



DRAFT DECISION
AusNet Services
Gas access arrangement
2018 to 2022

Attachment 7 – Operating
expenditure

July 2017

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Note

This attachment forms part of the AER's draft decision on the access arrangement for AusNet Services for 2018-22. It should be read with all other parts of the draft decision.

The draft 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

Attachment 14 - Other incentive schemes

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Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
ATO	Australian Tax Office
capex	capital expenditure
CAPM	capital asset pricing model
CESS	Capital Expenditure Sharing Scheme
CPI	consumer price index
DRP	debt risk premium
ECM	(Opex) Efficiency Carryover Mechanism
ERP	equity risk premium
Expenditure Guideline	Expenditure Forecast Assessment Guideline
gamma	Value of Imputation Credits
MRP	market risk premium
NGL	National Gas Law
NGO	national gas objective
NGR	National Gas Rules
NPV	net present value
opex	operating expenditure
PTRM	post-tax revenue model
RBA	Reserve Bank of Australia
RFM	roll forward model
RIN	regulatory information notice
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
WACC	weighted average cost of capital
WPI	Wage Price Index

7 Operating expenditure

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

This attachment outlines our assessment of AusNet's forecast opex for the 2018–22 access arrangement period.

7.1 Draft decision

Our draft decision is to not accept AusNet's forecast opex of \$304.8 million (\$2017)¹ because we are not satisfied it meets the opex criteria.² Instead, we consider our alternative estimate of \$268.6 million (\$2017) meets the criteria.³ This is 11.9 per cent lower than AusNet's proposal.

AusNet's forecast opex and our draft decision are set out in Table 7.1.

Table 7.1 AusNet's proposed opex and our draft decision (\$ million, 2017)

	2018	2019	2020	2021	2022	Total
AusNet's proposed opex	58.4	59.6	60.8	62.6	63.4	304.8
AER draft decision	51.8	52.7	53.7	54.7	55.6	268.6
Difference	-6.6	-6.8	-7.1	-7.8	-7.8	-36.2

Source: AusNet's proposed PTRM, 16 December 2016; AER analysis.

Note: Includes debt raising costs.

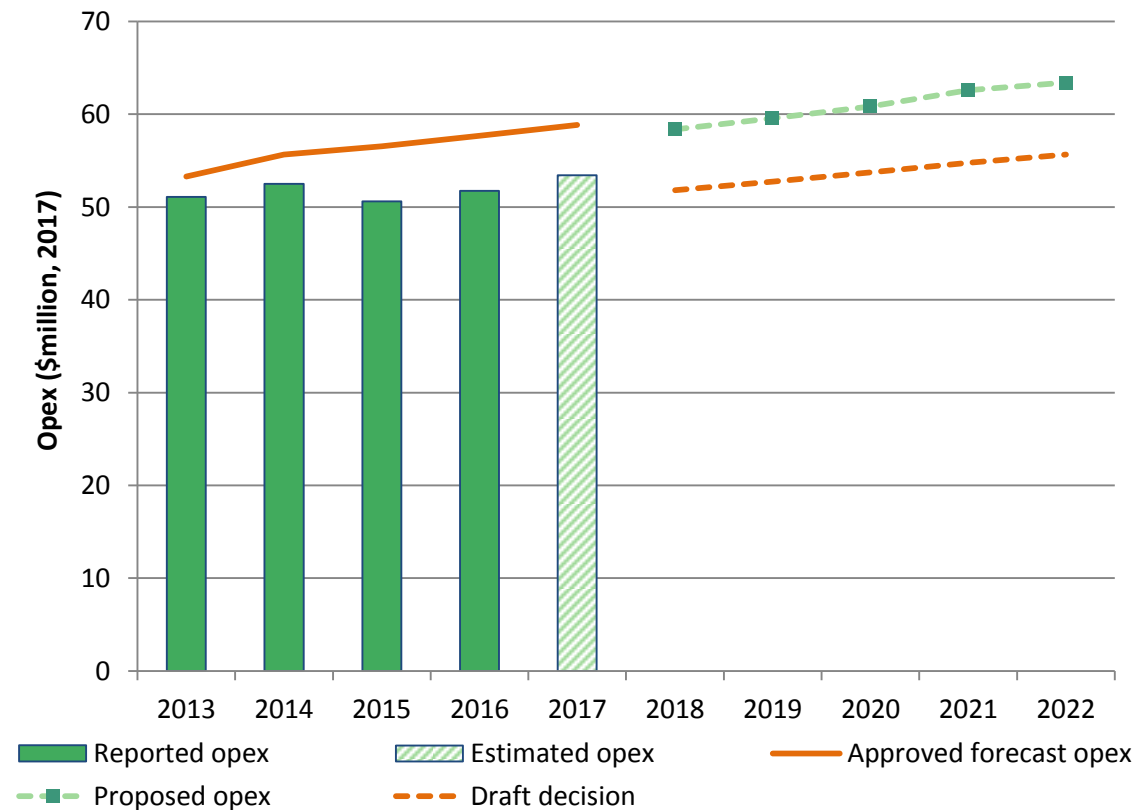
Figure 7.1 compares the opex forecast we approve in this draft decision to AusNet's proposal, the forecast we approved for 2013–17 and AusNet's actual opex in that period.

¹ Includes debt raising costs and ancillary reference services.

² NGR, r. 91.

³ Includes debt raising costs and ancillary reference services.

Figure 7.1 Our draft decision compared to AusNet's past and proposed opex (\$ million, 2017)



Source: AusNet Services, *Proposed reset RIN*, 16 December 2016; AER analysis.

Note: Includes debt raising costs. Excludes movements in provisions and unaccounted for gas.

7.2 AusNet's proposal

AusNet proposed total opex of \$304.8 million (\$2017) for the 2018–22 access arrangement period.⁴ This is 17.5 per cent more than its actual opex for the 2013–17 access arrangement period.⁵ The biggest driver of this increase is its proposed gas marketing step change.

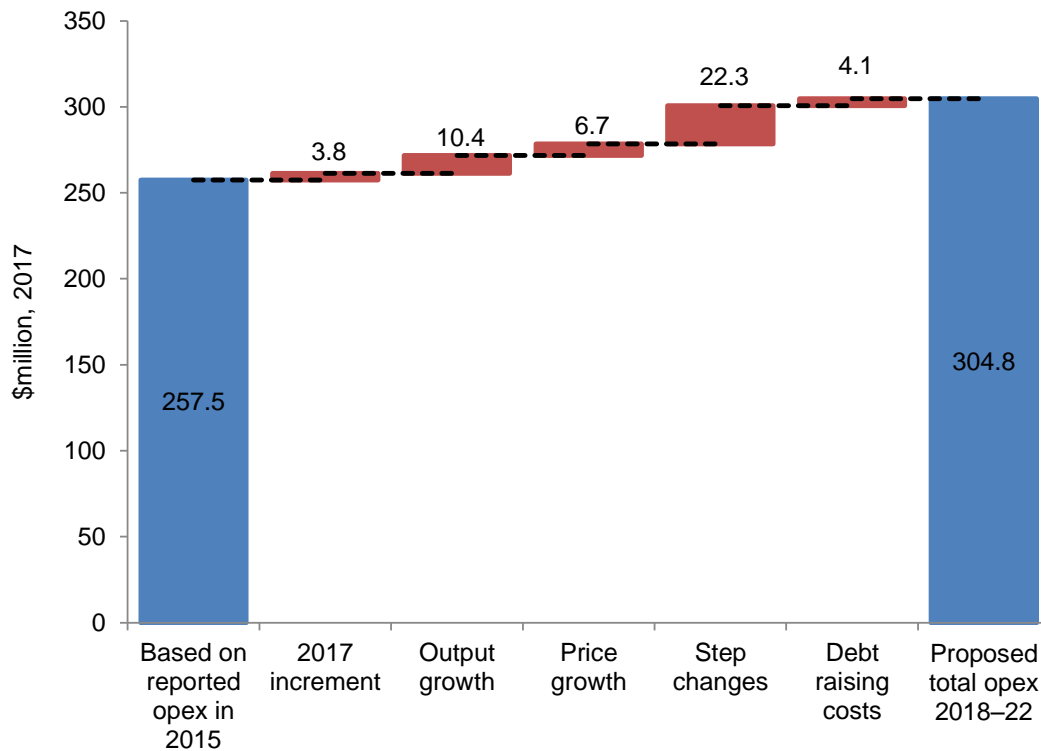
In Figure 7.2 we separate AusNet's proposed opex into the different elements that make up its forecast.

⁴ AusNet Services, *Distribution gas access arrangement review proposal operating expenditure model*, 16 December 2016; Includes debt raising costs.

