealed cost approach in its revised proposal, whereas its initial proposal removed a number of costs from the base year that it considered should be specifically forecast or treated as a step change. In addition, ActewAGL's actual base year opex was around $1.0 million higher than initially estimated.

While ActewAGL's proposed total opex has increased, when its revised total opex and opex efficiency carryover mechanism (ECM) carryover amounts for 2016–21 period are combined, the net revenue impact from these elements is similar between the revised proposal and the initial proposal, as shown in Table 11.

The net revenue impacts are similar because of the interrelationship between the single year revealed cost forecasting approach used for determining total opex and the ECM. While a higher base opex results in a higher total opex, it also results in a lower (negative) carryover amount from the application of the ECM in the current period. Further information on the ECM is in section 4.7.

Table 11 Net revenue impact of initial and revised opex proposals ($million, 2015–16)

	Total opex 2016-21 period	Carryover from application of the ECM	Net revenue impact
ActewAGL's initial proposal	143.8	11.2	155.0
ActewAGL's revised proposal	162.2	-5.9	156.3

Note: Numbers may not add due to rounding.

Source: ActewAGL Distribution, *Gas network Access Arrangement 2016–21 Opex model*; ActewAGL Distribution, *Revised 2016-21 access arrangement proposal - Appendix 7.01 Revised proposal opex model*, January 2016.

Our final decision broadly accepts ActewAGL's revised proposal for determining base opex and its overall rate of change components. Where more recent information was made available to us, we used it in our final forecasts.

The main reason our approved opex forecast is lower than ActewAGL's revised proposal is that we do not accept all of ActewAGL's nine step changes. ActewAGL's step changes total $6.3 million over the 2016–21 period, including one negative step change which involves a $5.5 million movement from opex to capex as a result of a change in capitalisation policy. Our final decision in relation to step changes results in a negative adjustment of $2.8 million ($2015–16). This is because the step changes we accept do not fully offset the negative step change.

4.7 Efficiency carryover mechanism amounts

An opex ECM provides an additional incentive for service providers to pursue efficiency improvements in opex.

To encourage a service provider to become more efficient during the access arrangement period, it is allowed to keep any difference between its approved forecast and its actual opex during the access arrangement period. This is supplemented with the ECM, which provides the service provider with an additional reward for reductions in opex and additional penalties for increases in opex.

Together, these rewards and penalties work to provide a continuous incentive for a service provider to pursue efficiency gains over the access arrangement period. The ECM also acts to discourage a service provider from inflating its base year opex in order to receive a higher opex allowance in the following access arrangement period.

An ECM applied to ActewAGL during the current access arrangement period. Our final decision is that ActewAGL should receive a carryover of –$7.2 million ($2015–16) in the revenue building blocks for the 2016–21 access arrangement period and –$0.4 million ($2015–16) for the 2015–16 regulatory year. This brings the total carryover amount included in the revenue building blocks to –$7.6 million ($2015–16) from the application of the ECM in the current period.

As noted in section 4.6, the ECM has the effect of offsetting the higher opex forecast that results from the higher base year opex included in ActewAGL's revised proposal and accepted in this final decision. We note therefore that the revised proposal and final decision carryover amounts are much lower (negative) when compared to ActewAGL's original proposal and our draft decision.

Our final decision on the ECM carryover amounts from the current period is shown in Table 12.

Table 12 Final decision on carryover amounts from the 2010–15 period ($million, 2015–16)

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	Total
ActewAGL revised proposal	-0.4	1.8	-1.2	-2.2	-4.2	0.0	-6.2
Final decision	-0.4	1.8	-1.8	-3.1	-4.2	0.0	-7.6

Source: AER analysis; ActewAGL Distribution, *Revised 2016-21 access arrangement proposal - Appendix 9.02 Revised proposed Efficiency Carryover Mechanism*, January 2016.

ActewAGL also proposed an ECM continue to apply to it in the 2016–21 access arrangement period. We discuss this in section 5.4.

