FINAL DECISION
Australian Gas Networks
Victoria and Albury gas access arrangement
2018 to 2022

Overview

November 2017

AUSTRALIAN
ENERGY
REGULATOR

Note

This overview forms part of the AER's final decision on the access arrangement for AGN's Victoria and Albury gas distribution networks for 2018-22. It should be read with all other parts of the final decision.

The final decision includes this Overview and the following attachments:

   Attachment 2 - Capital base

   Attachment 5 - Regulatory depreciation

   Attachment 8 - Corporate income tax

   Attachment 14 - Capital expenditure sharing scheme

These have been numbered consistently with the equivalent attachments to our longer, draft decision. In these and other elements of our decision, our draft decision reasons form part of this final decision.

Our revisions are reflected in the *Approved access arrangement for AGN Victoria and Albury 2018-22*,[1] which gives effect to this decision.[2]

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[1]   We have not made revisions to Annexure F of AGN's revised proposed access arrangement.

[2]   Rule 64(2) of the NGR provides that the AER's proposal for an access arrangement or revisions is to be formulated with regard to (a) the matters the NGL 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.

Contents

Shortened forms

Shortened form	Extended form
ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AGN	Australian Gas Networks
capex	Capital expenditure
CCP11	Consumer Challenge Panel, Sub-panel 11
CESS	Capital expenditure sharing scheme
HIA	Housing Industry Association
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
opex	Operating expenditure
PTRM	Post tax revenue model
PTRM	Post tax revenue model
RBA	Reserve Bank of Australia
RFM	Roll forward model
WACC	Weighted average cost of capital

About this decision

The Australian Energy Regulator (AER) works to make all Australian energy consumers better off, now and in the future. We regulate energy networks in all jurisdictions except Western Australia. We set the amount of revenue that network businesses can recover from customers for using these networks.

The National Gas Law and Rules (NGL and NGR) provide the regulatory framework governing gas networks. Our work under this framework is guided by the National Gas Objective (NGO):[3]

> …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.

Australian Gas Networks Limited (AGN) owns and operates a network of pipelines servicing customers in Victoria and Albury. These are regulated by the AER under an approved access arrangement.[4] This is our final decision on the access arrangement that will apply to AGN's Victoria and Albury networks from 1 January 2018 to 31 December 2022.

The decisions we make and the actions we take affect a wide range of individuals, businesses and organisations. Effective and meaningful engagement with stakeholders across all our functions is essential to fulfilling our role, and it provides stakeholders with an opportunity to inform and influence what we do. Engaging with those affected by our work helps us make better decisions, provides greater transparency and predictability, and builds trust and confidence in the regulatory regime. This is reflected in our Stakeholder Engagement Framework and in the consultation process set out for our access arrangement reviews in the NGR, which we have followed in this review. Throughout this review we have also had the benefit of advice from our Consumer Challenge Panel (CCP11).

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[3]   NGL, s. 23.

[4]   The NGL provides for different types of regulation to apply to gas pipelines, based on competition and significance criteria. A 'full regulation' pipeline must periodically submit an access arrangement to the AER, setting out pricing for a reference service sought by a significant part of the market. 'Light regulation' pipelines are not subject to upfront price regulation. The light regulation model is more a negotiate-arbitrate approach, placing greater emphasis on commercial negotiation and information disclosure. The AER plays a role only if dispute resolution mechanisms are triggered.

1 Our final decision

Our final decision allows AGN to recover $1193.5 million ($nominal, smoothed[5]) from its customers over the 2018–22 access arrangement period.

Based on our estimates, this decision will reduce the distribution component of the average annual gas bill in 2018 by about $15 (nominal) for residential customers, and about $41 for small business customers, compared to the current 2017 charges. We discuss these estimates more fully in section 1.3. While our decision only affects about a quarter of the average gas bill, stability in network charges can help reduce the impact of increases in some of the other components of gas bills, including wholesale costs. It is likely other components will change more significantly over the access arrangement period. As the ACCC's Interim Report in the 2017-2020 Gas Inquiry noted, high and increasing prices in the wholesale gas market are having significant effects on small businesses and households, particularly lower income households.[6] Further, modelling by the Australian Energy Market Operator (AEMO) also projects that the delivered wholesale cost of gas in Australia will continue to rise.[7]

Our assessment of AGN's new access arrangement commenced in December last year with the submission of AGN's initial proposal. Our draft decision accepted most elements of AGN's proposal, including the revenue that it can recover from customers. AGN's revised proposal has adopted our draft decision in full. Our final decision has been made with the benefit of submissions from CCP11 and Uniting Communities[8], which were supportive of both our draft decision and AGN's decision to adopt it.

AGN has shown a genuine commitment to giving consumers—small and large—a say in what is proposed to us, and to continuing to develop opportunities for this input over time. This is reflected in both the initial and revised proposals that AGN has put to us, and in the way AGN engaged with our review of, and consultation on, those proposals. The success of AGN's engagement program has been reinforced by submissions in this review. CCP11 has commended AGN for:

> …clearly identifying feedback received from stakeholders and how the feedback has been addressed in the revised proposal. This level of transparency enhances stakeholder confidence that [AGN] is open to ongoing collaboration on issues of concern.[9]

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[5]   Nominal revenue includes the expected impact of inflation. Smoothed revenue spreads AGN's total revenue requirement over the five years covered by this decision to provide a stable, predictable price path for AGN's users over time.

[6]   ACCC, *Gas Inquiry 2017-22: Interim report*, September 2017, p. 42

[7]   AEMO, *National Gas Forecasting Report for Eastern and Southern Australia*, December 2016, p. 7.

[8]   CCP11, *Final advice: AGN, AusNet and Multinet*, September 2017; Uniting Communities, *Submission on AGN revised proposal*, 3 October 2017

[9]   CCP11, *Final advice: AGN, AusNet and Multinet*, September 2017, p. 10

In the sections below we discuss some of the key drivers of AGN's revenue over the next five years, including what has changed since our draft decision in July. Our decision approves AGN's proposed reductions to both operating and capital expenditure relative to our previous decision in 2013. At the same time, it still allows AGN to meet continued demand for new connections to its networks and to complete a substantial program of replacement works to maintain the safety and reliability of those networks.

Our assessment of AGN's revised proposal is consistent with our draft decision. We have not received any submissions which impact upon our reasoning as set out in the draft decision. As such, our draft decision reasons form part of this final decision.

1.1 What is driving AGN's revenue?

The forecast of total revenue that AGN has proposed, and we have approved, for the 2018–22 access arrangement period is $118.8 million ($2017)—or 12.0 per cent—higher than the forecast used to set AGN's reference tariffs throughout the 2013–17 period.

AGN operates under a weighted average price 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 across the access arrangement period varies from the demand forecast in the access arrangement, AGN's actual revenue will vary from the revenue allowance determined in our decision. In general, if actual demand is above forecast demand, AGN's actual revenue will be above forecast revenue, and vice versa.

Figure 1-1 uses real revenue to show how this final decision for 2018–22 compares to the revenue forecast for, and recovered during, the current, 2013–17 access arrangement period. It also compares the final revenue approved in this decision to AGN's initial proposal, our draft decision and its revised proposal.

Figure 1-1 AGN's past total revenue, proposed total revenue and AER final decision total revenue ($ million, 2017)
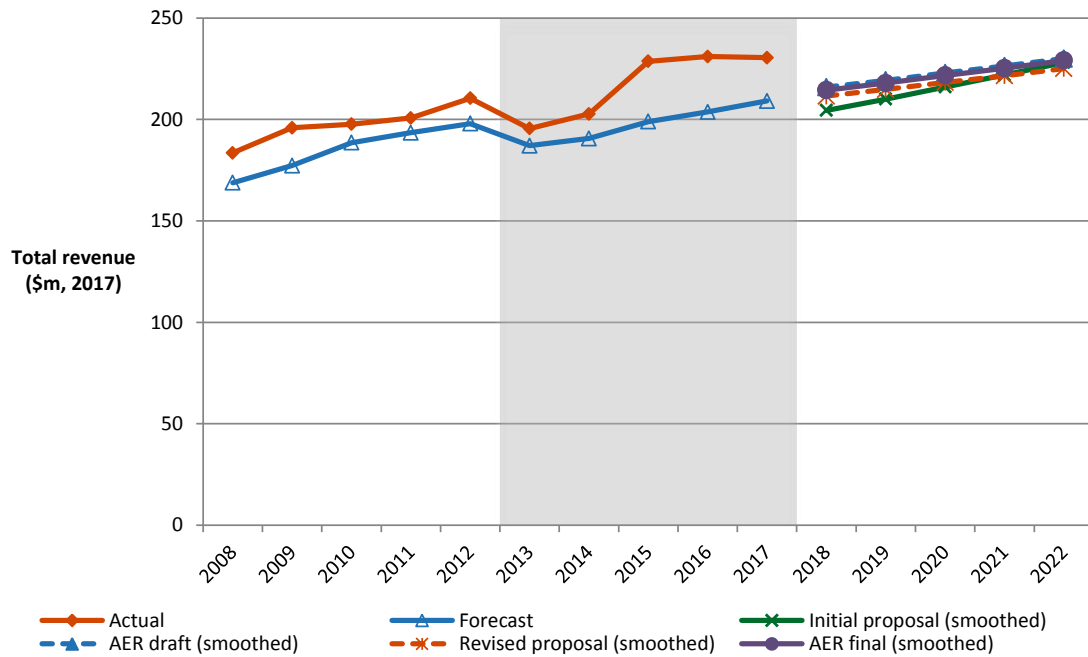
Source: AER analysis.

Note: The impact of inflation—which changes over time—makes it difficult to compare revenue from one period to the next on a like-for-like basis. To do this we use 'real' values based on a common year (in this case 2017), which have been adjusted to remove the impact of inflation.

There are a number of offsetting factors that contribute to the change in AGN's forecast revenue requirement from 2013–17 to 2018–22. Figure 1-2 breaks these down by comparing the revenue forecast that will be used to set AGN's charges for 2018–22 to that used to set AGN's charges for 2013–17, and isolating the changes in the various components that make up total revenue.

