



PRELIMINARY DECISION
AusNet Services distribution
determination
2016 to 2020

Attachment 7 – Operating
expenditure

October 2015

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Note

This attachment forms part of the AER's preliminary decision on AusNet Services' revenue proposal 2016–20. It should be read with all other parts of the preliminary decision.

The preliminary decision includes the following documents:

Overview

Attachment 1 - Annual revenue requirement

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 - Demand management incentive scheme

Attachment 13 - Classification of services

Attachment 14 - Control mechanism

Attachment 15 - Pass through events

Attachment 16 - Alternative control services

Attachment 17 - Negotiated services framework and criteria

Attachment 18 - f-factor scheme

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Shortened forms

Shortened form	Extended form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AMI	Advanced metering infrastructure
augex	augmentation expenditure
capex	capital expenditure
CAM	cost allocation method
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
DAE	Deloitte Access Economics
DRP	debt risk premium
DMIA	demand management innovation allowance
DMIS	demand management incentive scheme
DNSP	distribution network service provider
distributor	distribution network service provider
DUoS	distribution use of system
EA	enterprise agreement
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
Expenditure Assessment Guideline	Expenditure Forecast Assessment Guideline for electricity distribution
F&A	framework and approach
GSL	guaranteed service level
MPFP	multilateral partial factor productivity
MRP	market risk premium

Shortened form	Extended form
MTFP	multilateral total factor productivity
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
opex	operating expenditure
PPF	partial factor productivity
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
SAIDI	system average interruption duration index
SAIFI	system average interruption frequency index
SFA	stochastic frontier analysis
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
WACC	weighted average cost of capital
WPI	wage price index

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 standard control services is one of the building blocks we use to determine a service provider's total revenue requirement.

This attachment provides an overview of our assessment of opex. Detailed analysis of our assessment of opex is in the following appendices:

- Appendix A—base opex and step changes
- Appendix B—rate of change.

7.1 Preliminary decision

We are not satisfied that AusNet Services' forecast opex reasonably reflects the opex criteria.¹ We therefore do not accept the forecast opex AusNet Services included in its building block proposal.² Our alternative estimate of AusNet Services' opex for the 2016–20 period, which we consider reasonably reflects the opex criteria, is outlined in Table 7-1.³

Table 7-1 Our preliminary decision on total opex (\$ million, 2015)

	2016	2017	2018	2019	2020	Total
AusNet Services' proposal	235.5	241.1	247.6	249.3	254.1	1227.6
AER preliminary decision	211.2	214.6	218.7	223.1	227.3	1095.0
Difference	-24.3	-26.5	-28.8	-26.2	-26.8	-132.6

Source: AER analysis.

Note: Excludes debt raising costs and DMIA.

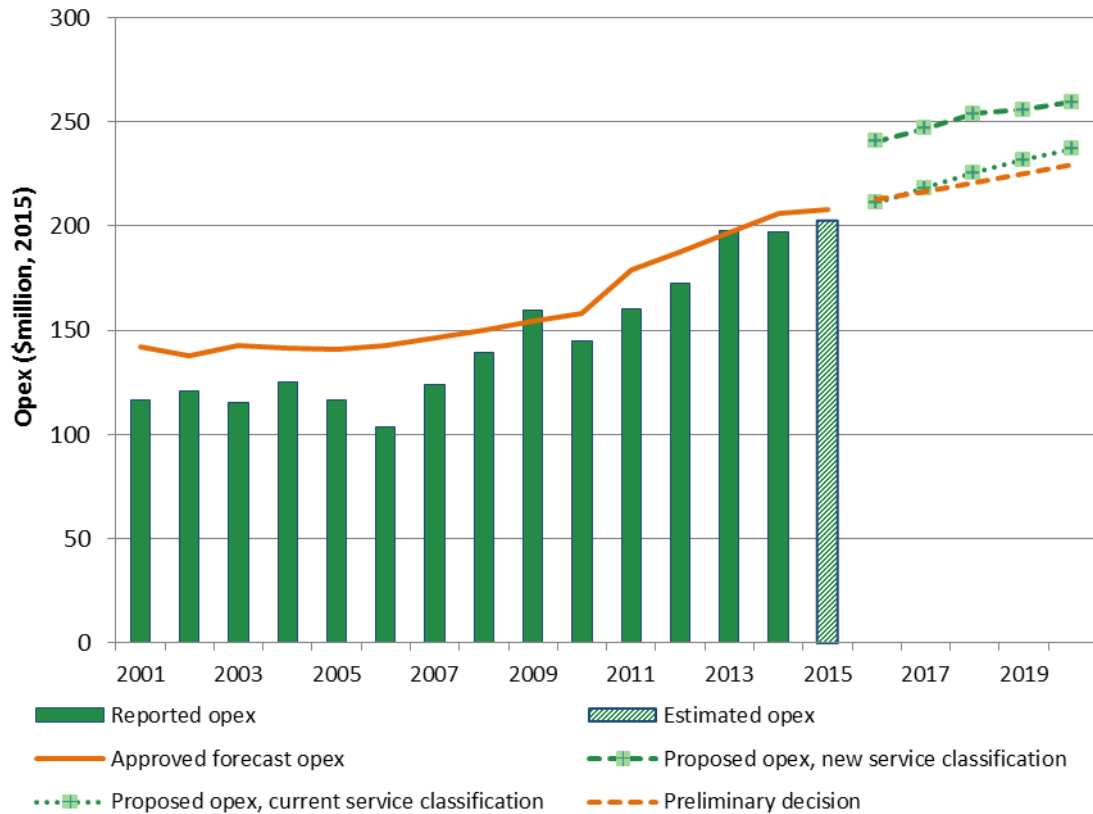
Figure 7-1 shows our preliminary decision compared to AusNet Services' proposal, its past allowances and past actual expenditure.

¹ NER, cl. 6.5.6(c).

² NER, cl. 6.5.6(d).

³ NER, cl. 6.12.1(4)(ii).

Figure 7-1 Our preliminary decision compared to AusNet Services' past and proposed opex (\$ million, 2015)

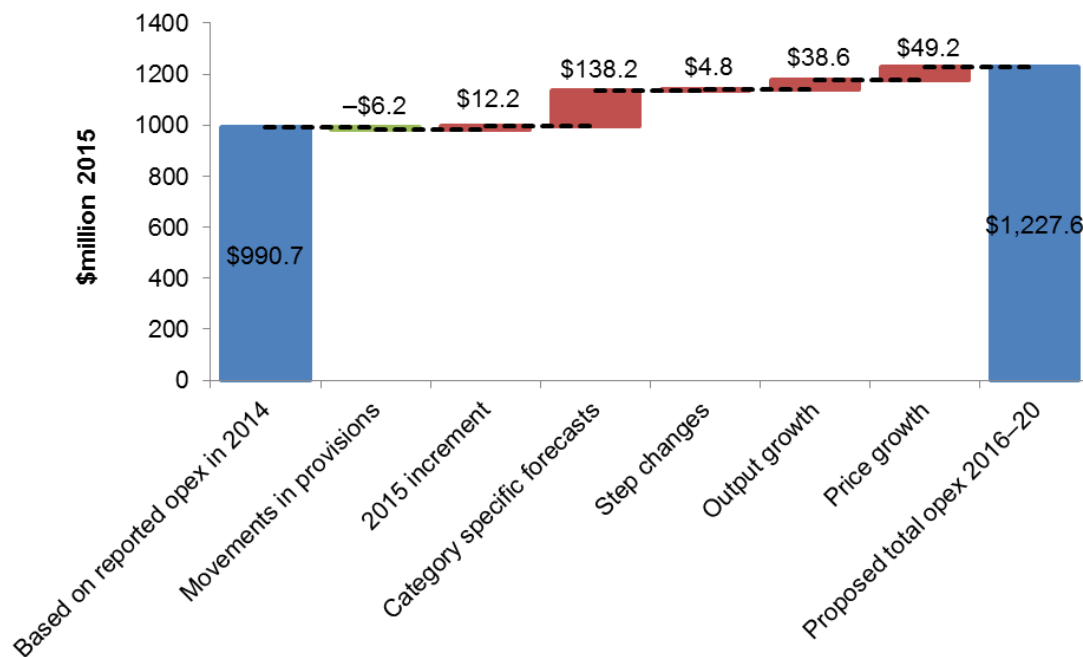


Source: AusNet Services, Regulatory accounts 2011 to 2014; AusNet Services, Economic benchmarking - Regulatory Information Notice response 2006 to 2013; AER analysis.

7.2 AusNet Services' proposal

AusNet Services proposed total forecast opex of \$1227.6 million (\$2015) for the 2016–20 period (excluding debt raising costs, totalling \$18.8 million). In Figure 7-2 we separate AusNet Services' forecast opex into the different elements that make up its forecast.

Figure 7-2 AusNet Services' opex forecast (\$ million, 2015)



Source: AER analysis.

We describe each of these elements below:

- AusNet Services used the actual opex it incurred in 2014 as the base for forecasting its opex for the 2016–20 regulatory control period. Its reported expenditure for 2014 would lead to base opex of \$990.7 million (\$2015) over the 2016–20 regulatory control period.
- AusNet Services 2014 regulatory accounts include one-off accounting adjustments relating to provision changes. It adjusted base opex to remove the movement in provisions in 2014. The effect of this is to set the net forecast expenditure in this cost category to zero. This reduced AusNet Services' forecast by \$6.2 million (\$2015).
- To forecast the increase in opex between 2014 and 2015 AusNet Services added the difference between its opex allowances for 2014 and 2015. This is consistent with the approach set out in the Guideline. This increased AusNet Services' forecast by \$12.2 million (\$2015).
- AusNet Services included category specific forecasts (which it called 'other costs' and 'cost roll ins') for insurance and self-insurance costs, Guaranteed Service Level payments, the cost of a network support contract and the ongoing costs associated with its AMI program upgrades to distribution systems. This increased its forecast by \$138.2 million (\$2015).
- AusNet Services identified a demand management step change in costs it forecast to incur during the forecast period, which were not incurred in 2014. This increased AusNet Services' forecast by \$4.8 million (\$2015).

- AusNet Services proposed output growth forecast using our approach to accounting for forecast output growth. This increased AusNet Services' opex forecast by \$38.6 million (\$2015).
- AusNet Services accounted for forecast growth in prices related to labour price increases, contracted service price increases and non-labour price increases. These forecast price changes increased AusNet Services' opex forecast by \$49.2 million (\$2015).

7.3 AER's assessment approach

This section sets out our general approach to assessment. Our approach to assessment of particular aspects of the opex forecast is set out in more detail in the relevant appendices.

Our assessment approach, outlined below, is, for the most part, consistent with the Expenditure forecast assessment guideline (the Guideline).

There are two tasks that the NER requires us to undertake in assessing total forecast opex. In the first task, we form a view about whether we are satisfied a service provider's proposed total opex forecast reasonably reflects the opex criteria.⁴ If we are satisfied, we accept the service provider's forecast.⁵ In the second task, we determine a substitute estimate of the required total forecast opex that we are satisfied reasonably reflects the opex criteria.⁶ We only undertake the second task if we do not accept the service provider's forecast after undertaking the first task.

In both tasks, our assessment begins with the service provider's proposal. We also develop an alternative forecast to assess the service provider's proposal at the total opex level. The alternative estimate we develop, along with our assessment of the component parts that form the total forecast opex, inform us of whether we are satisfied that the total forecast opex reasonably reflects the opex criteria.

It is important to note that we make our assessment about the total forecast opex and not about particular categories or projects in the opex forecast. The Australian Energy Market Commission (AEMC) has expressed our role in these terms:⁷

It should be noted here that what the AER approves in this context is expenditure allowances, not projects.

The opex criteria that we must be satisfied a total forecast opex reasonably reflects are:⁸

⁴ NER, cl. 6.5.6(c) and 6.12.1(4).

⁵ NER, cl. 6.5.6(c) and 6.12.1(4)(i).

⁶ NER, cl. 6.5.6(d) and 6.12.1(4)(ii).

⁷ AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. vii.

⁸ NER, cl. 6.5.6(c).

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.

The AEMC noted that '[t]hese criteria broadly reflect the NEO [National Electricity Objective]'.⁹

The service provider's forecast is intended to cover the expenditure that will be needed to achieve the opex objectives. The opex objectives are:¹⁰

1. meeting or managing the expected demand for standard control services over the regulatory control period
2. complying with all applicable regulatory obligations or requirements associated with providing standard control services
3. where there is no regulatory obligation or requirement, maintaining the quality, reliability and security of supply of standard control services and maintaining the reliability and security of the distribution system
4. maintaining the safety of the distribution system through the supply of standard control services.

Whether we are satisfied that the service provider's total forecast reasonably reflects the opex criteria is a matter for judgment. This involves us exercising discretion. However, in making this decision we treat each opex criterion objectively and as complementary. When assessing a proposed forecast, we recognise that efficient costs are not simply the lowest sustainable costs. They are the costs that an objectively prudent service provider would require to achieve the opex objectives based on realistic expectations of demand forecasts and cost inputs. It is important to keep in mind that the costs a service provider might have actually incurred or will incur due to particular arrangements or agreements that it has committed to may not be the same as those costs that an objectively prudent service provider requires to achieve the opex objectives.

Further, in undertaking these tasks we have regard to the opex factors.¹¹ We attach different weight to different factors. This approach has been summarised by the AEMC as follows:¹²

⁹ AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. 113.

¹⁰ NER, cl. 6.5.6(a).

¹¹ NER, cll. 6.5.6(c) and (d).

¹² AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. 115.

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.