We note the total opex forecast in AusNet Services' opex model was \$304.8 million, whereas the amount included in its PTRM was \$304.7 million. In this section we refer to the forecast in the opex model.

⁵ Actual opex comprises actual opex for 2013 to 2016 and estimated opex for 2017.

Figure 7.2 AusNet's opex forecast (\$ million, 2017)



Source: AER analysis; AusNet Services, *Proposed opex model*, 16 December 2016.

We describe each of these elements below:

- AusNet mostly used our base-step-trend forecasting approach.
- AusNet used the actual opex it incurred in 2015 as the base for forecasting its opex for the 2018–22 access arrangement period. After excluding expenditure for debt raising costs (which it proposed be forecast as category specific forecasts) and removing movements in provisions, AusNet proposed a base opex of \$257.5 million (\$2017).
- AusNet did not adopt our standard approach to calculate the final year increment (the starting point for its forecast). Instead it applied its forecast rate of change to the base year. This increased its opex forecast by \$3.8 million (\$2017).
- AusNet's forecast rate of change increased its total opex forecast by \$17.1 million (\$2017). This was attributable to output growth of \$10.4 million (\$2017) and real input price growth of \$6.7 million (\$2017). It did not forecast any productivity growth.
- AusNet proposed two step changes totalling \$22.3 million (\$2017) or 7.3 per cent of its total opex. These were for:
 - gas marketing (\$21.9 million, \$2017)
 - ring-main pigging (\$0.4 million, \$2017).
- AusNet forecast debt raising costs of \$4.1 million (\$2017). It did not forecast any other category specific forecasts.

7.2.1 Submissions on AusNet's proposal

We received several submissions relating to AusNet's opex proposal. These were from the Consumer Challenge Panel (CCP11), United Communities, Origin Energy and AGL.⁶ They hold varying views of the proposed marketing step change. In addition, CCP11 did not support the step change for inline inspection of the pipeline.⁷ We have had regard to these views in our assessment of AusNet's proposed step changes in section 7.4.3.

Origin Energy also submitted that AusNet's customer numbers and gas throughput forecasts were reasonable.⁸

7.3 Our assessment approach

Our role is to decide whether or not to accept a business' forecast opex. We approve the business' forecast opex if we are satisfied that it is consistent with the opex criteria:

Operating expenditure must be as such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services.⁹

In reviewing whether forecast opex is consistent with the opex criteria we also apply the forecasting and estimate requirements under the NGR:

A forecast or estimate must be arrived at on a reasonable basis and must represent the best forecast or estimate possible in the circumstances.¹⁰

Our approach is to assess the business' forecast opex over the access arrangement period at a total level, rather than to assess individual opex projects. To do so, we develop an alternative estimate of total opex using a 'top-down' forecasting method, known as the 'base-step-trend' approach.¹¹ The advantage of this forecasting approach is that it largely relies on the business' aggregate historic ('revealed') cost that is shown to be sufficient for the business to operate under its existing regulatory obligations. This contrasts with building a total opex forecast from the 'bottom up' using individual opex category or project forecasts. The disadvantage of the bottom-up approach is that it is more susceptible to forecasting risk given the business has an incentive to inflate its forecasts.

⁶ Although United Communities' submission focuses on AGN's access arrangement proposal, its view on AGN's marketing step change is relevant to AusNet and Multinet's proposed step change, given the distributors have proposed a joint marketing campaign.

⁷ Consumer Challenge Panel (CCP) (sub-panel 11), *Response to proposals from AGN, AusNet and Multinet for a revenue reset/access arrangement for the period 2018 to 2022*, March 2017, p. 10.

⁸ Origin Energy, *Victorian gas access arrangement review 2018–22—Response to gas distribution businesses' proposals*, 10 March 2017, p. 2.

⁹ NGR, rr. 91 and 40(2).

¹⁰ NGR, r 74(2).

¹¹ A 'top-down' approach forecasts total opex at an aggregate level, rather than forecasting individual projects or categories to build a total opex forecast from the 'bottom up'.

We compare our alternative estimate with the business' total opex forecast to form a view on the reasonableness of the business' proposal. If we are satisfied the business' total forecast meets the NGR requirements, we accept the forecast. If we are not satisfied, we substitute the business' forecast with our alternative estimate.

In making this decision, we take into account the reasons for the difference between our alternative estimate and the business' forecast, and the materiality of that difference. We also take into consideration the interrelationships between the opex forecast and other constituent components of our decision such that our decision is likely to contribute to the achievement of the NGO.¹²

7.3.1 Incentive regulation and the 'top-down' approach

A key feature of the regulatory framework is that it is based on incentivising networks to be as efficient as possible. We apply incentive-based revenue regulation across the energy networks we regulate, including gas networks. More specifically for opex, we rely on the efficiency incentives created by both revenue or price-cap regulation and the efficiency carryover mechanism.

Incentive regulation is designed to prevent network businesses from exploiting their natural monopoly position by setting prices in excess of efficient costs.¹³ It also provides an incentive for network businesses to minimise costs. Incentive regulation is intended to align the commercial goals of the network businesses to the objectives of the regulatory regime—especially the long term interests of consumers (the NGO).

The Productivity Commission explains:

Under incentive regulation, the regulator forecasts efficient aggregate costs over the upcoming regulatory period (of usually five years), which it uses to set a revenue allowance for that period. The business makes higher profits if it reduces costs below those forecast by the regulator. In doing so, the business reveals the efficient costs of delivering the service, which would then influence the regulator's determination in the next period. Accordingly, incentive regulation encourages efficiency while reducing the risks that networks use their monopoly positions to set unreasonably high prices.¹⁴

This incentive-based regulatory framework partially overcomes the information asymmetries between the regulated businesses and us, the regulator.¹⁵ Compared to the regulated businesses, we are at an information disadvantage to identify specific inefficiencies they have or their true efficient costs. However, as the regulator, we need to make judgements about their 'efficient' costs.¹⁶

¹² NGL, s28(1).

¹³ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 188.

¹⁴ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 27.

¹⁵ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 189.

¹⁶ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 190.

Incentive regulation encourages regulated businesses to reduce costs below forecast levels and 'reveal' their efficient costs in doing so. The information revealed by the businesses allows us to develop better expenditure forecasts over time. Revealed opex reflects the efficiency gains made by a business over time. As a network business becomes more efficient, this translates to lower forecasts of opex in future regulatory periods, which means consumers also receive the benefits of the efficiency gains made by the business. Incentive regulation therefore aligns the business' commercial interests with consumer interests.

Incentive regulation is designed to leave the day-to-day decisions to the network businesses.¹⁷ It allows the network businesses the flexibility to manage their assets and labour as they see fit to comply with the opex criteria and achieve the NGO.

Our decision does not set the business' actual operating budget over the access arrangement period. We assess whether opex *in aggregate* is sufficient to satisfy the opex criteria, not the increases or decreases of individual opex activities. We do not determine what opex activities a network business should undertake or how much it should spend on particular categories of opex. It is for the business to decide which suite of projects and programs it should undertake to deliver services to its customers while meeting its obligations. If an opex project does not produce a net benefit to the business, and there is no obligation, the business is unlikely to have an incentive to undertake that opex project.

7.3.2 Building an alternative estimate of total forecast opex

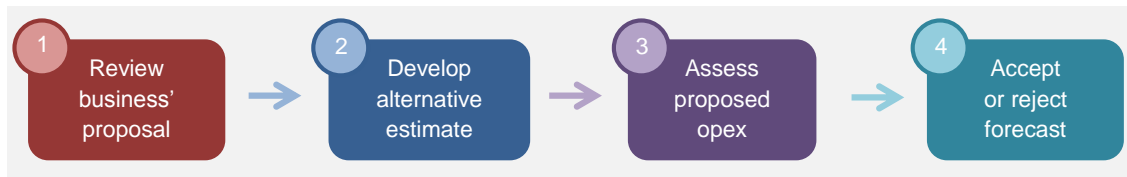
As a comparison tool to assess a business' opex forecast, we develop an alternative estimate of the business' total opex requirements in the forecast period, using the base-step-trend forecasting approach.

If the business adopts a different forecasting approach to derive its opex forecast, we assess the basis for those differences, and whether the opex forecast is the best forecast or estimate possible in the circumstances.

There are three broad stages to the base-step-trend approach, as summarised in Figure 7.3.

¹⁷ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, pp.27-28.

Figure 7.3 Our opex assessment approach



1. Review business' proposal



We review the business' proposal and identify the key drivers.

2. Develop alternative estimate

Base

We use the business' opex in a recent year as a starting point (revealed opex). We assess the revealed opex (e.g. through benchmarking) to test whether it is efficient. If we find it to be efficient, we accept it. If we find it to be materially inefficient we may make an efficiency adjustment.