Figure 1-2 Comparison of forecast revenue requirements for 2013–17 and 2018–22 ($ million, 2017)
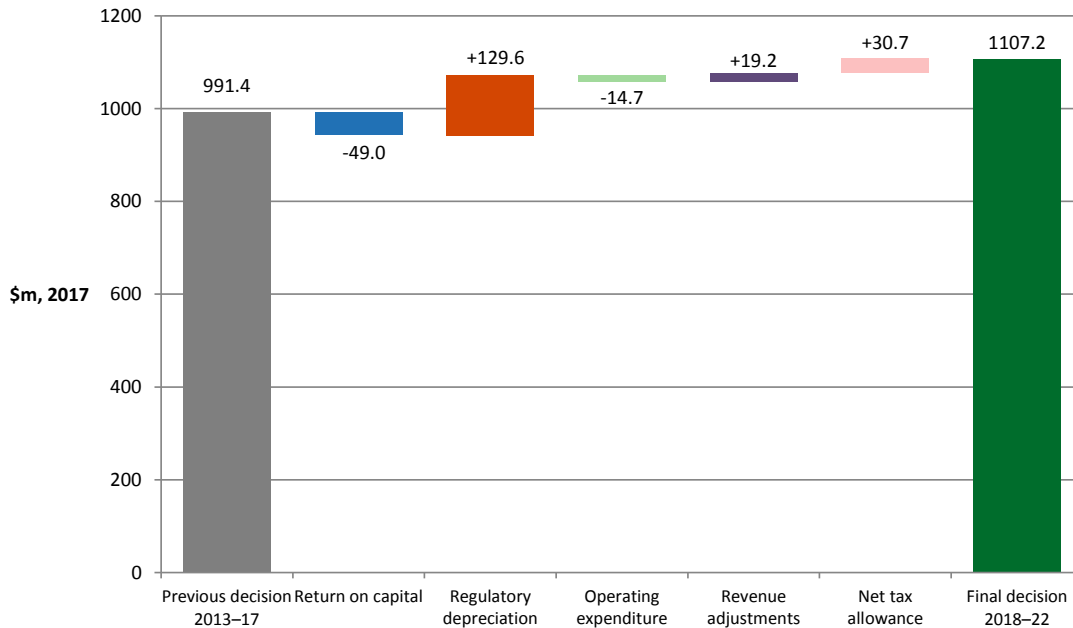
Source: AER analysis.

The key driver of the increase in revenue from the current period is the higher regulatory depreciation allowance (the return of capital). AGN has undertaken a substantial mains replacement program over the last two access arrangement periods to maintain the safety and security of its network. AGN will complete its low pressure mains replacement program by 2022. Customers will benefit from this mains replacement expenditure in the form of safer and more reliable gas supply. However, the short term impact of the mains replacement works will be to increase AGN's revenue over the next five years as the assets AGN replaces are removed from the capital base in the form of accelerated regulatory depreciation. AGN put its proposal for accelerated depreciation to consumers as part of its engagement on its initial proposal. The approach was supported, noting that it would be possible while still delivering a price cut to customers.[10]

The depreciation allowance also increases as the capital base increases. Figure 1-3 shows the growth in AGN's capital base over time. AGN's capital base grew by 24.5 per cent in real terms as it invested in its network over the current period. As shown in Figure 1-3, growth in AGN's capital base is now starting to slow down. Projected growth from 2018 to 2022 is a smaller 9.0 per cent.

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[10]   AGN - Attachment 5.10 - Deloitte - Australian Gas Networks Stakeholder and Customer Feedback Report - December 2016 - Public, p. 14.

Figure 1-3 Projected growth in AGN's capital base ($ million, 2017)
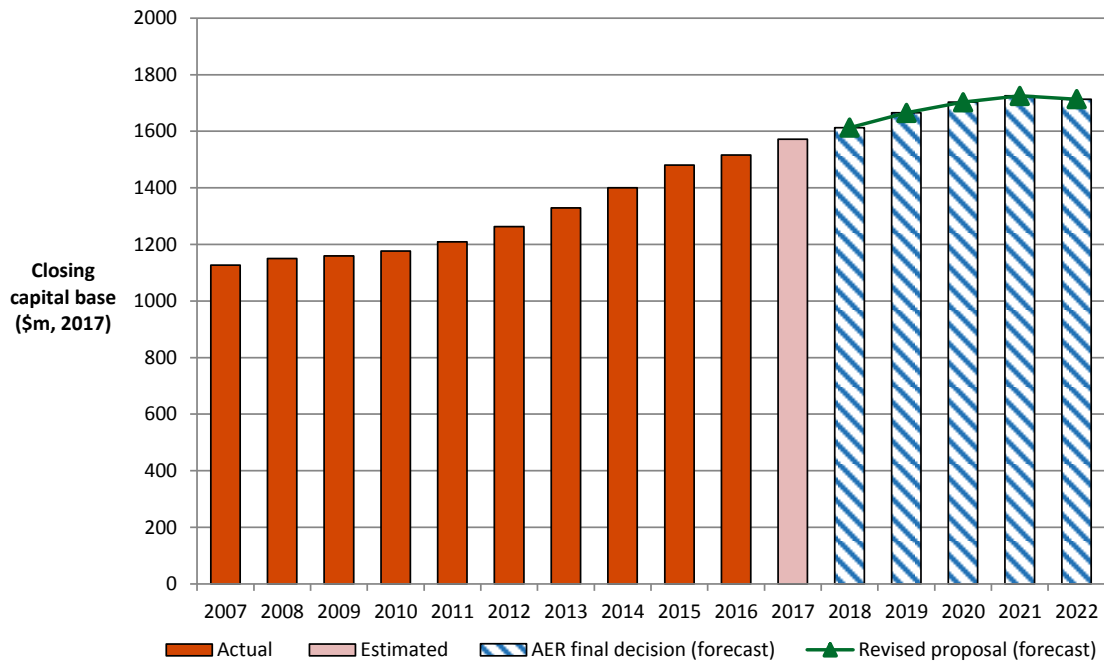
Source: AER analysis.

AGN's capex forecast for 2018–22 is 2.3 per cent less than its actual expenditure in the current period (see Figure 1-4).

Figure 1-4 AGN's past and forecast capex ($ million, 2017)
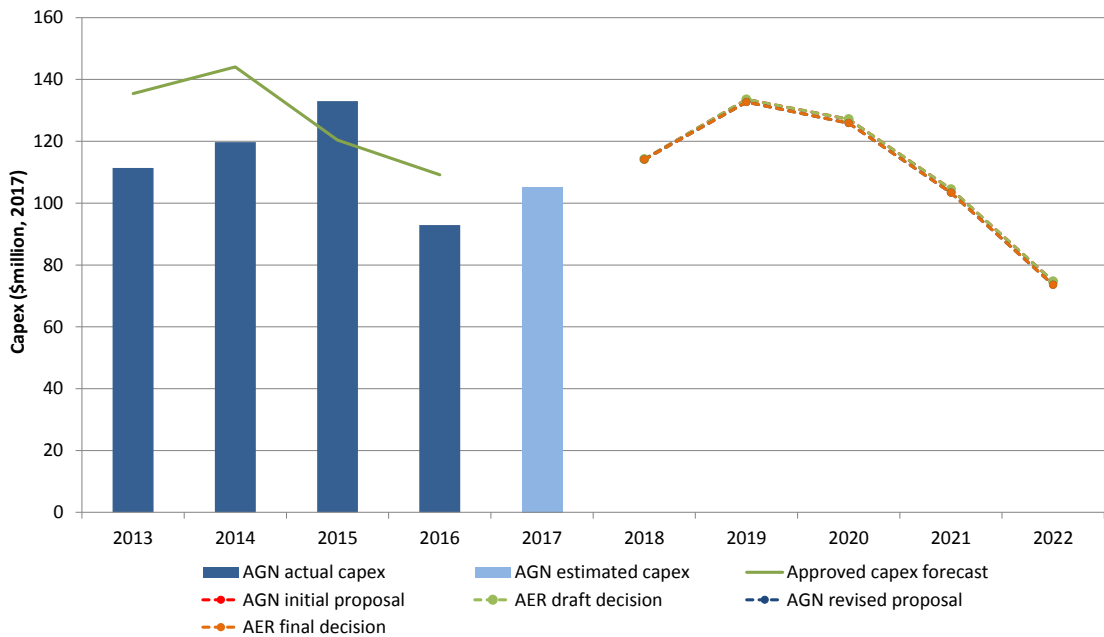
Source: AER analysis.

Demand for new connections is slowing, and the capex forecast we have approved in this decision does not contemplate any expansion of AGN's network into new (greenfield) areas over the next five years. While new connections are the largest contributor to AGN's capex forecast for 2018-22, expenditure on new connections is expected to be 14.4 per cent below that in the current period. AGN's mains replacement program is also winding down as it approaches completion, with replacement volumes planned for 2018–22 almost 60 per cent lower than the works completed over the last five years.

The introduction of a new capital expenditure sharing scheme (CESS) will work with the existing opex scheme to strengthen existing incentives for AGN to manage its expenditure efficiently.

Our decision also reflects the efficiency gains AGN has achieved in its operating expenditure (opex). In the current period, AGN expects to outperform the opex forecast we used to set revenue for 2013–17 by around nine per cent. These efficiency gains have helped to offset the additional opex required to accommodate growth in that period and the next, and increases in input prices over time. As Figure 1-5 shows, this results in opex levels remaining in line with current levels over 2018–22.

