



FINAL DECISION
AusNet Services transmission
determination
2017–22

Attachment 7 – Operating
expenditure

April 2017

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Note

This attachment forms part of the AER's final decision on AusNet Services' revenue proposal 2017–22. It should be read with other parts of the final decision.

The final decision includes the following documents:

Overview

Attachment 1 – maximum allowed revenue

Attachment 2 – regulatory asset 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 benefit sharing scheme

Attachment 10 – capital expenditure sharing scheme

Attachment 11 – service target performance incentive scheme

Attachment 12 – pricing methodology

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Attachment 14 – negotiated services

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Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	annual service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
DNSP	distribution network service provider
DRP	debt risk premium
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
MAR	maximum allowed revenue
MRP	market risk premium
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules

Shortened form	Extended form
NSP	network service provider
NTSC	negotiated transmission service criteria
opex	operating expenditure
PPI	partial performance indicators
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
TNSP	transmission network service provider
TUoS	transmission use of system
WACC	weighted average cost of capital

7 Operating expenditure

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

This attachment outlines our assessment of AusNet Services' proposed total opex forecast for the 2017–22 regulatory control period.

7.1 Summary

Our final decision is to approve total forecast opex of \$1132.0 million (\$2016–17) for the 2017–22 regulatory period, which we consider reasonably reflects the opex criteria under the National Electricity Rules.

Our final decision is higher than AusNet Services' revised proposal of \$1049.6 million (\$2016–17).¹ This is because we have incorporated new information into our total opex forecast that became available subsequent to AusNet Services' revised proposal.

The Victorian Government increased the easement land tax imposed on AusNet Services.² Accordingly, we increased our forecast of *annual* easement land tax from \$114.3 million to \$135.0 million (\$2016–17) in our alternative estimate.³ Had this not occurred, our final decision would have been \$21.2 million lower than AusNet Services' revised proposal. Otherwise, our final decision is largely consistent with our draft decision.

Our final decision is set out in Table 7.1.

Table 7.1 Our final decision on total opex (\$ million, 2016–17)

	2017–18	2018–19	2019–20	2020–21	2021–22	Total
AusNet Services' initial proposal	218.9	214.0	215.5	217.7	219.0	1085.0
AER draft decision	204.2	204.4	204.8	205.2	205.6	1024.1
AusNet Services' revised proposal	214.0	208.0	208.4	209.5	209.6	1049.6
AER final decision excluding impact of increase in easement land tax	204.6	205.1	205.7	206.2	206.7	1028.4

¹ Excludes debt raising costs; AusNet Services, *Revised revenue proposal: 2017–22 Opex model*, 21 September 2016.

² AusNet Services, *Submission on revised proposal*, 20 December 2016, p. 4. State Revenue Office Victoria, 2017 *Land tax assessment notice*, 16 January 2017.

³ We include a category specific forecast for easement land tax because AusNet Services is entitled to apply for a 'cost pass through' where our forecast differs (higher or lower) from the actual tax paid. To apply this pass through we need an explicit forecast of easement land tax costs. This is explained in section 7.5.3.2.

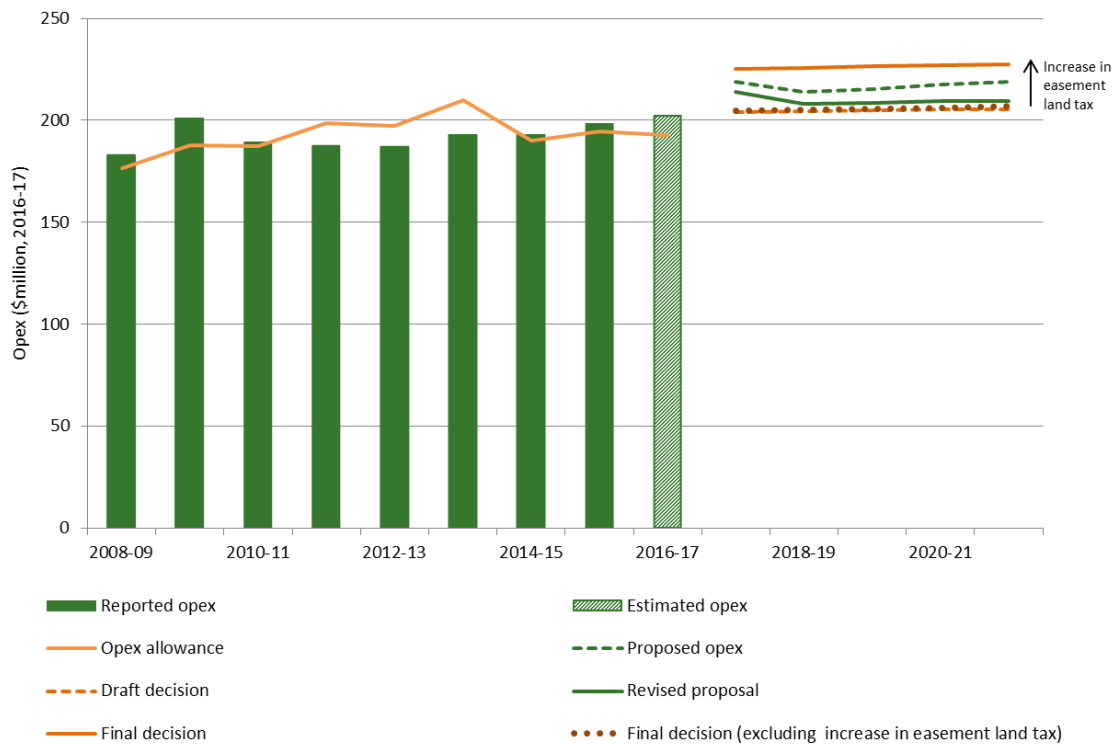
AER final decision	225.4	225.8	226.4	226.9	227.4	1132.0
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Source: AusNet Services, *Revised revenue proposal*; AusNet Services, *Revenue proposal*; AER analysis.

Note: Excludes debt raising costs. Numbers may not add up due to rounding.

Figure 7.1 shows our final decision compared to AusNet Services' initial and revised proposals, its past allowances and actual expenditure. It also shows the impact of the increase in the easement land tax on our final decision.

Figure 7.1 AER final decision compared to AusNet Services' past and proposed opex (\$ million, 2016–17)



Source: AusNet Services, *Regulatory accounts 2008-09 to 2014-15*; AusNet Services, *Economic benchmarking - Regulatory Information Notice response 2006 to 2015*; AusNet Services, *initial and revised opex model and PTRM*, AER analysis. Note: Excludes debt raising costs and movements in provisions.

We assessed AusNet Services' opex proposal by applying our 'base-step-trend' forecasting approach to develop an alternative estimate.

We used AusNet Services' reported opex in 2014–15 as the 'base' component of our opex forecast for 2017–22. Our transmission benchmarking results do not indicate AusNet Services' reported opex is materially inefficient compared to the other National Electricity Market businesses. We therefore consider its reported opex in 2014–15 is a reasonable starting point for determining our opex forecast.

Our forecast of the rate of change is lower than AusNet Services' for two key reasons.

First, in forecasting labour price growth, AusNet Services treated all services contract expenditure as labour costs. This assumes the price change of contractors' non-labour inputs is the same as their labour. Consequently, AusNet Services applied a higher weighting to labour price growth in determining the mix of labour and non-labour price growth. Given labour costs are expected to increase at a higher rate than non-labour inputs, this overstates the cost inputs required by a prudent and efficient network service provider.

Second, for the cost inputs calculation, we reject AusNet Services' proposal to use 'firm-specific weights', which were based on its actual expenditure in 2014, rather than the 'benchmark weights' we typically apply across our regulatory decisions. We consider that using a network business' actual input price weights distorts the incentive to use the efficient proportion of internal labour, among other concerns.

We have not incorporated any step changes in our opex forecast. AusNet Services' proposed step changes are not driven by new regulatory obligations or efficient capex-opex trade-offs. We consider adding step changes for new or increasing opex items identified by AusNet Services *and* incorporating AusNet Services' revealed costs would lead to a forecast of total opex that is above efficient levels. For similar reasons, we have not included a category specific forecast for self-insurance as proposed by AusNet Services. Instead we have applied a revealed cost forecasting approach to total opex, including self-insurance.

7.2 AusNet Services' revised proposal

In its revised proposal, AusNet Services proposed total opex of \$1049.6 million (\$2016–17) for the 2017–22 regulatory control period (excluding debt raising costs totalling \$8.01 million).⁴ Around half of AusNet Services' total opex forecast is for easement land tax.⁵ Subsequent to submitting its revised proposal, AusNet Services advised us that the Victorian Government had increased AusNet Services' easement land tax payable in 2017–18, thereby increasing its easement land tax forecast by \$20.7 million (\$2016-17) *per year* (18 per cent).⁶ This increase is not reflected in AusNet Services' proposed total opex forecast, which is set out in table 7.2.

Table 7.2 AusNet Services' proposed opex (\$million, 2016–17)

	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Total opex excluding debt raising costs	214.0	208.0	208.4	209.5	209.6	1049.6
Debt raising costs	1.6	1.6	1.6	1.6	1.6	8.0

⁴ AusNet Services made a late submission to its revised proposal, updating its opex model to include a small negative step change. This reduced its total opex forecast from \$1049.6 million to \$1049.4 million.

⁵ Victoria's land tax regime extends to easements held by AusNet Services. Where the forecast we include in our opex forecast differs (higher or lower) from the actual tax paid, AusNet Services can apply for a cost pass through.

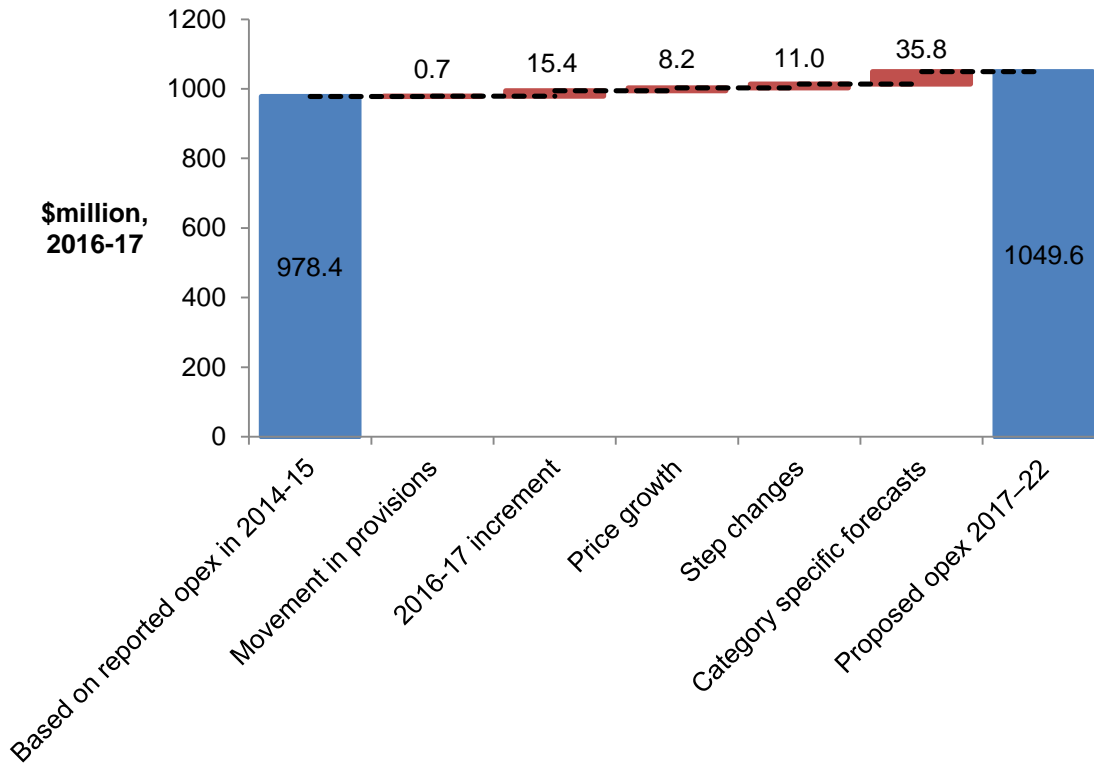
⁶ AusNet Services, *Submission on revised proposal*, 20 December 2016, p. 4.

Total opex	215.6	209.7	210.0	211.1	211.2	1057.6
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Source: AusNet Services, *Revised revenue proposal*, 21 September 2016, p.124.

In figure 7.2 we separate AusNet Services' revised opex proposal into the different elements that make up its forecast for the 2017–22 regulatory control period.

Figure 7.2 AusNet Services' opex forecast (\$ million, 2016–17)



Source: AusNet Services Transmission, *Revised opex model*.

Note: Excludes debt raising costs. Does not include the increase in easement land tax advised on 20 December 2016.