The opex factors that we have regard to are:

- the most recent annual benchmarking report that has been published under clause 6.27 and the benchmark operating expenditure that would be incurred by an efficient distribution network service provider over the relevant regulatory control period
- the actual and expected operating expenditure of the distribution network service provider during any preceding regulatory control periods
- the extent to which the operating expenditure forecast includes expenditure to address the concerns of electricity consumers as identified by the distribution network service provider in the course of its engagement with electricity consumers
- the relative prices of operating and capital inputs
- the substitution possibilities between operating and capital expenditure
- whether the operating expenditure forecast is consistent with any incentive scheme or schemes that apply to the distribution network service provider under clauses 6.5.8 or 6.6.2 to 6.6.4
- the extent the operating expenditure forecast is referable to arrangements with a person other than the distribution network service provider that, in our opinion, do not reflect arm's length terms
- whether the operating expenditure forecast includes an amount relating to a project that should more appropriately be included as a contingent project under clause 6.6A.1(b)
- the extent to which the distribution network service provider has considered and made provision for efficient and prudent non-network alternatives
- any relevant final project assessment conclusions report published under clauses 5.17.4(o),(p) or (s)
- any other factor we consider relevant and which we have notified the distribution network service provider in writing, prior to the submission of its revised regulatory proposal under clause 6.10.3, is an operating expenditure factor.

Consistent with our Guideline, we have used benchmarking to a greater extent than we did in regulatory determinations prior to the AEMC's 2012 rule changes. To that end, there are two additional operating expenditure factors that we have taken into account under the last opex factor above:

- our benchmarking data sets including, but not necessarily limited to:
 - (a) data contained in any economic benchmarking RIN, category analysis RIN, reset RIN or annual reporting RIN

- (b) any relevant data from international sources
- (c) data sets that support econometric modelling and other assessment techniques consistent with the approach set out in the Guideline

as updated from time to time.

- economic benchmarking techniques for assessing benchmark efficient expenditure including stochastic frontier analysis and regressions utilising functional forms such as Cobb Douglas and Translog.¹³

For transparency and ease of reference, we have included a summary of how we have had regard to each of the opex factors in our assessment at the end of this attachment.

As we noted above, the two tasks that the NER requires us to undertake involve us exercising our discretion. In exercising discretion, the National Electricity Law (NEL) requires us to take into account the revenue and pricing principles (RPPs).¹⁴ In the overview we discussed how we generally have taken into account the RPPs in making this final decision. Our assessment approach to forecast opex ensures that the amount of forecast opex that we are satisfied reasonably reflects the opex criteria is an amount that provides the service provider with a reasonable opportunity to recover at least its efficient costs.¹⁵ By us taking into account the relevant capex/opex trade-offs, our assessment approach also ensures that the service provider faces the appropriate incentives to promote efficient investment in and provision and use of the network and minimises the costs and risks associated with the potential for under and over investment and utilisation of the network.¹⁶

Expenditure forecast assessment guideline

After conducting an extensive consultation process with service providers, users, consumers and other interested stakeholders, we issued the Expenditure forecast assessment guideline in November 2013 together with an explanatory statement.¹⁷ The Guideline sets out our intended approach to assessing opex in accordance with the NER.¹⁸

While the Guideline provides for regulatory transparency and predictability, it is not binding. We may depart from the approach set out in the Guideline but we must give reasons for doing so.¹⁹ For the most part, we have not departed from the approach set

¹³ This is consistent with the approach we outlined in the explanatory statement to our Expenditure Assessment Guideline. See, for example, p. 131.

¹⁴ NEL, ss. 7A and 16(2).

¹⁵ NEL, s. 7A(2).

¹⁶ That is, the trade-offs that may arise having considered the substitution possibilities between opex and capex, and the relative prices of operating and capital inputs: NER, cl. 6.5.6(e)(6) and 6.5.6(e)(7); NEL, ss. 7A(3), 7A(6) and 7A(7)..

¹⁷ AER, *Expenditure forecast assessment guideline - explanatory statement*, November 2013.

¹⁸ NER, cl. 6.5.6.

¹⁹ NER, cl. 6.2.8(c).

out in the Guideline in this final decision.²⁰ In our Framework and Approach paper, we set out our intention to apply the Guideline approach in making this determination.²¹ There are several parts of our assessment:

1. We develop an alternative estimate to assess a service provider's proposal at the total opex level.²² We recognise that a service provider may be able to adequately explain any differences between its forecast and our estimate. We take into account any such explanations on a case by case basis using our judgment, analysis and stakeholder submissions.
2. We assess whether the service provider's forecasting method, assumptions, inputs and models are reasonable, and assess the service provider's explanation of how its method results in a prudent and efficient forecast.
3. We assess the service provider's proposed base opex, step changes and rate of change if the service provider has adopted this methodology to forecast its opex.

Each of these assessments informs our first task. Namely, whether we are satisfied that the service provider's proposal reasonably reflects the opex criteria.

If we are not satisfied with the service provider's proposal, we approach our second task by using our alternative estimate as our substitute estimate. This approach was expressly endorsed by the AEMC in its decision on the major rule changes that were introduced in November 2012. The AEMC stated:²³

While the AER must form a view as to whether a NSP's proposal is reasonable, this is not a separate exercise from determining an appropriate substitute in the event the AER decides the proposal is not reasonable. For example, benchmarking the NSP against others will provide an indication of both whether the proposal is reasonable and what a substitute should be. Both the consideration of "reasonable" and the determination of the substitute must be in respect of the total for capex and opex.

We recognise that our alternative estimate may not exactly match the service provider's forecast. The service provider may have adopted a different forecasting method. However, if the service provider's inputs and assumptions are reasonable and efficient, we expect that its method should produce a forecast consistent with our estimate. We discuss below how we develop our alternative estimate.

²⁰ We did not apply the DEA benchmarking technique. We outline the reasons why we did not apply this technique in Appendix A of our all NSW distribution determinations for the 2015–20 regulatory control period.

²¹ AER, *Stage 2 Framework and approach - NSW electricity distribution network service providers*, January 2014, p. 50.

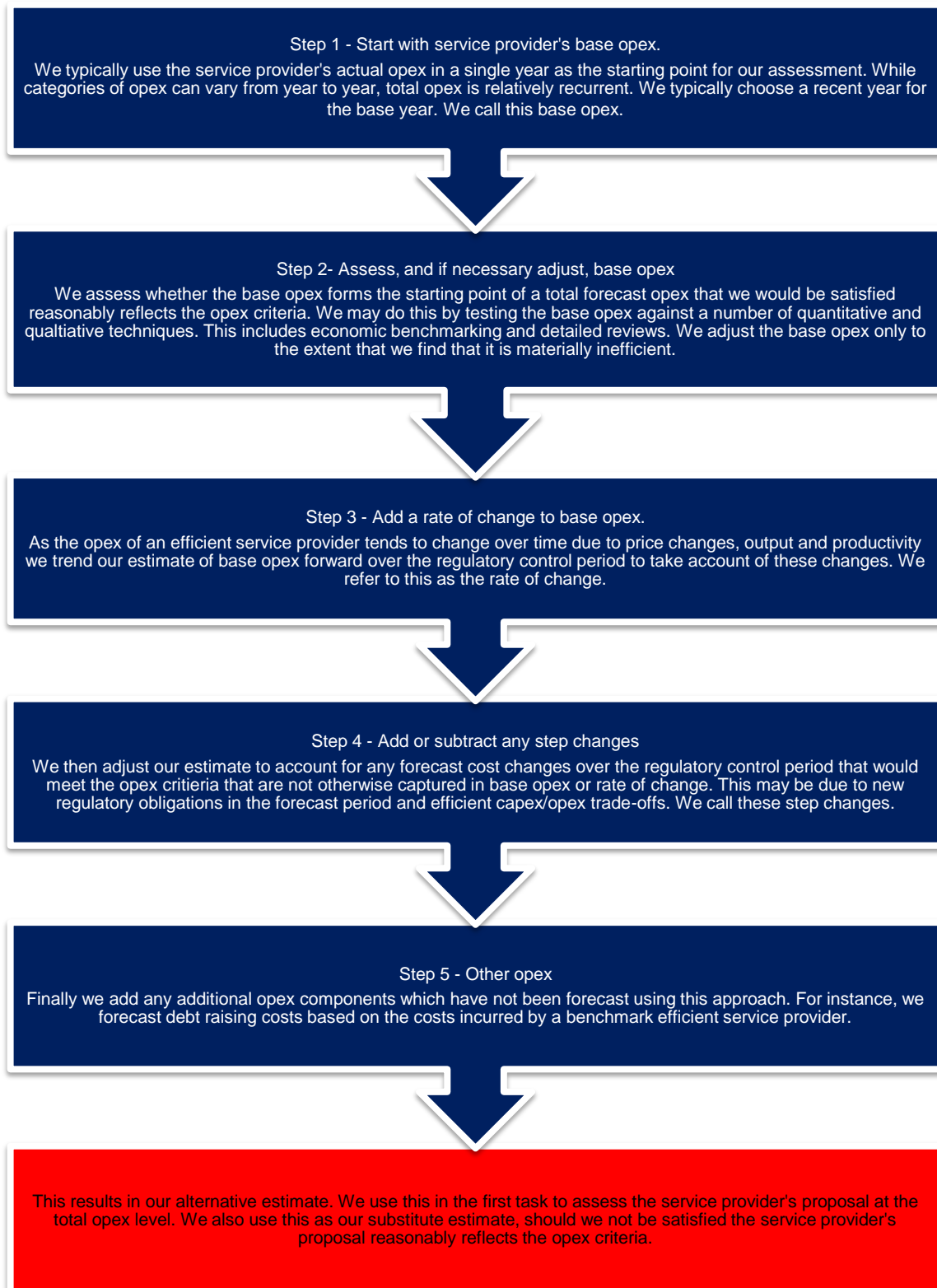
²² AER, *Expenditure forecast assessment guideline*, November 2013, p. 7.

²³ AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. 112.

Building an alternative estimate of total forecast opex

The method we use to develop our alternative estimate involves five key steps. We outline these steps below in Figure 7-3.

Figure 7-3 How we build our alternative estimate



Underlying our approach are two general assumptions:

1. the efficiency criterion and the prudence criterion in the NER are complementary

2. actual operating expenditure was sufficient to achieve the opex objectives in the past.

We have used this general approach in our past decisions. It is a well-regarded top-down forecasting model that has been employed by a number of Australian regulators over the last fifteen years. We refer to it as a 'revealed cost method' in the Guideline (and we have sometimes referred to it as the base-step-trend method in our past regulatory decisions).²⁴

While these general steps are consistent with our past determinations, we have adopted a significant change in how we give effect to this approach, following the major changes to the NER made in November 2012. Those changes placed significant new emphasis on the use of benchmarking in our opex analysis. We will now issue benchmarking reports annually and have regard to those reports. These benchmarking reports provide us with one of a number of inputs for determining forecast opex.

We have set out more detail about each of the steps we follow in developing our alternative estimate below.

Step 1 – Base year choice

The starting point for our analysis is to use a recent year for which audited figures are available as the starting point for our analysis. We call this the base year. This is for a number of reasons:

- As total opex tends to be relatively recurrent, total opex in a recent year typically best reflects a service provider's current circumstances.
- During the past regulatory control period, there are incentives in place to reward the service provider for making efficiency improvements by allowing it to retain a portion of the efficiency savings it makes. Similarly, the incentive regime works to penalise the service provider when it is relatively less efficient. This provides confidence that the service provider did not spend more in the proposed base year to try to inflate its opex forecast for the next regulatory control period.
- Service providers also face many regulatory obligations in delivering services to consumers. These regulatory obligations ensure that the financial incentives a service provider faces to reduce its costs are balanced by obligations to deliver services safely and reliably. In general, this gives us confidence that recent historical opex will be at least enough to achieve the opex objectives.

In choosing a base year, we need to make a decision as to whether any categories of opex incurred in the base year should be removed. For instance:

- If a material cost was incurred in the base year that is unrepresentative of a service provider's future opex we may remove it from the base year in undertaking our assessment.

²⁴ AER, *Expenditure forecast assessment guideline*, November 2013, p. 22.

- Rather than use all of the opex that a service provider incurs in the base year, service providers also often forecast specific categories of opex using different methods. We must also assess these methods in deciding what the starting point should be. If we agree that these categories of opex should be assessed differently, we will also remove them from the base year.

As part of this step we also need to consider any interactions with the incentive scheme for opex, the Efficiency Benefit Sharing Scheme (EBSS). The EBSS is designed to achieve a fair sharing of efficiency gains and losses between a service provider and its consumers. Under the EBSS, service providers receive a financial reward for reducing their costs in the regulatory control period and a financial penalty for increasing their costs. The benefits of a reduction in opex flow through to consumers as long as base opex is no higher than the opex incurred in that year. Similarly, the costs of an increase in opex flow through to consumers if base year opex is no lower than the opex incurred in that year. If the starting point is not consistent with the EBSS, service providers could be excessively rewarded for efficiency gains or excessively penalised for efficiency losses in the prior regulatory control period.

Step 2 - Assessing base opex

The service provider's actual expenditure in the base year may not form the starting point of a total forecast opex that we are satisfied reasonably reflects the opex criteria. For example, it may not be efficient or management may not have acted prudently in its governance and decision-making processes. We must therefore test the actual expenditure in the base year.

As we set out in the Guideline, to assess the service provider's actual expenditure, we use a number of different qualitative and quantitative techniques.²⁵ This includes benchmarking and detailed reviews.

Benchmarking is particularly important in comparing the relative efficiency of different service providers. The AEMC highlighted the importance of benchmarking in its changes to the NER in November 2012.²⁶

The Commission views benchmarking as an important exercise in assessing the efficiency of a NSP and informing the determination of the appropriate capex or opex allowance.

By benchmarking a service provider's expenditure we can compare its productivity over time, and to other service providers. For this decision we have used multilateral total factor productivity, partial factor productivity measures and several opex cost function models.²⁷

²⁵ AER, *Expenditure forecast assessment guideline*, November 2013, p. 22.

²⁶ AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. 97.

²⁷ The benchmarking models are discussed in detail in appendix A.