4.8 Corporate income tax

The NGR require us to make a decision on the estimated cost of corporate income tax for ActewAGL's 2016–21 access arrangement period.[62] The estimated cost of corporate income tax contributes to our determination of the total revenue requirements for ActewAGL in 2015–16 and over the 2016–21 access arrangement period. It provides for ActewAGL to recover the costs associated with the estimated corporate income tax payable during the period.

Our final decision includes an estimated cost of corporate income tax of $9.4 million ($nominal) for ActewAGL over 2015–16 and the 2016–21 access arrangement period, as shown in Table 13. This is a reduction of $10.6 million ($nominal) or 53.2 per cent from ActewAGL's revised proposal of $20.0 million ($nominal).

[62] NGR, r. 76(c).

Table 13 AER's final decision on cost of corporate income tax for ActewAGL for 2015–16 and the 2016–21 access arrangement period ($million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	Total
Tax payable	1.5	1.8	2.6	3.1	3.3	3.4	15.6
Less: value of imputation credits	0.6	0.7	1.0	1.2	1.3	1.4	6.2
Net corporate income tax allowance	**0.9**	**1.1**	**1.5**	**1.9**	**2.0**	**2.0**	**9.4**

Source: AER analysis.

Consistent with our draft decision, we accept ActewAGL's proposed approach for calculating the cost of corporate income tax for 2015–16 and the 2016–21 access arrangement period. In accepting the approach, however, we have adjusted a number of inputs in ActewAGL's revised proposed PTRM for calculating the cost of corporate income tax. These adjustments, which reflect our final decisions on other elements of ActewAGL's revised proposal, include:

- changing the value of gamma to 0.4 from 0.25
- changes to other building block components, including forecast rate of return, forecast capex and forecast opex, that impact the forecast cost of corporate income tax.[63]

[63] NGR, r. 87A.

5 Demand, reference tariffs and incentive schemes

5.1 Demand

Demand is an important input to the derivation of ActewAGL's reference tariffs. In simple terms, tariff prices are determined by dividing cost (as reflected in forecast revenue) by total demand (GJ/day), such that an increase in forecast demand has the effect of reducing the tariff price and vice versa. Demand forecasts also affect capex and opex linked to increased network capacity. In our draft decision, we identified concerns with ActewAGL's forecast for Tariff V residential new connections for medium density/high rise (MD/HR) dwellings, as well as the methodology used to forecast Tariff V residential and commercial consumption per connection. ActewAGL accepted our draft decision on Tariff V residential and commercial consumption per connection. It provided revised demand forecasts for new connections for MD/HR dwellings.

In its revised proposal ActewAGL updated its new connection numbers for MD/HR dwellings based on a new data set. Upon reviewing this data, as well as material provided in response to our information requests, our final decision is to accept ActewAGL's demand forecasts for MD/HR new connections for the 2016–21 access arrangement period. ActewAGL forecast a total of 6265 new connections for MD/HR dwellings for the 2016–21 period, compared to our alternative estimate in the draft decision of 3271 connections. Our final decision on new connections for MD/HR dwellings is 92 per cent higher than our draft decision. As discussed in section 4.5 (and in further detail in attachment 13), this is the primary driver of the increase in forecast capex between our draft and final decisions.

Notwithstanding our acceptance of ActewAGL's revised proposal on new connections for MD/HR, we identified a number of inconsistencies with its modelling assumptions. These relate to ActewAGL's assumed forecast meter configuration for high rise dwellings and associated forecast gas consumption for this dwelling type over the 2016–21 access arrangement period. We have therefore made some modelling adjustments which increase total residential consumption and affect tariffs for most residential connection types.

5.2 Services covered by the access arrangement

ActewAGL proposed to offer the following services on its network over the 2016–21 access arrangement period:

- one reference service (a pipeline service that is likely to be sought by a significant part of the market)—being the haulage reference service, and

- two non–reference services (a pipeline service that is not likely to be sought by a significant part of the market):
    - the interconnection of embedded network service, and
    - negotiated services.[64]

As in our draft decision, our final decision accepts the reference services ActewAGL proposes to offer on its network over the 2016–21 access arrangement period. We consider that a significant part of the market is likely to seek the reference services provided by ActewAGL. This means they must be covered by the access arrangement. We also accept the amalgamation of the seven reference services offered by ActewAGL during the 2010–15 access arrangement period into a single haulage reference service for the 2016–21 access arrangement period. The reasons for this are set out in Attachment 1 to this final decision.