The key elements of AusNet Services' revised proposal are:

- AusNet Services adopted our 'base–step–trend' approach to forecast its opex for the 2017–22 regulatory control period.
- AusNet Services used the actual opex it incurred in 2014–15 as the base for forecasting its opex over 2017–22. If no adjustments were made, this would lead to base opex of \$978.4 million (\$2016–17) for 2017–22.
 - AusNet Services adjusted base opex to remove the impact of movements in provisions which increased its total forecast by \$0.7 million (\$2016–17). It also removed the Availability Incentive Scheme (AIS) rebate as the scheme is not ongoing. These adjustments were consistent with our draft decision.
 - To forecast the increase in opex between the base year and start of the regulatory control period (i.e. 2014–15 and 2017–18), AusNet Services

added the growth we forecast in price inputs, output and productivity at the time of the last revenue reset process. This increased its total opex forecast by \$15.4 million (\$2016–17). This increment change is consistent with the approach set out in the *Expenditure forecast assessment guideline* (the Guideline) and with our draft decision.⁷

- AusNet Services' forecast rate of change increased its total opex forecast by \$8.2 million (\$2016–17). This was attributable to real price inputs growth.
 - AusNet Services forecast labour price growth consistent with our draft decision, using the average of an updated EGWWS WPI from the Centre for International Economics (CIE) and Deloitte Access Economics (DAE) February 2016 forecast. However, AusNet Services adopted its own firm-specific input price weights of 78 per cent for labour and 22 per cent for non-labour rather than our benchmark weights of 62 per cent and 38 per cent.
 - AusNet Services' forecast output growth is consistent with our draft decision.
 - AusNet Services' forecast no productivity growth. It submitted that the average growth rate method is a more appropriate method than the trend growth rate method we used to measure historic productivity growth. AusNet Services forecast no growth on the basis that productivity growth was negative over the period 2006–15 when measured using the average growth rate method.
- AusNet Services re-proposed five step changes, which increased its total opex forecast by \$11.0 million (\$2016–17):
 - the establishment of an IT security team (\$3.3 million, \$2016–17)
 - smart aerial image processing (SAIP) roll out (\$0.9 million, \$2016–17)
 - synchronous condensers decommissioning (\$2.9 million, \$2016–17)
 - Morwell Power Station assets decommissioning (\$1.9 million, \$2016–17)
 - West Melbourne Terminal Station (WMTS) mobile switchboard (\$2.0 million, \$2016–17).
- AusNet Services included category specific forecasts for easement land tax, roll in of group 3 assets and self-insurance costs.⁸ In total, category specific forecasts increased AusNet Services' forecast by \$35.8 million compared to leaving the costs in the base year.⁹ Self-insurance accounted for \$8.9 million (\$2016–17) of this.
- These components resulted in a total opex forecast of \$1049.6 million (\$2016–17), excluding forecast debt raising costs of \$8.0 million.

⁷ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013.

⁸ AusNet Services removed these costs from the base year.

⁹ AusNet Services subsequently informed us that its recent easement land tax assessment notice was significantly higher than the amount it included in its revised opex forecast.

Subsequent to its revised proposal, AusNet Services proposed a negative step change for avoided costs due to retirement of diesel generators of \$0.2 million (\$2016–17). AusNet Services also advised that the Victorian Government had significantly increased its easement land tax, as set out above.¹⁰

7.3 Stakeholder submissions

The Consumer Challenge Panel (CCP) submitted advice on the opex forecast in response to our draft decision and AusNet Services' revised proposal. The CCP remained concerned about the increase in AusNet Services' proposed opex for the 2017–22 regulatory control period compared to historical levels.

The CCP agreed with the use of 2014–15 as the base year but did not agree that it is necessarily an accurate reflection of efficient costs due to limitations with transmission benchmarking.¹¹

The CCP supported our draft decision on labour and non-labour weights due to the low inflation operating environment.¹² The CCP opposed AusNet Services' productivity forecast of zero, noting the importance of positive productivity forecasts to provide the businesses with an incentive to improve efficiency over time.¹³

The CCP submitted 'there are no step changes, rather there are some variations in selected areas of base operating costs'.¹⁴ In relation to the proposed decommissioning step change specifically, the CCP stated:

On the basis that consumers benefit financially from allowing a step change in opex as opposed to paying tariffs based on revenue that includes Return On and Return Of Investment over a long period, then we are inclined to support AusNet Services' proposal to include this relatively modest one-year non-recurrent opex expenditure, but not regard it as a 'step change'... However, if investigation of AusNet Services' historic costs indicates that there are revealed costs, then we remain of the view that this 'step change' should not be allowed by the AER in its Final Decision."¹⁵

The CCP expressed the view that decommissioning step changes are a new type of adjustment to revealed costs because there is a step up in one year followed by a step down for the same item in the next year.¹⁶

In response to the CCP's submission, AusNet Services submitted that the synchronous condensers (SCO) are the first Victorian transmission assets that have been

¹⁰ AusNet Services, *Submission on revised proposal*, 20 December 2016, p. 4.

¹¹ CCP (subpanel 5) (CCP5), *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, p. 23.

¹² CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, p. 23.

¹³ CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, p. 24.

¹⁴ CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, p. 19.

¹⁵ CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, p. 22.

¹⁶ CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, pp. 20–22.

decommissioned without being replaced, and therefore there is no revealed cost for asset decommissioning in its base year opex.¹⁷

In relation to the proposed smart aerial image processing (SAIP) step change, the CCP agreed SAIP is an effective tool but did not accept that a step change is needed. Rather, it considered SAIP could be utilised within the opex allowance provided for in the draft decision.¹⁸

7.4 Assessment approach

Our role is to form a view about whether a business' forecast of total opex is reasonable. Specifically, we must form a view about whether a business' forecast of total opex 'reasonably reflects the opex criteria'.¹⁹ In doing so we must have regard to each of the opex factors specified in the NER.²⁰

If we are satisfied the business' forecast reasonably reflects the criteria, we accept the forecast.²¹ If we are not satisfied, we substitute the business' forecast with an alternative estimate that we are satisfied reasonably reflects the opex criteria.²² In making this decision, we take into account the reasons for the difference between our alternative estimate and the business' proposal, and the materiality of the difference. Further, we consider interrelationships with the other building block components of our decision.²³

After conducting an extensive consultation process with service providers, users, consumers and other stakeholders, we published the *Expenditure forecast assessment guideline* (the Guideline) together with an explanatory statement in November 2013.²⁴ The Guideline sets out our intended approach to assessing opex in accordance with the NER.²⁵ While the Guideline provides for greater regulatory predictability, transparency and consistency, it is not mandatory—that is, the approach set out in the Guideline does not bind us or anyone else. But if we make a decision that is not in accordance with the Guideline, we must state the reasons for departing from the Guideline.²⁶

¹⁷ AusNet Services, *Submission to revised revenue proposal*, October 2016, p.2.

¹⁸ CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, p. 23.

¹⁹ NER, cl. 6A.6.6(c). The opex criteria are:

- (1) the efficient costs of achieving the operating expenditure objectives
- (2) the costs that a prudent operator would require to achieve the operating expenditure objectives
- (3) a realistic expectation of the demand forecast and cost inputs required to achieve the operating expenditure objectives.

²⁰ NER, cl. 6A.6.6(e).

²¹ NER, cl. 6A.6.6(c).

²² NER, cll. 6A.6.6(d) and 6A.14.1(3)(ii).

²³ NEL, s.16(1)(c).

²⁴ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013; AER, *Explanatory statement - expenditure forecast assessment guideline*, November 2013.

²⁵ NER, cl. 6A.5.6.

²⁶ NER, cl. 6A.2.3(c).

We apply the assessment approach outlined in the Guideline to develop our estimate of a business' total opex requirements (our alternative estimate). Our alternative estimate serves two purposes. First, it provides a basis for assessing whether a business' proposal is reasonable. Second, it can be used as a substitute forecast if we determine a business' proposal does not reasonably reflect the opex criteria.

We set out our assessment approach in detail in our draft decision. Below we further explain the principles that underpin this approach and provide a high-level overview of the 'base–step–trend' methodology.

7.4.1 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 regulation across the energy networks we regulate. For opex, we rely on the efficiency incentives created by both ex ante revenue regulation and the 'efficiency benefit sharing scheme' (EBSS).

Incentive regulation, as with other forms of economic regulation, is designed to prevent network businesses from exploiting their natural monopoly position by setting prices in excess of efficient costs. It also provides an incentive for network businesses to minimise costs.²⁷ Incentive regulation is intended to align the commercial goals of the business to the goals of society—efficient, reliable and low cost electricity supply.²⁸

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.²⁹

Incentive regulation is also used to at least partially overcome the information asymmetries between the regulated business and us, the regulator.³⁰ Compared to the regulated business, we are at an information disadvantage to identify the business' true efficient costs. However, we need to make judgements about 'efficient' costs as the regulator.³¹

The 'revealed cost approach' and economic benchmarking are the two main tools we use to overcome these limitations.

²⁷ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 188.

²⁸ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 188.

²⁹ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 27.

³⁰ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 189.

³¹ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, p. 190.

Under the revealed cost approach, we rely on a business' profit-maximising objective to incentivise it to 'reveal' its efficient costs. We then use the information revealed by the business (i.e. its actual costs) to develop better forecasts of efficient expenditure over time. Revealed opex reflects the efficiency gains made by a business over time—while meeting existing regulations and safety and reliability standards. As the business becomes more efficient, this translates to lower forecast opex in future regulatory periods (all else equal), which means consumers receive the benefits of the efficiency gains made by the business. In this way incentive regulation aligns the business' commercial objectives with consumer interests.

Benchmarking a network business against others in the National Electricity Market provides an indication of whether revealed opex can be adopted as 'base opex' (section 7.4.2.1) and, if not, what our alternative estimate of base opex should be. We may make a negative adjustment to the business' revealed opex if we find it is operating inefficiently.

In applying incentive regulation, we adopt a 'top-down' assessment approach based on high-level outcomes. A top-down approach forecasts total opex at an aggregate level, rather than forecasting individual projects or categories in order to build a total opex forecast from the 'bottom up'.

We consider our role is to allow the network businesses the flexibility to manage their assets and labour as they see fit to achieve the opex objectives in the NER,³² and more broadly, the National Electricity Objective (NEO).³³ Incentive regulation is designed to leave the day-to-day decisions to the network businesses.³⁴ This is consistent with the requirement that we consider whether *the total* of the forecast opex, and *not* the individual forecast opex components, reasonably reflects the opex criteria.³⁵

We do not determine what activities a network business should undertake or how much it should spend on particular categories of opex. This is not our role. As stated by the Productivity Commission:

... focus on detail is counter to the conceptual underpinnings of incentive regulation. The intention of the framework is to limit monopoly pricing ... while leaving it to businesses, not the regulator, to work out the minutiae of input and output decision-making in any given regulatory period.³⁶

The revenue allowance that we determine does not set the business' actual operating budget over the regulatory control period. Rather, it is our forecast of the efficient costs for operating the network over that time. The service provider is free to run its business as it sees fit—in the best interests of its shareholders. Where our decision rejects an

³² NER, cl. 6A.6.6(a).

³³ NEL, s. 16(1)(a).

³⁴ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, pp. 27–28.

³⁵ NER, cl. 6A.6.6(c).

³⁶ Productivity Commission, *Electricity Network Regulatory Frameworks, volume 1, No. 62*, 9 April 2013, pp. 27–28.

additional 'step up' in a business' revenue allowance for a proposed new opex activity, this does not necessarily mean that it would be inefficient and imprudent for the business to undertake that activity. Our decision does not necessarily determine whether each individual opex activity proposed by the business is efficient and prudent. Rather, our decision reflects our expectation of the total opex required in the forecast period for the business to operate the network and satisfy all applicable regulatory obligations.

This view of our role as the economic regulator is supported by the Australian Energy Market Commission (AEMC), which states:

The key feature of economic regulation of [distribution network service providers] in the NEM is that it is based on incentives rather than prescription.

...

Importantly, under [incentive-based regulation], funding is not approved for [distribution network service providers] specific projects or programs. Rather, a total revenue requirement is set, which is based on forecasts of total efficient expenditure. Once a total revenue is set, it is for the [business] to decide which suite of projects and programs are required to deliver services to consumers while meeting its regulatory obligations. ...³⁷

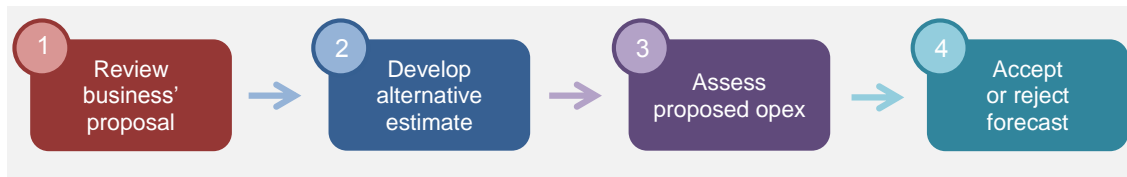
7.4.2 Base–step–trend forecasting approach

As noted, we develop our own estimate of the business' total opex requirements in the forthcoming regulatory period when assessing a network business' opex proposal. We apply the base–step–trend forecasting approach—a top-down model—to develop our alternative estimate.

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

³⁷ AEMC, *Contestability of energy services, Consultation paper*, 15 December 2016, p. 32.

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 determine 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 determine whether we are satisfied the business' opex forecast reasonably reflects the opex criteria. We accept the proposal if we are satisfied.



If we are not satisfied the business' opex forecast reasonably reflects the opex criteria we substitute it with our alternative estimate.

7.4.2.1 Base opex

If we find the business is operating efficiently, our preferred methodology is to use the business' historical or 'revealed' costs in a recent year as a starting point for our opex forecast.

We do not simply assume the business' revealed opex is efficient. It may include an ongoing level of inefficient expenditure. We use our benchmarking results³⁸ to test whether the business is operating efficiently.