We also have regard to trends in total opex and category specific data to construct category benchmarks to inform our assessment of the base year expenditure. In particular, we can use this category analysis data to identify sources of spending that are unlikely to reflect the opex criteria over the forecast period. It may also lend support to, or identify potential inconsistencies with, the results of our broader benchmarking.

If we find that a service provider's base year expenditure is materially inefficient, the question arises about whether we would be satisfied that a total forecast opex predicated upon that expenditure reasonably reflects the opex criteria. Should this be the case, for the purposes of forming our starting point for our alternative estimate, we will adjust the base year expenditure to remove any material inefficiency.

Step 3 - Rate of change

We also assess an annual escalator that is applied to take account of the likely ongoing changes to opex over the forecast regulatory control period. Opex that reflects the opex criteria in the forecast regulatory control period could reasonably differ from the starting point due to changes in:

- price growth
- output growth
- productivity growth.

We estimate the change by adding expected changes in prices (such as the price of labour and materials) and outputs (such as changes in customer numbers and demand for electricity). We then incorporate reasonable estimates of changes in productivity.

Step 4 - Step changes

Next we consider if any other opex is required to achieve the opex objectives in the forecast period. We refer to these as 'step changes'. Step changes may be for cost drivers such as new, changed or removed regulatory obligations, or efficient capex/opex trade-offs. As the Guideline explains, we will typically include a step change only if efficient base opex and the rate of change in opex of an efficient service provider do not already include the proposed cost.²⁸

Step 5 - Other costs that are not included in the base year

In our final step, we assess the need to make any further adjustments to our opex forecast. For instance, our approach is to forecast debt raising costs based on a benchmarking approach rather than a service provider's actual costs. This is to be consistent with the forecast of the cost of debt in the rate of return building block.

After applying these five steps, we arrive at our alternative estimate.

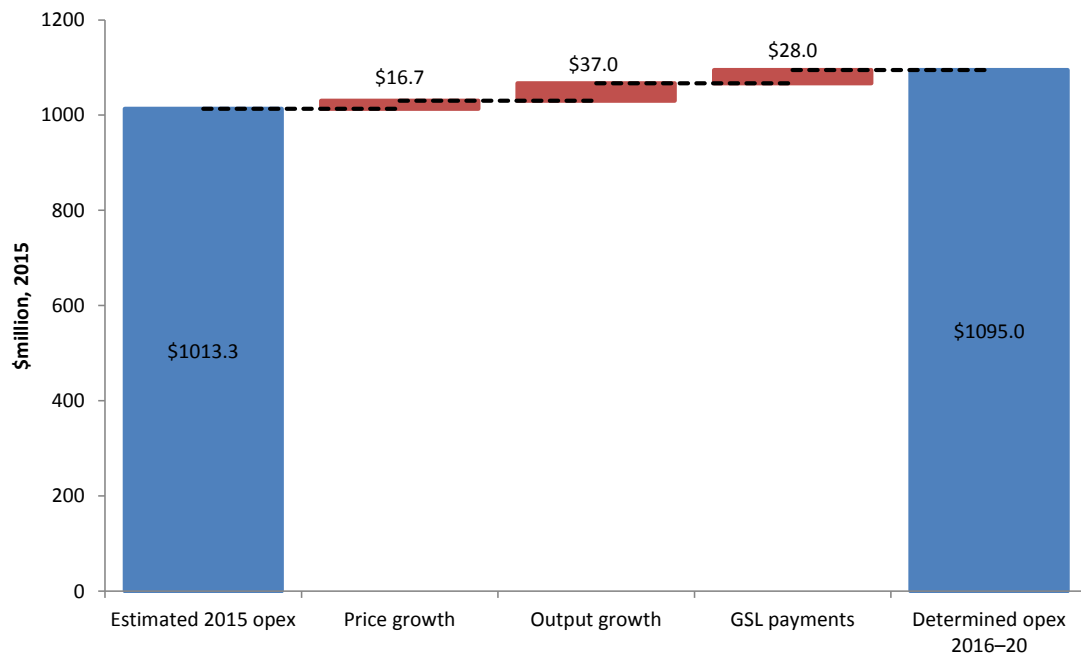
²⁸ AER, *Expenditure forecast assessment guideline*, November 2013, p. 24.

7.4 Reasons for preliminary decision

We are not satisfied that AusNet Services' proposed total forecast opex of \$1227.6 million (\$2015) reasonably reflects the opex criteria.²⁹ As we discussed above, we have therefore used our alternative estimate as our substitute estimate.³⁰

Figure 7-4 illustrates how we constructed our forecast. The starting point on the left is what we call the base opex amount.

Figure 7-4 AER preliminary decision opex forecast



Source: AER analysis.

Table 7-2 summarises the quantum of the difference between AusNet Services' proposed total opex and our preliminary decision estimate.

²⁹ NER, cl. 6.5.6(d).

³⁰ NER, cl. 6.5.6(d) and 6.12.1(4)(ii).

Table 7-2 Proposed vs preliminary decision total forecast opex (\$ million, 2015)

	2016	2017	2018	2019	2020	Total
Ausnet Services' proposal	235.5	241.1	247.6	249.3	254.1	1227.6
AER preliminary decision	211.2	214.6	218.7	223.1	227.3	1095.0
Difference	-24.3	-26.5	-28.8	-26.2	-26.8	-132.6

Source: AER analysis.

Note: Excludes debt raising costs.

We outline the key elements of our alternative opex forecast and areas of difference between our estimate of opex and AusNet Services' estimate below.

7.4.1 Forecasting method assessment

As noted above, our estimate of total opex is unlikely to exactly match AusNet Services' forecast. Broadly, differences in the forecasting methods adopted and the inputs and assumptions used to apply the method explain differences between the two forecasts. We have reviewed AusNet Services' forecast method. While AusNet Services proposed several category specific forecasts, which is different to our approach, they do not explain the difference between the two forecasts. This is because its category specific forecasts mostly offset each other.

7.4.2 Base opex

We have forecast a base opex amount of \$202.7 million (\$2015).³¹ Consistent with AusNet Services' proposal we have relied on AusNet Services' reported opex in 2014 to forecast opex. Benchmarking indicates AusNet Services is operating relatively efficiently when compared to other service providers in the NEM so we consider this is a reasonable starting point for determining our opex forecast.

In our forecast of base opex, consistent with the Guideline approach we:

- removed movement in provisions reported as opex in 2014
- removed the demand management innovation allowance (DMIA) which is a separate building block
- removed GSL payments in 2014, which we have forecast separately using an average of five years of GSL payments
- added our forecast increase in opex between 2014 and 2015

³¹ Does not include the demand management innovation allowance (DMIA) as the allowance is a separate building block.

- added the cost of a network support contract. This was previously recovered through an adjustment to tariffs during the annual tariff setting process and not through the price cap.

We have not included an adjustment for Advanced Metering Infrastructure (AMI) expenditure. During the 2011–15 regulatory control period, incremental costs associated with implementing and operating smart meters were regulated under the Advanced Metering Infrastructure Order in Council (AMI OIC). This included costs associated with new or upgraded IT systems.

With the expiry of the AMI OIC, opex associated with AMI is now to be regulated under the NER. All distributors proposed to allocate this expenditure between standard control services and alternative control services. The proportions allocated between each type of service differed for each service provider. We consider any cost allocation issues relating to metering costs would be best dealt with in a new Distribution Ring Fencing Guideline, which, at this stage will be developed by December 2016.

In the interim, before this Guideline is developed, our preferred approach is to allocate all costs formerly regulated under the AMI OIC to alternative control services. As this is similar to the historical approach where AMI costs are recovered separately to most distribution network costs, this approach will help in promoting transparency around trends in AMI and standard control expenditure.

7.4.3 Rate of change

The efficient level of expenditure required by a service provider in the 2016–20 regulatory control period may differ from that required in the final year of the 2011–15 regulatory control period. Once we have determined the opex required in the final year of the of the 2011–15 regulatory control period we apply a forecast annual rate of change to forecast opex for the 2016–20 regulatory control period.

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. Table 7-3 below compares AusNet Services' and our overall rate of change in percentage terms for the 2016–20 regulatory control period.

Table 7-3 Forecast annual rate of change in opex (per cent)

	2016	2017	2018	2019	2020
AusNet Services	3.47	3.09	3.02	3.01	3.04
AER	1.44	1.69	1.96	2.04	1.94
Difference	-2.03	-1.40	-1.06	-0.97	-1.09

Source: AER analysis.

The following factors drive the difference between our forecast rate of change and AusNet Services':

- To forecast labour price growth, AusNet Services used its existing enterprise up until the expiry of those enterprise agreements, and then used forecast growth in the WPI for the utilities industry as forecast by CIE. AusNet Services' forecast is higher than ours, which we based on forecasts from Deloitte Access Economics and BIS Shrapnel.
- AusNet Services adopted our approach to forecasting output growth. We used customer numbers and circuit length forecasts from AusNet Services' reset RIN and ratcheted maximum demand forecasts from AEMO.

The differences in each forecast rate of change component are:

- our forecast of annual price growth is on average 1.06 percentage points lower than AusNet Services'
- our forecast of annual output growth is on average 0.23 percentage points lower than AusNet Services'

We outline our detailed assessment of the rate of change in appendix B.

7.4.4 Step changes

AusNet Services proposed one step change - for demand management. We are not satisfied there are reasons to change our opex forecast to include this step change in our opex forecast.

We make our assessment about total forecast opex and not about particular categories or projects in the opex forecast. Expenditure for some categories will be higher than usual in a given year while other categories will be lower than usual. While AusNet Services expects that the costs of this demand management program will increase over the 2016–20 regulatory control period, it expects that the costs of network support will decline over the period. Consistent with our approach, we have not included adjustments for either program; rather we have included the revealed costs of both programs in the base year.

7.4.5 Other costs not included in the base year

Guaranteed service level payments

We have forecast guaranteed service level (GSL) payments as the average of GSL payments made by AusNet Services between 2010 and 2014. We note that the GSL revenue provided under this approach is almost identical to adopting a single year revealed cost approach and applying the EBSS. Further, the incentives provided by this forecasting approach are consistent with adopting a single year revealed cost approach and applying the EBSS. We have adopted the historical averaging approach to maintain consistency with how GSL payments have been forecast for previous regulatory control periods.

Debt raising costs

Debt raising costs are transaction costs incurred each time debt is raised or refinanced. We forecast them using our standard forecasting approach for this category which sets the forecast equal to the costs incurred by a benchmark firm. Our assessment approach and the reasons for those forecasts are set out in the debt and equity raising costs appendix in the rate of return attachment.

7.4.6 Interrelationships

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

- the operation of the EBSS in the 2011–15 regulatory control period, which provided AusNet Services an incentive to reduce opex in the 2014 base year
- the impact of cost drivers that affect both forecast opex and forecast capex. For instance 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
- concerns of electricity consumers identified in the course of its engagement with consumers.

7.4.7 Assessment of opex factors

In deciding whether we are satisfied the service provider's forecast reasonably reflects the opex criteria we have regard to the opex factors.³² Table 7-4 summarises how we have taken the opex factors into account in making our preliminary decision.

Table 7-4 AER consideration of opex factors

Opex factor	Consideration
<p>The most recent annual benchmarking report that has been published under rule 6.27 and the benchmark operating expenditure that would be incurred by an efficient distribution network service provider over the relevant regulatory control period.</p>	<p>There are two elements to this factor. First, we must have regard to the most recent annual benchmarking report. Second, we must have regard to the benchmark operating expenditure that would be incurred by an efficient distribution network service provider over the period. The annual benchmarking report is intended to provide an annual snapshot of the relative efficiency of each service provider.</p> <p>The second element, that is, the benchmark operating expenditure that would be incurred an efficient provider during the forecast period, necessarily provides a different focus. This is because this second element requires us to construct the benchmark opex that would be incurred by a hypothetically efficient provider for that particular network over the relevant period.</p>

³² NER, cl. 6.5.6(e).

Opex factor	Consideration
	<p>We have used several assessment techniques that enable us to estimate the benchmark opex that an efficient service provider would require over the forecast period. These techniques include economic benchmarking and opex cost function modelling. We have used our judgment based on the results from all of these techniques to holistically form 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.</p>
<p>The actual and expected operating expenditure of the Distribution Network Service Provider during any proceeding regulatory control periods.</p>	<p>Our forecasting approach uses the service provider's actual opex 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 it as the basis for forecasting required opex in the forthcoming period.</p>
<p>The extent to which the operating expenditure forecast includes expenditure to address the concerns of electricity consumers as identified by the Distribution 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 regulatory proposals, such that they factor in the needs of consumers.³³</p>
<p>The relative prices of capital and operating inputs</p>	<p>We have considered capex/opex trade-offs in considering AusNet Services' proposed step changes.</p> <p>We have had regard to multilateral total factor productivity benchmarking when deciding whether or not forecast opex reflects the opex criteria. Our multilateral total factor productivity analysis considers the overall efficiency of networks with in the use of both capital and operating inputs with respect to the prices of capital and operating inputs.</p>
<p>The substitution possibilities between operating and capital expenditure.</p>	<p>Some of our assessment techniques examine opex in isolation—either at the total level or by category. Other techniques consider service providers' overall efficiency, including their capital efficiency. We have relied on several metrics when assessing efficiency to ensure we appropriately capture capex and opex substitutability.</p> <p>In developing our benchmarking models we have had regard to the relationship between capital, opex and outputs.</p> <p>We also had regard to multilateral total factor productivity benchmarking when deciding whether or not forecast opex reflects the opex criteria. Our multilateral total factor productivity analysis considers the overall efficiency of networks with in the use of both capital and operating inputs.</p> <p>Further, we considered the different capitalisation policies of the service providers' and how this may affect opex performance under benchmarking.</p>

³³ AEMC, *Rule Determination*, 29 November 2012, pp. 101, 115.