Figure 1-5 AGN's past and forecast opex ($ million, 2017)
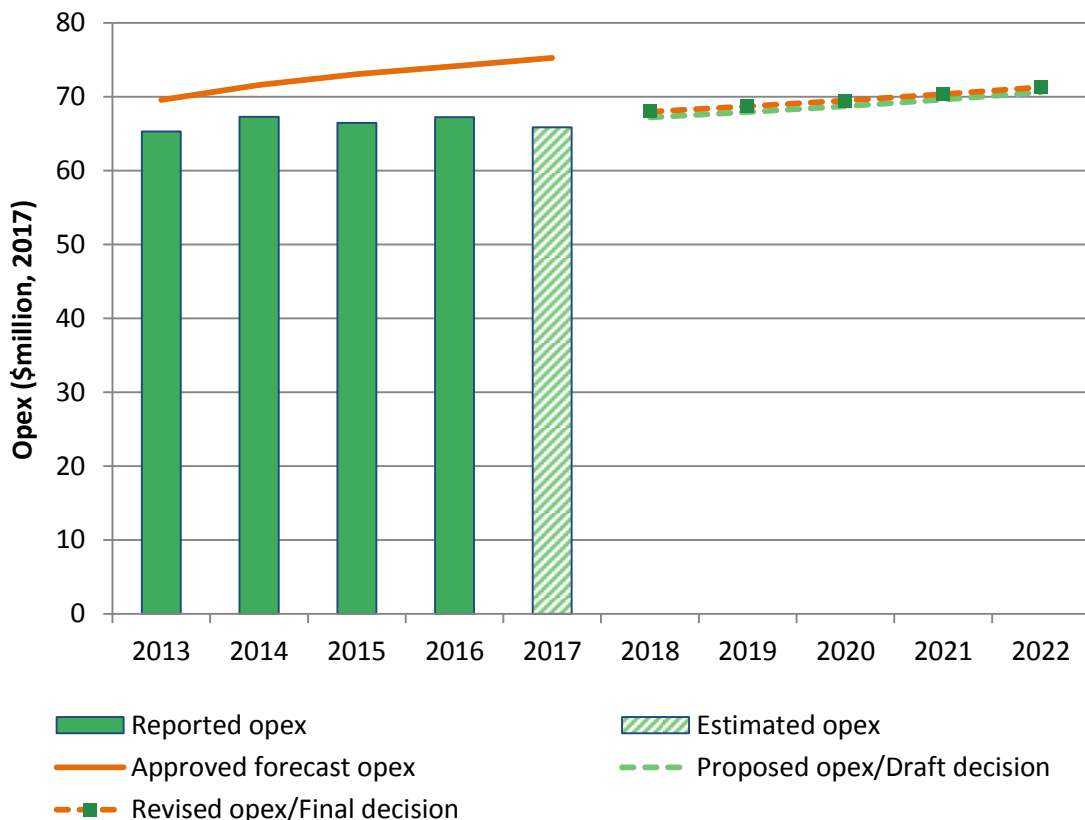
Source: AGN, Access arrangement 2018–22 proposal, Attachment 1.9 - Victoria and Albury Post Tax Revenue Model, December 2016; AGN - Attachment 1.9A - Victoria and Albury post tax revenue model - 14 August 2017 - Public; AER analysis.

Note: Includes debt raising costs.

Also helping to offset the impact of higher levels of depreciation over 2018–22 are improved financial market conditions, which have reduced AGN's financing costs. The approved rate of return on AGN's capital base has fallen from 7.39 per cent (nominal) in the current period to 5.75 per cent under this final decision for 2018.

1.2 What's changed since our draft decision and AGN's revised proposal

A number of inputs to the revenue calculation are updated throughout this process at each milestone—draft decision, revised proposal, final decision—as more recent data becomes available.

The nominal vanilla rate of return applied in this final decision is 5.75 per cent. This is the same as the rate of return applied in our draft decision, but higher than the placeholder AGN used for the purposes of its revised proposal (5.59 per cent). This is because AGN's placeholder rate of return was based on a different date range to its nominated averaging period, which we have accepted and applied in our final decision.

AGN's total opex forecast has increased slightly, by $3.7 million ($2017), or 1 per cent, now that AGN's actual opex for 2016 has been confirmed. At the same time, updates to AGN's reported capex for 2016 and 2017 show both are lower than expected at the time of our draft decision.

Residential demand forecasts for AGN's network have increased slightly to reflect more recent data, even with the removal of additional connections and volume related to the marketing step change. This requires an adjustment to forecast capex for new connections—an increase of $2 million ($2017), or 0.4 per cent, to the total capex forecast in our draft decision.

The combined effect of these updates is that the total revenue we are now approving in this final decision is 0.5 per cent lower than our draft decision, but 1.5 per cent higher than AGN's revised proposal. This has had flow on effects for revenue smoothing and the price path that will follow from this final decision (discussed in section 2.2.1).

1.3 How will our final decision affect gas bills?

We estimate this final decision will reduce the contribution AGN's distribution charges make to its customers' average annual bill in 2018 by around $15 (nominal) for residential customers, and around $41 for small business customers. Table 1-1 shows our estimate of the impact this final decision will have on average annual gas bills for residential and small business customers on AGN's network.

This is a simple estimate, which we have calculated by varying the distribution charges for an average residential and small business customer on AGN's network in accordance with this final decision, but holding other components of the bill constant. Our estimates are in nominal terms (taking into account expected future inflation to determine what the nominal price levels will be in future periods) because it will be nominal amounts that consumers will be paying.

Table 1-1 Estimated impact of our final decision on average annual gas bills for 2018–22 ($ nominal)

	2017	2018	2019	2020	2021	2022
Residential annual gas bill	1247[a]	1232	1243	1255	1267	1280
Annual change[c]		−15 (−1.2%)	11 (0.9%)	12 (1.0%)	12 (1.0%)	13 (1.0%)
Small business annual gas bill	5532[b]	5491	5521	5553	5586	5621
Annual change[c]		−41 (−0.8%)	30 (0.6%)	32 (0.6%)	33 (0.6%)	35 (0.6%)

Source: AER analysis, Switch On comparison tool, www.compare.switchon.vic.gov.au; Energy Made Easy, www.energymadeeasy.gov.au.

(a)   Based on average standing residential offers at November 2017 on Switch On comparison tool and Energy Made Easy website (for Albury region) using average annual consumption calculated in the PTRM for each of AGN's tariff zones (postcodes 3053, 3561, 3683, 3875 and 2640).

(b)   Based on average standing small business offers at November 2017 on Switch On comparison tool and Energy Made Easy website (for Albury region) using average annual consumption calculated in the PTRM for each of AGN's tariff zones (postcodes 3053, 3561, 3683, 3875 and 2640).

(c)   Annual change amounts and percentages are indicative. They are derived by varying the distribution component of 2017 bill amounts by the nominal weighted average expected change in tariffs. Actual bill impacts will vary depending on consumption and tariff class.

The annual gas bill for customers in Victoria is made up of the combined cost of all the gas supply chain components (illustrated in Figure 1-6), not just those covered by this decision. Changes in gas bills over time reflect movements in one or more of the components in the bill. Our decision on AGN's access arrangement will affect the component of the bill related to distribution pipelines. For customers on AGN's network, this makes up approximately 25 per cent of an average residential customer's annual gas bill and approximately 15 per cent of an average small business customer's annual gas bill.[11]

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[11]   Proportions based on average annual distribution charges calculated within the PTRM and average standing residential offers at November 2017 on Switch On comparison tool and Energy Made Easy website (for Albury region) using average annual consumption used in the PTRM for each of AGN's tariff zones (postcodes 3053, 3561, 3683, 3875 and 2640).

Figure 1-6 Gas supply chain
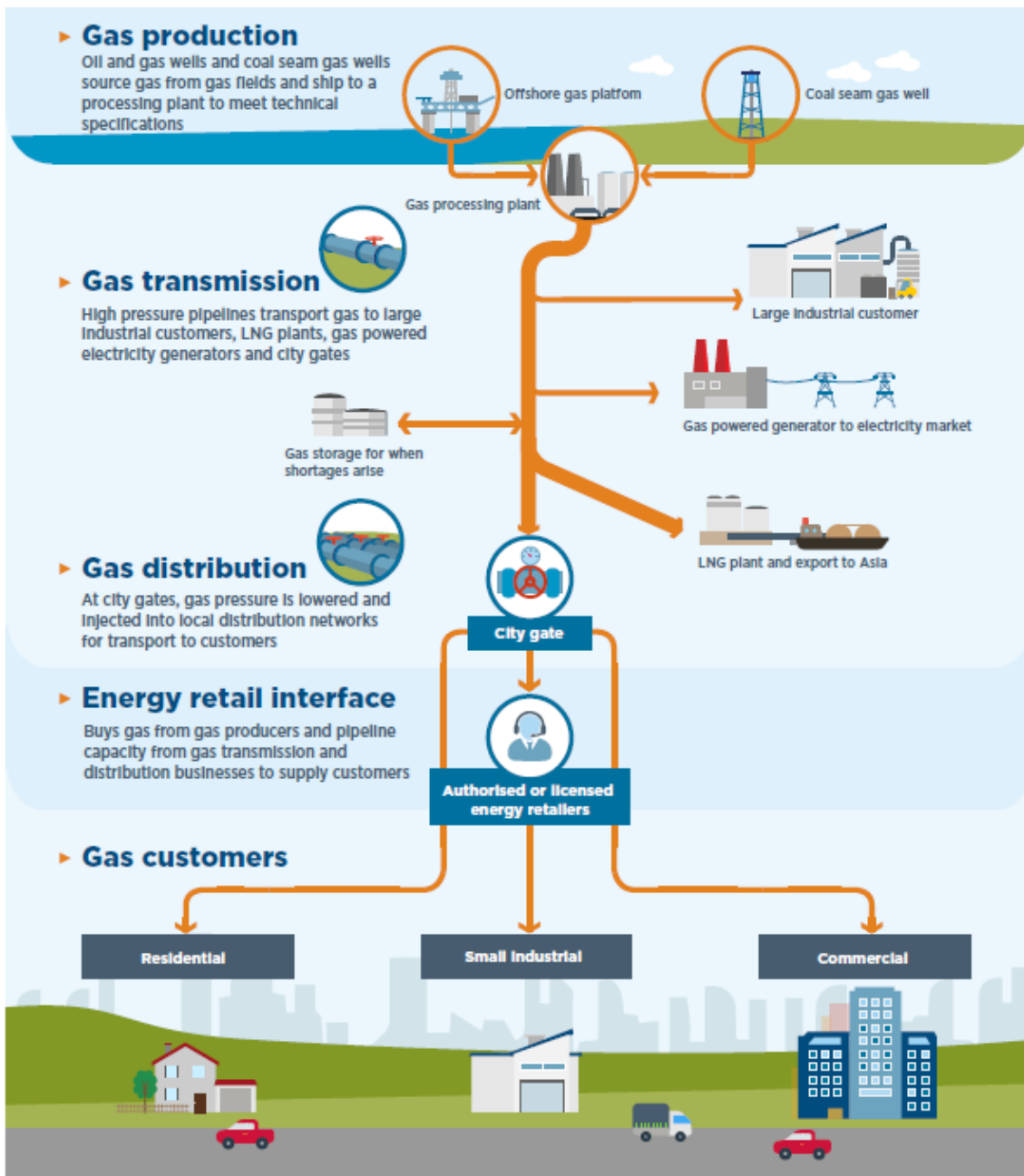
Source: AER, State of the Energy Market May 2017, p. 19.