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 from year-to-year. 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, the total opex varies to a lesser extent because new or increasing components of opex are generally offset by decreasing costs or discontinued opex projects. Further, we expect the regulated business to manage the inevitable 'ups and downs' in the components of opex from year-to-year—to the extent they do not offset each other—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 EBSS is that the forecast opex allowance (including EBSS rewards and penalties) is largely uninfluenced by the choice of base year, as explained in box 7.1.

³⁸ AER, *Annual Benchmarking Report - Electricity transmission network service providers*, November 2016.

Box 7.1 Selection of the base year and role of the EBSS

The selection of the base year that is used to forecast total opex has very little impact on the business' revenue allowance, given its interaction with the EBSS. We have regard to whether the opex forecast is consistent with any incentive schemes.³⁹ The EBSS is designed to provide a continuous incentive for a service provider to pursue efficiency gains over the regulatory control period. The combined effect of the revealed cost forecasting approach and the EBSS is that opex efficiency savings or losses are shared at a rate of approximately 30 per cent to the business and 70 per cent to consumers.

Any increase or decrease in opex in one year relative to the forecast will trigger an EBSS penalty or reward paid to the business over the next five years, removing the incentive for the business to inflate its opex in the expected base year. Although using a base year with unusually high opex would typically result in an increased opex forecast, this would be offset by a lower EBSS reward (or a greater penalty). Consequently, choosing a base year with an abnormal variation in total opex (due to a one-off event, for example) will generally have no material effect on total revenue compared to selecting a base year that possibly better reflects historic expenditure.

This means we do not need to identify whether base opex is higher or lower than the typical ongoing level due to any one-off events.

We can be satisfied that our revealed cost forecasting approach, working alongside the EBSS, will provide the network business with the efficient level of opex along with its allocated share of any efficiency gains or losses under the EBSS due to one-off opex variations in the base year.

If the business has demonstrated its ability to satisfy its regulatory obligations and service demand using its revealed costs, we prefer to not make further adjustments to the base opex—in particular, to avoid the risk of introducing bias in our forecast through bottom-up type assessments (see section 7.4.2.3).⁴⁰

7.4.2.2 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 changes forecasts. Labour costs represent a significant proportion of a transmission business' costs.⁴¹ 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 transmission business. This provides the transmission business an incentive to adopt the most efficient mix of inputs.

³⁹ NER, cl. 6A.6.6(e)(8).

⁴⁰ AER, *Explanatory statement - expenditure forecast assessment guideline*, November 2013, p. 75.

⁴¹ AER, *Explanatory statement - expenditure forecast assessment guideline*, November 2013, p. 49.

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.⁴² The output measures we typically use for transmission businesses are energy delivered, ratcheted maximum demand, weighted entry and exit connections and circuit length. We do not typically adjust forecast output growth for economies of scale because these are accounted for in our forecast of productivity growth.

Our forecast of productivity growth represents our best estimate of the shift in the industry 'efficiency frontier'.⁴³ We generally base our estimate of productivity growth on recent productivity trends across the industry. Where we consider historic productivity growth does not represent 'business-as-usual' conditions we do not use it to forecast future productivity growth.

7.4.2.3 Step changes and category-specific forecasts

We add or subtract any components of opex that are not adequately compensated for by base opex and the rate of change, but which should be included in the forecast total opex to meet the opex criteria.⁴⁴ These adjustments are in the form of 'step changes' or 'category-specific forecasts'.

Step changes

Step change costs in the total opex forecast form part of base opex for future regulatory control periods and they are subject to the EBSS.

Step changes should not double count costs included in other elements of the total opex forecast. As explained in the Guideline, the costs of increased volume or scale may have been compensated through the output growth component of the rate of change and should not become a step change.⁴⁵ Also, forecast productivity growth may account for the cost of increased regulatory obligations over time—that is, 'incremental changes in obligations are likely to be compensated through a lower productivity estimate that accounts for high costs resulting from changed obligations'.⁴⁶ Therefore, only new costs that do not reflect the historic 'average' change as accounted for in the productivity growth forecast would be considered as step changes.⁴⁷

Our starting position is that only exceptional circumstances are likely to warrant the inclusion of a step change in the opex forecast, as explained in our Guideline.⁴⁸ Two typical examples are:

⁴² AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 23.

⁴³ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 24.

⁴⁴ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 24.

⁴⁵ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 24.

⁴⁶ AER, *Explanatory statement - expenditure forecast assessment guideline*, November 2013, p. 52.

⁴⁷ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 24.

⁴⁸ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 24.

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

Consistent with our Guideline, 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.⁴⁹ Usually when a new regulatory obligation is imposed on a service provider, it has little choice but to incur the additional expenditure required to comply. The business may be expected to continue to incur such costs associated with the new regulatory obligation into future regulatory periods; hence an increase of its opex allowance could 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.⁵⁰ Our Guideline states:

[Network services providers] will be expected to justify the cost of all step changes with clear economic analysis, including quantitative estimates of expected expenditure associated with viable options. We will also look for the [Network services providers] to justify the step change by reference to known cost drivers (for example, volumes of different types of works) if cost drivers are identifiable. If the obligation is not new, we would expect the costs of meeting that obligation to be included in revealed costs. We also consider it is efficient for [Network services providers] to take a prudent approach to managing risk against their level of compliance when they consider it appropriate (noting we will consider expected levels of compliance in determining efficient and prudent forecast expenditure).⁵¹

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 is 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, can generally be funded by base opex and trend components, together with the savings or increased revenue that they generate—rather than through a step change. Otherwise, the business would benefit from a higher opex allowance *and* the efficiency gains.⁵²

Our role is to determine the efficient and prudent level of total opex a network business requires to achieve the opex objectives. It is not our role to approve specific opex

⁴⁹ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 11.

⁵⁰ AER, *Explanatory statement - expenditure forecast assessment guideline*, November 2013, pp. 51–52; AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 11.

⁵¹ AER, *Explanatory statement - expenditure forecast assessment guideline*, November 2013, p. 52.

⁵² AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 11.

projects or to ensure the business delivers those projects in the regulatory period. The business has discretion to prioritise its opex programs and initiatives—and also the discretion to not undertake proposed opex projects. If an opex project does not produce a net benefit *to the business*, and there is no regulatory obligation, the business is unlikely to have an incentive to undertake that opex project.

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 repex.⁵³ The onus is on the business to provide robust cost–benefit analysis to clearly demonstrate how increased opex would be more than offset by capex savings.⁵⁴

In the absence of a change to regulatory obligations or a legitimate capex/opex trade-off opportunity, we would only accept a step change under very limited circumstances. We would likely 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.

To increase its maximum allowable revenue, 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 a step change to base opex or for a category specific forecast. There is a risk that including such costs would upwardly bias the total opex forecast.

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 EBSS.

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.'⁵⁵ In other words, a category specific forecast may be justified if, as a result of including a specific opex category in the base opex, total opex becomes so volatile that it undermines our assumption that total opex is relatively stable and follows a predictable path over time.

⁵³ AER, *Explanatory statement - expenditure forecast assessment guideline*, November 2013, p. 74.

⁵⁴ AER, *Explanatory statement - expenditure forecast assessment guideline*, November 2013, p. 52.

⁵⁵ Frontier Economics, *Opex forecasting method: A report prepared for TransGrid*, December 2014, p. 8.

We may also use category specific forecasts to avoid inconsistency or double counting within our determination. We have typically included category specific forecasts for debt raising costs, the demand management incentive allowance (DMIA) and guaranteed service levels (GSL) payments. There are specific reasons for forecasting these categories separately from base opex. For example, we forecast debt raising costs separately to provide consistency with the forecast of the cost of debt in the rate of return building block of allowable revenue. For DMIA, we forecast these costs separately because they are funded through a separate building block.

Absent the exceptions described above, we expect that base opex, trended forward by the rate of change, will allow the business to recover its prudent and efficient costs. As with our assessment of step changes, we assume the business has demonstrated its ability to operate prudently and efficiently at that level of opex while meeting existing regulations, including its safety and reliability standards in the past. 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 we consider providing a category specific forecast for opex items identified by the business may upwardly bias the total opex forecast for similar reasons noted above in relation to step changes.

By applying our revealed cost approach consistently and with minimal exceptions, we avoid the potential bias arising from businesses' asymmetric incentives to identify opex categories to be assessed separately from revealed base year opex.

Minimising the number of costs forecast on a category specific basis also helps to simplify our expenditure assessment 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.⁵⁶

7.5 AER final decision

Our final decision is to not accept AusNet Services' revised total opex forecast of \$1049.6 million (\$2016–17)⁵⁷ over the 2017–22 regulatory period. We are not satisfied that AusNet Services' forecast total opex in its revised proposal reasonably reflects the opex criteria under the National Electricity Rules.⁵⁸

Our alternative estimate of AusNet Services' total opex is \$1132.0 million (\$2016–17), which we consider reasonably reflects the opex criteria.⁵⁹ Our final decision is higher

⁵⁶ AER, *Stakeholder Engagement Framework*, p. 1; AER, *AER network revenue determination engagement protocol: version 1.0*, p. 3.

⁵⁷ Excludes debt raising costs; AusNet Services, *Revised revenue proposal: 2017–22 Opex model*, 21 September 2016.

⁵⁸ NER, cl. 6A.6.6(c).

⁵⁹ Excludes debt raising costs.

than AusNet Services' revised proposal because we have incorporated new information into our total opex forecast that became available subsequent to its revised proposal.

The Victorian Government increased the easement land tax imposed on AusNet Services.⁶⁰ Accordingly, we increased our forecast of *annual* easement land tax from \$114.3 million (\$2016–17) to \$135.0 million (\$2016–17) in our alternative estimate.⁶¹ Had this not occurred, our final decision would have been \$21.2 million lower than AusNet Services' revised proposal. Otherwise, our final decision is largely consistent with our draft decision.

The following sections outline the key inputs and assumptions we made in developing our alternative estimate of efficient costs for AusNet Services, using our base–step–trend approach. The opex model we used to calculate our alternative estimate is published on our website.

7.5.1 Base opex

Our final decision includes a base opex amount of \$973.8 million (\$2016–17). This forecast is derived from AusNet Services' reported total opex in the 2014–15 base year, consistent with our draft decision.

We had regard to our transmission benchmarking results in deciding to use AusNet Services' actual opex as a starting point for our opex forecast. Our benchmarking indicates that AusNet Services is operating relatively efficiently when compared to other service providers in the NEM. That said, conclusions from our transmission benchmarking should be treated with caution. In contrast to electricity distribution networks, our benchmarking of transmission networks is relatively new and relies on a limited data set. It is limited by the small sample size of transmission businesses in the NEM—among other things. Notwithstanding these limitations, we consider our benchmarking models are the best available measure of the transmission businesses' overall efficiency levels.

The CCP accepted that it is reasonable to use 2014–15 as the base year for forecasting AusNet Services' opex requirements for 2017–22.⁶²

To obtain the adjusted base opex that is consistent with the opex criteria, we:

- removed movement in provisions reported as opex in 2014–15
- removed easement land tax and debt raising costs because we adopted a category specific forecast instead

⁶⁰ AusNet Services, *Submission on revised proposal*, 20 December 2016, p. 4. State Revenue Office Victoria, 2017 *Land tax assessment notice*, 16 January 2017.

⁶¹ We include a category specific forecast for easement land tax because AusNet Services is entitled to apply for a 'cost pass through' where our forecast differs (higher or lower) from the actual tax paid. To apply this pass through we need an explicit forecast of easement land tax costs. This is explained in section 7.5.3.2.

⁶² CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, p. 23.

- removed the AIS rebate because the scheme has ceased
- added our forecast increase in opex between 2014–15 and 2016–17 to obtain our estimate of final year opex.

This is consistent with our draft decision and AusNet Services' revised proposal.

In AusNet Services' revised proposal, it estimated a base opex amount of \$978.4 million (\$2016–17).⁶³ The difference between our base opex amount and AusNet Services' base opex reflects a different approach to self-insurance costs. Consistent with our draft decision, we left these costs in the base year and applied a revealed cost forecasting approach to total opex including self-insurance costs. AusNet Services instead removed self-insurance costs from the base year (\$1.7 million) and proposed a category-specific forecast of \$13.5 million (\$2016–17). Our approach to self-insurance costs is outlined in section 7.5.3.2.

Further explanation of our choice of base year and adjustments to base year opex can be found in our draft decision for AusNet Services.⁶⁴

7.5.2 Rate of change

Following the base–step–trend approach, we apply a forecast annual rate of change to base opex to account for expected changes in output and cost inputs for each year of the 2017–22 regulatory control period.

We did not adopt AusNet Services' forecast rate of change to derive our alternative estimate of opex in our draft decision. Appendix B of attachment 7 of our draft decision contains a detailed explanation of our considerations.⁶⁵

In its revised proposal, AusNet Services accepted our draft decision to forecast:

- labour prices based on the average of the WPI growth rates for the Victorian utilities industry as forecast by Deloitte Access Economics (DAE) and the Centre for International Economics (CIE)⁶⁶
- no real price growth for non-labour prices.

However, AusNet Services did not use the benchmark input price weights we used in our draft decision. It proposed labour and non-labour weights of 78 per cent and 22 per cent respectively, which it stated were based on its actual expenditure in 2014–15.⁶⁷

⁶³ AusNet Services, *Revised revenue proposal: 2017–22 Opex model*. Excludes debt raising costs.

⁶⁴ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, pp. 7-27 to 7-38.

⁶⁵ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, pp. 7-39 to 7-58.

⁶⁶ AusNet Services, *Revised revenue proposal*, 21 September 2016, pp. 91–92.

⁶⁷ AusNet Services, *Revised revenue proposal*, 21 September 2016, pp. 92–97.