Opex factor	Consideration
<p>Whether the operating expenditure forecast is consistent with any incentive scheme or schemes that apply to the Distribution Network Service Provider under clauses 6.5.8 or 6.6.2 to 6.6.4.</p>	<p>The incentive scheme that applied to AusNet Services' opex in the 2011–15 regulatory control period, the EBSS, was intended to work in conjunction with a 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 2016–20 regulatory control period.</p>
<p>The extent the operating expenditure forecast is referable to arrangements with a person other than the Distribution Network Service Provider that, in the opinion of the AER, do not reflect arm's length terms.</p>	<p>Some of our techniques assess the total expenditure efficiency of service providers and some assess the total opex efficiency. Given this, we are not necessarily concerned whether arrangements do or do not reflect arm's length terms. A service provider which uses related party providers could be efficient or it could 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 operating expenditure forecast includes an amount relating to a project that should more appropriately be included as a contingent project under clause 6.6A.1(b).</p>	<p>This factor is only relevant in the context of assessing proposed step changes (which may be explicit projects or programs). We did not identify any contingent projects in reaching our preliminary decision.</p>
<p>The extent the Distribution Network Service Provider has considered, and made provision for, efficient and prudent non-network alternatives.</p>	<p>We have not found this factor to be significant in reaching our preliminary decision.</p>

Source: AER analysis.

A Base opex and step changes

As opex is relatively recurrent, we typically forecast based on a single year of opex. We call this the base opex amount. In this section, we set out our assessment of AusNet Services' base opex.

A.1 Position

We have used a base opex amount of \$202.7 million (\$2015) in our alternative opex amount. In our forecast of base opex, consistent with the Guideline approach, we have:

- removed movements in provisions
- removed the DMIA expenditure which is recovered through a separate allowance
- removed GSL payments, which we have forecast separately using an average of five years of GSL payments
- added our forecast increase in opex between 2014 and 2015
- added the cost of a network support contract which was not previously recovered through the price cap.

In our forecast of base opex we did not include additional opex associated with AMI.

A.2 Proposal

AusNet Services proposed a base opex amount based on its actual opex in 2014. It made adjustments for this amount to:

- add opex for service classification changes
- remove movements in provisions in 2014
- remove any opex where AusNet Services has adopted a category specific forecasting approach
- add opex for debt raising costs.

A.3 Assessment approach

In the Expenditure Forecast Assessment Guideline (the Guideline), we explain that a 'revealed cost' approach is our preferred approach to assessing base opex. If actual expenditure in the base year reasonably reflects the opex criteria, we will set base opex equal to actual expenditure for those cost categories forecast using the revealed cost approach.

We will use a combination of techniques to assess whether base opex reasonably reflects the opex criteria. This includes economic benchmarking, partial performance indicators and category-based techniques. If our economic benchmarking indicates a service provider's base year opex is materially inefficient, our approach is to

complement our benchmarking findings with other analysis such as PPIs, category-based techniques and detailed review.

Where a service provider proposes adjustments to base opex then we assess whether those adjustments would lead to a total opex forecast that reasonably reflects the opex criteria.

Our assessment of AusNet Services' base opex is set out below under the following headings:

- Benchmarking results
- Adjustments to base opex.

A.4 Benchmarking results

Benchmarking broadly refers to the practice of comparing the economic performance of a group of service providers that all provide the same service as a means of assessing their relative performance. We have used economic benchmarking as a 'first pass' test to assess whether AusNet Services' opex shows signs of material inefficiency. On this basis we do not consider there is evidence justifying a departure from a revealed cost approach for AusNet Services.

The benchmarking techniques, developed by our consultant Economic Insights, measure either the overall efficiency of service providers or how efficiently they use opex in particular. They are:

- multilateral total factor productivity (MTFP) – is an index that measures the ratio of inputs used for output delivered
- opex multilateral partial factor productivity (MPFP), which is an index-based technique that measures the ratio of output quantity index to opex input quantity index.³⁴
- econometric modelling techniques:
 - Cobb Douglas stochastic frontier analysis (SFA)—this estimates the efficient level of opex required for a service provider by constructing an efficient frontier and compares this to the actual opex used by the service provider
 - Cobb Douglas least squares estimation—is similar to the above in modelling opex cost function but uses least squares estimation method to estimate an industry-average technology, and includes dummy variables for Australian distributors to capture firm-specific efficiency

³⁴ At the time of developing the Expenditure forecast assessment guideline, we had not received data from service providers so we considered data envelopment analysis (DEA) may be another technique we could apply. However, we have been able to apply stochastic frontier analysis. This is a superior technique to DEA. Economic Insights, 2014, p. 7.

- Translog least squares estimation—this is similar to the Cobb Douglas least squares estimation technique but assumes more flexible functional form regarding the relationship between opex and outputs.

Each benchmarking technique compares the relative efficiency of service providers to its peers. These techniques differ in terms of estimation method, model specification and the inclusion of operating environment factors (factors that may differentiate service providers). Despite this, Economic Insights found:³⁵

The efficiency scores across the three econometric models are relatively close to each other for each DNSP and they are, in turn, relatively close to the corresponding MPFP score. This similarity in results despite the differing methods used and datasets used reinforces our confidence in the results.

We also consider partial performance indicators benchmarking in our annual benchmarking report. The partial performance indicators are a simpler form of benchmarking.

We note the benchmarking we have presented in this preliminary decision only includes the data we have used in our latest distribution benchmarking report.³⁶ This used the actual opex incurred by the Victorian service providers from 2006 to 2013.

While the benchmarking does not include actual opex in 2014, the year each of the Victorian service providers proposed as the base, we would not expect this would lead to material differences in the benchmarking results or our conclusions on the relative efficiency of each provider. On some of our benchmarking techniques (e.g econometric models), we only assess average efficiency over a sample period of eight years. This means an additional year of data will not materially affect our conclusions about the relative efficiency of the service providers over the sample period. In any case, we note that AusNet Services' actual opex in 2013 was \$198.0 million (\$2015) while in 2014 it had fallen to \$197.3 million (\$2015). Therefore, as we have found AusNet Services is to be relatively efficient based on its opex in 2013, it is reasonable to assume that its opex in 2014 is also relatively efficient.

A.4.1 MTFP and MPFP findings

Economic Insights' MTFP and MPFP modelling indicates that AusNet Services is relatively efficient overall and also in the use of its opex.

MTFP allows for the comparison of productivity levels between service providers and across time. Productivity is a measure of the quantity of output produced from the use of a given quantity of inputs. When there is scope to improve productivity, this implies there is productive inefficiency.

³⁵ Economic Insights, 2014, pp. 46–47.

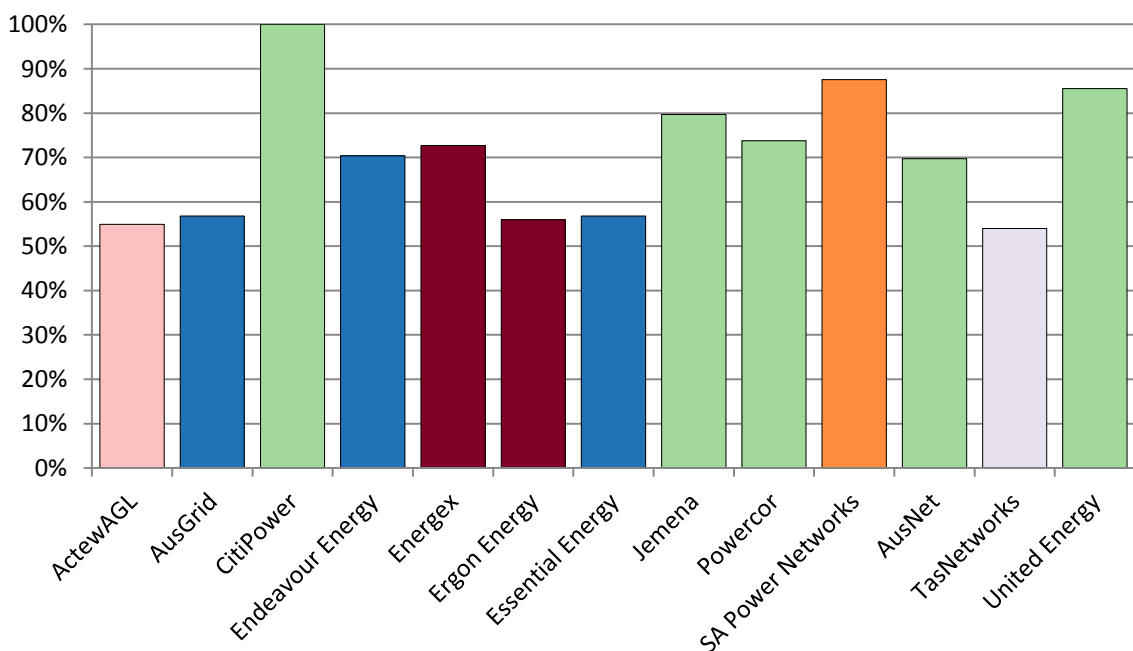
³⁶ AER, 2014 *annual distribution benchmarking report*, November 2014.

MTFP measures total output relative to an index of all inputs used. MPFP measures total output relative to one particular input (e.g. opex partial productivity is the ratio of total output quantity index to an index of opex quantity).

Figure A-1 presents the relative efficiency of the service providers. A score of 100 per cent indicates that the service provider is producing the highest ratio of outputs to inputs in the sample of providers. A score of 50 per cent indicates that a service provider is half as efficient as the highest ranked provider and can reach the frontier by halving its inputs.

The MTFP results indicate AusNet Services' efficiency is comparable to the more productive service providers in the NEM.

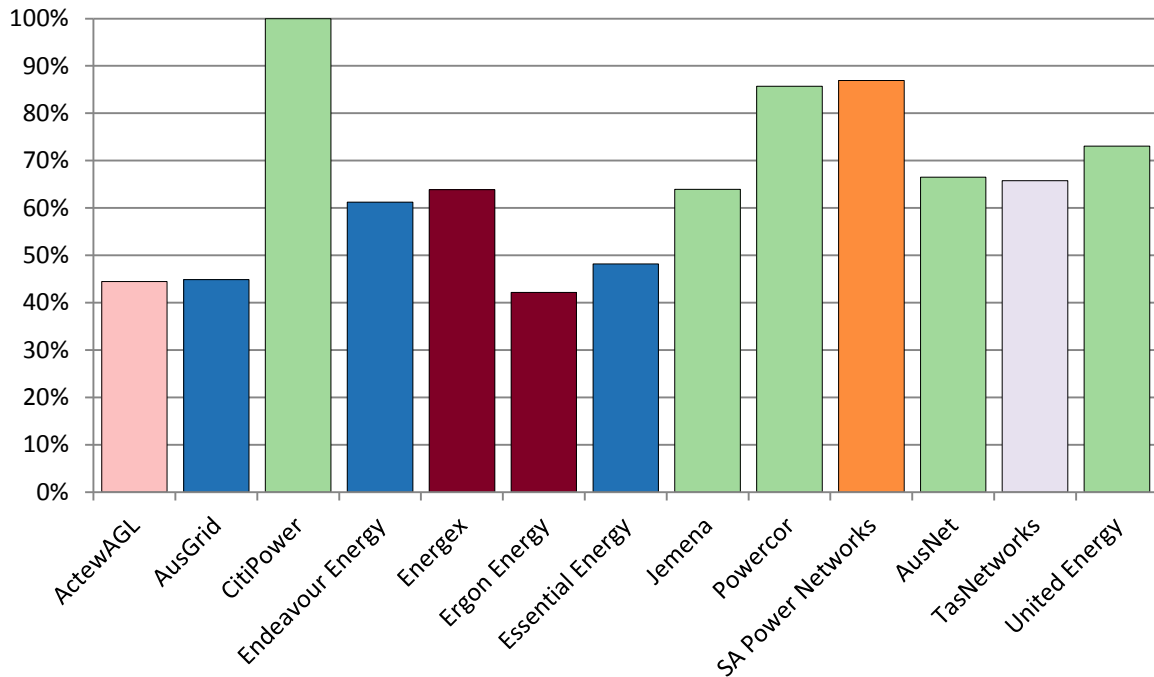
Figure A-1 MTFP Performance (average 2006–2013)



Source: AER analysis.

Figure A-2 presents the opex MPFP results. As would be expected, the performance of the service providers changes somewhat under this comparison technique, reflecting the different combination of opex and capital used by the service providers to deliver network services. Neither measure suggests AusNet Services is performing materially worse than its peers. Therefore there is no evidence of material inefficiency.

Figure A-2 Opex MPFP performance (average 2006–13)



Source: AER analysis.

For further detail on MTFP and index number benchmarking approaches we direct readers to our previous publications.³⁷

We note that the ACT, NSW and Queensland service providers have made a number of submissions on our use of benchmarking in the NSW, ACT and Queensland distribution determinations. We have considered these submissions and have concluded that the benchmarking we have relied upon is appropriate. We have published these submissions along with our consideration of them on our website.³⁸

The Victorian service providers also submitted some benchmarking as part of their proposals. For instance, Jemena and United Energy submitted reports from Huegin.³⁹ In general, the analysis it undertook was consistent with analysis it undertook for the NSW and Queensland distribution service providers. AusNet Services also submitted

³⁷ These include: Economic Insights, 2014 and AER, Electricity distribution network service providers, Annual benchmarking report, November 2014, and our draft determinations for the NSW and ACT distribution network service providers.

AER, Better Regulation, Explanatory Statement Expenditure Forecast Assessment Guideline, November 2013.

ACCC/AER, Benchmarking Opex and Capex in Energy Networks, Working Paper no.6, May 2012.

³⁸ <http://www.aer.gov.au/networks-pipelines/determinations-and-access-arrangements> .

³⁹ Huegin, *Jemena Electricity Networks (Vic) Ltd Productivity Study, Efficiency and growth for the 2015–20 regulatory period*; Huegin, *Benchmarking United Energy's operating expenditure - an indication of benchmarking results using the AER's techniques*.

some analysis which considered the operating environment factors they consider disadvantage them in benchmarking performance.⁴⁰ We recognise that operating environment factors specific to each business will affect their benchmarking performance. Our view is that AusNet Services and the other Victorian service providers already appear relatively efficient when compared to the NSW and Queensland service providers. On this basis we did not consider it to be necessary to consider the detailed operating environment factors affecting the individual performance of each Victorian business for this preliminary decision.