2 Key components of our final decision

Gas pipelines that are subject to full regulation—like AGN's—are regulated under an approved access arrangement.[12] This forms the foundation for negotiations between pipeline operators and users.

An access arrangement specifies certain pipeline services (reference services) and the price and non-price terms and conditions on which those reference services will be offered over the next five years (2018–2022).

The prices (reference tariffs) that apply to reference services are based on an approved forecast revenue requirement determined in this decision.

In the sections below we summarise the key components of our final decision on AGN's access arrangement.

2.1 Reference services and tariffs

2.1.1 Services covered by the access arrangement

An access arrangement sets out at least one service likely to be sought by a significant part of the market (reference services). For each reference service, including services ancillary to the reference service, the access arrangement specifies the reference tariff and the other terms and conditions on which these services will be provided.[13]

AGN is to provide access to its reference services, but may negotiate alternative terms and conditions at alternative prices with users. AGN may also offer other non-reference services (negotiated services) which are not subject to the same level of regulation under the access arrangement. We may be called upon to determine the tariff and other conditions of access to services if an access dispute arises.[14]

Our draft decision approved AGN's proposal to continue to offer the same reference services and ancillary reference services in 2018–22 as it has in the current 2013–17 period. This outcome is unchanged in AGN's revised proposal and approved in this final decision.[15]

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[12] The NGL provides for different types of regulation to apply to gas pipelines, based on competition and significance criteria. A 'full regulation' pipeline must periodically submit an access arrangement to the AER, setting out pricing for a reference service sought by a significant part of the market. 'Light regulation' pipelines are not subject to upfront price regulation. The light regulation model is more a negotiate-arbitrate approach, placing greater emphasis on commercial negotiation and information disclosure. The AER plays a role only if dispute resolution mechanisms are triggered.

[13] NGR, r. 48.

[14] NGL, Chapter 6.

[15] AER, *Approved access arrangement for AGN Victoria and Albury 2018-22*, November 2017, cll. 2.2, 2.3.

2.1.2 Reference tariff setting and the annual tariff variation mechanism

Our draft decision on AGN's proposed access arrangement includes decisions on the structure of its reference tariffs and the mechanism by which those tariffs will be determined from year to year (the annual reference tariff variation mechanism).

Our draft decision accepted AGN's proposed tariff structures. Again, this outcome is confirmed in AGN's revised proposal and this final decision.[16] CCP11 remains concerned with the complexity of distribution tariffs[17] and has suggested that in future access arrangements for gas distributors we work with interested stakeholders:[18]

- to probe a bit further with the distribution networks whether their more complex price structures are justifiable and effective; and

- to encourage further dialogue primarily between retailers and distributors, but also including consumer engagement, to try and achieve a more agreed approach between the parties.

CCP11 has not suggested, and we have not made, changes to AGN's tariff structures in this final decision. The tariff structures we have approved are consistent with those that applied in the current period, and we remain satisfied that these are appropriate for 2018–22.

However, we agree with CCP11's suggestion that distributors' tariff structures are an area that would benefit from continued engagement in future gas access arrangement reviews, to ensure the tariff structures proposed as part of those reviews are justifiable, effective and cost-reflective. Cost-reflective distribution tariffs send signals to retailers about the cost of using the distribution network. Retailers can then determine if and how their retail offerings reflect these signals. This helps to support increased retailer innovation and greater tariff choice for end customers.

AGN's revised proposal also adopts the revisions our draft decision required to its tariff variation mechanism (a weighted average price cap) without further amendment. The one exception to this was an improved definition of the retailer insolvency cost pass through event, which for the reasons AGN has provided[19] we agree is clearer and therefore preferable to that in our draft decision. Our final decision accepts the tariff variation mechanism in AGN's revised proposal.[20]

This final decision includes a decision on the reference tariffs that will apply for the first year of AGN's 2018–22 access arrangement period.[21] We have updated these tariffs to reflect our final decision on AGN's forecast revenue requirement, which is slightly

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16   AER, *Approved access arrangement for AGN Victoria and Albury 2018-22*, November 2017, Part 4.
17   CCP11, *Final advice: AGN, AusNet and Multinet*, September 2017, p. 48
18   CCP11, *Final advice: AGN, AusNet and Multinet*, September 2017, p. 52.
19   AGN - *Attachment 14.3 - Response to the draft decision - network pricing* - 14 August 2017 - Public, p. 4.
20   AER, *Approved access arrangement for AGN Victoria and Albury 2018-22*, November 2017, cl. 4.3.
21   AER, *Approved access arrangement for AGN Victoria and Albury 2018-22*, November 2017, Annexure B.

higher than its revised proposal. For each subsequent year, tariffs will be updated and submitted for our approval in accordance with the annual tariff variation mechanism.

2.1.3 Forecast demand

Our draft decision accepted AGN's proposed demand forecasts, subject to updated Housing Industry Association dwelling projections which it has now included in its revised proposal.[22] This has increased its residential demand forecast very slightly. AGN has also removed additional connections and volume related to its proposed marketing program, which our draft decision did not accept. Our final decision is to accept AGN's implementation of these updates in its revised proposal, which we are satisfied address CCP11's concern that our final decision should use the latest forecasts available. [23] The resultant forecasts anticipate:[24]

- a decrease in total residential gas demand (AGN's Tariff R) of around 0.2 per cent per year over 2018–22 access arrangement period.[25] This compares to 0.8 per cent per year in the current period.[26] This relatively flat state of growth is due to forecast reductions in consumption per connection of 2.2 per cent per year being offset by net customer growth of 2 per cent per year.[27]

- an increase in total commercial demand (AGN's Tariff C) of 0.2 per cent over the 2018-22 access arrangement period.[28] This compares to 0.8 per cent per year in the current period. This slight growth is due to a fall of 0.5 per cent per year in consumption per connection being offset by increases in commercial net connections of 0.7 per cent per year.[29]

- an increase in industrial demand of 0.1 per cent over the 2018-22 access arrangement period. This compares to an increase of 0.9 per cent per year in the current period.

Demand is an important input into the derivation of AGN's reference tariffs. In simple terms, tariffs are determined by dividing cost (as reflected in forecast revenue) by total demand (GJ/day), so that an increase in forecast demand has the effect of reducing the tariff. In this instance, the slight increase in residential demand has not had a marked impact on tariffs. Forecast demand also affects the forecasts of operating and capital expenditure (new connections) that form part of our decision on the total revenue requirement. We discuss the impact of AGN's updated demand forecasts on its capex and opex forecasts in sections 2.3.6 and 2.3.7 below.

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[22] AGN - *Attachment 13.2A - Victorian Demand model* - 17 August 2017 - Confidential.

[23] CCP11, *Final advice: AGN, AusNet and Multinet*, September 2017, p. 6.

[24] AGN - *Attachment 13.6 - Response to the draft decision - demand* - 14 August 2017 - Public, Tables 1.4, 1.5, 1.6, p. 4.

[25] AGN - *Attachment 13.2A - Victorian demand model*, 14 August 2017 - Confidential

[26] Note that figures in the current period include estimated values for 2017.

[27] AGN - *Attachment 13.2A - Victorian demand model*, 14 August 2017 - Confidential

[28] AGN - *Attachment 13.2A - Victorian demand model*, 14 August 2017 - Confidential

[29] AGN - *Attachment 13.2A - Victorian demand model*, 14 August 2017 - Confidential

2.2 Total revenue requirement

The total revenue approved in this final decision is a forecast of the efficient cost of providing gas distribution services over the access arrangement period. We determine forecast revenue in nominal terms—that is, including inflation—because it will be in nominal amounts that consumers pay. To do this, we take into account expected future inflation to determine what the nominal price levels will be in future periods.[30]

Table 2-1 sets out our final decision on AGN's forecast total revenue requirement for 2018–22.

Table 2-1   Final decision on smoothed total revenue and X factors for 2018–22 ($ million, nominal)

Building block	2018	2019	2020	2021	2022	Total
Return on capital	90.4	95.0	100.5	105.3	109.3	500.5
Regulatory depreciation	39.8	45.7	54.4	46.1	50.7	236.7
Operating expenditure	69.6	72.1	74.7	77.5	80.5	374.4
Revenue adjustments	13.3	5.3	3.4	–2.3	0.0	19.8
Corporate income tax	12.7	13.0	13.3	10.1	10.9	59.9
Building block revenue – unsmoothed (including ARS)	**225.8**	**231.2**	**246.3**	**236.7**	**251.3**	**1191.3**
Less: Ancillary reference services	4.0	4.1	4.3	4.4	4.6	21.4
Building block revenue – unsmoothed (excluding ARS)	221.8	227.0	242.0	232.3	246.8	1169.9
Building block revenue – smoothed (excluding ARS)	215.7	224.6	234.1	243.8	254.0	1172.2
X factors	**7.21%**	**–1.35%**	**–1.35%**	**–1.35%**	**–1.35%**	**n/a**
Inflation forecast	2.45%	2.45%	2.45%	2.45%	2.45%	n/a
Nominal price change	–4.9%	3.8%	3.8%	3.8%	3.8%	n/a
Building block revenue – smoothed (including ARS)	**219.7**	**228.7**	**238.4**	**248.2**	**258.6**	**1193.5**

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).