Our final decision also maintains our draft decision to allow ActewAGL to include its ancillary reference services in the haulage reference service. We are satisfied there is sufficient cost reflectivity of the ancillary reference services and that there is no double recovery of costs.

Our final decision has not disaggregated meter data services from the haulage reference services as recommended by the Consumer Challenge Panel.[65] We note:

- the market to implement gas meter reading contestability in ActewAGL's network has not changed over the current access arrangement period; and
- we have not been provided with compelling evidence to demonstrate contestability in the market for metering services in ActewAGL's network will change over the forthcoming access arrangement period.

We note that price signals are a key element in the development of contestability in services. We consider sufficient price signals will be available over the 2016–21 access arrangement period to assist in the development of contestability since ActewAGL's list of ancillary network services contains prices for most metering services it provides. As noted in our draft decision, we will monitor the market for metering services over the coming years to see whether their disaggregation from the haulage reference services is warranted for future access arrangements.[66]

Also consistent with our draft decision, we agree with ActewAGL that its proposal to treat interconnection of embedded network services and negotiated services as non-reference services is appropriate. We agree that these services are not likely to be

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64 ActewAGL, *2016–20 access arrangement period: Attachment 2: Services policy*, June 2015, pp. 8–9.

65 Consumer Challenge Panel, *Supplementary advice to AER from Consumer Challenge Panel sub-panel 8 - ActewAGL Distribution*, 23 March 2016, p. 7.

66 AER, *Draft decision: ActewAGL Distribution access arrangement 2016 to 2021: Attachment 1 — Services covered by the access arrangement*, November 2015, p. 9.

sought by a significant part of the market and therefore should not be specified as reference services.[67]

5.3 Reference tariffs and reference tariff variation mechanism

Service providers are required under the NGR to specify a reference tariff for each reference service.[68] Reference tariffs are updated annually in accordance with the reference tariff variation mechanism.

Our draft decision accepted ActewAGL's proposed structure of reference tariffs for the 2016–21 access arrangement period. We remain of the view that the proposed structure of the reference tariffs complies with the requirements of the NGR.[69] The quantum of the proposed reference tariffs has been amended to reflect the revised revenue allowance determined in this final decision.

We have also approved ActewAGL's proposal to introduce and withdraw reference tariffs classes and tariffs after the commencement of the 2016–21 access arrangement, but only where this has been pre-approved by us.

However, we have not approved all elements of ActewAGL's proposed reference tariff variation mechanism. While we accept the application of a weighted average price cap, we do not accept all of ActewAGL's proposed changes to the reference tariff variation mechanism formulae set out in our draft decision.

We have also made amendments to several elements of ActewAGL's proposed control formulae to provide greater consistency of these aspects with other gas and electricity distributors across jurisdictions.[70] We consider consistent approaches across gas distributors and jurisdictions are desirable as this provides regulators, retailers, policy makers and end users greater transparency in understanding tariff variation mechanisms.[71]

In addition, our final decision does not accept ActewAGL's proposal to vary reference tariffs *during* a financial year (intra–year variations). We consider intra–year variations to tariffs create uncertainty for customers on annual price movements. Once tariffs are set, it is best they are not adjusted until commencement of the following financial year. This is consistent with our draft decision. [72]

We also do not accept ActewAGL's revised proposal to include an annual 10 per cent adjustment in the rebalancing constraint. We maintain the view taken in our draft

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67 NGR, r. 101.
68 NGR, r. 48(1)(d)(i).
69 NGR, rr. 93, 94.
70 NGR, r. 97(3)(d).
71 NGR, r. 97(3)(d).
72 AER, *Draft decision: ActewAGL Distribution access arrangement 2016 to 2021, Attachment 11 – Reference tariff variation mechanism*, November 2015, p. 16.

decision that 10 per cent is a significant adjustment that could allow price volatility and reduce certainty in customers' prices. Instead, our final decision applies a two per cent adjustment in the balancing constraint which is consistent with the rebalancing constraints applied by other gas and electricity distribution networks.[73]