A.4.2 Findings from econometric modelling of the opex cost function

Economic Insights has chosen to model the opex cost function of the service providers using three models.⁴¹ These models are Cobb Douglas SFA, Cobb Douglas least squares estimation (CD LSE) and Translog least squares estimation (TLG LSE). The TLG LSE and CD LSE models are econometric modelling of Translog and Cobb Douglas opex cost functions, respectively.⁴² They are parametric techniques, which means that they model the underlying cost function of the service providers as specified.

Like the opex MPFP analysis, these models also indicate that AusNet Services' opex is comparable to its peers.

Figure A-3 presents the benchmarking results for each of the econometric cost functions. This figure also presents the opex MPFP results. Figure A-3 shows that the benchmarking models, despite employing different efficiency measurement techniques, produce consistent results. Further, these models are consistent with the opex MPFP results. This gives us confidence that the models provide an accurate indication of the efficiency of base year opex.

The Victorian Energy Consumer and User Alliance (VECUA) considered that on the basis of one of these models, Cobb Douglas stochastic frontier analysis, that all Victorian service providers appear materially inefficient when compared to CitiPower.⁴³

We do not consider it is appropriate to use the efficiency score of the frontier service provider in determining what is 'materially inefficient'. We consider it should be a point lower than the frontier to provide an appropriate margin for forecasting error, data error and modelling issues. We also note the following:

⁴⁰ AusNet Services, *Regulatory proposal*, 30 April 2015, pp. 83-91.

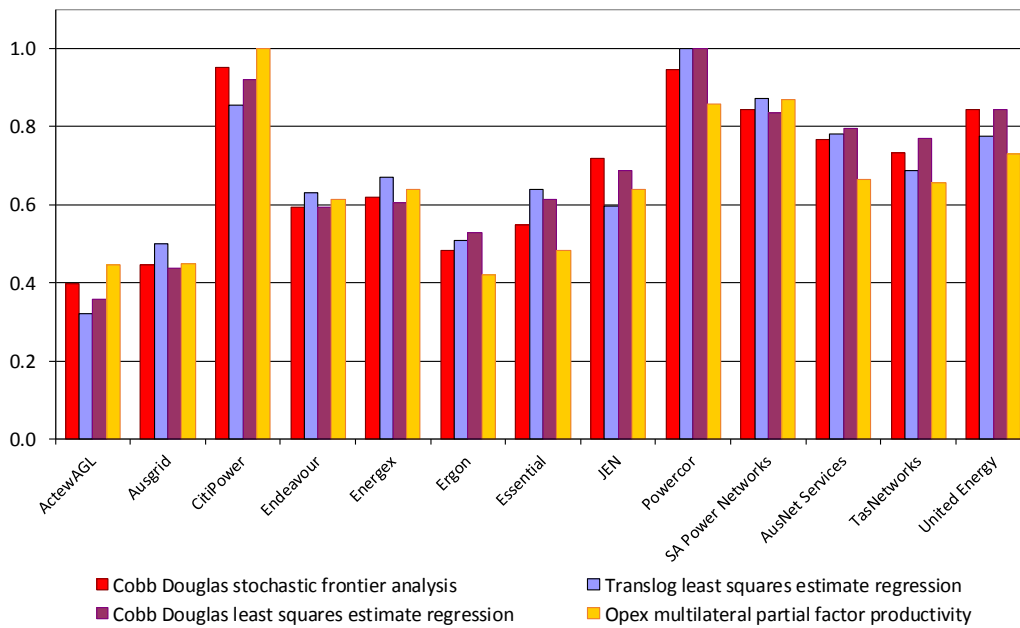
⁴¹ Economic Insights, 2014, p. iii.

⁴² Economic Insights describes the opex cost functions in detail. Economic Insights, 2014, pp. 27–31.

⁴³ Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July 2015, p. 34.

- The results below reflect raw efficiency scores. There are other operating environment factors affecting each businesses performance which are not captured in each of the benchmarking models.
- The scores below reflect average efficiency scores over the 2006 to 2013 period so cannot be used directly to infer the relative efficiency gap between providers in any one year.

Figure A-3 Econometric modelling and opex MPFP results, 2006-2013



Source: Economic Insights, 2014.

A.4.3 Partial performance indicators

In our annual benchmarking report we also present a number of partial performance indicators.⁴⁴ These indicators examine the service providers' use of assets, opex and total inputs in delivering its distribution services. Under these metrics, AusNet Services also appears to be one of the more efficient networks. As such, we consider that this benchmarking supports the findings of the econometric benchmarking discussed above.

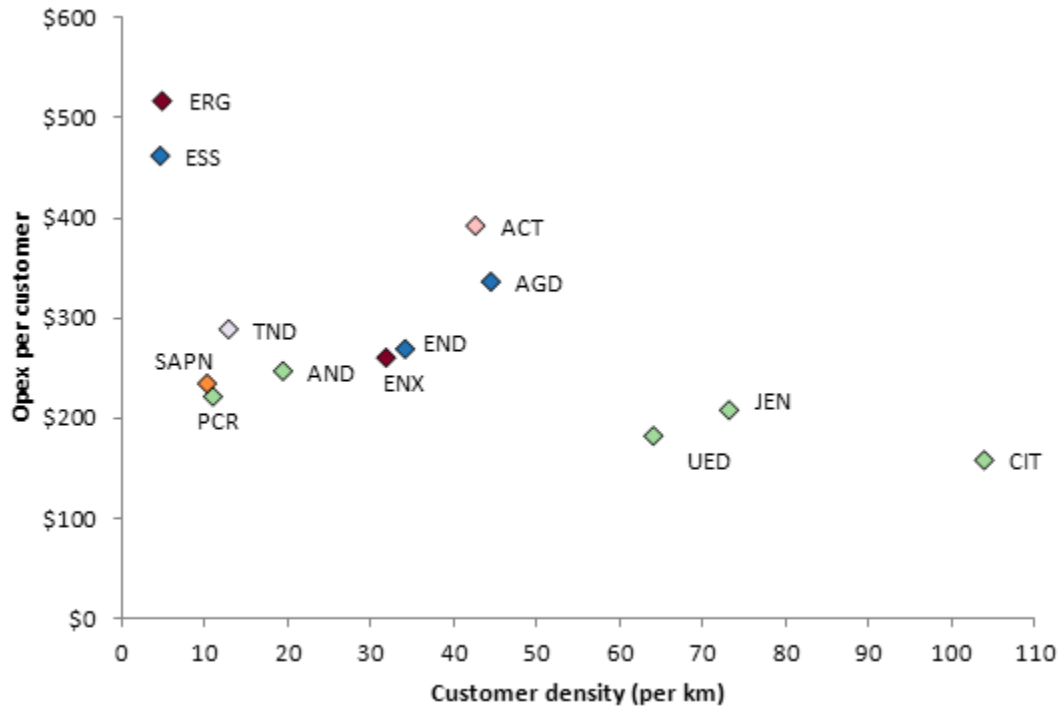
Although a number of PPIs are presented in this report we consider that the most relevant PPIs are opex per customer and total cost per customer. This is because customer numbers appears to be the most material driver of costs for service providers.⁴⁵ Figure A-4 and Figure A-5 present these PPIs. These figures show that

⁴⁴ AER, *Electricity distribution network service providers, Annual benchmarking report*, November 2014.

⁴⁵ The number of customer connections has the highest coefficient in Economic Insights econometric models and its SFA Cobb Douglas Model. Economic Insights, 2014, pp. 33–35.

AusNet Services (AND) incurs relatively low opex and total cost per customer when compared to its peers.

Figure A-4 PPI of operating expenditure per customer (2009 to 2013)



Source: AER analysis.

Figure A-5 PPI of total cost per customer (2009 to 2013)



Source: AER analysis.

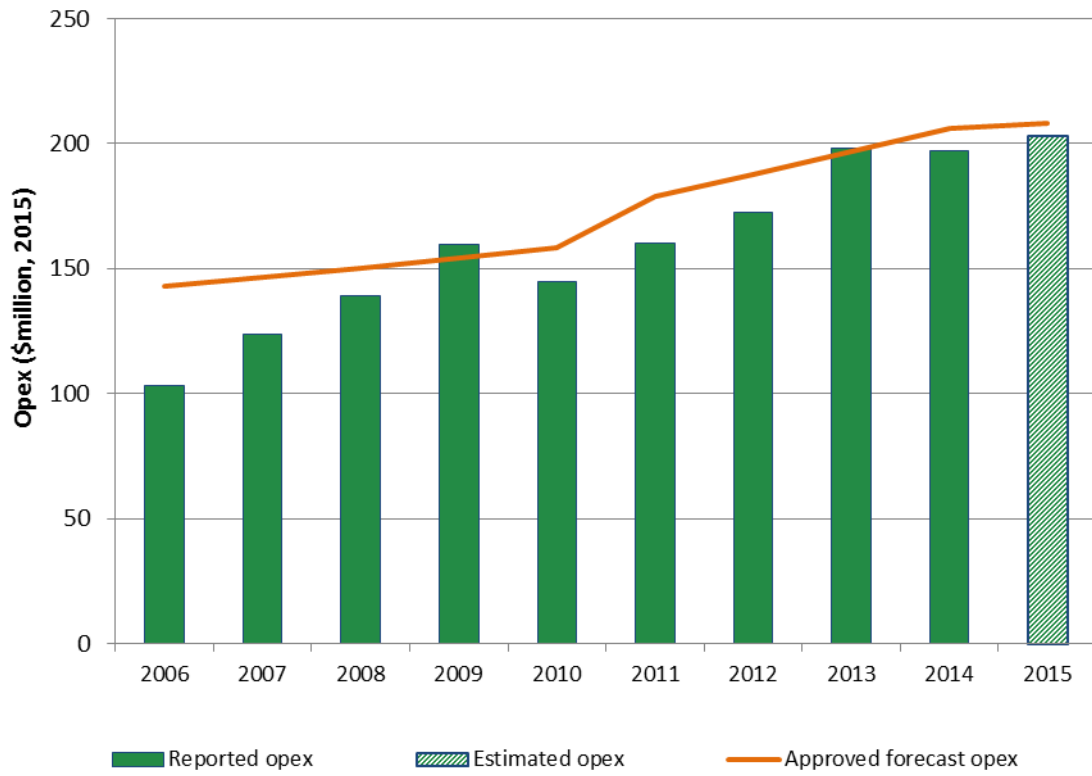
A.4.4 Trend in opex

Benchmarking across the 2006–13 period indicates that AusNet Services performs relatively well against its peers. However, as our preference is to use a single year of expenditure, we must also consider whether is appropriate to use the end point.

In real terms, AusNet Services' opex in 2014 is 31 per cent higher than the average over the benchmarking period (Figure A-6). This increase in opex has contributed to a decline in opex MPFP in 2011, 2012 and 2013. This is illustrated in Figure A-7 (AusNet Services is ranked eighth in 2013). This trend in productivity was noted by the Consumer Challenge Panel and the VECUA in its submissions.⁴⁶

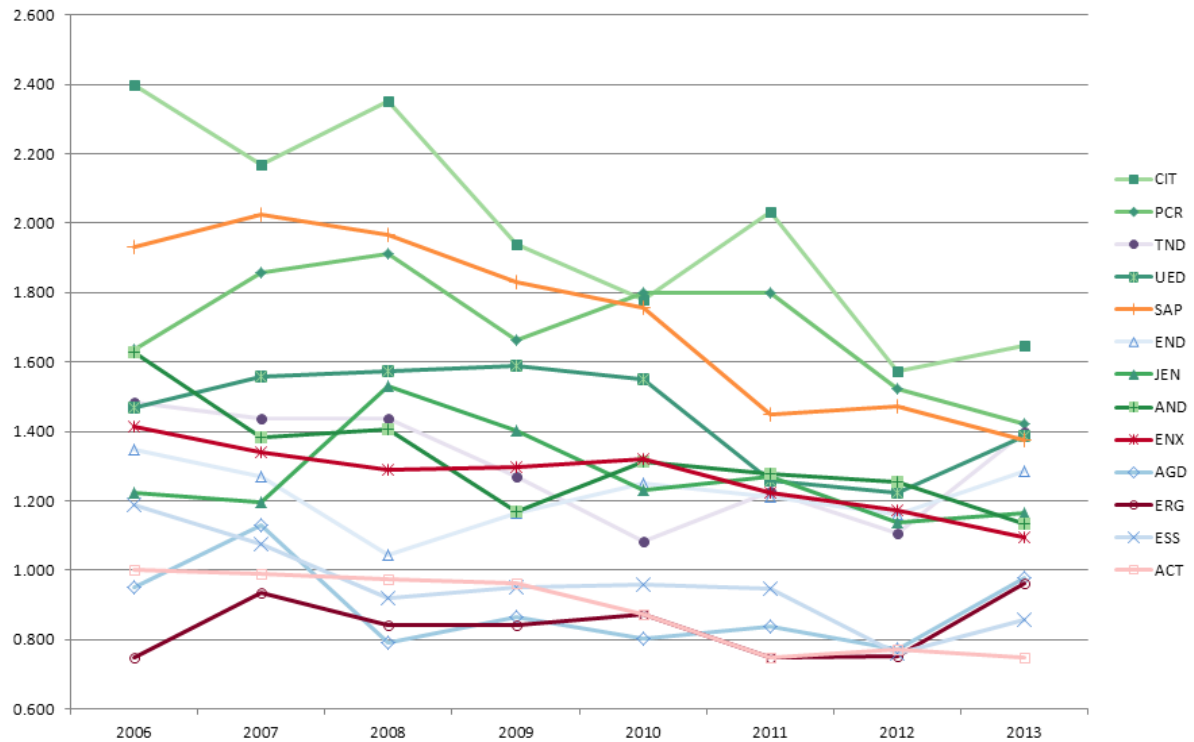
⁴⁶ Consumer challenge panel - Sub panel 3 - *Response to proposals from Victorian electricity distribution network service providers*, 10 August 2015, pp. 11–12; VECUA, *Submission to the AER Victorian Distribution Networks' 2016–20 Revenue Proposals*, 13 July 2015, p. 35.