Trend

We trend base opex forward by applying a forecast 'rate of change' to account for growth in input prices, output and productivity.

Step

We add or subtract any step changes for costs not compensated by base opex and the rate of change (i.e. costs associated with regulatory obligation changes or capex/opex substitutions).

Other

We include a 'category specific forecast' for any opex component that we consider necessary to be forecast separately.

3. Assess proposed opex



We contrast our alternative estimate with the business' opex proposal. We identify all drivers of differences between our alternative estimate and the business' opex forecast. We consider each driver of difference between the two estimates and go back and adjust our alternative estimate if we consider it necessary.

4. Accept or reject forecast



We use our alternative estimate to test whether we are satisfied the business' opex forecast meets the opex criteria and other NGR requirements. We accept the proposal if we are satisfied.



If we are not satisfied the business' opex forecast meets the opex criteria and other NGR requirements we substitute it with our alternative estimate.

7.3.2.1 Base opex

We use the business' actual opex in a single year as the starting point for our alternative estimate. This is the base opex.

We rely on the incentives under revenue regulation and any applicable efficiency incentive scheme to determine whether a business' 'revealed' opex is efficient.¹⁸ We also assess the evidence the business submits to demonstrate the efficiency of its base opex. To the extent that it is available, we may use benchmarking to test the efficiency of the base opex. Benchmarking is a way of determining how well a network business is performing against its peers and over time, and provides valuable information on what is 'best practice'.

If there are indications the business' revealed opex is inefficient, we may apply an efficiency adjustment to derive a base opex that complies with the opex criteria.

We consider revealed opex in the base year is generally a good indicator of opex requirements over the next period because the level of *total opex* is relatively stable over time. This reflects the broadly predictable and recurrent nature of opex.

A business may experience fluctuations in particular categories of opex, and the composition of total opex can change, from year-to-year. While many operation and maintenance activities are recurrent and non-volatile, some opex projects follow periodic cycles that may or may not occur in any given year, and some opex projects are non-recurrent.

Even if disaggregated opex categories have high volatility, total opex varies to a lesser extent because new or increasing components of opex are generally offset by decreasing costs or discontinued opex projects. To the extent they do not offset each other, we expect the regulated business to manage the inevitable 'ups and downs' in the components of opex from year-to-year, by continually re-prioritising its work program, as would be expected in a competitive market.

We also note that any volatility of total opex from year-to-year does not typically impact our choice of the appropriate base year. A consequence of the operation of the efficiency carryover mechanism is that the forecast opex allowance (including efficiency carryover mechanism rewards and penalties) is largely uninfluenced by the choice of base year. For example, although using a base year with unusually high opex would typically result in an increased opex forecast, this would be offset by a lower efficiency carryover mechanism reward (or a greater penalty).

If the business has demonstrated its ability to satisfy its obligations and service demand using its revealed costs, any further adjustments to base opex risk introducing bias into the forecast—including through bottom-up type assessments. We therefore carefully scrutinise any such proposed adjustments.

¹⁸ NGR, r. 71(1). We may infer opex is efficient without embarking on a detailed investigation, from the operation of an incentive mechanism.

7.3.2.2 Rate of change

We trend base opex forward by applying our forecast 'rate of change'. We estimate the rate of change by forecasting the expected growth in input prices, outputs and productivity. We consider the rate of change should capture almost all drivers of opex growth.

We forecast input price growth using a composition of labour and non-labour price change forecasts. To determine the input price weights for labour and non-labour prices we have regard to the input price weights of a prudent and efficient benchmark business. Consistent with incentive regulation, this provides the business an incentive to adopt the most efficient mix of inputs throughout the access arrangement period but does not prevent the business from adopting its own mix of inputs.

We forecast output growth to account for annual increase in output. The output measures used should be the same measures used to forecast productivity growth. Productivity measures the change in output for a given amount of input. If the output measures differ from the productivity measures, they would be internally inconsistent and we cannot compare them like for like.

Our forecast of productivity growth represents our best estimate of the shift in the industry 'efficiency frontier'. We generally base our estimate of productivity growth on recent productivity trends. Where we consider historic productivity growth does not represent 'business-as-usual' conditions we do not use it to forecast future productivity growth.

7.3.2.3 Step changes and category-specific forecasts

Lastly, we add or subtract any components of opex that are not adequately compensated for in base opex or the rate of change, but which should be included so that the forecast total opex meets the opex criteria. These adjustments are in the form of 'step changes' or 'category-specific forecasts'.

Step changes

Step change costs included in the total opex forecast are subject to the efficiency carryover mechanism.

Step changes should not double count costs included in other elements of the opex forecast. For example, the costs of increased volume or scale may have been accounted for in the output growth component in the rate of change and as such, should not be accommodated through a step change. Similarly, incremental changes in regulatory obligations may have been compensated through a lower productivity estimate that accounts for high costs associated with changed obligations.

To increase its opex forecast, a regulated business has an incentive to identify new costs not reflected in base opex or increasing costs within base opex, but has no corresponding incentive to identify those costs that are decreasing or non-recurrent. Information asymmetries make it difficult for us to identify those future diminishing costs. Therefore, simply demonstrating that a new cost will be incurred—that is, a cost

that was not incurred in the base year—is not sufficient justification for introducing a step change. There is a risk that including such costs would upwardly bias the total opex forecast.

The test we apply is whether the step change is needed for the opex forecast to comply with the opex criteria. Our starting position is that only exceptional circumstances would warrant the inclusion of a step change in the opex forecast because they may change a business' fundamental opex requirements. Two typical examples are:

- a material change in the business' regulatory obligations
- an efficient and prudent capex/opex substitution opportunity.

We may accept a step change if a material 'step up' or 'step down' in expenditure is required by a network business to prudently and efficiently comply with a new, binding regulatory obligation that is not reflected in the productivity growth forecast. This does not include instances where a business has identified a different approach to comply with its existing regulatory obligations that may be more onerous, or where there is increasing compliance risks or costs the business must incur to comply with its regulatory obligations. Usually when a new regulatory obligation is imposed on a business, it will incur additional expenditure to comply. The business may be expected to continue incurring such costs associated with the new regulatory obligation into future regulatory periods; hence an increase in its opex forecast may be warranted.

We expect the business to provide evidence demonstrating the material impact the change of regulatory obligation has on its opex requirements, and robust cost–benefit analysis to demonstrate the proposed step change expenditure is prudent and efficient to meet the change in regulatory obligations. In particular, we will consider cost estimates incorporated in the relevant Regulatory Impact Statement (RIS). A RIS is generally required by governments to justify any new regulation, or amendments to existing regulations, that are likely to impose a measurable impact on businesses, community organisations and/or individuals.

By contrast, proposed opex projects designed to improve the operation of the business, which we consider as discretionary in the absence of any legal requirement, should be funded by base opex and trend components, together with any savings or increased revenue that they generate—rather than through a step change. Otherwise, the business would benefit from a higher opex forecast *and* the efficiency gains.

We may also accept a step change in circumstances where it is prudent and efficient for a network business to increase opex in order to reduce capital costs. We would typically expect such capex/opex trade-off step changes to be associated with replacement expenditure. The business should provide robust cost–benefit analysis to clearly demonstrate how increased opex would be more than offset by capex savings.

In the absence of a change to regulatory obligations or a legitimate capex/opex trade-off opportunity, we would accept a step change under limited circumstances. We would consider whether the costs associated with the step change are unavoidable and material—such that base opex, trended forward by the forecast rate of change, would

be insufficient for the business to recover its efficient and prudent costs. We would also consider whether the costs of a proposed step change will continue to be incurred by the business in future regulatory periods.

Category specific forecasts

A category specific forecast is a forecast of an opex item or activity that is assessed and forecast independently from base opex, and is not subject to the efficiency carryover mechanism.

A category specific forecast may be justified if 'the future path of the expenditure category is of such a magnitude that the observed historical stability of total opex is likely to change as a result of expected changes to the relevant opex category.'¹⁹ In other words, a category specific forecast may be justified if, as a result of including a specific opex category in the base opex, the total opex becomes so volatile that it no longer follows a predictable path over time.

We may also use category specific forecasts to avoid inconsistency or double counting within our regulatory decision. For example, we typically include category specific forecasts for debt raising costs. This provides consistency with the forecast of cost of debt in the rate of return building block of approved revenue.

Absent such exceptions, we expect that base opex, trended forward by the rate of change, will allow the business to recover its prudent and efficient costs. Again, the business has demonstrated its ability to operate prudently and efficiently at that level of opex while meeting its existing regulatory obligations, including its safety and reliability standards. We consider it is reasonable to expect the same outcome looking forward. Some costs may go up, and some costs may go down—so despite potential volatility in the cost of certain individual opex activities, total opex is generally relatively stable over time. And for similar reasons as noted above in relation to step changes, we consider providing a category specific forecast for opex items identified by the business may upwardly bias the total opex forecast.