However, we acknowledge ActewAGL's concern that our draft decision application of the rebalancing constraint in the first year of the 2016–21access arrangement period would be overly restrictive.[74] We agree that flexibility is needed so that ActewAGL's initial tariffs can reflect our final decision revenue requirement and allow transition to its new tariff structure. Therefore, our final decision is to begin application of the rebalancing constraint in the second year and for each remaining year of the 2016–21 access arrangement period. We consider this alleviates ActewAGL's concerns that our draft decision rebalancing constraint would not allow it flexibility to implement these significant changes.[75]

Lastly, we approve seven of the nine pass through events in ActewAGL's revised access arrangement proposal, but in most cases have amended the definitions proposed by ActewAGL. As in our draft decision, we do not approve ActewAGL's proposed supply curtailment event and general pass through event, and have not included these in the approved access arrangement.

5.4 Incentive schemes

A full access arrangement may include (or we may require it to include) one or more incentive mechanisms to encourage efficiency in the provision of services by the service provider.

In the current access arrangement period, ActewAGL was subject to an opex ECM. Our final decision on the outcomes of the ECM in the current period were discussed in section 4.7, above. ActewAGL has proposed, and we have approved, the continued application of an ECM to ActewAGL's opex in the 2016–21 access arrangement period. The mechanism that will apply is the same mechanism outlined in our draft decision. It is consistent with version two of the Efficiency Benefit Sharing Scheme which we published for electricity distributors in November 2013. It does not incorporate the changes proposed by ActewAGL in its revised proposal.

ActewAGL’s revised proposal included an ECM that accepted only some of the revisions we outlined in our draft decision. ActewAGL maintained a number of cost categories should be specifically excluded from the operation of the ECM.

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[73] See for example: SP AusNet, *Gas access arrangement revision 2013–2017: Part B of the access arrangement for the distribution system–reference tariffs and reference tariff policy*, April 2013, clause 3.5(c); AGN, (proposed) *Access arrangement for AGN's South Australian gas distribution network 1 July 2016 – 30 June 2021*, July 2015, clause 4.4 and Annexure E; NER, cl. 6.18.6.

[74] ActewAGL Distribution, *Response to the AER's draft decision: 2016–21 ACT, Queanbeyan and Palerang gas network access arrangement,* January 2016, p. 110.

[75] ActewAGL Distribution, *Response to the AER's draft decision: 2016–21 ACT, Queanbeyan and Palerang gas network access arrangement,* January 2016, p. 110.

We do not agree to all of ActewAGL's specific exclusions. A number of these (for example, debt raising costs, unaccounted for gas costs, licence costs, carbon costs and relevant taxes) are already captured by other exclusions, so that no additional provisions are required to give effect to their exclusion. We also maintain our decision not to specially exclude differences between actual and forecast customer connections from the operation of the mechanism.

Lastly, we maintain our draft decision to reject ActewAGL's proposal that provisions in its access arrangement pertaining to the ECM be a fixed principle for future access arrangement periods, as ActewAGL has not demonstrated a fixed principle is necessary to give effect to the approved ECM.

6 Non-tariff components

ActewAGL's revised proposal restated without revision its original proposals on the following non-tariff components:

- queuing requirements
- capacity trading requirements
- changing receipt and delivery points
- review submission date and revision commencement date.

We received no submissions on these components of ActewAGL's access arrangement, and as in our draft decision we approve these elements of ActewAGL's proposal.

ActewAGL's revised proposal also addressed the issues our draft decision raised in respect of the terms and conditions in its Reference Services Agreement. It did this in most cases by incorporating the changes set out in our draft decision, and otherwise through alternative amendments that we are satisfied are consistent with the NGR. Our final decision approves the proposed terms and conditions.