AusNet Services forecast no output growth consistent with our draft decision. It agreed that AEMO or distributors will incur the operating and maintenance costs associated with augmentation of shared network and connection assets in the 2017–22 regulatory control period.⁶⁸

AusNet Services also forecast no productivity growth.⁶⁹ This is a change from its initial proposal, in which it forecast annual productivity growth of 0.28 per cent.⁷⁰ It is also different to our draft decision, for which we forecast annual productivity growth of 0.2 per cent.⁷¹

Based on this approach, AusNet Services forecast an average annual rate of change of 0.69 per cent, which is less than its initial proposal of 2.02 per cent.⁷²

For our final decision, we maintain that we are not satisfied AusNet Services' proposed rate of change for the 2017–22 regulatory control period will produce a total opex forecast that reasonably reflects the opex criteria.⁷³ This is because AusNet Services' labour price growth forecasting approach:

- Is inconsistent with providing effective incentives in order to promote economic efficiency through the adoption of an efficient input mix.⁷⁴
- Treats all services contract expenditure as labour. This assumes that the price change of contractors' non-labour inputs is the same as their labour. Consequently, AusNet Services applied a higher weighting to labour price growth in determining the mix of labour and non-labour price growth, which it based on its actual expenditure in 2014–15. This overstates the cost inputs required by a prudent and efficient distributor in the forecast period.

Since we are not satisfied that AusNet Services' proposed rate of change will produce a total opex forecast consistent with the opex criteria, we must not accept it and we must develop our own estimate.⁷⁵

Our estimate of the rate of change forecasts:

- Labour price growth based on the forecast growth in the WPI for the Victorian electricity, gas, water and waste services (utilities) industry. We have used the average of the most recent Victorian utilities WPI forecasts from DAE and CIE. Adopting expert advice from Economic Insights, we have applied input price weights of 62 per cent for labour and 38 per cent for non-labour, which reflect the

⁶⁸ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 97.

⁶⁹ AusNet Services, *Revised revenue proposal*, 21 September 2016, pp. 98–102.

⁷⁰ AusNet Services, *Revenue proposal*, 30 October 2015, pp. 130–131.

⁷¹ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, pp. 7-56 to 7-58.

⁷² AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-41.

⁷³ NER, cl. 6A.6.6(c).

⁷⁴ NEL, s. 7A(3).

⁷⁵ NER, cll. 6A.6.6(d); 6A.14.1(3)(ii).

weights of an efficient benchmark firm, to forecast total price change. We have updated the forecast of WPI growth for the Victorian utilities industry that we used in our draft decision to reflect that most recent forecasts available DAE and CIE.

- Output growth of zero based on the fact that AusNet Services will not incur any cost increases due to output growth in the 2017–22 regulatory control period. AusNet Services is not required to fund the operation and maintenance of new augmentation and connection assets, including group 3 assets⁷⁶, from its opex allowance. This is consistent with our draft decision.
- Forecast productivity growth of zero, rather than the 0.2 per cent growth rate we forecast in our draft decision. Economic Insights advised we forecast zero productivity growth to avoid double counting the economies of scale captured in the opex forecast for group 3 assets. AusNet Services is only required to fund the operation and maintenance of group 3 assets from its opex allowance when they are rolled into its asset base at the end of each regulatory control period.⁷⁷

We have forecast an average annual rate of change of 0.58 per cent, which is higher than the 0.33 per cent we forecast in our draft decision.

We have applied the same rate of change method to derive our alternative estimate of opex as we used in our draft decision. We consider that applying our method to derive an alternative estimate of opex will result in a forecast that reasonably reflects the efficient and prudent costs faced by AusNet Services given a realistic expectation of demand forecasts and cost inputs because:

- our labour price growth measure reasonably reflects current and forecast economic conditions
- our labour and non-labour price weightings reasonably reflect the benchmark efficient mix of labour services and other costs required to provide transmission services
- our forecast of output growth recognises that AusNet Services will not incur the costs associated with operating and maintaining new augmentation and connection assets (including group 3 assets)
- our productivity growth forecast recognises that economies of scale are captured in our forecast of the additional opex required to operate and maintain group 3 assets.

In estimating our rate of change, we considered AusNet Services' proposed forecast growth in prices, output and productivity and the forecasting method it used. Our forecast of the overall rate of change used to derive our alternative estimate of opex is lower than AusNet Services' over the forecast period. The difference is due to our

⁷⁶ See section 7.5.3.2 for an explanation of group 3 assets and our treatment of these in our opex forecast.

⁷⁷ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2016, pp. 7–9.

forecast of annual price growth being, on average, 0.10 percentage points lower than AusNet Services'. This reduces our alternative estimate of opex by \$0.6 million (\$2016–17).

Table 7.3 shows AusNet Services' and our overall rate of change and each rate of change component in percentage terms for each regulatory year of the 2017–22 regulatory control period.

Table 7.3 AusNet Services and AER rate of change (per cent real)

	2017-18	2018-19	2019-20	2020-21	2021-22	Average
AusNet Services						
Price growth	0.40	0.66	0.78	0.81	0.80	0.69
Output growth	–	–	–	–	–	–
Productivity growth	–	–	–	–	–	–
Overall rate of change	0.40	0.66	0.78	0.81	0.80	0.69
AER						
Price growth	0.57	0.54	0.63	0.59	0.58	0.58
Output growth	–	–	–	–	–	–
Productivity growth	–	–	–	–	–	–
Overall rate of change	0.57	0.54	0.63	0.59	0.58	0.58
Difference	0.17	–0.11	–0.15	–0.21	–0.22	–0.10

Note: The rate of change = (1+ price growth) × (1+ output growth) × (1+ productivity growth) – 1.

Source: AER analysis.

The sections below describe the three rate of change components. Where relevant, we compare these components to AusNet Services' proposed rate of change using information provided in its reset RIN templates⁷⁸ and opex models.⁷⁹

7.5.2.1 Forecast price growth

We are not satisfied AusNet Services' proposed average annual price growth of 0.69 per cent reasonably reflects the increase in prices a prudent and efficient service provider would require to meet the opex objectives. We forecast an average annual price growth of 0.58 per cent.

⁷⁸ AusNet Services, *Regulatory Information Notice - Template - PUBLIC*, October 2015.

⁷⁹ AusNet Services, *Revenue proposal: 2017–22 Opex model*, October 2015; AusNet Services, *Revised revenue proposal: 2017–22 Opex model*, September 2016.

We have used the most up-to-date forecasts available from DAE and CIE to update the forecasts we used in our draft decision. This is consistent with AusNet Services' revised revenue proposal, in which it stated that it expects us to obtain an updated forecast from DAE for this final decision.⁸⁰

The reason for the differences between AusNet Services' price growth forecast and our own is that AusNet Services applied a higher weighting to labour price growth.

We have weighted our forecast price growth to account for the proportion of opex that is labour and the proportion that is non-labour. We have adopted a 62 per cent weighting for labour and 38 per cent for non-labour. We have forecast the labour component based on the utilities WPI and we forecast the non-labour component based on the CPI. These weights are consistent with those used in Economic Insights' benchmarking analysis⁸¹ and are the same weights we used for our draft decision.⁸²

We have had regard to the input price weights of a prudent and efficient benchmark transmission network service provider. Using benchmark price weights provides service providers an incentive to make efficiency gains by adopting the most efficient input mix (explained in more detail below). Weights of 62 per cent for labour and 38 per cent for non-labour represent the best available estimate for the benchmark efficient firm—as advised by our expert consultant, Economic Insights.⁸³

AusNet Services did not propose these same weights. AusNet Services stated that it applied its proposed EGWWS WPI forecast using the same weights it adopted in its initial revenue proposal, with labour and non-labour weights of 78 per cent and 22 per cent, respectively. It based these weights on its actual expenditure in 2014–15. It also stated that 'all labour costs will increase at the same rate'.⁸⁴ AusNet Services' approach results in a higher forecast of price growth.

There are two key differences between our input price weights and AusNet Services':

1. In addition to internal labour costs, we only included the labour component of field services contracts in our labour weighting whereas AusNet Services included all services contracts costs as labour.
2. We applied weights having regard to the input price weights of a prudent and efficient benchmark transmission business whereas AusNet Services proposed weights based on its firm specific expenses. This is a question of methodology rather than whether AusNet Services' firm specific weights are reflective of its actual costs.

⁸⁰ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 91.

⁸¹ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2016, p. 2.

⁸² AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-47.

⁸³ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2016, p. 2.

⁸⁴ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 93.

Components of price growth

In order to forecast the rate of change using the opex forecasting method set out in the Guideline, we need to define the inputs. This is required to forecast price change and productivity change. In other words, you cannot say how much the price of something is changing without first determining what it is that you are paying for. Opex inputs can generally be classified as labour, services or materials.⁸⁵

The key difference between our respective definitions of labour expenditure is that AusNet Services' definition includes all services contracts expenditure (both field services and non-field services) in its labour weight. Unlike AusNet Services, we have included non-field services contracts in our non-labour component. And we have included the labour component of field services contracts in our labour weight. We discussed the reasons for our approach in detail in our draft decision, which remain relevant. In considering AusNet Services' revised proposal, we had regard to advice provided by Economic Insights.⁸⁶

We consider CPI to be a realistic expectation of the forecast increase in the price of non-labour inputs, including non-field services, over the forthcoming regulatory control period. In our draft decision we looked at the output producer price indices that most closely reflect the non-field services that an efficient service provider would purchase. This analysis showed that the price of non-field services tended to grow at a similar rate to CPI. When we reviewed the historic change in various producer price indices we found no evidence that the price of the non-field services purchased from contractors by an efficient service provider would vary materially from CPI.⁸⁷ AusNet Services provided no evidence to support its claim that non-labour prices will increase at a greater rate than the CPI.

Benchmark versus firm specific weights

In our draft decision we applied benchmark input price weights of 62 per cent and 38 per cent for labour and non-labour respectively. We did not use the firm specific weights proposed by AusNet Services. Consistent with its initial revenue proposal, AusNet Services proposed firm specific input price weights based on its actual expenditure to forecast price growth in its revised revenue proposal.⁸⁸

Consistent with our draft decision, we consider:

- using a network business' actual input price weights distorts the incentive to use the efficient proportion of internal labour

⁸⁵ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2017, p. 3.

⁸⁶ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2017, p. 3.

⁸⁷ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-49.

⁸⁸ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 92.

- our benchmark input price weights are the best available
- using different input price weights to forecast price growth and to forecast productivity growth yields a biased opex forecast.

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. Forecasting the rate of change based on a network business' past performance, including its past input mix, would not provide a business an incentive to reveal its efficient costs. In these circumstances, using a firm's revealed input mix provides a disincentive to use less of an input that is increasing more rapidly in price because it would reduce the forecast rate of change.⁸⁹ The revenue and pricing principles state that a regulated network business should be provided with effective incentives in order to promote economic efficiency.⁹⁰

We therefore have regard to benchmark weights. We note that AusNet Services has not argued that our benchmark input price weights do not reflect the input mix of an efficient benchmark firm. It has only argued that our benchmark input price weights do not reflect its input mix. Our analysis of the Victorian distribution network businesses—among the most efficient in the NEM—showed that they do not all adopt the same input mix. As we stated in our draft decision, using benchmark input weights does not necessarily infer or assume that AusNet Services' revealed input mix is inefficient.⁹¹

Given that AusNet Services has provided no reasons why it considers our benchmark input price weights do not reflect the input mix that would be incurred by an efficient benchmark firm, there is no basis for us to change our position that a benchmark labour weight of 62 per cent reasonably reflects a realistic expectation of the cost inputs required to achieve the opex objectives. This takes into account advice from Economic Insights that these weights remain the best available.⁹²

AusNet Services' proposal is inconsistent in that it uses benchmark opex weights to measure productivity growth but uses firm specific weights to forecast price change. Because it applies a higher weight to the input increasing in price more rapidly when forecasting price change this results in its rate of change overstating the efficient costs of achieving the opex objectives.⁹³

As found by Economic Insights, apart from being logically inconsistent, this would create a risk of bias in AusNet Services' favour. It is also important to note that using a

⁸⁹ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-52.

⁹⁰ NEL, s. 7A(3).

⁹¹ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-52.

⁹² Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2017, p. 2.

⁹³ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-52.

higher labour share of opex in the historical productivity analysis would have produced a higher partial productivity growth rate. This in turn would have increased our forecast of productivity growth in the rate of change formula.⁹⁴

While we consider that we should treat the conclusions from our transmission benchmarking with caution for the purpose of testing the efficiency of base opex, we are confident our benchmarking models are sufficiently robust to forecast the rate of change. We have previously found that although different model specifications can change the relative rankings of transmission businesses, they do not change the 'slope' of industry average productivity trends. It is the slope that is important for calculating the rate of change, whereas the relative rankings are important for testing base opex efficiency.⁹⁵

7.5.2.2 Forecast output growth

We are satisfied that AusNet Services' forecast output growth of zero reasonably reflects the increase in output a prudent and efficient service provider would require to achieve the opex objectives.