The X factor for 2018 is indicative only. The draft decision establishes 2018 tariffs directly, rather than referencing a change from 2017 tariffs.

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[30]   This decision uses 10 year inflation expectations on average to convert revenues to nominal values. We discuss this further in section 2.3.3.

2.2.1 Revenue equalisation (smoothing) and tariffs

AGN operates under a weighted average price cap. Under the tariff variation mechanism approved in this final decision[31] we determine the weighted average tariff change—or 'X factor'—for each year. We set the X factors in such a way that the sum of the smoothed revenues across the period equals the unsmoothed building block revenue in net present value terms.

The X factors represent the weighted average real change in tariffs (that is, excluding the impact of inflation). As part of the annual reference tariff variation process, we will combine the X factors we have determined in this decision with actual inflation to create nominal reference tariffs for the coming year.

As we explained in section1.2, our final decision includes a number of updates to the building block inputs making up AGN's total revenue requirement. These updates have resulted in a slightly higher smoothed total revenue requirement of $1193.5 million ($ nominal), compared to $1175.8 million in AGN's revised proposal.[32]

As a result, we have also updated the 2018 tariffs set out in AGN's revised proposal and its proposed 2018–22 tariff path. AGN's revised proposal was for a weighted average decrease of 8.48 per cent in 2018 followed by weighted average increases in real tariffs of 1.25 per cent per year from 2019 onwards. As a result of our higher total revenue requirement, our final decision is for a real decrease in weighted average tariffs of 7.21 per cent in 2018, followed by increases of 1.35 per cent in each of the remaining years of the access arrangement period.

Table 2-2 shows the difference between our final decision X factors and those used in AGN's revised proposal.

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[31]   AER, *Approved access arrangement for AGN Victoria and Albury 2018-22*, November 2017, cl. 4.3.

[32]   This is calculated by smoothing the unsmoothed building block revenue for the 2018–22 access arrangement period as set in this draft decision.

Table 2-2   Comparison of final decision and revised proposal weighted average tariff change (X factors)

	2018	2019	2020	2021	2022
AER final decision					
X factor[a]	7.21%	−1.35%	−1.35%	−1.35%	−1.35%
Nominal price change[b]	−4.9%	3.8%	3.8%	3.8%	3.8%
AGN revised proposal					
X factor[a]	8.48%	−1.25%	−1.25%	−1.25%	−1.25%
Nominal price change[b]	−6.2%	3.7%	3.7%	3.7%	3.7%

Source: 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 7.21 per cent in 2018 means a real price decrease of 7.21 per cent that year. After consideration of inflation (assumed at 2.45 per cent) this becomes a nominal price decrease of 4.9 per cent.

(b)   For comparison purposes the nominal price changes are derived from the real price changes for AGN adjusted by AER's final decision forecast inflation of 2.45 per cent.

Figure 2-1 compares the tariff path that flows from this final decision with that approved for the 2013–17 access arrangement.[33] This provides a broad overall indication of the average movement in tariffs across the two access arrangement periods.

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[33]   The tariff path for 2013–22 uses actual inflation outcomes for the 2013–17 period, and forecast inflation for 2018–22.

Figure 2-1 Indicative tariff paths for AGN's reference services from 2013 to 2022 ($/GJ)
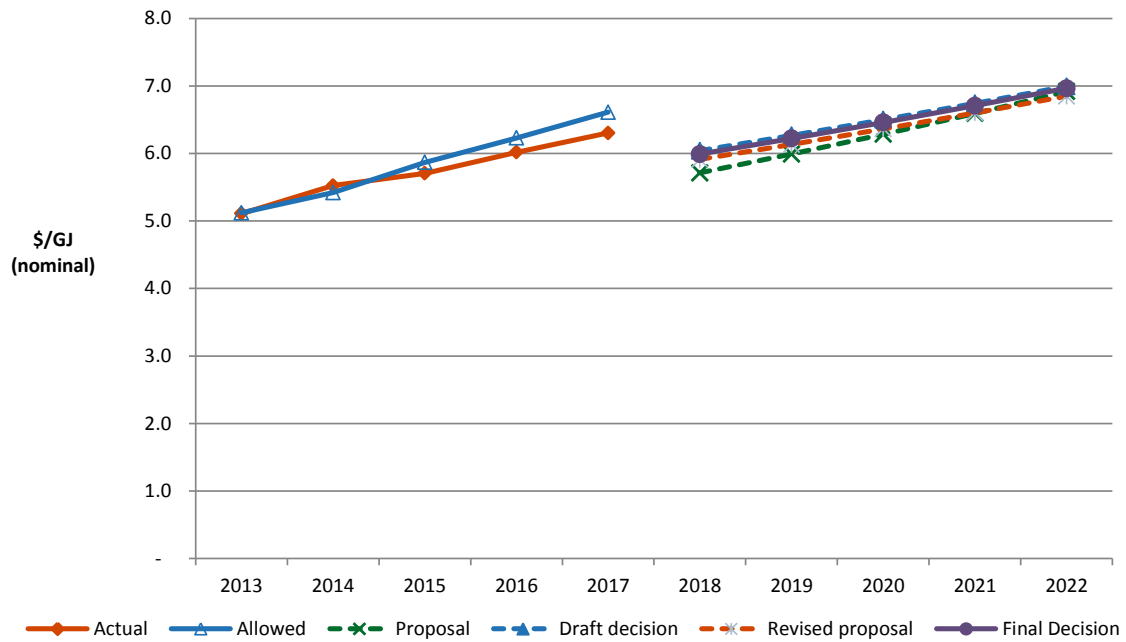
Source: AER analysis.

2.3 Key elements of decision on revenue

Our decision on AGN's forecast total revenue requirement is based on forecasts of the efficient costs that AGN is likely to incur in providing its reference services. This is commonly referred to as the building block approach. The building blocks, shown in Figure 2-2, include:[34]

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

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34   NGR, r. 76.

Figure 2-2   The building block approach to determining total revenue
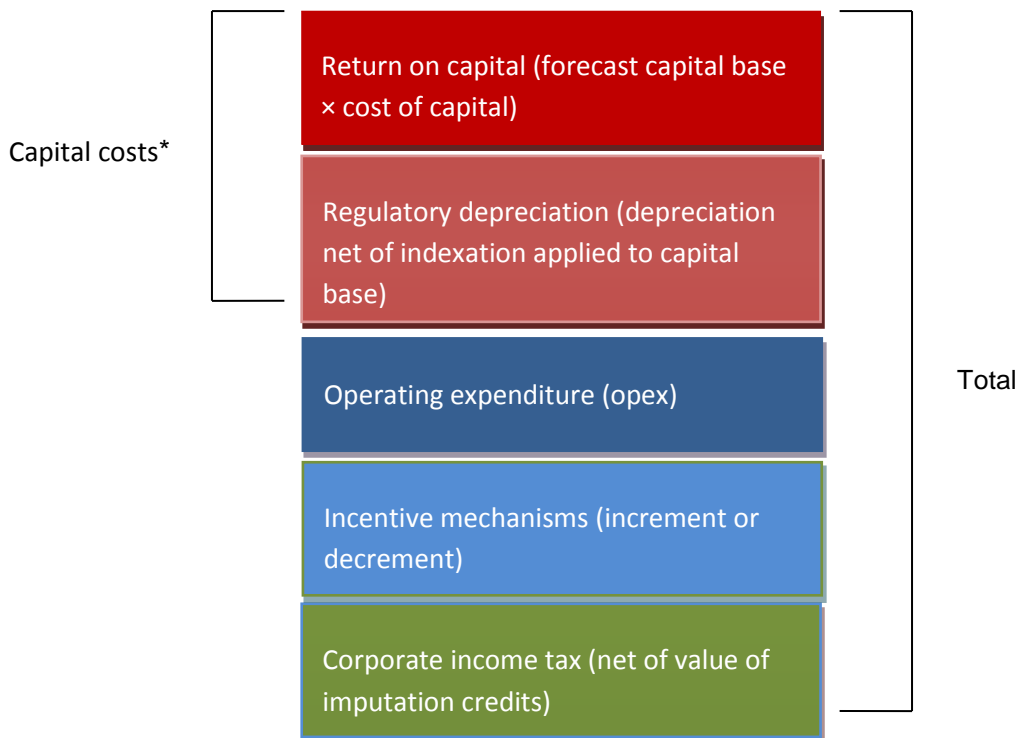
Note: Capital expenditure (capex)—the capital costs incurred in the provision of pipeline services —mostly relates to assets with long lives. The costs of these assets are recovered over several access arrangement periods through the return on capital and depreciation building blocks. In this way AGN recovers the financing cost and depreciation associated with these assets over the expected life of these assets.

AGN's revised proposal has adopted our draft decision on all key elements of the building block calculation. Submissions have not raised any issues which impact on the reasoning set out in our draft decision. In the following sections we explain how the updates in section 1.2 have impacted the various components of our decision.

2.3.1 Capital base

The capital base roll forward accounts for the value of AGN's regulated assets over the access arrangement period. The opening value of the capital base is used to determine the return of capital (regulatory depreciation) and return on capital building block allowances.

Our final decision approves an opening capital base value of $1572.0 million ($ nominal) as at 1 January 2018 for AGN (see Table 2-3).[35] This takes into account the reduction in AGN's reported capex from the current period and is therefore $30.9

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[35]   This amount is $0.3 million lower than AGN's revised proposal because we have updated 2016 gross capex and customer contributions in AGN's Albury RFM to be consistent with values from AGN's 2016 Annual RIN, as outlined in information request IR#20. We discuss these updates in Attachment 2 to this final decision.

million (1.9 per cent) lower than the opening capital base approved in our draft decision.

Table 2-3   Capital base roll forward for 2013–17 ($ million, nominal)

	2013	2014	2015	2016	2017
Opening capital base	1152.2	1237.0	1331.4	1439.5	1497.0
Net capex	103.0	113.1	128.5	90.9	105.3
Indexation of capital base	23.1	26.7	30.7	21.6	19.4
Less: straight-line depreciation	41.3	45.4	51.1	55.0	58.4
Closing capital base	1237.0	1331.4	1439.5	1497.0	1563.3
Difference between estimated and actual capex in 2012					6.3
Return on difference for 2012 capex					2.4
Opening capital base as at 1 January 2018					**1572.0**

Source: AER analysis.