By applying our revealed cost approach consistently and carefully scrutinising any further adjustments, we avoid this potential bias.

Minimising the number of costs forecast on a category specific basis also helps to simplify our expenditure assessments and allows for greater consistency across our regulatory determinations. This promotes regulatory certainty, and allows consumers and other stakeholders to more readily engage in our regulatory processes. A core objective of our Stakeholder Engagement Framework is to make our assessment approach and decisions accessible to a wide ranging audience.²⁰

¹⁹ Frontier Economics, *Opex forecasting method: A report prepared for TransGrid*, December 2014, p. 8.

²⁰ AER, *Stakeholder Engagement Framework*, p. 1; AER network revenue determination engagement protocol: version 1.0, p. 3.

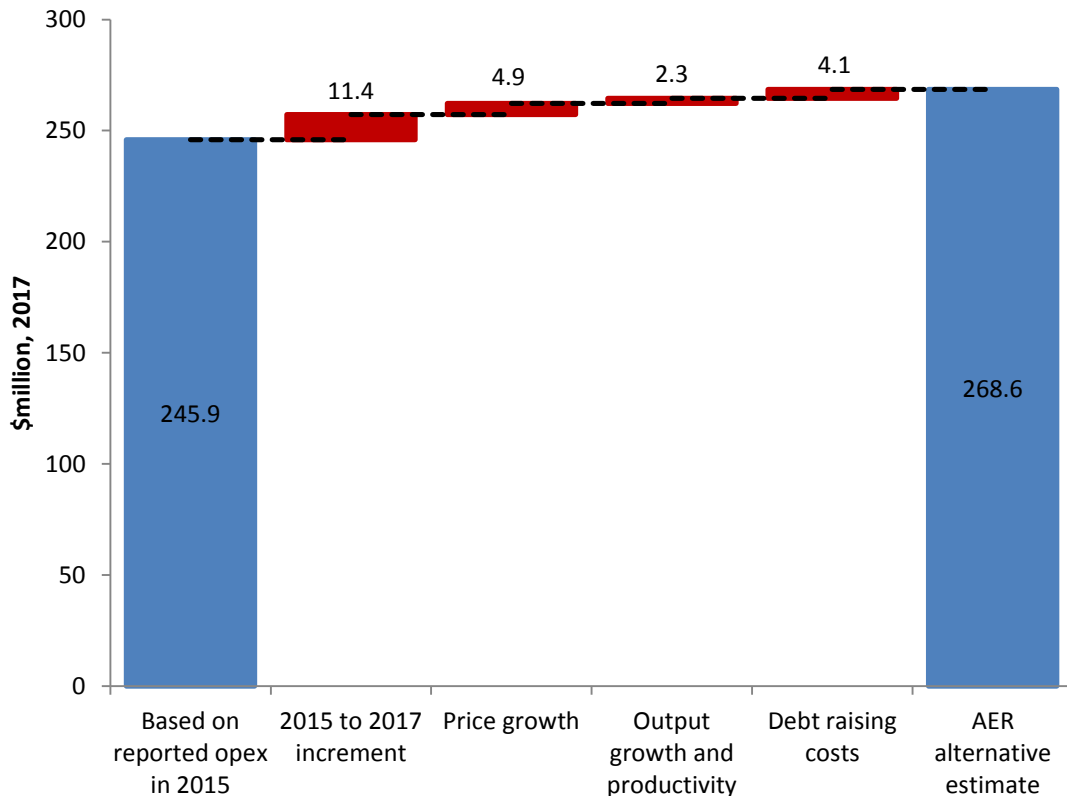
7.4 Reasons for draft decision

Our draft decision is to not accept AusNet's total opex forecast of \$304.8 million (\$2017) for the 2018–22 access arrangement period.²¹ We are not satisfied AusNet's forecast opex complies with the opex criteria²² and the requirements for forecasts and estimates.²³

Our alternative estimate of total opex is \$268.6 million (\$2017), which we consider complies with the opex criteria.²⁴ This is \$36.2 million (\$2017) or 11.9 per cent lower than AusNet's proposed opex.

The following sections outline the key inputs and assumptions we made in developing our alternative estimate of efficient costs for 2018–22. Figure 7.4 illustrates how we constructed our forecast. The starting point on the left is what AusNet's opex would be if it was based on AusNet's opex in 2015.²⁵

Figure 7.4 Our alternative estimate of total opex (\$ million, 2017)



Source: AER draft decision opex model.

²¹ Includes debt raising costs.

²² NGR, r. 91.

²³ NGR, r. 74.

²⁴ Includes debt raising costs.

²⁵ The estimated opex in 2017 is based on AusNet's reported opex in 2015 adjusted for movements in provisions.

Table 7.2 below, presents the components our alternative estimate compared to AusNet's proposal. It shows the key differences are:

- we corrected the base year to adjust for movement in provisions and UAFG payments (–\$11.6 million, \$2017)
- we did not include any proposed step changes (–\$22.3 million, \$2017), including the gas marketing step change
- we forecast 2017 opex to reflect the difference in the approved allowance between 2015 to 2017²⁶ (\$7.6 million, \$2017)
- we included a lower rate of change to account for growth in prices, outputs and productivity (–\$9.9 million, \$2017).

Table 7.2 Our alternative estimate compared to AusNet's proposal (\$ million, 2017)

	AusNet	Our alternative estimate	Difference
Based on reported opex in 2015	257.6	245.9	–11.6
2015 to 2017 increment	3.8	11.4	7.6
Price growth	6.7	4.9	–1.8
Output growth and productivity	10.4	2.3	–8.0
Step changes	22.3	0.0	–22.3
Debt raising costs	4.1	4.1	0.0
Total opex	304.8	268.6	–36.2

Source: AusNet's proposed opex model, AER draft decision opex model.

Note: Base opex excludes movements in provisions. Numbers may not add due to rounding.

We discuss the components of our alternative estimate below. Full details of our alternative estimate are set out in our opex model, which is available on our website.

7.4.1 Base opex

We do not accept AusNet's proposed 2015 base year expenditure of \$51.5 million (\$2017). Our alternative estimate adopts base year expenditure of \$49.2 million (\$2017), which produces a base opex amount of \$245.9 million (\$2017).

We relied on AusNet's reported opex in 2015 to forecast its opex for the 2018–22 access arrangement period, consistent with AusNet's proposal. We are satisfied AusNet's proposed 2015 base year reflects AusNet's year-to-year opex requirements

²⁶ As determined in the AER Final decision for AusNet Services (SP AusNet) access arrangement 2013–17.

and there is no evidence to suggest AusNet's revealed expenditure is materially inefficient.

However, we do not consider AusNet's proposed 2015 base year expenditure of \$51.5 million (\$2017) is a reasonable estimate of its efficient opex for the purpose of forecasting opex for the 2018–22 access arrangement period. This is primarily because AusNet did not incorporate the correct adjustments for movements in provisions and UAFG payments.

Which year should be used as the base year?

We consider AusNet's proposed base year of 2015 provides a reasonable basis for forecasting total opex. The actual opex incurred in 2015 is similar to the opex reported in previous years and there is no evidence to suggest AusNet's expenditure drivers will change materially in the forecast period compared to those in 2015.

Also, by operation of the efficiency carryover mechanism (ECM), the choice of base year has little effect on the total revenue allowance. The ECM calculation will use the same base year as the opex forecast such that any changes in the opex forecast relating to the choice of base year will be offset by a corresponding change in the ECM incentive payment.

As such, we adopted AusNet's 2015 reported opex as the base year expenditure in our alternative estimate.

Is base year opex efficient?

AusNet is subject to the incentives of an ex ante regulatory framework, including the application of an efficiency carryover mechanism for opex. Typically, where a service provider is subject to these incentives, we are satisfied there is a continuous incentive for a service provider to make efficiency gains and it does not have an incentive to increase its opex in the proposed base year.²⁷

We have considered benchmarking undertaken by Economic Insights, which was engaged by the three Victorian gas distribution businesses to assess the efficiency of their base year expenditure.²⁸ Economic Insights considered that AusNet is at or below the average opex per customer for gas distribution businesses with relatively high customer density.

Benchmarking is a way of determining how well a network business is performing against its peers and over time, and provides valuable information on what is 'best practice'. We note that unlike with the electricity network service providers, we do not have readily available standardised data for the gas service providers to conduct our

²⁷ NGR, r.71(1).