In its revised revenue proposal AusNet Services agreed that it is not required to fund the operation and maintenance of new augmentation and connection assets, including group 3 assets, from its opex allowance.⁹⁶ It was for this reason that we also forecast no output growth in our draft decision.⁹⁷

7.5.2.3 Forecast productivity growth

In the Guideline we stated that we would apply a rate of change to estimated final year opex (taking into account an efficiency adjustment, if required), to account for the shift in the productivity frontier.⁹⁸ We have forecast productivity growth of zero for AusNet Services. This is a departure from our draft decision, in which we forecast productivity growth of 0.2 per cent per year.⁹⁹

We base our productivity growth forecast on historic productivity growth in the industry to the extent we consider it will be reflective of future productivity growth. This assumes there will be no significant structural change in the electricity transmission industry for the 2017–22 period relative to the 2006–15 time period used to measure historic productivity growth. Previously, Economic Insights considered the extrapolation of the

⁹⁴ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2017, p. 5.

⁹⁵ AER, *Final decision TransGrid transmission determination, 2015–16 to 2017–18 - Attachment 7*, April 2015, pp. 7-78 to 7-79.

⁹⁶ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 97.

⁹⁷ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, pp. 7-54 to 7-56.

⁹⁸ AER, *Explanatory statement—expenditure forecast assessment guideline*, November 2013, p. 65.

⁹⁹ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, pp. 7-56 to 7-58.

electricity transmission industry opex partial productivity growth rate to be reasonable in a 'business-as-usual' scenario.

AusNet Services used the same 2006–15 dataset to calculate historical productivity as we used for our draft decision.

However, AusNet Services did not use the trend growth method that we used. Instead it used the average growth rate, or point-to-point method, which it considered to be a more appropriate method for calculating historical productivity. Using the average growth rate method, average annual productivity growth over the period 2006 to 2015 was negative. Consequently, AusNet Services forecast no productivity growth.¹⁰⁰

AusNet Services also considered that we had double counted productivity growth due to economies of scale in our draft decision. AusNet Services stated that we had captured economies of scale in both the group 3¹⁰¹ roll in opex and the productivity forecast. It considered the productivity forecast would therefore overestimate the productivity growth an efficient and prudent transmission business will achieve in the forthcoming period.¹⁰² We discuss both of these issues below.

Accounting for economies of scale

AusNet Services noted that we had accounted for economies of scale in both the group 3 costs we added to base opex and in our productivity growth forecast.¹⁰³ This raises important questions about how we account for output growth and productivity for AusNet Services, taking into account that it does not face the changes to opex due to output growth associated with group 3 assets until we roll those assets into its asset base. Given we have included AusNet Services' forecast of additional opex associated with group 3 assets in our opex forecast, including associated economies of scale, we agree that we should not also include economies of scale in our productivity growth forecast.

Economic Insights agreed that the unique structural and regulatory arrangements in Victoria have led to some degree of double counting of scale effects in this instance. Economic Insights stated the most transparent way of addressing this issue would be to forecast zero opex productivity growth in the rate of change formula while retaining AusNet Services' proposed scale factors to forecast the opex associated with group 3 assets that are being rolled into the regulated asset base.¹⁰⁴ We agree and have adopted this approach.

¹⁰⁰ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 98.

¹⁰¹ See section 7.5.3.2 for an explanation of group 3 assets and our treatment of these in our opex forecast.

¹⁰² AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 98.

¹⁰³ AusNet Services, *Revised revenue proposal*, 21 September 2016, pp. 101–102.

¹⁰⁴ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2017, p. 9.

The trend method best accounts for all available information

The trend growth method is our preferred method for measuring historic productivity growth for transmission businesses.

As noted by Economic Insights, two different approaches can be used to calculate the productivity growth rate used in a regulatory setting. The average annual growth rate method measures the growth rate between the first and last observations, and may be susceptible to effects of outliers in the first or last observation. The regression-based trend growth method determines a line of best fit through all the data points.¹⁰⁵ It moderates the effects of outliers, and in a regulatory context, the impact of large changes in opex reported for an individual transmission business.

As noted by Economic Insights, reported transmission businesses' opex levels have been relatively volatile in recent years. Given this volatility, and the small number of transmission businesses in Australia that we include in our data set, large changes for an individual transmission business can have a disproportionate impact on the measurement of transmission industry productivity growth, especially under the average annual growth rate method. Therefore, Economic Insights stated that it was more appropriate to measure transmission opex productivity growth using the trend growth rate method.¹⁰⁶

We agree with Economic Insights that it is more appropriate to measure transmission opex productivity growth using the trend growth rate method given the small number of transmission businesses in the data set.

7.5.3 Step changes and category specific forecasts

7.5.3.1 Step changes

We have not included any step changes in our total opex forecast for AusNet Services. We consider adding step changes for the cost drivers identified by AusNet Services would lead to a forecast of opex that is above efficient levels.

In its initial proposal, AusNet Services proposed six step changes to its base opex, totalling \$13.5 million (\$2016–17) or 2.7 per cent of its total opex forecast (excluding land easement tax). Our draft decision did not include any step changes.

In its revised proposal, AusNet Services re-proposed all but one of the six step changes (for new emergency response arrangements). In a late submission it proposed an additional small negative step change.

A summary of AusNet Services' proposed step changes is outlined in table 7.4.

¹⁰⁵ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2017, p. 7.

¹⁰⁶ Economic Insights, Memorandum, *Review of AusNet Transmission arguments on the opex rate of change*, 9 January 2017, p. 8.

Table 7.4 Final position on step changes (\$ million, 2016–17)

Proposal	Initial proposal	Draft decision	Revised proposal	Final decision
Establishment of IT security team	3.3	–	3.3	–
New emergency response arrangements	1.0	–	–	–
Smart Aerial Image Processing (SAIP) roll out	0.9	–	0.9	–
Synchronous condensers (SCOs)	4.3	–	2.9	–
Morwell Power Station assets	1.9	–	1.9	–
WMTS mobile switchboard	2.0	–	2.0	–
Avoided costs due to retirement of diesel generators ¹⁰⁷			-0.2	–
Total	13.5	–	10.8	–

Source: AusNet Services, Revised revenue proposal 2017–22, September 2016; AusNet Services, Revenue proposal 2017–22, October 2015; AER analysis.

We do not consider step changes are required for these proposed projects. We consider these activities are for AusNet Services to consider within its total opex allowance and prioritise if prudent to do so. Our decision to reject each proposed step change is based on similar reasoning.

Our task under the NER is to determine a *total opex* forecast that reasonably reflects the opex criteria. The focus of our assessment is therefore on total opex rather than individual projects or categories.

We consider base opex, trended forward by the forecast rate of change, is sufficient for AusNet Services to continue to meet its existing regulatory obligations. AusNet Services has not substantiated any new regulatory obligations or legitimate capex/opex trade-offs that would require a step change for our forecast of total opex to reasonably reflect the opex criteria. We do not consider there are exceptional circumstances justifying an increase in its total opex requirement.

We consider the approach AusNet Services has taken—by incorporating its revealed costs *and* step changes for new or increasing opex items—will result in an overstated total opex forecast that does not reasonably reflect the opex criteria. As explained in section 7.4.2.3, providing a step change for cost increases identified by a business may upwardly bias the total opex forecast.

AusNet Services has demonstrated its revealed opex over the previous regulatory period was sufficient for it to meet current regulatory obligations and safety and reliability standards. We therefore consider our total opex forecast is sufficient for

¹⁰⁷ AusNet Services, *Submission on revised proposal*, 20 December 2016, p.4.

AusNet Services to manage expected demand and comply with all applicable regulatory obligations.

Establishment of IT security team

We have not included a step change for the costs of a dedicated IT security team in our alternative opex forecast.

AusNet Services proposed a step change of \$3.3 million (\$2016–17) for increased costs associated with enhancing its cyber-security through the establishment of a dedicated IT security monitoring and response team.¹⁰⁸ It stated this was to align its IT security program with the Australian Securities and Investments Commission's (ASIC's) view of global industry best practice.¹⁰⁹

AusNet Services submitted the cyber security landscape is changing and that 'cyber-attacks are becoming an increasingly prevalent and dangerous threat to critical infrastructure operators'.¹¹⁰ As such, AusNet Services stated this step change is required to maintain the security of the transmission system in accordance with the NER.¹¹¹

AusNet Services further submitted that if a step change is for prudent and efficient expenditure, it should be included in the opex forecast, regardless of materiality and whether it is being driven by a change in the regulatory environment.¹¹²

We do not consider AusNet Services' proposal justifies a departure from our assessment approach, as set out in our Guideline and section 7.4 above. The step change proposed by AusNet Services for a dedicated IT security team is not driven by a new or changed regulatory obligation.

A business' operating environment is expected to change over time. Such changes can lead to an increase in the cost of some opex activities and, equally, decreased costs for others. The step change proposed by AusNet Services for a dedicated IT security team represents 0.7 per cent of AusNet Services' total opex proposal.¹¹³ Absent any explicit regulatory obligation, the establishment of a dedicated IT security team is for AusNet Services to consider within its total revenue allowance, and prioritise if prudent to do so.

AusNet Services, like all businesses, has been managing changes in cyber risks for some time. Indeed, AusNet Services sought additional funding for IT security in previous regulatory proposals. Our final decision for AusNet Services' 2014–17 regulatory control period stated:

¹⁰⁸ AusNet Services, *Revised revenue proposal*, 21 September 2016, p.106.

¹⁰⁹ AusNet Services, *Revenue proposal*, 30 October 2015, p.137.

¹¹⁰ AusNet Services, *Revised revenue proposal*, 21 September 2016, p.108.

¹¹¹ AusNet Services, *Revised revenue proposal*, 21 September 2016, p.107.

¹¹² AusNet Services, *Revised revenue proposal*, 21 September 2016, p.108.

¹¹³ Excluding land easement tax and including debt raising costs.

We note the increase in global cyber threats. However, we do not consider that an increase in opex from one period to the next is required to allow SP AusNet to undertake these programs. The threat is not new: businesses have been grappling with cyber threats for several years, and SP AusNet recognised the threat in 2009.¹¹⁴ We would expect a prudent TNSP would have put in place processes to address these threats in the current period (that is, it is a revealed cost through base opex), and we consider that the large IT program would address these risks. Given this threat is not new, we do not accept these step changes.

AusNet Services submitted that ASIC's framework could become a legislative obligation over the regulatory period given the increasing threat presented by cyber-attacks.¹¹⁵ If this is the case, the NER provide scope for a business to apply for a pass through of costs arising from 'pass through events', including a regulatory change event.¹¹⁶

Asset decommissioning

We have not included step changes for costs of asset decommissioning in our alternative opex forecast.

AusNet Services proposed two step changes for asset decommissioning:

- a step change of \$2.9 million (\$2016–17) for decommissioning the three synchronous condensers (SCOs) on its network at Fisherman's Bend, Brooklyn and Templestowe.
- a step change of \$1.9 million (\$2016–17) for decommissioning of assets located at Morwell Power Station.

The step changes for these four decommissioning projects were included in AusNet Services' revised opex proposal as non-recurrent costs to be incurred in the 2017–18 year alone.

AusNet Services submitted the costs of asset decommissioning usually form part of a capital project, and are therefore normally classified as capex, not opex. AusNet Services stated this is the first instance where it will decommission major assets without a need for capital replacement.¹¹⁷ Therefore, in AusNet Services' view, the costs of decommissioning the SCOs and Morwell Power Station are not accounted for by base opex. AusNet Services further submitted the decommissioning costs have not been accounted for by base opex because the AER has not presented robust evidence to demonstrate they will be offset by reductions in other opex categories.¹¹⁸

¹¹⁴ EMCa, *SP AusNet technical review*, January 2014, p. 70 paragraph 278.

¹¹⁵ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 106.

¹¹⁶ NER, cl. 6A.7.3.

¹¹⁷ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 113.

¹¹⁸ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 116.

In relation to the SCO decommissioning costs specifically, AusNet Services stated these are driven by a change in its obligations under its Network Services Agreement (NSA) with AEMO and are therefore justified as a step change under the AER's Guideline. It stated the NSA between AEMO and AusNet Services is a 'quasi-regulatory instrument' with which it must comply.¹¹⁹

We disagree with this characterisation. As AusNet Services noted both in its original and revised proposals, it seeks to decommission the SCOs because they have reached the end of their economic lives.¹²⁰ The change in obligations under the NSA goes only to whether AusNet Services will be required to replace the SCOs. This is consistent with the letter from AEMO to AusNet Services on 10 August 2016, which extends only to AusNet Services reducing its network services rather than decommissioning assets. AusNet Services has since confirmed in a response to an information request that its decision to decommission the assets is driven by internal policy rather than an obligation by AEMO.¹²¹

The CCP, in its submissions of September and October 2016, primarily focused on whether asset decommissioning costs have been expensed by AusNet Services in the past and are therefore explicitly reflected in base opex. The CCP suggested the decommissioning costs may be 'unusual by size rather than by rarity'.¹²² The CCP submitted that if there are revealed costs, a step change should not be included. Conversely, if there are not revealed costs, there should be a non-recurrent adjustment to base opex (rather than a step change).¹²³

We do not consider AusNet Services' proposal justifies a departure from our assessment approach, as set out in our Guideline and section 7.4 above. The decommissioning costs for the SCOs and Morwell Power Station assets are not driven by a change in AusNet Services' regulatory obligations or an efficient capex/opex trade-off.¹²⁴ Nor are there exceptional circumstances that would require a step change. Asset decommissioning is one of many non-recurrent costs faced by the business.

In its opex proposal for the 2014–15 to 2016–17 regulatory control period, AusNet Services' described 'asset works' as a program:

... comprised of system non-recurrent expenditure that is required to manage operational risk within an acceptable band. The program

¹¹⁹ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 115.

¹²⁰ AusNet Services, *Revenue proposal*, October 2015, p 142; AusNet Services, *Revised revenue proposal*, 21 September 2016, p 112.