We approve a forecast closing capital base value of $1934.4 million ($ nominal) at 31 December 2022. Our final decision on the projected closing capital base (shown in Table 2-4) reflects our changes to the opening capital base as at 1 January 2018, and our final decisions on expected inflation (section 2.3.3) and forecast depreciation (section 2.3.5).

Table 2-4   Projected capital base roll forward for the 2018–22 access arrangement period ($ million, nominal)

	2018	2019	2020	2021	2022
Opening capital base	1572.0	1652.1	1747.9	1831.1	1900.7
Net capex	120.0	141.5	137.5	115.7	84.4
Indexation of capital base	38.5	40.5	42.8	44.9	46.6
Less: straight-line depreciation	78.3	86.2	97.2	90.9	97.3
Closing capital base	**1652.1**	**1747.9**	**1831.1**	**1900.7**	**1934.4**

Source: AER analysis.

For this final decision, we confirm our position taken in our draft decision and AGN's revised proposal that the capital base as at 1 January 2023 is to be established using

the approved depreciation schedules (straight-line) based on forecast capex at the asset class level.[36]

2.3.2 Rate of return (return on capital)

The allowed rate of return provides AGN 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.

AGN adopted our approach to determine the allowed rate of return for the 2018-22 access arrangement period in its initial and revised proposals.

Our approach is detailed in our draft decision for AGN. We generally implemented the approach outlined in our guideline. However, we made some departures from our guideline in response to decisions of the Tribunal, the Federal Court and the submissions we have received from stakeholders through the various gas and electricity determination processes we have conducted since our guideline was published. These departures relate to the following aspects of our approach:

- equity and debt averaging periods

- transitioning from the on-the-day approach to a trailing average to estimating the return on debt

- implementing contingency arrangements for estimating debt if there are difficulties in applying an average of the Bloomberg and RBA debt series

- estimating the value of imputation credits.

We determine the rate of return on a basis that is consistent with the estimate of the value of imputation credits used in calculating a tax allowance.[37] Each of these matters is discussed in detail in our draft decision.

Beyond noting a general concern that this represents 'a cautious regulatory approach that has been regarded as overly conservative by various consumer groups', CCP11 largely supported this outcome.[38] Our approach remains unchanged in this final decision.

We accept AGN's revised rate of return proposal to accept our draft decision.[39] As such, our draft decision reasons form part of this final decision.[40] The draft decision sets out the future debt averaging periods to be used to update the cost of debt over AGN's access arrangement period and the equity averaging period that has been used

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[36]   NGR, r. 90.

[37]   NGR 87(4)(b)

[38]   CCP, *Final advice to AER following Draft Decision and Revised Proposals from AusNet, AGN and Multinet*, 12 September 2017, p. 33

[39]   AGN, *Revised Final Plan Attachment 10.9 Response to Draft Decision: Financing Costs*, August 2017, pp. 3–6.

[40]   AER, *Draft Decision - Australian Gas Networks Victoria and Albury Gas Access Arrangement 2018 to 2022 - Attachment 3 - rate of return (Confidential appendix O)* , July 2017

to update the cost of equity for its access arrangement period in this final decision.[41] The only changes we have made to our draft decision are to update the inputs and parameters of the rate of return to reflect the averaging periods nominated by AGN (and approved in our draft decision) and the prevailing market conditions, as close as practically possible to the start of the new access arrangement period.

Having considered the information before us, including the submission CCP11 and the most recent decisions of the Federal Court and Australian Competition Tribunal as discussed in our final decision for APA VTS,[42] we are satisfied that our rate of return and approach to updating this (as we transition to a trailing average cost of debt) contributes to the achievement the allowed rate of return objective and the NGO.[43] That is, we consider our 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 AGN in providing reference services.[44]

Updates to the return on debt (and overall WACC) will then be made annually throughout the access arrangement period as we transition to a trailing average cost of debt and as part of the annual tariff variation process.

For 2018, this final decision applies the following values in the rate of return calculation:

Table 2-5   Final decision on AGN's rate of return (% nominal)

	Previous allowed return (2013-17)	AGN's revised proposal (2018-22)	AER final decision (2018)	Allowed return over 2018 regulatory control period
Return on equity (nominal post–tax)	8.33	7.00	7.3	Constant (7.3%)
Return on debt (nominal pre–tax)	6.76	4.65	4.72	Updated annually
Gearing	60	60	60	Constant (60%)
Nominal vanilla WACC	7.39	5.59	5.75	Updated annually for return on debt
Forecast inflation	2.5	2.47	2.45	Constant (%)

Source: AER analysis; *AGN, Revised Final Pan Attachment 10.9 Financing Costs*, August 2017, p. 5; AGN, *Revised Final Pan Attachment 9.6 Response to Draft Decision: Capital Base*, August 2017, p. 2

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[41]   AER, *Draft Decision - Australian Gas Networks Victoria and Albury Gas Access Arrangement 2018 to 2022 - Attachment 3 - rate of return (Confidential appendix O)*, July 2017

[42]   AER, *Final Decision - APA VTS transmission determination 2018 to 2023 - Attachment 3 - Rate of return*, November 2017.

[43]   NER, cl. 6.5.2(b); cl. 6A.6.2(b); NGR, cl. 87(2); NEL, s.16; NGL, s. 28.

[44]   NER, cl. 6.5.2(c); cl. 6A.6.2(c); NGR, cl. 87(3); NEL, s.16; NGL, s. 28.

Our return on equity point estimate and the parameter inputs are set out in the table below.

Table 2-6   Final decision on AGN's return on equity (% nominal)

	AER previous decision (2013–17)	AGN's revised proposal (2018–22)	AER final decision (2018)
Nominal risk free rate (return on equity only)	3.53%	2.45%[a]	2.78%
Equity risk premium	4.8%	4.55%	4.55%
Market risk premium	6%	6.50%	6.50%
Equity beta	0.8	0.7	0.70
Nominal post–tax return on equity	8.33%	7.00%)	7.3%

Source: AER analysis; AGN, Revised Final Pan attachment 10.9 Financing Costs, August 2017, p. 5.

a   Indicative and placeholder risk free rate from the revised proposal.

2.3.3 Forecast inflation

For this final decision we have estimated expected inflation as the geometric average of 10 annual expected inflation rates. We use the RBA's forecasts of inflation for the first two annual rates and the mid-point of the RBA's inflation target band for the remaining eight annual rates. This is the same approach used in our draft decision, and is our current approach. AGN challenged this approach in its initial proposal, but has adopted it for the purposes of its revised proposal.

In its revised proposal AGN noted that:

> As the AER is currently running a separate review of their approach to estimating expected inflation, we have applied the AER's preferred approach pending the outcome of this review. We maintain however that an estimate of inflation derived from market information consistent with that used to determine the rate of return provides for the best estimate of inflation.

> We are actively participating in the AER's current inflation review, with the AER's final decision due in December 2017. It is expected that the outcome of the AER inflation review will be reflected in the AER's Final Decision for Victorian and Albury networks.[45]

As noted by AGN, we are currently conducting an industry-wide view of approaches to estimating inflation for our regulatory decisions. In our draft decision we indicated that findings from that review may inform this final decision. The finalisation of that review is now expected in December 2017. Therefore, we discussed with AGN whether we

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45   AGN, *AGN Attachment 9.6 - Response to the draft decision - capital base,* 14 August 2017, p. 4.

should apply a tariff variation mechanism. Such a mechanism would allow us to adjust the approved revenue in the event that the approach to estimating inflation in our final decision is inconsistent with the inflation review outcome.[46] AGN's preference, which we accept as the most appropriate in the circumstances, is to adopt our inflation review preliminary position in this Final decision.[47]

We released our inflation review preliminary position in October, which was that our current approach remains the most appropriate to derive the best estimate of expected inflation.[48] In its submission in response to the preliminary position paper, AGN has stated it favours the use of appropriate market data to determine estimates of expected inflation. AGN has requested further reasoning in the final position paper as well as a fuller analysis of evidence. On the evidence before us, we consider that our current approach has the greatest strengths and fewest weaknesses and is therefore the best estimate of expected inflation. We assessed all the material before us and engaged all stakeholders in arriving at our preliminary position. The reasons discussed in that paper is relevant to this final decision as well.

2.3.4 Value of imputation credits (gamma)

Under the Australian tax system investors can receive imputation credits for tax paid at the company level. We make an adjustment to our taxation building block (section 2.3.9, below) to account for the value of imputation credits. The higher the value of gamma, the larger the adjustment to the corporate income tax allowance.

Throughout this review both we and AGN have adopted a gamma value of 0.4. CCP11 again generally supported this position.[49]

Our final decision, consistent with our draft decision and AGN's initial and revised proposals, is to apply a gamma value of 0.4. Our reasons for this decision are principally set out in our draft gamma decision for AGN.[50] However, in this final decision we have also had regard to:

- the recent Australian Competition Tribunal decision for ActewAGL [Gas] Distribution and Jemena Electricity Networks;[51]

- recent submissions on gamma by TransGrid; and

- updated tax and equity ownership data.

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[46]   AER, Emails to AGN - Timing of final decision vs inflation review - 24 and 27 November 2017.
[47]   AGN, Email to AER - Timing of final decision vs inflation review - 28 November 2017.
[48]   AER, *Preliminary Position Paper - Regulatory treatment of inflation*, 13 October 2017.
[49]   CCP11, *Final advice: AGN, AusNet and Multinet*, September 2017, p. 47.
[50]   AER, *Draft Decision - Australian Gas Networks Victoria and Albury Gas Access Arrangement 2018 to 2022 - Attachment 4 - Value of imputation credits*, July 2017.
[51]   Australian Competition Tribunal, *Application by ActewAGL Distribution [2017] ACompT 2,* 17 October 2017.