²⁸ Economic Insights, *Benchmarking the Victorian Gas Distribution Businesses' Operating and Capital Costs Using Partial Productivity Indicators*, report prepared for AusNet Services, Australian Gas Networks Limited and Multinet Gas, 15 June 2016, p iii. (Appendix 7B in AusNet Services access arrangement information, December 2016)

own economic benchmarking or category analysis to assess the efficiency of the revealed base year costs.

Although Economic Insights suggests that AusNet's use of opex inputs is likely to be among the more efficient in the sample, it states the comparison does not control for other opex cost drivers that may be relevant and care needs to be taken when drawing inferences.²⁹

We consider conclusions from the benchmarking undertaken by Economic Insights should be treated with caution. The benchmarking exercise is limited by the small sample size of gas distribution businesses and it is difficult to test some of the underlying data sources—among other things. In light of this, we have given limited weight to Economic Insight's benchmarking and conclusions. However, as set out above, and in the absence of any evidence to the contrary, we are satisfied that the 2016 base year opex is efficient.

Movements in provisions

In its proposal, AusNet removed some but not all movements in provisions attributable to opex in 2015. We typically assess base year expenditure exclusive of any movements in provisions that occur in the base year so our alternative estimate is based on actual costs incurred by the business, and not provisions the business set aside for liabilities it has yet to pay out.

In a response to an information request, AusNet confirmed that the movement in provisions attributable to opex for 2015 was \$3.97 million (nominal) instead of the \$8395 (nominal) it removed from base year opex.³⁰

Accordingly, we have removed the total movement in provisions attributable to opex in 2015 as acknowledged by AusNet.

Unaccounted for gas incentive payments

Unaccounted for gas (UAFG) refers to the difference between the quantity of gas delivered into and out of the distribution system. UAFG may be attributable to gas leakage or inaccurate gas measurement. The Essential Services Commission of Victoria sets a UAFG 'benchmark' within which AusNet is expected to operate.³¹ To provide an incentive for AusNet to minimise gas losses, it incurs a penalty if UAFG is in excess of the benchmark and receives a reward if it falls under the benchmark. To preserve this incentive, the business itself should incur the penalty or keep the reward, not consumers.

²⁹ Economic Insights, *Benchmarking the Victorian Gas Distribution Businesses' Operating and Capital Costs Using Partial Productivity Indicators*, report prepared for AusNet Services, Australian Gas Networks Limited and Multinet Gas, 15 June 2016, p 9. (Appendix 7B in AusNet Services access arrangement information, December 2016).

³⁰ AusNet Services, *IR #14 - Base opex and ECM - Response to Q1*, April 2017, pp. 2-3.

³¹ Essential Services Commission, *Gas Distribution System Code, Version 11.0*, October 2014, p.4.

Accordingly, we do not include any UAFG penalty or reward AusNet receives in the base year expenditure for forecasting purposes.

In a response to an information request, AusNet advised that UAFG costs were included in its total reported opex for 2015 and it had received \$1.7 million (nominal) under the UAFG incentive scheme in 2015.³²

We have excluded the effects of the UAFG reward in the base year expenditure. AusNet also agreed that we should remove UAFG costs from actual opex in the efficiency carryover mechanism model.³³

Licence fees

In the 2013–17 access arrangement period, AusNet recovered the annual licence fee it pays to the Essential Services Commission through a licence fee factor in the reference tariff variation mechanism.³⁴

In its 2018–22 access arrangement proposal, AusNet again proposed a licence fee factor in the reference tariff variation mechanism, but also included this expenditure in its base year opex.³⁵ We consider this approach would allow AusNet to effectively recover these costs twice.

Given licence costs are relatively stable from year-to-year, as acknowledged by AusNet;³⁶ we consider it appropriate for AusNet to recover these costs as a base opex component, rather than through the licence fee factor. Accordingly, we have excluded the licence fee factor from the tariff variation formula.

As noted, AusNet included licence fees in its proposed base year opex. It is therefore unnecessary to make any adjustment to the base year opex to account for licence fees.

Estimate of final year opex

To derive a base opex, we need to estimate opex for the final year of the current period because we do not know actual opex at the time of the final decision. It is important our final year estimate is the same as that used in the efficiency carryover mechanism. This allows the service provider to retain incremental efficiency gains made after the base year through its opex forecast. Accordingly, we estimate 2017 expenditure in both models to be equal to:

$$A_{2017}^* = F_{2017} - (F_{base} - A_{base}) + \text{non-recurrent efficiency gain}_{base}$$

³² AusNet Services, *IR #17 Opex UAFG - Response*, May 2017, p. 1.

³³ AusNet Services, *IR#17 Opex UAFG - Response*, May 2017, p. 1.

³⁴ AER, *SP AusNet access arrangement - Part B Reference tariffs and reference tariff policy*, 29 April 2013, pp. 9-10 and 13-14. The reference tariff variation mechanism comprises the mechanisms and processes for varying reference tariffs during the access arrangement period and may allow for cost pass through of specific costs.

³⁵ AusNet Services, *IR#14 -Base opex and ECM - Response to Q2 and Q3*, April 2017, p.2.

³⁶ AusNet Services, *IR#14 -Base opex and ECM - Response to Q2 and Q3*, April 2017, p.2.

Where:

- A_{2017}^* is the best estimate of actual opex for the final year of the 2013–17 period
- F_{2017} is the allowed opex forecast for the final year of the 2013–17 period
- F_{base} is the allowed opex forecast for the base year
- A_{base} is the amount of actual opex in the base year
- non-recurrent efficiency gain_{base} is the non-recurrent efficiency gain in the base year.

AusNet did not apply this formula to estimate final year opex. Instead it estimated final year opex by applying its forecast rate of change for the 2018–22 access arrangement period to the base year.

To ensure we provide AusNet a continuous incentive to reduce opex, the rate of change formula should apply from the final year and not the base year. We applied this approach which increased our alternative estimate by \$7.6 million (\$2017) compared to AusNet's approach.

7.4.2 Rate of change

Once we estimate opex in the final year of the current period, we apply a forecast annual rate of change to forecast opex for the 2018–22 access arrangement period.

We applied a forecast average annual rate of change of 1.3 per cent to derive our alternative estimate. This is lower than AusNet's forecast of 2.2 per cent. We compare both forecasts in table 7.3.

Table 7.3 Forecast annual rate of change in opex (per cent)

	2018	2019	2020	2021	2022
AusNet proposed					
Input prices	0.67	0.76	0.94	1.15	1.28
Output growth and productivity	1.15	1.49	1.45	1.33	0.96
Total	1.82	2.26	2.40	2.50	2.25
AER draft decision					
Input prices	0.52	0.58	0.66	0.81	0.89
Output growth and productivity	-1.38	1.17	1.23	1.10	0.72
Total	-0.87	1.76	1.90	1.92	1.61

Source: AER analysis; AusNet Services, *Access arrangement proposal*, opex model, 16 December 2016.

Note: The rate of change = $(1 + \text{price growth}) \times (1 + \text{output growth}) \times (1 + \text{productivity growth}) - 1$.

The difference between our forecast rate of change and AusNet's is driven by:

- a different approach to forecast price growth

- a different approach to forecast output growth net of productivity.

7.4.2.1 Forecast price growth

We forecast real average annual price growth of 0.7 per cent (or \$4.9 million over five years).

We are not satisfied AusNet's proposed average annual price growth of 1.0 per cent was arrived at on a reasonable basis or represents the best estimate possible in the circumstances.³⁷ We consider AusNet's approach to forecast labour price growth is inconsistent with providing effective incentives in order to promote economic efficiency through the adoption of an efficient input mix.³⁸

To forecast labour price growth, we used the average of the most up-to-date Victorian utilities WPI forecasts from Deloitte Access Economics (DAE) and BIS Shrapnel. AusNet adopted the same approach.³⁹ However, since AusNet submitted its proposal, DAE has updated its WPI forecasts.⁴⁰ We used the updated DAE forecast in our calculation of labour price growth.

To forecast non-labour price growth, both we and AusNet applied the forecast change in CPI.

However, we applied a different approach to AusNet in determining the labour and non-labour weights for opex price growth. We have applied benchmark input price weights of 62 per cent and 38 per cent for labour and non-labour respectively. By contrast, AusNet applied firm specific weights of 83 per cent for labour and 17 per cent for non-labour.⁴¹

The benchmark input price weights we applied reflect the efficient mix of labour services and other costs required to provide network services.⁴² This approach is consistent with the revenue and pricing principles, as it provides regulated network businesses with effective incentives in order to promote economic efficiency.⁴³

AusNet's approach, using its actual input price weights, distorts the incentive to use the most efficient mix of labour and non-labour inputs. AusNet also used different input price weights in its price growth forecasts than in its productivity growth forecast, which further biases its opex forecast.