¹²¹ AusNet Services, *Response to AER information request #024*, 8 December 2016.

¹²² CCP5, *Response to AER Draft Decision for AusNet Services' transmission revenue review 2017-22*, September 2016, p.16.

¹²³ CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016; p. 22; CCP5, *Response to AER draft decision for AusNet Services' transmission revenue review 2017-22*, September 2016, p.18.

¹²⁴ See our Expenditure forecast assessment guideline and section 7.4.2 above for our assessment approach for step changes.

includes non-routine repairs and refurbishment, corrosion and transformer condition monitoring.¹²⁵

The AER considers this description is apt to refer to the non-recurrent expenditure that may be incurred from time-to-time in decommissioning assets that will not be replaced. In its regulatory proposal for the current decision, AusNet Services accepted that asset works opex should be forecast using the base–step–trend approach, which 'assumes that individual items of non-recurrent expenditure will rise and fall across the forthcoming regulatory period such that total non-recurrent opex is broadly consistent from year-to-year.'¹²⁶

From 2007–08 to 2015–16, 11.0 per cent of AusNet Services' total opex has been due to asset works.¹²⁷

The decommissioning costs proposed for the SCOs and Morwell Power Station assets represent \$6.3 million or 1.3 per cent of total opex (before avoided O&M costs are taken into account). It is unclear why it is necessary for AusNet Services to conduct all four decommissioning projects within a single regulatory year (2017–18), rather than incurring those expenses across multiple years. In its initial proposal, AusNet Services observed that AEMO had agreed to it taking the Fisherman's Bend SCO out-of-service in July 2015.

The fact that asset decommissioning has not been expensed by AusNet Services in the past, and this opex item is therefore not explicitly accounted for in base opex, does not justify explicit compensation for it as a step change under our opex assessment framework. AusNet Services' base year opex is expected to include different non-recurrent items for particular projects or exigencies that are not expected to recur in each year across the regulatory period. It is reasonable to expect an opex forecast based on revealed costs will provide sufficient total opex for AusNet Services to undertake prudent non-recurrent projects in an efficient manner over the regulatory period.

AusNet Services acknowledged the decommissioning of these assets will result in ongoing operation and maintenance savings of approximately \$1.4 million across the regulatory period.¹²⁸ Those savings partially offset the opex that will be incurred in decommissioning the assets.

It is unnecessary to make a specific deduction from base year opex to reflect that the corresponding part of the base year opex will not be required across the regulatory period. Rather, it is an example of the way in which a business' opex requirements are affected by numerous countervailing factors from year-to-year. Having noted that

¹²⁵ SP AusNet, *Electricity transmission revenue proposal 2014/15 – 2016/17*, 28 February 2013, p. 136.

¹²⁶ AusNet Services, *Revenue proposal*, October 2015, p 111.

¹²⁷ AusNet Services, *Annual Regulatory Information Notices*.

¹²⁸ AusNet Services proposed that an additional reduction of \$160,000 from 2017–18 would be appropriate to account for the early failure of the Brooklyn and Templestowe SCOs. (AusNet Services, *Submission on revised proposal*, October 2016, pp. 1-2.)

example, we disagree with AusNet Services' suggestion that the AER is required to present 'robust evidence' of offsetting reductions in relation to other expenditure items in the base year. That is contrary to the top-down, base-step-trend approach to forecasting total opex that we have described in section 7.4 above.

AusNet Services noted it usually recovers decommissioning costs, where decommissioning occurs as part of a repex proposal. However, we do not consider this to be a 'like-with-like' comparison. There are key differences between our forecasting approach for repex and our forecasting approach for opex. AusNet Services proposed a hybrid approach for opex whereby it incorporated its revealed costs, but also sought the costs of asset decommissioning separately on the basis that these costs have not been incurred in the past. Conversely, a repex forecast for transmission is typically built from the bottom-up, which means AusNet Services would forecast the cost of decommissioning along with the associated repex, but it would not also receive a revealed cost allowance.

In summary, we do not accept there is an explicit obligation on AusNet Services to undertake all its asset decommissioning projects in a single year. Rather, it is within AusNet Services control to 'spread out' or 'smooth' these costs over time. This does not require additional funding from consumers. We consider our total opex forecast based on AusNet Services' revealed costs is sufficient for AusNet Services to manage expected demand and comply with all applicable regulatory obligations.

Smart Aerial Image Processing roll out

We have not included a step change for AusNet Services to conduct an assessment of its network using smart aerial image processing (SAIP) in our alternative opex forecast.

SAIP is an enhanced condition assessment technique that uses helicopter-mounted high resolution video cameras to capture a continuous stream of digital images of overhead conductors and their environs. This technique is used to assess the condition of the line and assets that are difficult to observe from the ground.

AusNet Services proposed a step change of \$0.9 million (\$2016–17) to fully implement SAIP. This cost was additional to the SAIP expenditure incurred by AusNet Services in the base year. AusNet Services stated a full assessment with SAIP would enable it to 'better predict the extent and optimal timing of future conductor replacements, and avoid initiating replacement works before they are necessary.'¹²⁹

AusNet Services submitted that since 2009, it has completed a number of SAIP trials on different parts of its transmission network, including covering approximately 500km of its network in 2014–15 and 1000km in 2015–16. AusNet Services also highlighted a SAIP trial it conducted in 2012, which it stated resulted in the replacement of 62km of ground-wire between Hazelwood and South Morang after the SAIP analysis revealed corrosion.

¹²⁹ AusNet Services, *Revised revenue proposal*, 21 September 2016, p.108.

The CCP agreed that SAIP can be an effective tool but did not consider that a step change was needed. The CCP considered the total opex forecast was sufficient to fund SAIP.¹³⁰

The EUCV submitted that at a high level, the SAIP project might be beneficial to consumers. However, it stated, there is no evidence of a return for undertaking this activity.¹³¹

We agree with the views expressed by the CCP and EUCV. We do not consider AusNet Services' proposal justifies a departure from our assessment approach, as set out in our Guideline and section 7.4 above. We do not consider the proposed expenditure is a legitimate capex/opex trade off that would require a step change to result in an efficient forecast. We remain of the view AusNet Services has not established the step increase in expenditure for SAIP will be offset by capex savings.¹³²

We consider the roll out of SAIP—which represents 0.2 per cent of AusNet Services' total opex proposal¹³³—is for AusNet Services to consider within the context of its total opex allowance and prioritise if prudent to do so. We consider our total opex forecast is sufficient for AusNet Services to manage expected demand and comply with all applicable regulatory obligations.

To establish a step change as a capex/opex trade-off, a business must demonstrate how the increased opex would be more than offset by capex savings.¹³⁴ This includes quantifying and demonstrating with some certainty the capex savings expected to eventuate from the step increase in opex. Absent of this, there is risk of creating upward bias in the total opex forecast—that is, by allowing for increasing or new costs but not decreasing or non-recurrent costs (as explained in section 7.4.2).

It is important to note a significant proportion of opex is linked to capex, such as asset management opex. A business will not have an incentive to identify negative capex/opex trade-offs in its opex forecast. Given this, it is particularly important for the business to sufficiently demonstrate the need to include a positive step change.

In our draft decision we expressed our position that AusNet Services had not sufficiently identified or quantified any capex savings that may eventuate as a result of the SAIP program. In response, AusNet Services did not provide information in its revised proposal that supported its claim of capex savings.

¹³⁰ CCP5, *Submission in response to AusNet Services' 2017-22 revised revenue proposal*, October 2016, p.23.

¹³¹ Energy User Coalition of Victoria, *A response to AusNet revenue reset proposal for the 2017-2022 period*, February 2016, p. 34.

¹³² AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-66.

¹³³ Excluding land easement tax and including debt raising costs.

¹³⁴ AER, *Explanatory statement—expenditure forecast assessment guideline*, November 2013, p. 52.

Instead, AusNet Services provided a variety of hypothetical scenarios to support its claim of capex savings. For example, AusNet Services stated if SAIP can defer the replacement of 10 per cent of 400km of 500kV conductor installed in the early 1970s from 2024 to 2026, this will generate capex savings of \$3.1 million, with a net economic benefit of 1.5 million in PV terms. Or, if SAIP could defer the replacement of 50 per cent of the 400km of 500kV conductor from 2024 to 2026, capex savings of \$15.5 million would be achieved, with a net economic benefit of \$13.9 million. However, AusNet Services did not provide any information that suggests those scenarios would in fact occur.

WMTS mobile switchboard

We have not included a step change for AusNet Services to lease a mobile switchboard at its West Melbourne Terminal Station (WMTS).

AusNet Services proposed a \$2.0 million (\$2016–17) increase in opex for the WMTS mobile switchboard.

This step change is related to AusNet Services' proposal to rebuild the WMTS in the 2017–22 regulatory control period. As part of the rebuild, AusNet Services is planning to retire the 22kv assets at the site, however, it is concerned the 22kv switchboard may fail before it is taken out of service. To address this risk, it proposed leasing a mobile switchboard to maintain the assets until it takes them out of service.¹³⁵

AusNet Services submitted that base opex does not account for the costs because they are not part of normal operations and 'because the AER has not presented any robust evidence to demonstrate they will be offset by reductions in other opex categories.'¹³⁶

AusNet Services further stated the costs are justifiable as a step change under the AER's Guideline because they are driven by a decision to avoid capex. AusNet Services estimated the cost of replacing the switchroom at \$17.2 million.¹³⁷

We do not consider AusNet Services' proposal justifies a departure from our assessment approach, as set out in our Guideline and section 7.4 above. We consider this to be a non-recurrent opex item and not an efficient capex/opex trade-off as contemplated by our Guideline. In particular, we do not consider the capex solution AusNet Services has identified is a realistic alternative to incurring this opex. AusNet Services itself identified that this capex solution represented a *long term* solution to the risk of the current switchboard failing.¹³⁸ Given that AusNet Services will be retiring the 22kv network over the 2017–22 regulatory period, we do not consider an efficient business would undertake such capital expenditure.

¹³⁵ AusNet Services, *Revised revenue proposal*, 21 September 2016, pp.117–118.

¹³⁶ AusNet Services, *Revised revenue proposal*, 21 September 2016, p.118.

¹³⁷ AusNet Services, *Revised revenue proposal*, 21 September 2016, p.117.

¹³⁸ AusNet Services, *Revised revenue proposal*, 21 September 2016, p.117.

The WMTS project was previously scheduled for the 2014–17 regulatory control period but subsequently deferred by AusNet Services to the 2017–22 regulatory control period. We note that there may be an increase in risk of failure with AusNet Services' deferral of the WMTS retirement and that targeted capex and/or opex works may alleviate any increase in risk. However, we consider the overall opex allowance is sufficient to cover any additional opex associated with this.

The cost of the mobile switchboard—which represents 0.4 per cent of AusNet Services' total opex proposal¹³⁹—is therefore for AusNet Services to consider within the context of its total opex allowance and prioritise, if it is prudent to do so. Including a step change for this increased cost identified by AusNet Services would result in an excessive forecast of total opex.

We consider our total opex forecast is sufficient for AusNet Services to manage expected demand and comply with all applicable regulatory obligations.

Avoided costs due to retirement of diesel generators

We have not included a step change for the retirement of AusNet Services' diesel generators in our alternative opex forecast. This was proposed by AusNet Services in a submission subsequent to its revised proposal.¹⁴⁰

AusNet Services proposed a negative step change of \$0.23 million (\$2016–17) for avoided costs associated with retiring diesel generators at four of its terminal stations.¹⁴¹ AusNet Services submitted that AEMO confirmed that the services provided by these assets will no longer be required from 1 January 2017.¹⁴² In this letter to AusNet Services, AEMO stated its expectation that AusNet Services would write to the AER to amend its revised proposal for the costs avoided from retiring the diesel generators.¹⁴³

The avoided costs resulting from the retirement of AusNet Services' diesel generators represents 0.05 per cent of AusNet Services' total opex proposal (excluding easement land tax).

We do not consider AusNet Services' proposal justifies a departure from our assessment approach, as set out in our Guideline and section 7.4 above. Although we accept that the retirement of its diesel generators is forecast to reduce AusNet Services' total opex by \$0.23 million, it is an example of a cost decrease that AusNet Services would face in the normal course of operating the network. This is captured within the base opex component of the forecast.

¹³⁹ Excluding land easement tax.

¹⁴⁰ AusNet Services, *Submission on revised proposal*, 20 December 2016, p. 4.

¹⁴¹ AusNet Services, *Submission on revised proposal*, 20 December 2016, p. 4.

¹⁴² AusNet Services, *Submission on revised proposal – Attachment 2- Retirement of Diesel Generators at SMTS, SYTS, TSTS and KTS*.

¹⁴³ AusNet Services, *Submission on revised proposal – Attachment 2- Retirement of Diesel Generators at SMTS, SYTS, TSTS and KTS*.

7.5.3.2 Category specific forecasts

Our preferred forecasting approach is to apply the base–step–trend approach described in section 7.4.2. Typically, however, there are a few categories of opex we do not include in our base–step–trend forecast which we include as category specific forecasts instead.

We have included category specific forecasts for easement land tax, debt raising costs and opex associated with the roll in of group 3 assets in our final decision opex forecast. These are set out in table 7.5. We have not included a category specific forecast for self-insurance. We discuss our reasons below.