We also approve the extension and expansion requirements in ActewAGL's revised access arrangement proposal, except in respect of the provision that the anticipated Molonglo Valley pipeline is not a high pressure pipeline extension.[76]

Clause 9 of ActewAGL's access arrangement proposal dealt separately with "extensions of the high pressure network" and "other extensions and expansions." High pressure extensions are defined as follows:[77]

> For the purposes of [the extensions and expansions policy] a "high pressure pipeline extension" is an extension to ActewAGL's Covered Pipeline with a direct connection to a transmission pipeline that provides reticulated gas to a new development or an existing development not serviced with reticulated gas.
>
> The anticipated extension in the Australian Capital Territory from Belconnen across the Molonglo Valley to Phillip does not represent a high pressure pipeline extension for [the extensions and expansions policy].

Our draft decision sought a revision to remove the Molonglo Valley 'carve-out'. ActewAGL's revised proposal did not incorporate this change. The effect of the carve-out in the current access arrangement is that the Molonglo Valley extension would

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[76] ActewAGL, *Access Arrangement for the ACT, Queanbeyan and Palerang Gas Distribution Networks, 1 July 2016–30 June 2021*, January 2016, cl. 9.

[77] ActewAGL, *Access Arrangement for the ACT, Queanbeyan and Palerang Gas Distribution Networks, 1 July 2016–30 June 2021*, January 2016, cl. 9.1.

have been covered by default, rather than subject to the more detailed consideration applying to high pressure pipelines under the access arrangement.

The extensions and expansions clause in the 2016–2021 access arrangement proposal follows the same structure. High pressure extensions must be notified to the regulator, who then consults and decides on whether it will be covered. Other extensions are covered by default, although some provision exists for non-coverage. Under either procedure, projects for which the cost has already been included in the calculation of the reference tariffs must be covered by the access arrangement.

There is a degree of uncertainty as to when and how a pipeline from Molonglo to Philip will be developed. In these circumstances we consider it inappropriate to exclude it outright from the detailed examination of the coverage question that applies to high pressure pipelines. We have therefore removed the Molonglo Valley carve-out from the approved access arrangement.

7 Understanding the NGO

The NGO is the central feature of the regulatory framework. The NGO is

> to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas. [78]

Energy Ministers have provided us with a substantial body of explanatory material that guides our understanding of the NGO.[79] The long term interests of consumers are not delivered by any one of the NGO's factors in isolation, but rather by balancing them in reaching a regulatory decision.[80]

In general, we consider that we will achieve this balance and, therefore, contribute to the achievement of the NGO, where consumers are provided a reasonable level of safe and reliable service that they value at least cost in the long run.[81] We have also considered the quality and reliability of services provided to consumers. For example, the opex allowance and pass through mechanism approved in this final decision have been set so that these deliver a revenue allowance that is sufficient to enable ActewAGL to meet existing and new regulatory requirements. Our approved capex forecast includes expenditure to replace assets that are aged or in unacceptable condition. It also allows for augmentation and connections capex, catering for expected areas of growth.

The nature of decisions under the NGR is such that there may be a range of economically efficient decisions, with different implications for the long term interests of consumers.[82] At the same time, however, there are a range of outcomes that are unlikely to advance the NGO, or advance the NGO to the degree that others would.

For example, we do not consider that the NGO would be advanced if allowed revenues encourage overinvestment and result in prices so high that consumers are unwilling or unable to efficiently use the network.[83] This could have significant longer term pricing implications for those consumers who continue to use network services.

Equally, we do not consider the NGO would be advanced if allowed revenues result in prices so low that investors are unwilling to invest as required to adequately maintain the appropriate quality and level of service, and where customers are making more use

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78 NGL, s. 23.

79 Hansard, *SA House of Assembly*, 9 February 2005, pp. 1451–1460. Hansard, *SA House of Assembly*, 27 September 2007, pp. 963–972. Hansard, *SA House of Assembly*, 26 September 2013, pp. 7171–7176.

80 Hansard, *SA House of Assembly*, 26 September 2013, p. 7173.

81 Hansard, *SA House of Assembly*, 9 February 2005, p. 1452.

82 *Re Michael: Ex parte Epic Energy* [2002] WASCA 231 at [143].
Energy Ministers also accept this view – see Hansard, SA House of Assembly, 26 September 2013 p. 7172.
AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006 No. 18,* p. 50.

83 NGL, s. 24(7).

of the network than is sustainable. This could create longer term problems in the network[84] and could have adverse consequences for safety, security and reliability of the network.