³⁷ NGR r. 74.

³⁸ NGL, s. 24(3).

³⁹ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 160.

⁴⁰ Deloitte Access Economics, *Labour price forecasts*, 6 February 2017.

⁴¹ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 161.

⁴² We addressed these issues in our recent determination decision for AusNet Services electricity transmission. For more details, see: AER, *Final decision AusNet Services transmission determination 2017–22 - Attachment 7 - Operating expenditure*, April 2017, pp. 7-30 to 7-32.

⁴³ NGL, s. 24(3).

In our revealed cost forecasting approach, it is important that the past performance of a network business does not influence the rate of change used to trend forward the base year revealed opex. By basing the rate of change forecast on its past performance, including its past input mix, AusNet has not adopted the most efficient mix of labour and non-labour inputs. AusNet's approach discourages the use of inputs that are increasing more rapidly in price, as it reduces the forecast rate of change in the following period.

Further, there is an internal inconsistency in AusNet's proposal. It applied firm specific weights to forecast price change. However, it relied on reports that used our benchmark weights—the 2016 Economic Insights' productivity reports and our 2015 annual benchmarking report for electricity distribution networks—to infer its proposed productivity growth for the 2018–22 access arrangement period.⁴⁴ As a result, AusNet applied a different, and higher, labour price weighting to forecast price growth, than it did to forecast productivity growth. Apart from being logically inconsistent, this creates a bias. Using a higher labour share of opex in its historical productivity analysis would have produced a higher partial productivity growth rate. This in turn would have increased forecast productivity growth in the rate of change formula.⁴⁵

AusNet stated our benchmark weights are out-dated because they are based on the Pacific Economics Group's (PEG) analysis that is now 12 years old.⁴⁶ However, we maintain that the specific weights we have adopted, 62 per cent for labour and 38 per cent for non-labour, remain the best available. This is supported by Economic Insights, which found the PEG analysis remains the most detailed attempt to identify a representative price index for network services providers' opex in Australia.⁴⁷ While PEG's analysis primarily relied on a sample of electricity distribution businesses' data in Victoria, the nature of these businesses is broadly similar to that of gas distribution operations.⁴⁸ We therefore accept Economic Insights' finding and apply the benchmark weights to derive our alternative estimate.

We note that AusNet did not submit that our benchmark input price weights do not reflect the input mix of an efficient benchmark firm. It only stated that these benchmark input price weights do not reflect its input mix.

⁴⁴ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 163–165.

⁴⁵ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2016, p. 5.

⁴⁶ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 161.

⁴⁷ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2016, p. 3.

⁴⁸ Both are highly capital intensive with long-lived fixed structure assets transporting energy. Safety issues are critical to both and both involve connecting transmission systems with a small number of large users and reticulating to a large number of small users. Customer service, maintenance and response functions are broadly similar across gas distribution and DNSP operations. For more details, see: Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2016, p. 4.

7.4.2.2 Forecast output growth

We forecast real average annual output growth, net of productivity, of 0.6 per cent. This increases our alternative estimate by \$2.3 million (\$2017).

We are not satisfied AusNet's proposed average annual output growth, net of productivity, of 1.3 per cent, was made on a reasonable basis or results in the best forecast possible in the circumstances.⁴⁹ Applying this rate of output and productivity growth increased AusNet's total opex forecast by \$10.4 million (\$2017).

Table 7.4 compares AusNet's proposed output growth with that of the other two Victorian gas businesses, and shows AusNet's rate of output growth is substantially higher than the others.

Table 7.4 AusNet's proposed output growth in context

	Forecast approach	Impact on 5 year opex forecast \$m	Increase on base opex forecast per cent	Proposed average annual growth rate per cent
AusNet	Customer numbers 45 per cent, gas throughput 55 per cent	10.4	4.0	1.28
Multinet	Customer numbers 45 per cent, pipeline length 55 per cent	7.2	2.0	0.65
AGN	Customer numbers times cost per new customer	4.0	1.2	0.43

Source: Victorian gas access arrangement proposals.

We typically forecast output growth based on the forecast growth in a defined output measure, using econometric modelling. However, we do not have the necessary dataset for gas to undertake the modelling needed to determine a standard industry output specification. Therefore, we developed a test to determine whether the network businesses' forecast method provides a reasonable forecast of output growth. Our test established an acceptable range of forecast output growth based on cost functions estimated by Economic Insights⁵⁰ and ACIL Allen⁵¹. We consider this approach uses the best information available to provide a reasonable basis on which to establish an acceptable range.

When we tested AusNet's forecast average annual output growth, net of productivity growth, against the acceptable range of forecast output growth, it fell outside the acceptable range. In comparison, the other Victorian gas distributors' (AGN and Multinet) forecast average annual output growth fell within the acceptable range. These results are set out in Table 7.5.

⁴⁹ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 166, Table 7-6.

⁵⁰ Economic Insights, *Gas Distribution Businesses Opex Cost Function, Report prepared for Multinet Gas*, 22 August 2016

⁵¹ ACIL Allen Consulting, *Opex Partial Productivity Analysis, Report for AGN*, 20 December 2016.

Table 7.5 Comparison of AusNet's forecast output growth with the acceptable range of output growth net of productivity

	Proposed average annual growth rate, per cent	Acceptable range, average annual growth rate, per cent	Assessment
AusNet	1.28	-0.38 to 1.19	Above acceptable range
Multinet	0.65	-0.45 to 1.06	Within acceptable range
AGN	0.43	-0.57 to 1.59	Within acceptable range

Source: AER analysis.

Because AusNet's forecast output growth was higher than the acceptable range set by our test, we looked more closely at its forecasting method.

AusNet based its forecast output growth on a weighted average of forecast growth in customer numbers and energy throughput, applying weights of 45 per cent and 55 per cent respectively.⁵² It proposed zero productivity growth.⁵³

While AusNet stated it forecast output growth using energy throughput as one of its output specifications, we found it did not use *total* energy throughput. AusNet included residential and small commercial throughput in its measure of throughput but did not include industrial throughput. Because residential throughput and small commercial throughput are growing at a faster rate than industrial throughput, this upwardly biased its estimate. In other words, by excluding industrial throughput, AusNet's forecast output growth was higher than if it had used total throughput. Consequently, we do not consider AusNet's forecasting approach results in the best estimate of output growth in the circumstances.⁵⁴

To address this observed bias in AusNet's output growth forecast, we re-calculated it using total throughput, rather than just residential and small commercial throughput. This resulted in a lower average annual output growth rate, net of productivity growth, of 0.6 per cent rather than 1.3 per cent. This lower rate falls within the range established by our test.

Consequently, we consider an average annual output growth, net of productivity, of 0.6 per cent represents the best possible forecast in the circumstances.

⁵² AusNet Services, *Distribution gas access arrangement review proposal operating expenditure model*, December 2016, Assumptions, cell C40 and C41. This is the only place AusNet Services identifies the weights it applied to customer numbers and gas throughput.

⁵³ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 162.

⁵⁴ NGR r. 74.

Forecast productivity growth

We have implicitly accounted for productivity growth by including an output growth forecast which is net of productivity growth in our alternative estimate.

We consider network growth should deliver productivity gains such as economies of scale, particularly for operating costs.

Achieving productivity gains would be consistent with AusNet's past performance as well as that of other gas distribution businesses. According to the productivity performance study Economic Insights prepared for the three Victorian distribution businesses, positive opex partial factor productivity index performance improved for all three from 1999 to 2015, showing positive productivity growth.⁵⁵

We have also considered the report Economic Insights prepared for Multinet in estimating Multinet's opex cost function. Economic Insights found significant economies of scale as well as positive technological change. Both economies of scale and technological change are components of productivity change and they indicate the gas distribution businesses should achieve positive productivity growth, to the extent that output is forecast to grow.

Based on the results from Economic Insights and ACIL Allen, AusNet should be able to achieve opex partial factor productivity growth between 0.6 per cent and 1.6 per cent per year over the 2018–22 period. These forecasts of productivity growth are reflected in the models we used to establish the acceptable range of output growth net of productivity.

7.4.3 Step changes

We did not include any step changes proposed by AusNet when arriving at our alternative estimate. We are not satisfied step changes for the cost increases identified by AusNet are required to forecast opex that meets the opex criteria.

AusNet proposed step changes to undertake a marketing initiative (\$21.9 million, \$2017), and conduct in-line inspection of part of its gas transmission pipeline in 2021 (\$0.4 million, \$2017). Together these step changes constitute 7.3 per cent of AusNet's total opex forecast.

7.4.3.1 Marketing initiative

We have not included a step change of \$21.9 million (\$2017) for AusNet's proposed marketing initiative in our alternative estimate.