Table 7.5 Final position on category specific forecasts (\$ million, 2016–17)

	2016	2017	2018	2019	2020	Total
Easement land tax*	135.0	135.0	135.0	135.0	135.0	675.1
Debt raising costs	1.6	1.6	1.6	1.6	1.5	7.8
Group 3 assets roll in	2.1	2.1	2.1	2.1	2.1	10.4

Source: AusNet Services, Revised revenue proposal 2017–22, September 2016; State Revenue Office Victoria, 2017 *Land tax assessment notice*, 16 January 2017; AER analysis.

Note: *Reflects 16 January 2017 land tax assessment notice. Numbers may not add up due to rounding.

Easement land tax

Our final decision, consistent with our draft decision, is to apply a category specific forecast for easement land tax based on AusNet Services' most recent tax assessment notice.

AusNet Services' network is built on a series of easements, which are subject to the Victorian Government's easements land tax. Where the forecast we include in our opex forecast differs (higher or lower) from the actual tax paid, AusNet Services is required to apply for a cost pass through.¹⁴⁴ To apply this pass through we need an explicit forecast of these costs.

In its initial proposal, AusNet Services proposed an easement land tax forecast of \$571.6 million (\$2016–17) for the 2017–22 regulatory control period based on its then most recent tax assessment notice. In our draft decision, we were satisfied this was a reasonable basis to forecast easement land tax.

¹⁴⁴ NER, cl. 11.6.21. The pass-through arrangements contained in Clause 11.6.21 (a) and (d) of the NER allow any variance between the forecast ELT and the actual tax levied to be corrected in the relevant regulatory year's revenue. The annual correction, referred to as an easement tax change event, is not subject to the materiality threshold contained in the NER. The process is to be followed with regards to an application for a negative or positive pass through amount arising from an easement tax change event.

In its revised proposal, AusNet Services accepted our position on easement land tax.¹⁴⁵

However, in December, AusNet Services received its easement land tax assessment notice for 2017–18 from the State Revenue Office of Victoria (SRO) and it was significantly higher than its previous assessment notice. The easement land tax payable in 2017–18 is \$136.4 million (\$2017–18) or \$20.7 million (18.1 per cent) higher than forecast.¹⁴⁶

Accordingly, our final decision forecast of easement land tax is \$103.5 million (\$2016–17) higher than the forecast included in our draft decision and AusNet Services' revised proposal for the 2017–22 regulatory control period.

Debt raising costs

Our final decision, consistent with our draft decision, is to apply a category specific forecast based on a benchmark for debt raising costs.

In its initial proposal, AusNet Services proposed forecasting its debt raising costs by rolling forward its actual debt raising costs as part of base year opex.¹⁴⁷

However, consistent with the incentive framework, our preferred approach is to forecast debt raising costs using a benchmarking approach rather than a service provider's actual costs in a single year. This provides for consistency with the forecast of the cost of debt in the rate of return building block. We discuss this in the equity and debt raising costs appendix to Attachment 3.

In its revised proposal, AusNet Services accepted our approach to forecasting debt raising costs and we received no submissions on the issue.¹⁴⁸

Group 3 asset roll in

Our final position is to include a category specific forecast for the opex associated with group 3 assets. This is consistent with our draft decision.

During any regulatory control period, AEMO or a distribution business may request AusNet Services to augment the transmission network or distribution connection services. We do not roll these assets into the regulated asset base until the subsequent revenue determination. AusNet Services refer to these assets as 'group 3 assets'.

The opex associated with group 3 assets is currently charged to customers outside the revenue cap and is not reflected in base opex. Consequently we need to increase our

¹⁴⁵ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 123.

¹⁴⁶ AusNet Services, *Submission on revised proposal*, 20 December 2016, p. 4.

¹⁴⁷ AusNet Services, *Revenue proposal*, October 2015, p. 119.

¹⁴⁸ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 15.

opex forecast for the additional expenses associated with the operation and maintenance of the group 3 assets that we roll into the RAB. The value of the assets being rolled into the RAB in April 2017 is \$99 million (\$2016–17).¹⁴⁹

In its initial proposal, AusNet Services estimated a percentage increase in total opex associated with these group 3 assets. It did this based on the change in the proportion of its total asset base related to regulated assets multiplied by a weighted scale factor.¹⁵⁰ This resulted in a forecast increase in opex of 2.39 per cent in the first year of the 2017–22 regulatory control period, or \$10 million (\$2016–17) over the five year forecast.

In our draft decision, while we had some concerns with AusNet Services' forecasting approach, we were satisfied that the forecast opex associated with group 3 assets reasonably reflected the efficient costs of operating and maintaining those assets.¹⁵¹

In its revised proposal, AusNet Services accepted our draft decision on the opex attributable to the roll in of group 3 assets, subject to the application of the approved scale factor to estimated final year opex.¹⁵² AusNet Services stated we double counted economies of scale in the group 3 asset roll in and when we applied positive productivity in the rate of change we applied to base opex. We address AusNet Services' concerns about double counting economies of scale in the rate of change of section.

Having considered AusNet Services' revised proposal, our final position is to include a category specific forecast for the opex associated with the roll in of group 3 assets as set out in table 7.5.

Self-insurance

We have not included a category specific forecast for self-insurance in our final decision. Rather, we have included self-insurance in base opex, which we used to forecast our alternative estimate of total opex. This forecasting approach is consistent with our draft decision.

AusNet Services proposed a category specific forecast for self-insurance of \$13.5 million (\$2016–17).¹⁵³ This covers tower failure, machinery breakdown, property damage, fire liability and a risk margin.¹⁵⁴ This increased its total opex forecast by

¹⁴⁹ AusNet Services, *Revenue proposal, Appendix 5C: Group 3 Assets*, October 2015, p. 4.

¹⁵⁰ AusNet Services, *Revenue proposal*, October 2015, pp. 133–134.

¹⁵¹ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-37.

¹⁵² AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 103.

¹⁵³ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 123.

¹⁵⁴ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 123.

\$8.9 million (\$2016–17) compared to including self-insurance costs in base opex and applying the rate of change.¹⁵⁵

About half of that increase, \$2.1 million, relates to the actuarial risk margin that AusNet Services has added to its estimate of future self-insured losses.¹⁵⁶ The inclusion of the risk premium appears to be inconsistent with the approach previously adopted by AusNet Services in its most recent distribution regulatory proposal, in which AusNet Services proposed a self-insurance allowance exclusive of a risk premium.¹⁵⁷

In its initial proposal, AusNet Services stated self-insurance losses are volatile and can vary markedly from year-to-year.¹⁵⁸ For this reason, it considered our approach of relying on actual losses in a single year is likely to result in a less accurate forecast of self-insurance than a forecast based on expected losses, particularly if an abnormally high or low level of self-insurance losses influences base opex.

In our draft decision, we stated that the NER require us to form a view on total opex, rather than movements in specific categories of opex such as self-insurance.¹⁵⁹ Although using a category specific forecasting method may produce a better forecast of expenditure for a particular category, we did not consider it produces a better forecast of total opex for the reasons explained below.¹⁶⁰ In considering whether a category specific forecast is necessary, the question is not whether individual cost categories are volatile or lumpy, but whether total opex is volatile or lumpy over time. Under our assessment approach, we are not concerned with the volatility of an individual opex category unless it undermines our assumption that total opex is relatively stable and predictable over time.

Although we use total opex in the base year to forecast AusNet Services' future opex, we do not assume that the expenditure incurred on each of the opex projects and programs AusNet Services undertook in the base year will be the same as those it will undertake over the forecast period. Nor are we forecasting that expenditure on each category of opex will be similar to that in the base year. Relying on the business' revealed costs allows us to maintain our preferred top-down forecasting approach—thereby avoiding numerous bottom-up type assessments of discrete opex sub-categories, projects or items.

¹⁵⁵ Calculated using AusNet Services revised opex model. Leaving self-insurance in the base year results in a total opex forecast of \$1045.5m compared with AusNet Services total opex forecast of \$1049.6m.

¹⁵⁶ AusNet Services, *Revised revenue proposal*, 21 September 2016, p.123.

¹⁵⁷ Comparing AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 123 with AusNet Services, *Regulatory proposal 2016-20*, 30 April 2015, p 195; Aon, *Self Insurance Risk Quantifications – AusNet Services (Distribution) Ltd*, January 2015.

¹⁵⁸ AusNet Services, *Revenue proposal*, October 2015, p. 146.

¹⁵⁹ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-35; NER, cl. 6A.6.6(c).

¹⁶⁰ AER, *Draft Decision AusNet Services transmission determination—Attachment 7—Operating expenditure*, July 2016, p. 7-35.

In its revised proposal, AusNet Services submitted that our approach to forecasting self-insurance costs was incorrect.¹⁶¹ It maintained that these costs should be forecast on a category-specific basis.¹⁶² It also considered that we made an error including self-insurance losses, rather than 'premiums' in base year opex.¹⁶³

AusNet Services also states that our draft decision:

- inconsistently treated self-insurance and insurance
- failed to recognise the impact of self-insurance losses on total opex
- did not account for up-to-date information on self-insurance costs
- inconsistently treated self-insurance in the opex forecast and the EBSS calculation.¹⁶⁴

Our key reasons for rejecting AusNet Services' revised proposal to include a category specific forecast for self-insurance are set out below. We also explain both how the EBSS interacts with the different forecasting approaches and, for the purpose of regulatory expenditure forecasting, self-insurance 'premiums' are not actual costs incurred by AusNet Services.

Key reasons why we include self-insurance in base opex

First, including specific cost categories identified by a business—rather than relying on the business' revealed costs—in the base year opex forecast, creates an incentive for the business to adopt an alternative forecasting method when its expenditure for a particular opex category was atypically low; but follow the revealed cost approach in relation for those categories where expenditure was atypically high in the base year.

We are concerned this would allow the business to 'pick' which categories of opex it expects will increase and seek a category specific forecast for those categories. Conversely, the business has no such incentive to identify costs that are going down, or projects or programs that it will discontinue in the upcoming period.

These asymmetric incentives therefore potentially introduce an upward bias into our total opex forecast.¹⁶⁵ For the reasons set out in our assessment approach (section 7.4.2), our forecasting method avoids this upward bias. AusNet Services has not addressed this concern in its revised proposal.

Second, AusNet Services has not demonstrated that the potential volatility in self-insurance expenses undermines our assumption that total opex is relatively stable. In particular, it has not provided evidence that variability in its historic self-insurance

¹⁶¹ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 5.

¹⁶² AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 119.

¹⁶³ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 84.

¹⁶⁴ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 120.

¹⁶⁵ AER, *Explanatory statement—expenditure forecast assessment guideline*, November 2013, p. 75.

losses has corresponded with, or significantly contributed to, variability in its total opex over time.

So long as total opex remains relatively stable over time notwithstanding any variability in self-insurance losses, it is unnecessary to do a bottom-up, category specific forecast for self-insurance costs. Our assessment approach is to forecast the total opex and not the individual opex categories—consistent with our task under the NER. Therefore, it is not relevant to consider the volatility in self-insurance costs unless including self-insurance in the base opex would make total opex lumpy and unpredictable over time.

In its revised proposal, AusNet Services agreed that 'the composition of its opex will vary from year-to-year and there may be some offsetting effects of this variation'.¹⁶⁶ However, it maintained that 'where an individual opex category has a high degree of volatility and may be significant from time to time, relying on offsetting effects between categories is unlikely to result in the best forecast of total opex'.¹⁶⁷

However, the potential for a self-insurance loss to create volatility in total opex is limited. The cost pass through mechanism, which is part of the regulatory framework, limits the magnitude of self-insurance losses incurred by AusNet Services. If AusNet Services' losses exceed the materiality threshold, which is 1 per cent of its allowed revenue for that year, it may be eligible to apply for a cost-pass through. So, AusNet Services can potentially recover any self-insurance loss above roughly \$5.5 million directly from consumers.

To the extent that self-insurance losses have the potential to create volatility in total opex, we expect AusNet Services can manage the inevitable 'ups and downs' in the components of opex from year-to-year—to the extent they do not offset each other—by continually re-prioritising its work program, as would be expected in a competitive market.

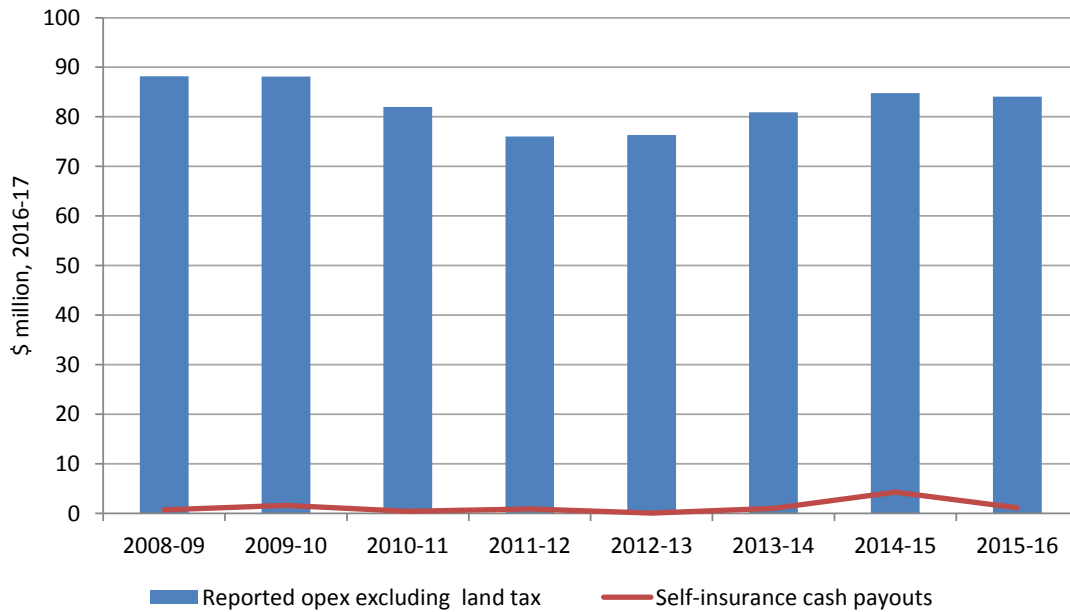
The historical evidence does not support AusNet Services' position. Self-insurance losses do not appear to have had a significant impact on total opex over time. AusNet Services' total opex is relatively stable from year-to-year and self-insurance losses have been limited, as shown in Figure 7.3.