Figure A-6 AusNet Services' opex compared to approved forecast



Source: AusNet Services, Regulatory accounts 2011 to 2014; AusNet Services, Economic benchmarking - Regulatory Information Notice response 2006 to 2013; AER analysis.

Figure A-7 MPFP of distributors over the benchmarking period



Source: AER analysis.

As highlighted above, the increase in opex in 2011, 2012 and 2013 has affected AusNet Services' (AND) relative ranking on this benchmarking measure.

However, a key driver of AusNet Services' increased opex in this time is changed regulatory requirements rather than a decline in its efficiency.

As outlined below in Table A-1, AusNet Services' opex on vegetation management rose from \$16.5 million (\$2015) in 2009 to \$48.0 million (\$2015) in 2013. The key reason for this is the introduction of the Electricity Safety (Electric Line Clearance) Regulations 2010. Under the previous version of these regulations, the Electricity Safety (Electric Line Clearance) Regulations 2005, the Victorian service providers were able to ask for exemptions from the regulations, where they could demonstrate to Energy Safe Victoria that appropriate risk mitigation was in place. Under the 2010 version of the regulations, following the Black Saturday bushfires, many of these exemptions were removed. This led to an increase in AusNet Services' vegetation management expenditure.

Table A-1 AusNet Services - vegetation management expenditure

	2009	2010	2011	2012	2013
Vegetation management expenditure (\$ million, 2015)	16.5	11.4	29.6	44.1	48.0
% of total opex	10	8	19	26	24

Source: Category analysis RINs and Economic Benchmarking RINs 2009-2013; AER analysis.

A.5 Adjustments to base opex

A.5.1 Service classification changes and other costs previously recovered outside the price cap.

AusNet Services included two opex costs in the 2016–20 regulatory control period that were not recovered as standard control services in the 2011–15 regulatory control period:

- the cost of a network support contract, previously recovered through an adjustment to tariffs during the annual tariff setting process, and
- the ongoing costs associated with the AMI program.

In our preliminary decision we have included additional opex associated with the network support contract in our opex forecast but have not included additional opex associated with the AMI smart meter program.

Bairnsdale network support costs

Bairnsdale network support costs were excluded from the price determination process in the 2011–15 regulatory control period. However, these costs are being rolled into standard control opex in the 2016–20 regulatory control period.⁴⁷ This is because in 2011, the AEMC released a rule change determination, specifying that network support payments should be recovered through the price determination process, rather than through annual pricing submissions.⁴⁸

AusNet Services stated because it expects the contract costs will be lower over the 2016–20 regulatory control period than in the base year, it did not include all of the Bairnsdale network support costs in its base opex forecast. Consistent with our overall forecasting approach we have included the total revealed costs of the Bairnsdale network support costs in our estimate of base opex. We discuss our reasons for taking this approach below in A.5.2.

Advanced metering infrastructure

We have not included additional opex associated with reallocated AMI expenditure in our alternative opex forecast.

During the 2011–15 regulatory control period, incremental costs associated with implementing and operating meters were regulated under the Advanced Metering

⁴⁷ In March 2011, the AEMC released a rule change determination, specifying that Network support payments should be recovered through the price determination process, rather than through annual pricing submissions; AEMC, *Rule determination - National Electricity Amendment (DNSP recovery of transmission-related charges) Rule 2011*, March 2011, p. 11.

⁴⁸ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 217. AusNet Services did not include the non-recurrent Bairnsdale network support costs in the base year.

Infrastructure Order in Council (AMI OIC). This included costs associated with new or upgraded IT systems.

With the expiry of the AMI OIC, opex associated with AMI is now to be regulated under the NER. AusNet Services proposed to roll in a proportion of these costs into its total opex forecast for the 2016–20 regulatory control period for opex previously regulated under the AMI OIC.⁴⁹ The amount it included was classified as commercial-in-confidence.

Each of the Victorian service providers have taken a different approach to how these costs should be allocated across standard control and alternative control (metering) services. Where any costs regulated under AMI OIC are shared between standard control distribution services and metering services, AusNet Services has proposed to allocate the whole proportion to standard control services.⁵⁰

The approach taken by the other Victorian service providers is outlined below:

- CitiPower and Powercor have each used a granular approach, which, where possible, quantifies the proportion of each IT system previously regulated under AMI OIC that is used for standard control services. For many IT systems, they deem the proportion used for metering to be relatively immaterial so it allocates the whole proportion of the IT system cost to standard control services.⁵¹
- Jemena, similar to CitiPower and Powercor has also taken a relatively granular approach to determining the amount of costs to be allocated between standard control services and metering services. However, it has allocated all shared costs previously regulated under the AMI OIC between standard control and alternative control services, not only IT.⁵²
- United Energy, like AusNet Services, has proposed to allocate the whole proportion to standard control services where any costs regulated under AMI OIC are shared between standard control distribution services and metering services.⁵³

As outlined below in Table A-2, the proportion of AMI opex allocated to standard control services differs substantially across the Victorian service providers.

Table A-2 Proportion of metering opex allocated to standard control services

AusNet Services	CONFIDENTIAL
CitiPower	32 per cent

⁴⁹ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 204.

⁵⁰ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 204.

⁵¹ Powercor, *Regulatory proposal*, Appendix F - Base year adjustments, 30 April 2015, p. 12.

⁵² Jemena, *Regulatory proposal*, opex model. 30 April 2015.

⁵³ United Energy, Revenue Capped Metering Services - Supporting Paper, 30 April 2015.

Jemena	61 per cent
Powercor	27 per cent
United Energy	79 per cent

Source: AER analysis.

We consider a consistent cost allocation approach across Victorian service providers is preferable. While metering services are not currently subject to competition, given policy developments in this area, in the near future it is likely they will be.⁵⁴ The cost allocation approaches by incumbent providers have the potential to affect competition from new entrants and competition between existing distributors.

Based on the current guidance from the AEMC, we will be required to develop and publish a Distribution Ring Fencing Guideline by 1 December 2016.⁵⁵ We consider any cost allocation issues relating to metering costs would be best dealt with in the development of this Guideline in accordance with a nationally consistent approach.

In the interim, before this Guideline is developed, our preferred approach is to allocate all costs formerly regulated under the AMI OIC to alternative control services. As this is similar to the historical approach where AMI costs are recovered separately to most distribution network costs, this approach will help in promoting transparency around trends in AMI and standard control expenditure.

We note that the allocation of costs between standard control services and metering services makes no difference to the assessment of the efficiency of these costs. As both metering services and standard control services are regulated under a revenue cap then this approach also makes no difference to the ability of the current service providers to recover their efficient costs.

We received a submission from the Victorian Department of Economic Development, Jobs, Transport and Resources which agreed that some of these costs may be standard control services but considered there was a risk that consumers would be paying for these costs twice.⁵⁶ As we have not allocated any AMI costs to standard control services opex, there is no risk of consumers paying for these costs twice.

A.5.2 Other adjustments

AusNet Services also made adjustments to its base opex to remove opex incurred in 2014 on.⁵⁷

⁵⁴ AEMC, Draft Rule Determination - National Electricity Amendment (Expanding Competition in Metering and Related Services) 2015, 26 March 2015.

⁵⁵ AEMC, *Information: Extension of time for final rule on provision of metering services*, 2 July 2015.

⁵⁶ Victorian Department of Economic Development, Jobs, Transport and Resources, *Submission to Victorian electricity distribution pricing review*, p. 6.

⁵⁷ AusNet Services, *Regulatory proposal*, 30 April 2015, opex model.

- demand management costs
- insurance
- self-insurance
- non-recurrent Victorian Bushfire Royal Commission costs
- GSL payments
- superannuation (defined benefit contributions)
- DMIA.

It subsequently forecast opex on most of these categories using a different methodology to a base year approach. AusNet Services stated it did this to account for unique drivers of cost increases that are not reflected in the rate of change, for example insurance.⁵⁸

Consistent with AusNet Services' approach we have removed DMIA in forecasting base opex. This expenditure would be recovered twice if such an adjustment was not made. Our assessment of forecast DMIA is considered in attachment 12.⁵⁹

We have not made adjustments to any other cost categories except for GSL payments. Rather we have adopted our preferred forecasting approach which is to base our forecast on the total amount incurred in a single year. As such we have not removed the opex incurred on these categories in estimating base opex. We typically forecast GSL payments using a five year average. This is consistent with AusNet Services' approach and is discussed in section 7.4.5 of this attachment.

The difference between the total opex forecast using our approach and AusNet Services' forecasting approach (all other things being equal) is relatively small.⁶⁰ Table A.3 summarises AusNet Services' proposed adjustments and category specific forecasts. However, we are unable to publish the table in this document because it contains confidential information.

We make our assessment about the total forecast opex amount and not about particular categories or projects in the opex forecast. Within total opex we would expect to see some variation in the composition of expenditure from year to year. That is, expenditure for some categories will be higher than usual in a given year while other categories will be lower than usual. However, these variations tend to offset each other so that total opex is relatively stable. Using a category specific forecasting method may

⁵⁸ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 181.

⁵⁹ AusNet Services proposed leaving debt raising costs in the base year rather than adopting the traditional forecast approach based on a five year average. This increased its opex forecast. It also forecast an increase in the DMIA from \$3 million to \$10 million.

⁶⁰ Excludes proposed costs for AMI which we have allocated to alternative control services opex. Assumes the same rate of change. To the extent AusNet Services applies a different rate of change, the total opex forecast will be different.

produce better forecasts of expenditure for those categories but we do not consider it produces a better forecast of total opex.

The net impact of AusNet Services' base year adjustments and category specific forecasts on its total opex forecast is small because the adjustments and category specific forecasts offset each other. The impact of the demand management, insurance and self-insurance forecasts is to increase the total opex forecast. Whereas, the impact of the non-recurrent VBRC costs, superannuation defined benefits and Bairnsdale network support costs forecasts is to decrease the total opex forecast.

Demand management step change

AusNet Services proposed a category specific forecast for demand management opex of \$13 million (\$2015). As it reported demand management opex in 2014 of \$8.2 million (\$2015), it represents a step change of \$4.8 million.⁶¹

As discussed above, we have not included AusNet Services' category specific forecast for demand management in our opex forecast. This is because we consider base opex already reflects the cost of supplying standard control services including demand management. We make our assessment about total forecast opex and not about particular categories or projects in the opex forecast. Expenditure for some categories will be higher than usual in a given year while other categories will be lower than usual.

For example, while AusNet Services expects that the costs of this demand management program will increase over the 2016–20 regulatory control period, it expects that the costs of the Bairnsdale network support program will decline over the period. Network support for the Bairnsdale power station is AusNet Services' largest source of demand management.⁶² Consistent with our general forecasting approach, we have not forecast a category specific amount for demand management. Rather we have included the revealed costs of all demand management expenditure AusNet Services undertook in 2014 in our base opex amount in forecasting its total opex.

⁶¹ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 211; AusNet Services also forecast an increase in the DMIA from \$3 to \$10 million.

⁶² AusNet Services, *Regulatory proposal*, 30 April 2015, p. 217.

A.5.3 Changes to Electrical Safety (Electric Line Clearance) Regulations 2015

We also note that AusNet Services' vegetation management obligations in the 2016–20 forecast period are different to the 2011–15 period. At this stage we have not forecast a change in opex for changes in these obligations. However we request that AusNet Services provide further information in its revised proposal about what change in opex it expects as a result of these changes.

On 28 June 2015 changes to the Electrical Safety (Electric Line Clearance) Regulations 2015 (ELC) commenced in Victoria.⁶³ We subsequently sent an information request to all Victorian distributors requesting updated information on costs to comply with ELC 2015.⁶⁴ We considered the following amendments to ELC 2015 could impact on the service provider's costs:

- compliance with AS4373 "Pruning of amenity trees"
- enhanced notification and consultation requirements.

In response to our information request AusNet Services considered that it could manage the changes to ELC 2015 within its current allowance. AusNet Services based this on an assessment of the requirements relative to its current vegetation management practice.⁶⁵

Each of the Victorian distributors proposed different approaches to comply with the change to ELC 2015. We subsequently consulted with ESV and it advised us that it intends to provide guidance to all Victorian distributors to ensure that they understand the manner in which ESV will administer its rules.⁶⁶

ESV also noted that it also made amendments to reintroduce exceptions for structural branches in relation to both insulated and uninsulated electric lines which returns the flexibility of ELC 2005 where practicable.⁶⁷ This exception allows for reduced clearance distances to be adopted on the condition that appropriate risk mitigation activities are carried out to ensure that an equivalent safety outcome was achieved despite the reduced clearance dimension.⁶⁸ ESV noted that the removal of these exceptions in ELC 2010 increased costs over time and expects that the reintroduction of these exceptions in ELC 2015 should decrease pruning costs over time.⁶⁹

⁶³ Jemena, *Regulatory proposal, Attachment 8.6 Operating expenditure step changes*, 30 April 2015, p. 16. United Energy, *Regulatory proposal, Opex overview*, 30 April 2015, p. 31.

⁶⁴ AER, AusNet Services information request 8, 1 July 2015.

⁶⁵ AusNet Services, Response to information request 8, 15 July 2015.

⁶⁶ Energy Safe Victoria, ESV audit intent, 28 July 2015, p. 2.

⁶⁷ Energy Safe Victoria, Response to AER email on electricity distribution proposals – ESV audit intent, 28 July 2015, p. 4.

⁶⁸ Jaguar Consulting, Regulatory Impact Statement Electricity Safety (Electric Line Clearance) Regulations 2015, September 2014, p. 41.