We consider base opex, trended forward by the forecast rate of change, is sufficient for AusNet to continue to meet its existing regulatory obligations. Marketing is a 'business-as-usual' expense for AusNet to consider within its existing base opex forecast. The

⁵⁵ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 167.

proposed step change does not relate to a change in regulatory obligation or a capex/opex trade-off. We are not satisfied we need to include a step change in our alternative estimate to comply with the opex criteria.

AusNet's proposed marketing step change

Together with the two other Victorian gas distribution service providers, AusNet proposed a joint marketing campaign totalling \$66.2 million in costs to counteract the projected decline in gas demand over the next access arrangement period.⁵⁶

AusNet submitted the driver of this step change is the net benefit to AusNet's customers in the form of lower average network prices, which are enabled by expected increases to customer numbers.⁵⁷ This would allow AusNet to spread its fixed costs over a larger customer base.

To support its marketing proposal, AusNet provided a consultancy report by Axiom Economics. Axiom Economics states:

- the marketing investment is 'NPV' (net present value) positive because the additional revenue from additional gas sales over multiple future access arrangement periods is projected to exceed the total cost of the marketing campaign to be incurred in 2018–22
- prices will rise in the first regulatory period, but will fall in future regulatory periods, with the price reduction in future periods being more than sufficient to offset the increase in the 2018–22 period.⁵⁸

Further, AusNet explains:

The regulatory framework does not provide incentives for an opex step change where the benefits span multiple access arrangement periods. Under the current framework, a service provider is incentivised to increase opex to drive demand and revenue increases if these increases fall principally within the same period. This is because revenue increases in subsequent periods that have been facilitated by the opex increase will be factored into the determination for that period (i.e. through higher demand forecasts and, consequently, lower prices). Accordingly, an opex step change is required to fund an opex increase associated with a step change where the benefits span multiple periods.⁵⁹

We have reconsidered our position on marketing from previous decisions

We have carefully re-examined and as a result, refined our approach to applying the opex criteria to marketing step changes within the NGL and NGR framework.

⁵⁶ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 167.

⁵⁷ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 167.

⁵⁸ Axiom Economics, *Consistency of the Victorian gas distribution joint marketing campaign with 91 of the NGR, A report prepared for AGN, AusNet Services and Multinet*, December 2016, pp. 7–8.

⁵⁹ AusNet Services, *Access arrangement information 2018–22*, December 2016, p. 173.

Our review of our approach to assessing marketing step changes is informed by our obligation to exercise our economic regulatory functions and powers in a manner that will or is likely to contribute to the achievement of the NGO.⁶⁰ The NGO is to promote efficient investment in, and efficient operation and use of natural gas services for the long term interests of consumers. It is also informed by the revenue and pricing principles, which we must take into account.

Our opex assessment framework, as set out in section 7.3, reflects these requirements. In particular, the revealed cost approach is consistent with the principle that a business should be provided with effective incentives to promote economic efficiency. And it recognises that a business should be provided with a reasonable opportunity to recover at least its efficient costs incurred in providing reference services, and complying with regulatory obligations and requirements.

Our approach identifies a sufficient level of opex a business requires, in aggregate, to meet the opex criteria. It provides for adjustments to the base year level of expenditure only where these are not adequately compensated for in base opex or the rate of change, and are required in order for forecast total opex to meet the opex criteria. It also recognises that the business will continually re-prioritise its work program to meet its obligations and maximise profitability. The business is therefore not limited in how it responds to its changing priorities and operating environment throughout an access arrangement period.

As we explain in section 7.3, allowing step changes for increased costs identified by a business—especially those that do not relate to a new regulatory obligation or requirement—potentially introduces an upward bias into our alternative estimate. Absent a new regulatory obligation or requirement, we consider only exceptional circumstances are likely to warrant a step change in the opex forecast because they may change a business' fundamental opex requirements going forward. Two typical examples are a material change in a business' regulatory obligations or an efficient capex/opex substitution opportunity. We carefully scrutinise proposed step changes that fall outside of these categories, such as this proposed marketing step change, to avoid the risk of upward bias.

Given the above regulatory context and on assessing the information before us, we have reconsidered our position from past decisions. In 2015, we accepted a marketing step change proposed by Jemena Gas Networks (JGN)⁶¹ on the basis that the marketing campaign could not be self-financed.⁶² We now consider that a business needs to demonstrate more than this because under the current regulatory framework, the business may benefit from using revealed costs to forecast future opex without disclosing what costs may go down. We also recognise that a business can choose to

⁶⁰ NGL, ss. 28(1)(a), 28(2).

⁶¹ AER, *Final Decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2015–20, Attachment 7- Operating expenditure*, June 2015, p. 24.

⁶² AER, *Draft Decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2015–20, Attachment 7- Operating expenditure*, November 2014, pp. 7–35 to 7–37.

prioritise marketing spending within its base opex, to the extent that it is efficient and prudent to do so. This is commercially viable under price cap regulation.⁶³

Importantly, we note that providing a step change does not in fact address the 'incentive problem' AusNet has identified. We consider AusNet is financially better off not investing in the marketing campaign, with or without a step change included in the opex forecast. A step change does not remove the constraint AusNet faces under the regulatory framework—that is, AusNet cannot necessarily retain the benefits of the marketing investment over multiple regulatory periods.

We are not satisfied the marketing step change is required to forecast opex that meets the opex criteria, based on our assessment of AusNet's proposal against our opex assessment framework, and our analysis of the forecast benefits of the marketing campaign to consumers—as discussed below.

Would consumers benefit from the marketing campaign?

Based on the information presented to us, we are not satisfied the marketing campaign is likely to benefit consumers. We have considered consumer and retailer views and the robustness of the NPV analysis AusNet submitted in support of its proposal. We have also taken into account the broader context of the proposed marketing campaign—the commencement of LNG exports from Queensland has put pressure on domestic gas prices and created supply risks.

We received submissions from retailers Origin Energy and AGL. AGL supported the marketing step change, noting it should drive more efficient use of the network over time.⁶⁴ Origin provided conditional support for a marketing step change, but suggested it be reviewed during the access arrangement to examine its effectiveness.⁶⁵ United Communities submitted that marketing is a legitimate opex, provided it is cost-effective with a *high* likelihood of reducing unit costs across the customer base.⁶⁶ However, it was unconvinced marketing costs are a legitimate step change, noting that marketing is not a new or unexpected expenditure, but a standard cost for most businesses.⁶⁷

The AER's Consumer Challenge Panel (CCP11) also recommended that we carefully assess the proposed step change. CCP11 recommended we give consideration to the level of demonstrated stakeholder support, and assess whether it is prudent to encourage new customers to connect to the gas network, and existing customers to renew gas appliances, at a time when wholesale gas prices and hence retail gas prices

⁶³ Under price cap regulation, a business has a financial incentive to increase demand more than its forecast, to gain additional revenue. Therefore, the business may invest in marketing to the extent that it generates more revenue than its marketing costs within one period.

⁶⁴ AGL Energy Ltd, *Submission to the AER on the Victorian gas access arrangement proposals*, March 2017, p. 1.

⁶⁵ Origin Energy, *Victorian Gas Access Arrangement Review 2018-22, Response to gas distribution businesses' proposals*, 17 February 2017, p. 4.

⁶⁶ United Communities, *No Shocks Access Arrangement Proposal - Submission to the AER regarding the AGN access arrangement proposal for Victoria Albury*, April 2017, pp. 6-7.

⁶⁷ United Communities, *No Shocks Access Arrangement Proposal - Submission to the AER regarding the AGN access arrangement proposal for Victoria Albury*, April 2017, p. 7.

are predicted to rise substantially. CCP11 submitted that marketing of gas and provision of appliance rebates may not be in the long term interests of individual consumers under the circumstances where it is not cost effective to connect a new home to mains gas with efficient electric appliances being an option.⁶⁸

Further, as the gas businesses have positioned their customers to be the main beneficiary of their marketing, we consider consumers' views are fundamental to our assessment—particularly when the costs to consumers in this access arrangement period are significant. AusNet did not provide evidence that its customers are willing to accept higher gas prices in the access arrangement period to fund the proposed marketing program.