Our consideration of TransGrid's recent submissions on gamma, recent legal decisions and the most recent data, are set out in our draft electricity transmission determination for ElectraNet.[52]

2.3.5 Regulatory depreciation (return of capital)

Our decision on AGN's total revenue includes an allowance for the depreciation of the projected capital base (the 'return of capital').[53] Regulatory depreciation is used to model the nominal asset values over the 2018–22 access arrangement period and the depreciation allowance in the total revenue requirement.[54]

Our final decision approves forecast regulatory depreciation of $236.7 million ($ nominal) for AGN over the 2018–22 access arrangement period (see Table 2-7).[55]

Table 2-7   Regulatory depreciation allowance for 2018–22 ($ million, nominal)

	2018	2019	2020	2021	2022	Total
Straight-line depreciation	78.3	86.2	97.2	90.9	97.3	450.0
Less: indexation on capital base	38.5	40.5	42.8	44.9	46.6	213.2
Regulatory depreciation	**39.8**	**45.7**	**54.4**	**46.1**	**50.7**	**236.7**

Source: AER analysis.

As discussed in section 1.1, the increase in AGN's regulatory depreciation allowance from the current 2013–17 access arrangement period to our final decision for 2018–22 reflects the following:

- In the current and previous access arrangement periods, AGN has undertaken a substantial mains replacement program to maintain the safety and security of its network. AGN will complete its low pressure mains replacement program by 2022. As it does this, depreciation of the assets it is replacing will be accelerated so that they are removed more quickly from the capital base or over a shorter period of time.

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[52] AER, *Draft Decision - ElectraNet transmission determination 2018 to 2023 - Attachment 4 - Value of imputation credits*, October 2017.

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

[54] Regulatory depreciation allowance is the net total of the straight-line depreciation (negative) and the annual inflation indexation (positive) on the projected capital base.

[55] This is an increase of $1.5 million (or 0.6 per cent) from AGN's revised proposal, reflecting our amendments to AGN's opening capital base as at 1 January 2018 (section 2.3.1) and our update to the value of expected inflation for the 2018–22 access arrangement period (section 2.3.3). We discuss these amendments in Attachment 5 to this final decision.

- The return of capital building block increases as the capital base increases. AGN's capital base grew by 24.5 per cent in real terms over the current period, and is projected to grow by a further 9.0 per cent from 2018 to 2022.[56]

AGN has also changed its approach to implement straight-line depreciation of assets, which can increase revenue fluctuations as depreciation depends more on when individual assets expire. AGN's new approach (often referred to as the 'year-by-year tracking' approach) meets the criteria of the depreciation schedule reflecting assets' economic lives, where it tracks the asset's technical life. However, it does increase depreciation over the short to medium term. Other things being equal, this also increases prices. Our analysis suggests the price impact in this case will be modest.

2.3.6 Capital expenditure

Capital expenditure (capex) [57] mostly relates to assets with long lives. AGN recovers the financing cost and depreciation associated with its assets over the expected life of those assets (which spans a number of access arrangement periods), through the return on capital and depreciation building blocks.

Our decision on AGN's revenue includes an assessment of AGN's actual capex in the current period, which is added to its opening capital base for 2018.[58] It also includes an assessment of AGN's forecast capex for the 2018–22 access arrangement period, which is used to project the closing capital base in 2022.[59]

Table 2-8 shows the composition of capex approved in this final decision for AGN's current (2013–17) and forecast (2018–22) access arrangement periods. As in the current period, capex for new connections (growth) and mains replacement—while falling—will continue to be key drivers of AGN's expenditure in 2018–22. In 2018–22, AGN will also invest in nationalisation of its IT capabilities (a program we considered and approved last year in our final decision on the access arrangement for AGN's South Australian distribution network.)

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[56] In nominal terms AGN's capital base grew by 39.1 per cent in 2013–17, and is projected to grow by 23.1 per cent from 2018 to 2022.
[57] NGR, r. 69.
[58] NGR, r. 77.
[59] NGR, r. 78(b)

Table 2-8 AER approved capex by category for 2013–17 and 2018–22 ($ million, 2017)

Category	2013–17	2018–22	Difference between periods ($ millions)
Growth assets	180.4	180.1	-0.3
Mains replacement	250.2	150.0	-100.2
Meter replacement	25.4	33.0	7.6
Augmentation	16.9	34.7	17.9
Telemetry	1.6	1.2	-0.4
Other Assets	41.3	35.5	-5.8
IT	22.2	64.6	42.4
Overheads	58.0	57.4	-0.6
GROSS TOTAL CAPITAL EXPENDITURE	596.0	556.5	-39.5
Contributions	33.7	6.8	-26.9
NET TOTAL CAPITAL EXPENDITURE	562.3	549.6	-12.7

Source: AER analysis.

Note: Direct costs in the 2013–17 period include related party expenditure.

Conforming capex from the current period

AGN's actual and expected capex of $562.3 million ($2017) over the current (2013 to 2017) period is approximately $38.2 million (or 6.4 per cent) below our approved forecast of $600.5 million ($2017) for that period.[60]

Our draft decision accepted AGN's current period capex, subject to the inclusion—in its revised proposal—of updated data on AGN's actual capex in 2016 and 2017. The effect of these updates, which we have accepted, was to decrease AGN's reported capex for the current period by 5 per cent.

Our final decision is that AGN's actual capex of $570.3 million ($2017) for the years 2012 to 2016 is appropriately included in the opening capital base from 1 January 2018. We will review AGN's actual capex for 2017 as part of our next review of its access arrangement in 2022.

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[60]   AER - *Access arrangement final decision - Envestra - Part 1* - March 2013

Forecast capex for 2018–22

Our final decision approves AGN's total forecast net capex of $549.6 million.[61]

Our draft decision accepted AGN's proposed capex forecast, but required AGN to update its forecast of the number of new connections to its network for 2018–22 in its revised proposal. Residential demand forecasts for AGN's network have increased slightly to reflect more recent data, even with the removal of additional connections and volume related to the marketing step change. This requires an adjustment to forecast capex for new connections (and as a consequence to real cost escalation and overheads). As a result, our final decision accepts a small increase of $2 million ($2017), or 0.4 per cent, to the total capex forecast in our draft decision. Together with the completion of AGN's low pressure mains replacement program growth assets (capex to accommodate new connections to the network) will be a key driver of AGN's capex over the 2018–22 period, as shown in Figure 2-3.

Figure 2-3 Composition of approved gross capex for 2018–22 ($2017)
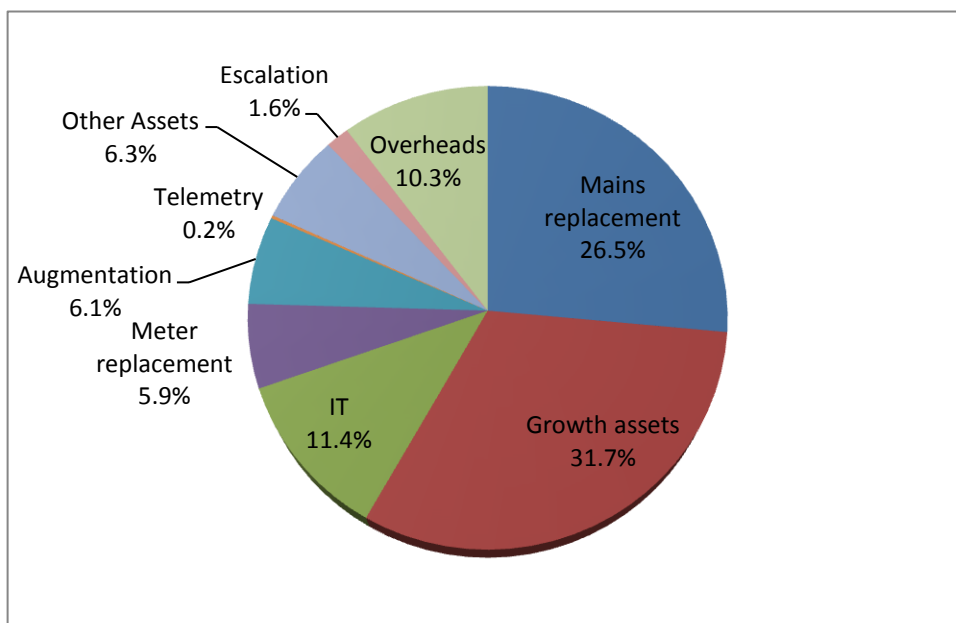
Source: AER analysis

2.3.7 Operating expenditure

Operating expenditure (opex) includes operating, maintenance and other non-capital expenses incurred in the provision of reference services for a pipeline. Forecast opex is one of the building blocks we use to determine a service provider's total revenue requirement.

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[61] For the composition of AGN's capex forecast, see: AGN - Attachment 8.11 - Response to the draft decision - capital expenditure - 14 August 2017 - Public, Table 1.4, p. 4.

Our final decision approves AGN's total forecast opex of $347.8 million ($2017).[62]

Table 2-9 Forecast opex for 2018-22 ($2017)

	2018	2019	2020	2021	2022	Total
Total (excl. debt raising costs)	67.2	67.9	68.6	69.5	70.4	343.7
Debt raising costs	0.8	0.8	0.8	0.8	0.8	4.1
Total (incl. debt raising costs)	**68.0**	**68.7**	**69.5**	**70.3**	**71.3**	**347.8**

Source: AGN - Attachment 1.9A - Victoria and Albury post tax revenue model - 14 August 2017 - Public

Note: Numbers may not add up due to rounding.

Our draft decision accepted AGN's total forecast opex, subject to the provision—in AGN's revised proposal—of updated data on AGN's actual opex for 2016. The impact of that update, which we have now approved, was an increase of $3.7 million ($2017) or one per cent from our draft decision.

2.3.8 Efficiency carryover mechanism

The opex efficiency carryover mechanism in AGN's access arrangement provides an additional incentive for AGN to pursue efficiency improvements in its opex over an access arrangement period. It does this by allowing AGN to retain efficiency savings achieved within a particular period for a longer period of time.