⁶⁹ Energy Safe Victoria, Response to AER email on electricity distribution proposals – ESV audit intent, 28 July 2015, p. 4.

In our determination for the 2011–15 regulatory control period, AusNet Services was provided with a step change in opex for the removal of the structural branches exceptions. Since ESV has now reversed this change, this is a symmetrical decrease in regulatory obligations from the 2010 changes so we would expect a similar decrease in costs to the increase allowed for in the 2011–15 period. The Consumer Challenge Panel (CCP) also noted that the 2010 amendments to vegetation management are being reviewed and consider these change may have a significant impact on opex over the 2016–20 period.⁷⁰

We have recognised that there are potentially both cost increases and cost decreases associated with the ELC 2015 amendments but the net impact of the changes are unclear at this stage. Following further guidance from ESV, we expect AusNet Services to be in a better position to assess the incremental effect of the regulatory changes. We expect it to address this in its revised proposal. Our position on this step change for the final decision will take all these factors into account in coming up with the overall change in costs to comply with ELC 2015.

⁷⁰ Consumer Challenge Panel, Consumer challenge panel sub panel 3, *Response to proposals from Victorian electricity distribution network service providers for a revenue reset for the 2016–20 regulatory period*, 5 August 2015, p. 23.

B Rate of change

Our forecast of total opex includes an allowance to account for efficient changes in opex over time.

There are several reasons why forecast opex that reflects the opex criteria might differ from expenditure in the base year.

As set out in our *Expenditure forecast assessment guideline* (the Guideline), we have developed an opex forecast incorporating the rate of change to account for:⁷¹

- price growth
- output growth
- productivity growth.

This appendix contains our assessment of the opex rate of change for use in developing our estimate of total opex.

B.1 Position

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.

Table B-1 shows AusNet Services' and our overall rate of change in percentage terms for the 2016–20 period. We consider that applying our methodology 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.

The differences in the forecast rate of change components are:

- our forecast of annual price growth is on average 1.06 percentage points lower than AusNet Services
- our forecast of annual output growth is on average 0.23 percentage points lower than AusNet Services'.

We discuss the reasons for the difference between us and AusNet Services for the rate of change components below.

⁷¹ AER. *Better Regulation explanatory statement expenditure forecast assessment guideline*, November 2013, p. 61.

Table B-1 AusNet Services and AER rate of change (per cent)

	2016	2017	2018	2019	2020
AusNet Services	3.47	3.09	3.02	3.01	3.04
AER	1.44	1.69	1.96	2.04	1.94
Difference	-2.03	-1.40	-1.06	-0.97	-1.09

Source: AER analysis.

B.2 AusNet Services proposal

Table B-2 shows AusNet Services' proposed cumulative change in opex for each rate of change component reported in its reset RIN. AusNet Services' rate of change methodology is different to ours because it adopted a different approach to forecasting price growth.

Table B-2 AusNet Services proposed opex by rate of change drivers (\$'000, 2015)

	2016	2017	2018	2019	2020
Price growth	3612.3	6671.7	9732.7	12918.6	16279.9
Output growth	2674.8	5314.7	7928.7	10477.8	12997.8
Productivity growth	–	–	–	–	–

Source: AusNet Services reset RIN table 2.16.1.

We discuss how AusNet Services forecast each of the rate of change components below.

Forecast price growth

AusNet Services proposed price growth for the following categories:

- internal labour costs
- external labour costs
- non-labour costs.

Table B-3 outlines the consultants AusNet Services engaged for each price growth category and the methodology proposed by each consultant. Table B-4 shows AusNet Services' annual percentage change for each of its proposed price growth categories.

Table B-3 AusNet Services forecast price growth consultants and proposed methodology

Price growth	Consultant	Method
Internal labour	Centre for International Economics	AusNet Services' existing EAs up until the expiry of those EAs. Following the expiry of the EAs, AusNet Services used the forecast change in the WPI for the EGWWS sector as forecast by CIE.
External labour	Centre for International Economics	Forecast change in the WPI for the construction sector as forecast by CIE.
Non-labour	Not applicable	AusNet Services assumed non-labour prices will grow with the CPI.

Source: AusNet Services, Regulatory proposal, p. 187.

Table B-4 AusNet Services' proposed real price growth (per cent)

	2016	2017	2018	2019	2020
Internal labour	1.95	1.65	1.61	1.66	1.73
External labour	2.31	1.88	1.86	1.89	1.95
Non-labour	–	–	–	–	–

Source: AusNet Services, Regulatory proposal, p. 187.

Forecast output growth

AusNet Services adopted our approach to forecasting output growth because it expected the output measures, particularly customer numbers, to be reasonable drivers of opex increases over the forthcoming regulatory control period. Its forecast of output growth is in Table B-5.

Table B-5 AusNet Services' proposed output growth (per cent)

	2016	2017	2018	2019	2020
Customer numbers	1.68	1.63	1.59	1.52	1.48
Circuit length	0.82	0.84	0.91	0.87	0.89
Ratcheted maximum demand	1.12	1.07	1.02	0.98	0.98
Output growth	1.46	1.42	1.39	1.34	1.30

Source: AusNet Services, Regulatory proposal, p. 185.

Forecast productivity growth

AusNet Services did not apply a productivity adjustment to its rate of change. It considered that, in the absence of evidence suggesting the efficiency frontier is improving, applying a productivity adjustment in the rate of change would not produce the best forecast of total opex. It therefore considered that the rate of change should

assume there is no change in productivity over the forthcoming regulatory control period.⁷²

B.3 Assessment approach

As discussed above, we assess the annual change in expenditure in the context of our assessment of AusNet Services' proposed total forecast opex.

The rate of change itself is a build-up of various components to provide an overall number that represents our forecast of annual change in overall required opex during the 2016–20 regulatory control period. We consider the rate of change approach captures all drivers of changes in efficient base opex except for material differences between historic and forecast step changes. The rate of change approach we have adopted takes into account inputs and outputs, and how well the service provider utilises these inputs and outputs.

The rate of change formula for opex is:

$$\Delta Opex = \Delta price + \Delta output - \Delta productivity$$

Where Δ denotes the proportional change in a variable.

Our starting point for assessing the service provider's proposed change in annual expenditure is to disaggregate the service provider's proposal into the three rate of change components. This enables us to identify where there are differences in our estimate and the service provider's estimate of the components of the rate of change. While individual components in the service provider's proposed annual change in expenditure may differ from our rate of change component forecasts, we will form a view on the overall rate of change in deciding what to apply to derive our alternative opex forecast.

We also take into account whether the differences in the rate of change components are a result of differences in allocation or methodology. For example, a service provider may allocate economies of scale to the output growth component of the rate of change, whereas we consider this to be productivity growth. Irrespective of how a service provider has built up or categorised the components of its forecast rate of change, our assessment approach considers all the relevant drivers of the opex rate of change.

Since our rate of change approach is a holistic approach we cannot make adjustments to one component without considering the interactions with other rate of change components. For example, if we were to adjust output to take into account economies of scale, we must ensure that economies of scale have not already been accounted for in our productivity growth forecast. Otherwise, this will double count the effect of economies of scale.

⁷² AusNet Services, *Regulatory proposal*, p. 193.

B.3.1 Price growth

Under our rate of change approach we escalate opex by the forecast change in prices. Price growth is made up of labour price growth and non-labour price growth. The growth in prices accounts for the price of key inputs that do not move in line with the CPI and form a material proportion of AusNet Services' expenditure.

To determine the appropriate forecast change in labour prices we assessed forecasts from CIE, BIS Shrapnel and Deloitte Access Economics. These forecasts are based on these consultants' views of general macroeconomics trends for the utilities industry and the overall Australian economy. We discuss our consideration of the choice of labour price forecast below in section B.4.2.

B.3.2 Output growth

Output growth captures the change in expenditure due to changes in the level of outputs delivered, such as increases in the size of the network and the customers serviced by that network. An increase in the quantity of outputs is likely to increase the efficient opex required to service the outputs.

Under our rate of change approach, a proportional change in output results in the same proportional change in expenditure. For example, if the only output measure is maximum demand, a 10 per cent increase in maximum demand results in a 10 per cent increase in expenditure. We consider any subsequent adjustment for economies of scale as a part of our assessment of productivity.

To measure output growth, we select a set of output measures and apply a weighting to forecast growth in these measures.

We have assessed each of AusNet Services' output growth drivers and compared its forecast output growth with ours at the overall level.

We discuss in greater detail how we have estimated output growth in section B.4.3.

B.3.3 Productivity

We forecast our change in productivity measure based on our expectations of the productivity an efficient service provider in the distribution industry can achieve. We consider the historic change in productivity and whether this reflects a reasonable expectation of the benchmark productivity that can be achieved for the forecast period.

If inputs increase at a greater rate than outputs then a service provider's productivity is decreasing. Changes in productivity can have different sources. For example, changes in productivity may be due to the realisation of economies of scale or technical change, such as the adoption of new technologies. We expect efficient service providers to pursue productivity improvements over time.

In the explanatory statement to the Guideline we noted that we would apply a rate of change to our estimate of final year opex (taking into account an efficiency adjustment, if required), to account for the shift in the productivity frontier over the forecast period.⁷³

Since forecast opex must reflect the efficient costs of a prudent firm, it must reflect the productivity improvements it is reasonable to expect a prudent service provider can achieve. All else equal, a price taker in a competitive market will maintain constant profits if it matches the industry average productivity improvements reflected in the market price. If it is able to make further productivity improvements, it will be able to increase its profits until the rest of the industry catches up, and this is reflected in the market price. Similarly, if a service provider is able to improve productivity beyond that forecast, it is able to retain those efficiency gains for a period.⁷⁴

Since we take both outputs and inputs into account, our productivity measure accounts for labour productivity and economies of scale. The effect of industry wide technical change is also included.

We discuss how we have estimated productivity growth in more detail in section B.4.4.

B.4 Reasons for position

We have separated the sections below into 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 and opex model.

B.4.1 Overall rate of change

We have adopted a rate of change lower than that proposed by AusNet Services to forecast our alternative estimate of opex. AusNet Services' higher forecast price growth is the primary driver of this difference. AusNet Services also forecast higher output growth than us. AusNet Services did not include a forecast change in productivity for the 2016–20 regulatory control period. This is consistent with our forecast of productivity growth.

Table B-6 shows AusNet Services' and our overall rate of change and each rate of change component for each regulatory year of the 2016–20 regulatory control period.

Table B-6 Forecast overall rate of change (per cent)

	2016	2017	2018	2019	2020
AusNet Services					
Price growth	1.98	1.64	1.61	1.65	1.71
Output growth	1.46	1.42	1.39	1.34	1.30

⁷³ AER, *Better regulation explanatory statement expenditure forecast assessment guideline*, November 2013, p. 65.

⁷⁴ AER, *Better regulation explanatory statement expenditure forecast assessment guideline*, November 2013, p. 66.

	2016	2017	2018	2019	2020
Productivity growth	–	–	–	–	–
Overall rate of change	3.47	3.09	3.02	3.01	3.04
AER					
Price growth	0.22	0.50	0.79	0.92	0.85
Output growth	1.21	1.18	1.16	1.12	1.09
Productivity growth	–	–	–	–	–
Overall rate of change	1.44	1.69	1.96	2.04	1.94
Difference	–2.03	–1.40	–1.06	–0.97	–1.09

Source: AER analysis.

In estimating our rate of change, we considered AusNet Services' proposed forecast growth in prices, output and productivity and the methodology used to derive them.

We discuss the reasons for the differences between AusNet Services' proposal and our preliminary decision for each rate of change component below.

B.4.2 Forecast price growth

We are not satisfied AusNet Services' proposed average annual price growth of 1.7 per cent for the 2016–20 regulatory control period reflects the increase in prices an efficient service provider requires to meet the opex objectives. We forecast an average price growth of 0.7 per cent for the 2016–20 regulatory control period.

The difference between our forecast of opex price growth and AusNet Services' is due to:

1. the price measures chosen to represent the prices of the opex inputs used
2. the forecast growth of the chosen price measures
3. the price weightings applied to each of the chosen price measures

We discuss our consideration of each of these below.

Choice of price measures

We forecast price growth based on the forecast growth in labour and non-labour prices. We use the forecast change in the wage price index (WPI) for the electricity, gas, water and waste services industry (the utilities industry) as the forecast change in the labour price.⁷⁵ We assumed non-labour prices grow with CPI.

⁷⁵ We used the forecast change in the WPI for the utilities industry because the ABS assigns electricity distribution to this industry.

AusNet Services proposed price growth for:

- internal labour costs (enterprise agreement rates and utilities WPI)
- external labour costs (construction WPI)
- non-labour costs (CPI).

AusNet Services defined internal labour costs as the costs of its employees and its internal labour hire. It defined external labour costs as the costs of external contractors engaged to deliver services such as vegetation management and asset maintenance, as well as consultants.⁷⁶

There are two differences between AusNet Services' choice of price measures and our price measures:

1. AusNet Services used the wage rate increases in its enterprise agreement for the duration of that agreement and then its forecasts of the utilities WPI. We use our forecast of the growth in the utilities WPI for all years.
2. AusNet Services treated contracted services as a labour cost whereas we treat them as a mix of labour and non-labour costs.

We discuss our reasons for these two differences below.

Enterprise agreement wage increases

We have not adopted AusNet Services' enterprise agreement in our forecast of price growth. We base our alternative estimate on setting base opex and the rate of change for an efficient and prudent service provider to achieve the opex objectives rather than the NSP's actual costs.

Wage increases in an individual enterprise agreement will often deviate from the industry average. One reason for this is because the wage increases in an individual agreement are affected by the market conditions at the time when the firm made the agreement. These conditions will be different than those that existed when other firms make their agreements. For example, when labour market conditions are softening the wage increases in an agreement made a year ago will likely be higher, all else equal, than an agreement made today. Thus, different firms may have negotiated different wage increases for the same year because they negotiated them at different points in time.