CCP11 is of the view that none of the Victorian gas businesses have demonstrated they have the support of their customers for the proposed marketing expenditure.⁶⁹

CCP11 aptly highlighted the following views expressed by participants in AusNet's Energy Research Study conducted by Colmar Brunton:

The options of paying more now and less in future, or of today's customers paying more so that those in future can pay less are difficult for customers to form a view on. Those who were able to give an opinion were generally resistant to this approach due to both uncertainty about the future and a broader preference for even distribution of costs.⁷⁰

Taking into account CCP11's concerns, we have assessed the NPV analysis AusNet submitted. We consider two critical assumptions underlying Axiom Economics' NPV analysis are unreasonable and have the effect of substantially overstating the potential benefits of the marketing program. As such, we are not satisfied the NPV analysis is arrived at on a reasonable basis or represents the best forecast or estimate possible in the circumstances.⁷¹

First, Axiom Economics' analysis implicitly assumes that all rebates will necessarily be taken up by consumers who would not have otherwise purchased gas appliances. We consider this an unrealistic assumption. A certain number of gas appliances would be installed each year even without any rebates. It is therefore likely that some rebates will go to consumers who would have bought a new gas appliance anyway. The cost-effectiveness of the program depends strongly on the extent to which the program

⁶⁸ CCP (sub-panel 11), *Response to proposals from AGN, AusNet and Multinet for a revenue reset/access arrangement for the period 2018 to 2022*, March 2017, p. 57.

⁶⁹ CCP (sub-panel 11), *Response to proposals from AGN, AusNet and Multinet for a revenue reset/access arrangement for the period 2018 to 2022*, March 2017, p. 58.

⁷⁰ CCP (sub-panel 11), *Response to proposals from AGN, AusNet and Multinet for a revenue reset/access arrangement for the period 2018 to 2022*, March 2017, p. 57; AusNet Services, *Access Arrangement Information 2018–22, Appendix 5B, Energy Research Study 1: Report, prepared by Colmar Brunton Research*, May 2016, p.45.

⁷¹ NGR, r. 74(2).

stimulates new demand, rather than just subsidising demand that would occur anyway.⁷²

AusNet justified its assumption by relying on research undertaken on its behalf by Colmar Brunton, which states that '10% of current customers expect to disconnect from their current gas service sometime in the next 10 years. Of particular interest to the 2018–2022 forecast are the 4% of customers who expect to disconnect within the next five years.'⁷³

We do not consider this finding justifies the assumption that rebate recipients would, but for the rebate, always choose to install electric appliance otherwise. It is unclear from this research what proportion of AusNet's customers would replace their existing gas appliances or purchase additional gas appliances. Also, to the extent the rebate program encourages customers to replace old gas appliances with more efficient, new gas appliances, it will reduce the demand.

AusNet recognised 'in practice it is likely to be difficult to distinguish between those customers that would have purchased the appliance irrespective of the rebate, and those that would not have purchased the appliance'.⁷⁴ We acknowledge the difficulty of forecasting the number of rebates recipients who would choose to purchase gas appliances anyway. However, we consider that ignoring this possibility in the cost–benefit analysis would likely lead to a substantial overestimation of the incremental demand and revenue generated by the marketing campaign.

Second, Axiom Economics' analysis assumes that all rebates will be taken up by consumers who do not have any existing gas appliances connected.⁷⁵ The modelling indicates each rebate generates fixed connection charge revenue, which appears to imply that each rebate will stimulate one additional customer connection.

This is internally inconsistent with Axiom Economics' report which states only 5 per cent of the proposed appliance rebates would result in new connections⁷⁶ and:

[u]nder the proposed rebated program, the Victorian DBS would offer the following rebates to residential customers in metropolitan and regional areas that are looking to *replace existing gas appliances or purchase additional appliances ...*⁷⁷ [Emphasis added]

⁷² For example, if one out of two gas appliances is purchased by a consumer irrespective of the rebate program, the rebate costs required to achieve the additional demand as forecast in the Axiom Economics model would be doubled.

⁷³ AusNet Services, *Response to IR#12- Opex step change marketing campaign*, March 2016, p.3.

⁷⁴ AusNet Services, *Response to IR#12- Opex step change marketing campaign*, March 2016, p.5.

⁷⁵ Axiom Economics, *Consistency of the Victorian gas distribution joint marketing campaign with 91 of the NGR, A report prepared for AGN, AusNet Services and Multinet*, December 2016, p.44.

⁷⁶ Axiom Economics, *Consistency of the Victorian gas distribution joint marketing campaign with 91 of the NGR, A report prepared for AGN, AusNet Services and Multinet*, December 2016, p.32.

⁷⁷ Axiom Economics, *Consistency of the Victorian gas distribution joint marketing campaign with 91 of the NGR, A report prepared for AGN, AusNet Services and Multinet*, December 2016, p.27.

Under the Axiom Economics' modelling, each rebate is assumed to generate incremental revenue through additional variable charges and fixed connection charges. The fixed connection charges associated with new connections are a significant component of the forecast incremental revenue. Over-estimating the number of new connections will therefore result in a substantial over-estimation of the additional revenue arising from the marketing program.

Axiom Economics did not justify why it is reasonable to assume each rebate will necessarily result in a new connection. We expect the typical gas customer in Victoria has more than one gas appliance and we consider it is unrealistic to assume all customers who take up the rebates have no existing gas appliances installed, or will purchase only one gas appliance and not take up more than one rebate. Therefore, we consider the projected revenue flowing from fixed connection charges in the NPV analysis is overstated.

In summary, we consider Axiom Economics has overstated the benefits of the marketing program. Due to large variations in network prices across regions, the NPV of the marketing program varies widely from one region to another. We are concerned there is a high risk that the net benefit of the proposed marketing and the reduction in prices for consumers will not eventuate as forecast. The benefits to consumers are, at best, finely balanced. Moreover, apart from the NPV analysis, AusNet did not provide any evidence to demonstrate the effectiveness of similar marketing programs undertaken in other jurisdictions.⁷⁸ For these reasons, we consider the proposed marketing expenditure is not a cost that would be incurred by a prudent service provider acting efficiently.⁷⁹

7.4.3.2 Ring-main pigging

We have not included a step change of \$0.4 million (\$2017) in our alternative estimate to account for AusNet's proposed costs for pigging activity.

The regulatory obligation relating to in-line inspection of gas transmission pipelines is not a new one and the forecast cost of the pigging activity is not material. As noted by CCP11, neither AGN nor Multinet sought an opex step change for this project despite having to undertake the pigging operation in collaboration with AusNet.⁸⁰

CCP11 does not support AusNet's proposed step change for inline inspection of its pipeline. It does not believe special treatment of this project is necessary as there are many other routine maintenance activities included in base year opex that are

⁷⁸ CCP (sub-panel 11) , *Response to proposals from AGN, AusNet and Multinet for a revenue reset/access arrangement for the period 2018 to 2022*, March 2017, p. 60.

⁷⁹ NGR, r. 91.

⁸⁰ CCP (sub-panel 11) , *Response to proposals from AGN, AusNet and Multinet for a revenue reset/access arrangement for the period 2018 to 2022*, March 2017, p. 10.

performed on a time based cycle, which may not be carried out in the next period.⁸¹
We agree with CCP11.

We consider base opex, trended forward by the forecast rate of change, is sufficient for AusNet to continue to meet its existing regulatory obligations. We consider these ring-main pigging costs are a 'business-as-usual' expense that AusNet can prioritise within its existing base opex forecast. Our alternative estimate incorporates recurrent and non-recurrent opex items. Individual items of non-recurrent expenditure will rise and fall across an access arrangement period, offsetting each other, so total opex is generally observed to be relatively stable over time. Allowing for cost increases identified by the business—without considering those costs that are decreasing or discontinued—would upwardly bias the forecast of total opex.

7.4.4 Category specific forecasts

We included a category specific forecast for debt raising costs of \$4.1 million (\$2017). Debt raising costs are transaction costs a service provider incurs each time it raises or refinances debt. We forecast them based on a benchmarking approach rather than a service provider's actual costs for consistency with the forecast of the cost of debt in the rate of return building block. Further details are set out in the debt and equity raising costs appendix in the rate of return attachment.

7.4.5 Interrelationships

In assessing AusNet's total forecast opex we took into account other components of its regulatory proposal, including:

- the operation of the efficiency carryover mechanism in the 2013–17 access arrangement period, which provided AusNet an incentive to reduce opex
- the impact of cost drivers that affect both forecast opex and forecast capex—for example, forecast maximum demand affects forecast augmentation capex and forecast output growth used in estimating the rate of change in opex
- the approach to assessing the rate of return, to ensure there is consistency between our determination of debt raising costs and the rate of return building block
- the outcomes of AusNet's consumer engagement in developing its regulatory proposal.

7.5 Revisions

We require AusNet to make the following revisions to its access arrangement proposal consistent with the NGR and NGL:

⁸¹ CCP (sub-panel 11) , *Response to proposals from AGN, AusNet and Multinet for a revenue reset/access arrangement for the period 2018 to 2022*, March 2017, p. 62.

Revision 7.1: Make all necessary amendments to reflect our draft decision on the proposed opex forecast for the 2018–12 access arrangement period, as set out in Table 7.1.