The NGL also includes the revenue and pricing principles (RPP), which support the NGO.[85] As the NGL requires,[86] we have taken the RPPs into account throughout our analysis. The RPPs are:

> A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in—
>
> - providing reference services; and
> - complying with a regulatory obligation or requirement or making a regulatory payment.
>
> A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes—
>
> - efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and
> - the efficient provision of pipeline services; and
> - the efficient use of the pipeline.
>
> Regard should be had to the capital base with respect to a pipeline adopted—
>
> - in any previous—
>   - full access arrangement; or
>   - decision of a relevant regulator under section 2 of the Gas Code; or
> - in the Rules.
>
> A reference tariff should allow for a return commensurate with the regulatory and commercial risks involved in providing the reference service to which that tariff relates.
>
> Regard should be had to the economic costs and risks of the potential for under and over investment by a service provider in a pipeline with which the service provider provides pipeline services.
>
> Regard should be had to the economic costs and risks of the potential for under and over utilisation of a pipeline with which a service provider provides pipeline services.

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84 NGL, s. 24(6).

85 NGL, s. 24.

86 NGL, s. 28(2).

Consistent with Energy Ministers' views, we set the amount of revenue that service providers can recover from customers to balance all of the elements of the NGO and consider each of the RPPs.[87] For example:

- In determining forecast opex and capex that reasonably reflects the opex and capex criteria, we take into account the revenue and pricing principle that we should provide ActewAGL with a reasonable opportunity to recover at least efficient costs. (Refer to Attachment 6–capex and Attachment 7–opex).
- We take into account the economic costs and risks of the potential for under and over investment in our assessment of ActewAGL's forecast capex and opex proposals. (Refer to Attachment 6–capex and Attachment 7–opex).
- We consider the economic costs and risks of the potential for under and over utilisation of ActewAGL's distribution system in our decisions on demand forecasting and augmentation capex (Refer to Attachment 6–capex and Attachment 13–demand).
- Our application of the efficiency carryover mechanism in this decision provides ActewAGL with effective incentives which we consider will promote economic efficiency with respect to the reference service that ActewAGL provides throughout the access arrangement period. (Refer to Attachment 9–efficiency carryover mechanism).
- We have determined ActewAGL's opening capital base taking into account the capital adopted in the previous access arrangement. (Refer to Attachment 2–capital base).
- The allowed rate of return objective reflects the revenue and pricing principle in section 24(5) of the NGL. We have determined a rate of return that we consider will provide ActewAGL with a return commensurate with the regulatory and commercial risks involved in providing pipeline services. (Refer to Attachment 3–rate of return).
- Our financing determinations provide ActewAGL with a reasonable opportunity to recover at least the efficient costs of accessing debt and capital. (Refer to Attachment 3–rate of return).

In some cases, our approach to a particular component (or part thereof) results in an outcome towards the end of the range of options that may be favourable to the businesses, for example, our choice of equity beta. Some of these decisions include:

- selecting at the top of the range for the equity beta
- setting the return on debt by reference to data for a BBB broad band credit rating, when the benchmark is BBB+
- the cash flow timing assumptions in the post-tax revenue model.

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[87] Hansard, *SA House of Assembly*, 27 September 2007 pp. 965, Hansard, *SA House of Assembly*, 9 April 2008 p. 2886, Hansard, *SA House of Assembly*, 26 September 2013, p. 7173.

We take into account the RPPs when exercising discretion about an appropriate estimate. This requires recognition that for the long term interests of consumers, the risk of under-compensation for, or underinvestment by, a service provider may be less desirable than the risk of overcompensation or overinvestment. However, we are also conscious of the risk of introducing an inherent bias towards higher amounts where estimates throughout the different components of the forecast revenue requirement are each set too conservatively.[88] The legislative framework recognises the complexity of this task by providing us with significant discretion in many aspects of the decision-making process to make judgements on these matters.

Part 9 of the NGR provides specifically for the economic regulation of covered pipelines. It includes detailed rules about the individual components of our decisions. These are intended to contribute to the achievement of the NGO.