In summary, we do not consider AusNet Services' proposal justifies a departure from our top-down assessment approach to forecasting total opex, as described in section 7.4 above.

¹⁶⁶ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 121.

¹⁶⁷ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 121.

Figure 7.3 AusNet Services' self-insurance cash payouts compared to its total opex (\$ million, 2016–17)



Source: AusNet Services, *Regulatory accounts 2008–09 to 2015–16*. Provisions data sourced from AusNet Services, *EB RINs 2008–09 to 2015–16*.

Note: Reported opex excluding easement land tax, AIS rebate and provisions.

EBSS interactions

The EBSS only works in conjunction with a revealed cost forecasting approach. If we do not use revealed costs to forecast a category of opex, and the EBSS does not apply to that category, a business will retain 100 per cent of any underspends or conversely, incur 100 per cent of any overspends. This exposes the business to a higher forecasting risk if its actual expenditure significantly exceeds its category specific forecast. This is in contrast to sharing that risk with consumers where that category is included in base opex and therefore subject to the EBSS.

We consider self-insurance should be subject to the EBSS for two main reasons:

First, AusNet Services benefits from applying an EBSS to self-insurance costs. AusNet Services submits self-insurance events are uncontrollable,¹⁶⁸ and 'self-insurance losses are by nature volatile and can vary markedly from year to year'.¹⁶⁹ If AusNet Services incurs a significant self-insurance loss exceeding the revealed cost forecast, the EBSS allocates the cost between AusNet Services and its customers in the proportion of approximately 30:70, thereby reducing AusNet Services' risk of a substantial loss.

¹⁶⁸ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 121.

¹⁶⁹ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 120.

If a category specific forecast is adopted, AusNet Services cannot mitigate its forecasting risk in this way, and will therefore have to bear the full costs of any self-insurance loss that exceeds its forecast. In a similar sense, a business will be incentivised to apply a category-specific forecast if it expects to underspend against the forecast amount, with the result that the EBSS does not apply and the business therefore ends up retaining the entirety of any underspend for that category, rather than having to share the underspend with consumers through the EBSS.

Second, applying the EBSS to external insurance and not to self-insurance could distort the choice between insuring or self-insuring risk. The inconsistent sharing of efficiency gains between costs forecast on a 'revealed cost' basis and those using a category specific forecast can distort the incentive to spend efficiently if there is any substitutability between cost categories.

In some cases the service provider may have an incentive to increase expenditure on categories forecast on a category specific basis and reduce expenditure on categories included in the revealed cost forecast. This is because it would generate an EBSS reward without actually making an efficiency gain and reducing its total opex. A service provider may be better off doing this even if it results in an inefficient outcome.

For this reason, we consider AusNet Services would not have an incentive to adopt the efficient mix of insurance and self-insurance if we forecast self-insurance on a category specific basis and exclude it from the EBSS.

Why we include actual losses in base opex and not theoretical premiums

To determine the base year component of opex under our method, we rely principally on the business' revealed costs in a given base year. In this case, we used AusNet Services' audited historical costs in 2014–15 as the starting point for our base–step–trend forecast. AusNet Services' audited costs include actual self-insurance costs incurred.¹⁷⁰ However, AusNet Services makes an accounting adjustment in its regulatory accounts, netting off its actual self-insurance costs against the self-insurance forecast allowed in its previous transmission determination.¹⁷¹

AusNet Services submitted we made an error basing our self-insurance analysis on actual losses, rather than on a 'conceptual' premium. AusNet Services submitted that self-insurance is analogous to insurance, with the 'premium' being an actuarially assessed self-insurance allowance, and the costs of the actual self-insured events being equivalent to insurance losses that are claimed under an insurance policy.¹⁷²

We consider that, for both our opex forecast and EBSS purposes, the costs incurred by AusNet Services are its self-insurance losses and not a notional self-insurance 'premium'.

¹⁷⁰ AusNet Services, on the other hand, adjusts its audited operating costs to replace actual costs incurred for self-insurance with the self-insurance allowance for that year.

¹⁷¹ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 119.

¹⁷² AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 120.

Unlike external insurance, AusNet Services does not actually pay a self-insurance 'premium' to any party. The premium is only a notional provision that is made by way of an accounting entry in AusNet Services' regulatory accounts.

For both self-insurance costs and external insurance, we use expenditure incurred to establish revealed costs. That is, we include the actual costs incurred for self-insurance and we include the actual costs incurred for external insurance. Regardless of the category, we include payments made by AusNet Services to other parties as actual costs.

Our treatment of self-insured costs—more specifically, our decision to include losses rather than premiums—is consistent with our treatment of movements in provisions. We exclude 'movements in provisions' from base year opex forecasts used to determine revenue requirements. We also exclude them when we calculate efficiency gains or losses. In our view, year-to-year changes in provisions do not represent actual costs incurred in delivering network services.¹⁷³

We therefore disagree with AusNet Services that the recording of a provision in its regulatory accounts reflects a cost that it incurs.¹⁷⁴ Even if AusNet Services maintained a dedicated reserve against its future self-insured losses, they would not be an actually incurred cost until the funds set aside are paid to another party.

7.5.4 Interrelationships

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

- the operation of the EBSS in the 2014–17 regulatory control period, which provided AusNet Services an incentive to reduce opex in the base year
- substitution possibilities between opex and capex
- 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.

7.5.5 Assessment of opex factors under NER

In deciding whether or not we are satisfied a service provider's forecast reasonably reflects the 'opex criteria' under the NER, we have regard to the 'opex factors'.

¹⁷³ *Re PIAC and Ausgrid* [2016] ACompT 1 at [603]; see also AER, *Explanatory statement—expenditure forecast assessment guideline*, November 2013, p. 62.

¹⁷⁴ AusNet Services, *Revised revenue proposal*, 21 September 2016, p. 119.

We attach different weight to different factors when making our decision to best achieve the NEO. This approach has been summarised by the AEMC as follows:

As mandatory considerations, the AER has an obligation to take the capex and opex factors into account, but this does not mean that every factor will be relevant to every aspect of every regulatory determination the AER makes. The AER may decide that certain factors are not relevant in certain cases once it has considered them.¹⁷⁵

We have summarised in table 7.6 how we have taken the opex factors into account in making our final decision.

Table 7.6 Our consideration of the opex factors

Opex factor	Consideration
<p>The most recent annual benchmarking report that has been published under clause 6A.31 and the benchmark opex that would be incurred by an efficient Transmission Network Service Provider over the relevant regulatory control period.</p>	<p>We have considered the results of our most recent annual transmission benchmarking report in estimating AusNet Services' efficient base opex (section 7.5.1). Our benchmarking results suggest AusNet Services has been operating relatively efficiently when compared to other service providers in the NEM.</p> <p>We have used economic benchmarking, opex cost function modelling and expert forecasting information to estimate the benchmark opex that would be incurred by an efficient service provider over the forecast period. Based on this, we have formed a view on the efficiency of AusNet Services' proposed total forecast opex compared to the benchmark efficient opex that would be incurred over the relevant regulatory control period. We have found AusNet Services' forecast opex to be higher than our independent estimate. We are not satisfied that AusNet Services' forecast opex reasonably reflects the opex criteria.</p>
<p>The actual and expected opex of the Transmission Network Service Provider during any preceding regulatory control periods.</p>	<p>We have forecast AusNet Services' efficient opex over 2017–22 using its actual opex in 2014–15 as the starting point. We have compared several years of AusNet Services' actual past opex with that of other service providers to form a view about whether or not its revealed expenditure is sufficiently efficient to rely on as the basis for forecasting required opex in the forthcoming period.</p>
<p>The extent to which the opex forecast includes expenditure to address the concerns of electricity consumers as identified by the Transmission Network Service Provider in the course of its engagement with electricity consumers.</p>	<p>We understand the intention of this particular factor is to require us to have regard to the extent to which service providers have engaged with consumers in preparing their revenue proposals, such that they factor in the needs of consumers.¹⁷⁶</p> <p>We consider AusNet Services' opex forecast includes expenditure to address concerns of electricity consumers identified by AusNet Services in the course of its engagement. AusNet Services stated it is no longer proposing additional opex for output growth in its revised revenue proposal. This approach it says is consistent with the feedback received</p>

¹⁷⁵ AEMC, *Economic Regulation of Network Service Providers, and Price and Revenue Regulation of Gas Services, Final Position Paper*, 29 November 2012, p. 113.

¹⁷⁶ AEMC, *Economic Regulation of Network Service Providers, and Price and Revenue Regulation of Gas Services, Final Position Paper*, 29 November 2012, pp. 101 and 115.

Opex factor	Consideration
	<p>from stakeholders.</p> <p>The CCP submitted they were supportive of AusNet Services' level of consumer engagement and acknowledges its genuine effort to engage with consumers.¹⁷⁷</p>
<p>The relative prices of capital and operating inputs.</p>	<p>We have had regard to multilateral total factor productivity benchmarking when deciding whether or not AusNet Services' forecast opex reflects the opex criteria - rather than looking at opex productivity in isolation. Our multilateral total factor productivity analysis considers the overall efficiency of networks in the use of both capital and operating inputs.</p> <p>We adopted price escalation factors that account for the relative prices of opex and capex inputs.</p> <p>One reason we will include a step change in our alternative opex forecast is if the service provider proposes a capex/opex trade-off. We consider the relative expense of capex and opex solutions in considering such a trade-off.</p> <p>AusNet Services proposed two step changes as capex/opex trade-offs. These comprised the SAIP roll out and WMTS mobile switchboard lease. We do not consider these to be legitimate capex/opex trade-offs that require a step change for our forecast of total opex to reasonably reflect the opex criteria.</p>
<p>The substitution possibilities between operating and capital expenditure.</p>	<p>The efficiency incentive schemes that we have applied to AusNet Services recognise the substitution possibilities between opex and capex. These schemes set the incentives to reduce opex and capex equal so that there is an incentive to undertake efficient capex/opex trade-offs.</p> <p>In developing our benchmarking models, we have considered the relationship between capital, opex and outputs. We have also considered how different capitalisation policies of the service providers may affect opex performance.</p> <p>We do not consider the step changes proposed by AusNet Services as capex/opex trade-offs are required for our forecast of total opex to reflect the opex criteria.</p>
<p>Whether the opex forecast is consistent with any incentive scheme or schemes that apply to the Transmission Network Service Provider under clauses 6A.6.5, 6A.7.4 or 6A.7.5.</p>	<p>The incentive scheme that we applied to AusNet Services' opex in the 2012–17 regulatory control period, the EBSS, is intended to work in conjunction with our revealed cost forecasting approach.</p> <p>We have applied our estimate of base opex consistently in applying the EBSS and forecasting AusNet Services' opex for the 2017–22 regulatory control period.</p>
<p>The extent the opex forecast is referable to arrangements with a person other than the Transmission Network Service Provider that, in the opinion of the AER, do not reflect arm's length terms.</p>	<p>We have assessed AusNet Services' total opex efficiency in deciding whether or not to accept AusNet Services' opex forecast. Given this, we are not necessarily concerned whether arrangements between AusNet Services and another person do or do not reflect arm's length terms. A service provider which uses related party providers can be efficient or it can be inefficient. Likewise, for a service provider who does not use related party providers. If a service provider is inefficient, we adjust their total forecast opex proposal, regardless of their arrangements with related providers.</p>
<p>Whether the opex forecast includes an amount relating to a project that should</p>	<p>This factor is only relevant in the context of assessing proposed step changes (which may be explicit projects or programs). AusNet Services</p>

¹⁷⁷ CCP5, *Submission in response to AusNet Services' 2017–22 revised revenue proposal*, October 2016, p. 37.

Opex factor	Consideration
more appropriately be included as a contingent project under clause 6A.8.1(b).	did not propose any opex step change that would be more appropriately included as a contingent project.
The most recent NTNDP and any submissions made by AEMO, in accordance with the Rules, on the forecast of the Transmission Network Service Provider's required opex.	We have had regard to AEMO's most recent NTNDP and consider this to be consistent with AusNet Services' forecast opex.
The extent to which the Transmission Network Service Provider has considered and made provision for efficient and prudent non-network alternatives.	AusNet Services has proposed no expenditure for non-network alternatives for the 2017–22 regulatory period.
Any relevant project assessment conclusions report required under 5.16.4.	In having regard to this factor, we identify any RIT-T project submitted by the business and ensure the conclusions are appropriately addressed in the total forecast opex. AusNet Services did not submit any RIT-T project.
Any other factor the AER considers relevant and which the AER has notified the Transmission Network Service Provider in writing, prior to the submission of its revised Revenue Proposal under clause 6A.12.3, is an operating expenditure factor.	We did not identify and notify AusNet Services of any other opex factor.

Source: AER analysis.