AGN's revised proposal adopted the carryover amounts approved in our draft decision, taking into account the updated data for 2016 discussed above.[63] Our final decision (outlined in Table 2-10) confirms those amounts, and a total efficiency carryover amount of $19.2 million ($2017).[64]

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[62]   For the composition of AGN's capex forecast, see AGN - *Attachment 7.5 - Response to the Draft Decision - Operating expenditure* - 14 August 2017 - Public, Table 1.4, p. 4.

[63]   AGN - *Attachment 1.9A - Victoria and Albury post tax revenue model* - 14 August 2017 - Public

[64]   AER, *Final decision post tax revenue model*, November 2017.

Table 2-10 Carryover amounts under the opex efficiency carryover mechanism ($ million, $2017)

	2017	2018	2019	2020	2021	Total
AGN revised carryover and AER's final decision - Victoria	11.6	5.1	3.1	-1.8	–	18.1
AGN revised carryover and AER's final decision - Albury	1.3	–	–	-0.3	–	1.0
Total	13.0	5.1	3.2	-2.1	–	**19.2**

Source: AGN, *Attachment 1.9A - Victoria and Albury post tax revenue model*, 14 August 2017; AER analysis.

Note: Numbers may not add up due to rounding.

We also accept AGN's revised proposal on the forecast expenditure amounts that are used as the basis for measuring efficiencies under the efficiency carryover mechanism over the 2018–22 access arrangement period.[65] However, we have made a minor correction to the forecast opex amount for 2016, which AGN acknowledged. [66]

In its final advice CCP11 suggested the treatment of marketing expenditure under the efficiency carryover mechanism may warrant further consideration. While not proposing changes to the approach we took in our draft decision, the advice asks whether, in future reviews, it may be appropriate to exclude marketing expenditure from the mechanism to ensure that AGN does not have an incentive to pursue inefficient or imprudent marketing activities in order to maintain current levels of opex.[67] We will continue to monitor this issue and, if it becomes apparent that there is an incentive imbalance resulting in inefficient levels of total opex we will reconsider whether an alternative incentive arrangement are required for marketing expenditure.

2.3.9 Corporate income tax

AGN has adopted the post-tax framework to derive its revenue requirement for the 2018–22 access arrangement period.[68] When determining the total revenue for AGN, we therefore include an estimate of AGN's cost of corporate income tax.

Our final decision on the estimated cost of corporate income tax is $59.9 million ($ nominal) for AGN over the 2018–22 access arrangement period, as shown in Table 2-11.[69]

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[65]   AER - *Approved access arrangement for AGN Victoria and Albury 2018-22 - Final decision*, November 2017, p. 21, cl. 5.1(i).

[66]   In proposing forecast expenditure amounts that are used as the basis for measuring efficiencies under the efficiency carryover mechanism over the 2018–22 access arrangement period, AGN did not incorporate the 2016 amount for its Albury network AGN, For more details, see: AGN, *Response to AER's information request IR#21*, 7 November 2017.

[67]   CCP11, *Final advice: AGN, AusNet and Multinet*, September 2017, p. 22.

[68]   AGN - *Attachment 1.9A - Victoria and Albury post tax revenue model* - 14 August 2017 - Public.

Table 2-11   Cost of corporate tax allowance 2018–22 ($million, nominal)

	2018	2019	2020	2021	2022	Total
Tax payable	21.1	21.7	22.1	16.8	18.1	99.9
Less: value of imputation credits	8.5	8.7	8.9	6.7	7.2	40.0
Net corporate income tax allowance	**12.7**	**13.0**	**13.3**	**10.1**	**10.9**	**59.9**

Source: AER analysis.

2.4 New capital expenditure sharing scheme

From 2018, a new capital expenditure sharing scheme (CESS) will apply to AGN. The detail of this mechanism is set out in AGN's access arrangement[70], and explained in attachment 14 to this final decision.

In its final advice to us on this review, CCP11 supported our decision to apply the new CESS to AGN and AusNet. It also commended the level of collaboration between us and the businesses to develop a robust measure of network health, and endorsed the adoption of those measures. However, CCP11 raised continued concerns—not specific to AGN—about the adequacy of provisions to manage the risk that the CESS would reward a business for inefficient deferral of capital works from one period to the next.[71]

In this final decision we have explicitly detailed the operation of the CESS, including the methodology we will use to:

- calculate efficiency gains and losses

- account for the benefits and costs already accrued

- calculate the CESS reward or penalty (contingent on network health)

- undertake a final year adjustment to CESS rewards or penalties at the following access arrangement, and

- adjust CESS payments when capex has been deferred to the following access arrangement period.

Recognising the concerns that stakeholders—including CCP11—have raised throughout this process, the CESS has been designed so that any reward to AGN under the CESS will be contingent on AGN maintaining current service standards,

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[69]   This is an increase of $2.6 million ($ nominal) or 4.6 per cent from the $57.3 million ($ nominal) in AGN's revised proposal. The reduction reflects our amendments to AGN's revised proposed inputs for forecasting the cost of corporate income tax, including the opening tax asset base at 1 January 2018 and remaining tax asset lives. Our final decision adjustments to the return on capital (section 2.3.2) and regulatory depreciation (section 2.3.5) also affect revenues, which in turn impacts the tax calculation.

[70]   AER, *Approved access arrangement for AGN Victoria and Albury 2018-22*, November 2017, cl. 5.2

[71]   CCP11, *Final advice: AGN, AusNet and Multinet*, September 2017, p. 25.

measured through a new network health index. If service standards decline, then AGN will receive a reduced CESS reward or no reward at all.

Importantly, we consider that the capex deferral mechanism in the approved CESS will operate to identify capex deferrals—for example where actual volumes of capex for mains replacement are lower than anticipated in our approved capex forecast—and potentially adjust CESS payments where such deferrals are not appropriately rewarded as capex efficiencies.

2.5 Non-tariff components

The non-tariff components of an access arrangement include:

- the terms and conditions for the supply of reference services

- extension and expansion requirements—the method for determining whether an extension or expansion is a part of the covered pipeline and the effect this will have on tariffs

- capacity trading requirements—the arrangements for users to assign contracted capacity and change delivery and receipt points

- provisions for receipt and delivery point changes, and

- a review submission date and a revision commencement date.[72]

AGN's revised proposal adopted our draft decision on these elements of its access arrangement without further amendment.[73] Our final decision accepts these elements of the revised proposal in full.

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[72] Although not required in the present case, all transmission pipelines and some distribution pipelines are also required to set out how any spare or developable capacity will be allocated among prospective users ('queuing requirements' - see NGR r. 103.

[73] AGN - 2018-22 Access Arrangement - 14 August 2017 - Public; AGN - 2018-22 Access Arrangement - Annexure F - Terms and conditions - 14 August 2017 - Public.

A   The National Gas Objective

The NGL requires us to make this decision in a manner that contributes, or is likely to contribute, to achieving the NGO.[74] The focus of the NGO is on promoting efficient investment in, and efficient operation and use of, natural gas services (rather than assets) in the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.[75] This is not delivered by any one of the NGO's factors in isolation, but rather by balancing them in reaching a regulatory decision.[76]

In general, we consider that the long term interests of consumers are best served where consumers receive a reasonable level of safe and reliable service, which they value, at least cost in the long run.[77] A decision that places too much emphasis on short term considerations may not lead to the best overall outcomes for consumers once the longer term implications of that decision are taken into account.[78]

There may be a range of economically efficient decisions that we could make in a revenue decision, each with different implications for the long term interests of consumers.[79] A particular economically efficient outcome may not be in the long term interests of consumers, depending on how prices are structured and risks allocated within the market.[80] There are also a range of outcomes that are unlikely to advance the NGO, or advance the NGO to the degree that others would. For example:

- the long term interests of consumers will not be advanced if our decisions encourage over-investment which results in prices so high that consumers are unwilling or unable to efficiently use the network.[81] This could have significant longer term pricing implications for those consumers who continue to use network services.

- equally, the long term interests of consumers will not be advanced if we allowed revenues to result in prices so low that investors do not invest to sufficiently maintain the appropriate quality and level of service.[82] This could create longer term problems in the network, and could have adverse consequences for safety, security and reliability of the network.

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[74]   NGL, s. 28(1)

[75]   This is also the view of the Australian Energy Market Commission (the AEMC). See, for example, the AEMC, 'Applying the Energy Objectives: A guide for stakeholders', 1 December 2016, p. 5.

[76]   Hansard, *SA House of Assembly,* 26 September 2013, p. 7173. See also the AEMC, 'Applying the Energy Objectives: A guide for stakeholders', 1 December 2016, p. 7-8.

[77]   Hansard, *SA House of Assembly,* 9 February 2005, p. 1452.

[78]   See, for example, the AEMC, 'Applying the Energy Objectives: A guide for stakeholders', 1 December 2016, p. 6-7.

[79]   Re Michael: Ex parte Epic Energy [2002] WASCA 231 at [143].

[80]   See, for example, the AEMC, 'Applying the Energy Objectives: A guide for stakeholders', 1 December 2016, p. 5.

[81]   NGL, s. 24(7).

[82]   NGL, s. 24(6).

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

A.1   Achieving the NGO to the greatest degree

Our decisions on gas access arrangements are complex. In most cases, 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 judgement. For example, part 9 of the NGR requires us to consider forecasts, which are predictions about unknown future circumstances. Very often, there will be more than one plausible forecast,   and much debate amongst stakeholders about relevant costs. For certain components of our decision there may therefore 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. In these cases, our role is to make an overall decision that we are satisfied contributes to the achievement of the NGO to the greatest degree.

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, 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.

A.2   Interrelationships between the different components of our decision

Examining individual components of our decision in isolation ignores the importance of the interrelationships between components of the overall decision, and would not contribute to the achievement of the NGO. We consider these interrelationships as part of our analysis of the various components of our decision. Examples include:

- underlying drivers and context which are likely to affect many constituent components of our decision. For example, in this final decision changes in forecast demand have impacted the efficient levels of capex required for the 2018–22 access arrangement period.

- direct mathematical links between different components of a decision. For example, the level of 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.

- trade-offs between different components of revenue. For example, undertaking a particular capex project may affect the need for opex or vice versa.