7.1 Achieving the NGO to the greatest degree

An access arrangement decision is complex and must be considered as such. In most instances, the provisions of the NGR do not point to a single answer, either for our decision as a whole or in respect of particular components. They require us to exercise our regulatory judgment. For example, Part 9 of the NGR requires us to prepare forecasts, which are predictions about unknown future circumstances. As a result, there will likely always be more than one plausible forecast. There is substantial debate amongst stakeholders about the costs we must forecast, with both sides often supported by expert opinion. As a result, for certain components of our decision there may be several plausible answers or several plausible point estimates.

When the components of our decision are considered together, this means there will almost always be several potential, overall decisions. More than one of these may contribute to the achievement of the NGO. Where this is the case, our role is to make an overall decision that we are satisfied contributes to the achievement of the NGO to the *greatest* degree.[89]

We approach this from a practical perspective, accepting that it is not possible to consider every permutation specifically. Where there are choices to be made among several plausible alternatives each of which would result in an overall decision that contributes to the achievement of the NGO, we have selected what we are satisfied would result in an overall decision that contributes to the achievement of the NGO to the greatest degree.

Also, in coming to this final decision we have considered ActewAGL's proposal. We have examined each of the building block components of the forecast revenue requirement, and the incentive mechanisms that should apply across the next access arrangement period. We have considered submissions we received in regard to

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88 AEMC, *Rule Determination, National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006 No. 18*, 16 November 2016, p. 52.

89 NGL, s. 28(1)(b)(iii).

ActewAGL's proposal (listed at appendix A). We have conducted our own analysis and engaged expert consultants to help us better understand if and how ActewAGL's proposal contributes to the achievement of the NGO. We have also considered how the individual components of our decision relate to each other, the impact that particular components of our decision have on others, and have described these interrelationships in this final decision. We have had regard to and weighed up all of the information assembled before us in making this final decision, and have made as much of this information publicly available as practicable for the purposes of consultation.

Therefore, we are satisfied that among the options before us, our final decision on ActewAGL's access arrangement for the 2016–21 access arrangement period contributes to achieving the NGO to the greatest degree.

7.1.1 Interrelationships between individual components

Considering individual components in isolation ignores the importance of interrelationships between components of the overall decision, and would not contribute to the achievement of the NGO. As outlined by Energy Ministers, considering the elements in isolation has resulted in regulatory failures in the past.[90] Interrelationships can take various forms, including:

- underlying drivers and context which are likely to affect many constituent components of our decision. For example, forecast demand affects the efficient levels of capex and opex in the access arrangement period (see Attachments 6, 7 and 13).
- direct mathematical links between different components of a decision. For example, the value of imputation credits (gamma) has an impact on the appropriate tax allowance; the benchmark efficient entity's debt to equity ratio has a direct effect on the cost of equity, the cost of debt, and the overall vanilla rate of return (see Attachments 3, 4 and 8).
- trade-offs between different components of revenue. For example, undertaking a particular capex project may affect the need for opex and vice versa (see Attachments 6 and 7).
- trade-offs between forecast and actual regulatory measures. The reasons for one part of a proposal may have impacts on other parts of a proposal. For example, completion of forecast augmentation (capex) to the network will mean the service provider has more assets to maintain leading to higher opex requirements (see Attachments 6 and 7).
- the service provider's approach to managing its network. The service provider's governance arrangements and its approach to risk management will influence most

[90] SCER, *Regulation Impact Statement: Limited Merits Review of Decision-Making in the Electricity and Gas Regulatory Frameworks – Decision Paper*, 6 June 2013, p. 6.

aspects of the proposal, including capex/opex trade-offs (see Attachments 6 and 7).

We have considered interrelationships, including those above, in our analysis of the individual components of our decision. These considerations are explored in the relevant attachments.

8 Consultation

Stakeholder participation is important to informed decision making under the NGL and NGR. It allows us to take a range of views into account when considering how a proposal or decision contributes to the NGO. Effective consultation and engagement provide confidence in our processes and are good regulatory practice. This is reflected in the consultation process set out in the NGR, under which we have:

- published ActewAGL's access arrangement revision proposal and the material ActewAGL provided in support of that proposal
- invited and had regard to written submissions on ActewAGL's proposal
- published a draft decision and reasoning
- published ActewAGL's revised proposal and supporting material
- invited and had regard to written submissions on both our draft decision and ActewAGL's revised proposal
- published this final determination and reasoning.

We also sought advice from the AER's Consumer Challenge Panel (CCP) on ActewAGL's original and revised proposals and our draft decision. Both the CCP and ActewAGL met with the AER Board to discuss this review.

Our engagement on this review builds on consultation we undertook as part of the Better Regulation program. Following the 2012 changes to the National Electricity Rules (NER) and NGR, we spent much of 2013 consulting on and refining our assessment methods and approaches to decision making. We referred to this as our Better Regulation program. The Better Regulation program was designed to be an inclusive process that provided an opportunity for all stakeholders to be engaged and provide their input.[91]

This gives us confidence the approaches set out in the Guidelines, which we have applied where appropriate in this decision, will result in decisions that will or are likely to contribute to the achievement of the NGO to the greatest degree. Our Better Regulation guidelines are available on our website and include:[92]

- Expenditure Forecast Assessment Guideline
- Expenditure Incentives Guideline
- Rate of Return Guideline
- Consumer Engagement Guideline for Network Service Providers
- Shared Assets Guideline, and

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91 AER, *Overview of the Better Regulation reform package*, April 2014, pp. 4 and 7–13.

92 See AER, http://www.aer.gov.au/networks-pipelines/better-regulation.

- Confidentiality Guideline.

We acknowledge that the changes to the NGR were more limited than those made to the NER. The two frameworks still differ, and not all elements of the Better Regulation Guidelines were developed with gas access arrangements under the NGL and NGR in mind. However, many of the concepts and analytical tools are the same and we involved gas service providers in consultation on all aspects of the Better Regulation program.

8.1 ActewAGL's own engagement with consumers

ActewAGL also undertook its own stakeholder engagement in the development of its original proposal. Submissions received by us from ACT Council of Social Services (ACTCOSS), [93] the North Canberra Community Council (NCCC),[94] and Peter Sutherland of the ANU College of Law,[95] as well as advice from the CCP,[96] recognised that ActewAGL has taken important steps to involving consumers in the regulatory process. We supported this view.

ActewAGL's revised proposal substantially changed its position on the return on debt. As the CCP noted:[97]

> We have seen no evidence of AAD undertaking stakeholder engagement with respect to this very significant change. The timing of the revision has provided only a limited opportunity for stakeholders to respond. This action will likely have the effect of undermining any goodwill that AAD has built up with stakeholders through its earlier Stakeholder Engagement Program.

ActewAGL's revised approach to the return on debt had a substantial impact on its proposed revenue relative to its original proposal. This is an important issue and we would expect such a significant change would have lead ActewAGL to consult with their users and consumers on its change in approach. However, we do not have any evidence to suggest whether and how such engagement took place.

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93 ACTCOSS, *Submission on ACTEWAGL Gas Distribution Pricing Determination 2016-2021*, 3 September 2015.

94 North Canberra Community Council, *Submission on ActewAGL's access arrangement proposal*, 10 August 2015.

95 Peter Sutherland Visiting Fellow ANU College of Law, *Submission ActewAGL Distribution Submission to the AER for the period 2016-2021*, 13 August 2015.

96 CCP8, *Advice to AER from Consumer Challenge Panel sub-panel 8 regarding the ActewAGL Distribution (AAD) Access Arrangement (AA) 2016-2021 Proposal*, 26 August 2015.

97 Consumer Challenge Panel, *Supplementary advice to AER from Consumer Challenge Panel sub-panel 8 - ActewAGL Distribution*, 23 March 2016, p. 2.

A List of submissions

We received six submissions on our draft decision and ActewAGL's revised proposal, including a further submission from ActewAGL.

Submission from	Date received
ActewAGL Distribution	4 February 2016; 29 April 2016; 12 May 2016
Alternative Technology Association	3 February 2016
Consumer Challenge Panel - Sub-panel 8	23 March 2016
Master Builders Association ACT	29 January 2016
Origin Energy	4 February 2016
Peter Sutherland, ANU College of Law	4 February 2016