Consequently, using an individual enterprise agreement to forecast labour price growth at the start of the forecast period and an industry average for the remainder would likely not produce an opex forecast consistent with the opex criteria. For example, if a firm has higher wages than the industry average (because it negotiated its latest agreement prior to the labour market softening) then you would expect, all else equal, that the wage increases in its next enterprise agreement would be lower than the

⁷⁶ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 186.

industry average. Applying a forecast of the industry average wage increases for the remainder of the period would not reflect a realistic expectation of the cost inputs required to achieve the opex objectives.

For the reasons discussed above, we do not consider it is appropriate to use more than one approach to forecast labour price changes over a single regulatory control period. Therefore, we have used a consistent forecasting approach to forecast labour price growth over the entire forecast period.

We also have concerns that adopting the wage rate increases in an individual firm's enterprise agreement would reduce the incentive to negotiate efficient wages. Deloitte Access Economics (DAE) expresses similar concerns:⁷⁷

For the AER's purposes of setting a price for electricity distribution that is in the interest of electricity consumers over the long term, EBA outcomes are useful for understanding the short term constraints that a regulated firm is experiencing.

However, if regulators simply compensate a business for its commercial negotiations with employees, then they would be effectively undercut or even remove the incentive for businesses to move to the most productive workers over time, and to the long term efficient outcome for electricity consumers.

The Victorian Energy Consumer and User Alliance (VECUA) raised similar concerns and stated that we 'must ensure that Australia's distribution networks are not allowed to continue with their previous approach of effectively treating inefficient EBA outcomes as a "pass through"'.⁷⁸

Contracted services

Distributors use external contractors to deliver a variety of services such as vegetation management, asset inspections and traffic management. We treat contracted services differently to AusNet Services. As discussed below, we include the labour component of contracts that provide field services in our labour weighting. The non-labour component of those contracts, and contracts that provide non-field services, are included in the non-labour weighting. We forecast that the price of the components we include in labour will increase at the same rate as the utilities WPI. The component we include as non-labour we forecast will increase at the same rate as the CPI.

AusNet Services assumed that the price of contracted services (which it called 'external labour') will change at the same rate as the price of construction labour. This different approach is a material driver of the difference between AusNet Services' price growth forecast and our own.

⁷⁷ Deloitte Access Economics, *A response to submissions on AER's preliminary decision for a Regulatory Proposal*, 11 September 2015, p. 13.

⁷⁸ Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July 2015, p. 43.

AusNet Services provided no reasons in its regulatory proposal why it used the forecast growth in a wage price index to forecast the growth in the price of contracted services. To the extent that contracted services deliver field services, we would include the labour component of these services in our labour weighting. We apply the forecast change in the Victorian utilities WPI to these labour costs. The contracts that we include in the non-labour component are for non-field services. This includes services such as legal, accounting, IT and other administrative services.

The ABS publishes data on the movement in the price of goods and services. It publishes producer price indices for different industries as both input price indices and output price indices. That is, it publishes indices of the prices of inputs used by an industry and the prices of outputs produced by an industry. We looked at the output producer price indices that most closely reflect the non-field services that an efficient service provider would purchase (Table B-7). These are the same producer price indices that we use for the price of non-labour inputs in our opex cost function modelling that we use to measure historic productivity growth.

Table B-7 Annual growth in the producer price indices of selected ANZSIC classifications

Index	Annual growth
All industries, domestic, intermediate inputs	2.9
Data processing, web hosting and electronic information storage services	1.0
Other administrative services	2.7
Legal and accounting services	3.8
Market research and statistical services	4.0
Weighted average producer price index*	2.6
Consumer price index	2.8

* We calculated the weighted average using the same weights used by Economic Insights in its opex cost function modelling.

Note: We measured annual growth over the period September 2001 to September 2014.

Source: ABS catalogue 6427.0.

This analysis suggests that while the cost of some non-field services has increased by more than CPI others have increased by less than CPI. However, the price growth of non-field services tends to grow at a similar rate to CPI. Having 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 vary materially from CPI.

AusNet Services' stated that while external labour is engaged to provide services within the utilities industry, the wage growth of that type of labour is a function of the supply and demand drivers it faces. It stated that general labour faces demand, and is exposed to supply, from a range of sectors, including the construction sector.

We note that the ABS does state that:⁷⁹

Units mainly engaged in the construction of water, gas, sewerage or stormwater drains or mains, electricity or other transmission lines or towers, pipelines, or any other civil engineering projects are included in Division E Construction.

Consequently it is clear that labour engaged in the construction of electricity distribution networks is included in the construction industry by the ABS. However, here we are considering the price measure that best reflects the non-field services an efficient services provider contracts for and is in its opex, not capex. These include services such as legal, accounting, IT and other administrative services. These are not included in the construction ANZSIC classification.

Overall we are satisfied that the forecast growth in CPI reflects the increase in prices for contracted non-field services required by an efficient service provider to meet the opex objectives.

Forecast growth of individual measures

As noted above we used a forecast of WPI growth for the utilities sector to forecast labour price growth. We consider the average of the utilities WPI growth forecasts from DAE and BIS Shrapnel represents a realistic expectation of the cost inputs required to achieve the opex objectives.

Where a consultant is used to forecast labour prices, we consider an averaging approach that takes into account the consultant's forecasting history, if available, to be the best methodology for forecasting labour price growth. We, and DAE, have previously undertaken analysis that found that DAE under-forecast utilities labour price growth at the national level. The analysis also found that BIS Shrapnel over-forecast price growth and by a greater margin.⁸⁰

AusNet Services engaged CIE to develop forecasts of growth in the WPI for the utilities and construction industries. CIE forecast average annual growth in these indices to exceed the long-term average. The key driver of the forecast growth rate identified by CIE was an upswing in economic activity from 2016 due to:⁸¹

- heightened activity in the housing industry fuelled by low interest rates and foreign investment
- strong demand from Asian economies for Australian agricultural exports
- increased investment in infrastructure by the Victorian Government
- a surge in economic activity driven by LNG production in Queensland.

⁷⁹ <http://www.abs.gov.au/ausstats/abs@.nsf/Product+Lookup/73F4863F0CDC7D4CCA257B9500133B80?opendocument>

⁸⁰ AER, *Powerlink Final decision*, p. 54, April 2012.

⁸¹ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 187.

We compared the Victorian utilities WPI growth forecasts from CIE against the forecasts from DAE and BIS Shrapnel (Table B-8).

Table B-8 Forecast annual WPI growth, Victoria, EGWWS (per cent)

	2016	2017	2018	2019	2020	Average
DAE	-0.2	0.3	0.8	0.9	0.9	0.5
CIE	2.0	1.7	1.6	1.7	1.7	1.7
BIS Shrapnel	0.9	1.3	1.8	2.1	1.8	1.6

Source: DAE, *Forecast growth in labour costs in NEM regions of Australia*, 15 June 2015, p. 10; CIE, *Labour price forecasts*, 17 December 2014, p. 6; BIS Shrapnel, *Real labour and material cost escalation forecasts to 2020*, November 2014, p. ii.

The forecast utilities WPI growth rates from both CIE and BIS Shrapnel are higher on average than the historic average rate at the national level of 1.2 per cent per annum. By contrast, the forecast utilities WPI growth rates from DAE are lower, on average, than the historic average rate. WPI growth rates, both at the Australian all industries level and for the utilities industry more specifically, are currently at the lowest level on record.⁸² Given this, we consider it more likely that the average WPI growth rate over the forecast period will be lower than the historic average. The CCP also noted that wage growth is at historic lows.⁸³ Related to this, the Victorian Energy Consumer and User Alliance stated that the electricity network sector is in contraction and that 'industries in contraction do not face real labour price increasing drivers'.⁸⁴ Consequently we consider it likely that DAE's forecasts will be the most accurate of the consultants' forecasts because they better reflect current labour market conditions. Again this is consistent with our previous analysis that found that DAE's forecast of utilities WPI growth were closer to actual WPI growth than BIS Shrapnel's. Given our previous analysis found an average of the forecast from DAE and BIS Shrapnel was closest to actual WPI growth we consider an average of BIS Shrapnel's and DAE's forecasts would produce the best forecast available of the growth in the Victorian utilities WPI.

We have used BIS Shrapnel, rather than CIE because analysis has shown that BIS Shrapnel over forecast and CIE's forecast are higher than BIS Shrapnel's. Further, the profile of CIE's forecast looks inconsistent with current labour market conditions. For both DAE and BIS Shrapnel forecast WPI growth rates start low and peak in 2019. This profile appears consistent with current WPI growth rates being the lowest on record. CIE's forecasts, however, peak in 2016 and then remain consistently above the historic average for the remainder of the forecast period.

⁸² ABS, Catalogue 6345.0, Table 9b.

⁸³ CCP, *Response to proposals from Victorian electricity distribution network service providers*, 5 August 2015, p. 29.

⁸⁴ Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July, p. 42.

Opex price weightings

We weight the forecast price growth to account for the proportion of opex that is labour and non-labour. We have adopted a 62 per cent weighting for labour and 38 per cent for non-labour. We forecast the labour component based on the utilities WPI and we base the non-labour component on the CPI. These weightings are consistent with the weightings used in Economic Insights' benchmarking analysis.

AusNet Services stated that it adopted the following opex price weightings:⁸⁵

- internal labour costs—46 per cent
- external labour costs—47 per cent
- non-labour costs—7 per cent.

However, what we have included as labour is different to what AusNet Services has included as labour. Our labour component includes both labour directly employed by a benchmark efficient service provider and labour employed by contractors to provide field services. We do not include labour employed by contractors that provide non-field services in the labour weighting. Non-field services include services such as legal, accounting, IT and other administrative services that are not unique to providing electricity distribution services.

We define labour this way so we only include the productivity related to providing field services in the productivity component of the opex cost function. This is true for both our measurement of historic productivity growth and the forecast productivity growth in our opex forecast. We do this because when we measure historic productivity growth we are interested in the productivity growth achieved by the service providers rather than the productivity growth achieved by contractors providing services that are not unique to electricity distribution.

SA Power Networks and Ergon Energy stated that the price weightings we used for our November 2014 draft distribution determination for the NSW and ACT service providers were outdated.⁸⁶ Consequently we have investigated whether we could update the benchmark weightings. To do so we considered opex data from a sample of the most efficient service providers according to our opex benchmarking analysis, specifically:

- AusNet Services
- CitiPower
- Jemena
- Powercor

⁸⁵ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 186.

⁸⁶ SA Power Networks, *Revised regulatory proposal*, July 2015, p. 219; Ergon Energy, *Submission to the AER on its preliminary determination: Operating expenditure*, July 2015, pp. 10–11.

- SA Power Networks
- United Energy.

We assessed the proportion of the total opex of these service providers that was labour, contracted services and other. That is, we divided the labour opex of the six service providers by their combined total opex for 2014.⁸⁷ We did the same for contract services and other. The resulting weights are in the Table B-9.

Table B-9 Opex price weightings (per cent)

	Labour	Contracted services	Other
AusNet Services	46	47	7
Benchmark	43	40	17

Source: AusNet Services, *Regulatory proposal*, 30 April 2015, p. 186; AER analysis.

As noted by Economic Insights, it has become increasingly difficult to ascertain what the exact split between the labour component and the materials and services component of opex should be with the move to greater (and varying) use of contracting out of field services by distributors.⁸⁸ Similarly, we note that the data provided by the service providers does not differentiate between expenditure for contracts that provide field services and contracts that provide non-field services. Further, for those contracts that provide field services only the labour related expenses should be allocated to the labour weighting. Consequently, the 2014 data provided by the service providers only enables us to identify that the labour weighting should be somewhere between 43 per cent and 83 per cent. In the absence of more precise information we are satisfied that the 62 per cent weighting for labour remains appropriate. Economic Insights also stated that the existing 62 per cent share of labour in opex remains the best estimate of the labour required to perform a distributor's core functions.⁸⁹

AusNet Services stated that its firm specific price weighting should be used to forecast opex not benchmark weightings. It stated that, in responding to the regulatory incentives, it had sought to utilise a mix of labour and non-labour inputs that allowed it to meet the opex objectives at the lowest possible cost. It stated that adopting external benchmark weighting of labour and non-labour prices assumed that these regulatory incentives were not effective.⁹⁰

We do not agree that we should use a service provider's own base year opex price weightings to forecast price growth. Doing so would provide distributors an incentive to

⁸⁷ We used 2013–14 for SA Power Networks, which operates on a financial year basis.

⁸⁸ Economic Insights, *Response to Ergon Energy's Consultants' Reports on Economic Benchmarking*, 7 October 2015, p. 30.

⁸⁹ Economic Insights, *Response to Ergon Energy's Consultants' Reports on Economic Benchmarking*, 7 October 2015, p. 30.

⁹⁰ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 186.

use more than the efficient proportion of internal labour in the base year to increase its forecast price growth. Consequently we cannot assume an individual distributor's opex price weightings are efficient, even if our benchmarking analysis finds the distributor to be efficient.

We reviewed Powercor's actual price weightings from 2009 to 2014. They varied from 38 per cent to 46 per cent with the biggest variation from one year to the next being 5 per cent. The average proportion of opex relating to directly employed labour was 42 per cent over the period. This suggests that service providers have some capacity to respond to an incentive to increase the proportion of opex that relates to directly employed labour. For example, a service provider could reduce its contracted services expenditure in the base year (for which it would receive an EBSS benefit) and increase its forecast rate of change at the same time.

B.4.3 Forecast output growth

We are not satisfied AusNet Services' proposed average annual output growth of 1.4 per cent for the 2016–20 regulatory control period reflects the increase in output an efficient service provider requires to meet its opex objectives. We forecast average annual output growth of 1.2 per cent for the 2016–20 regulatory control period.

AusNet Services adopted our approach to forecasting output growth. The difference between its output growth forecast and our own is because we are not satisfied that AusNet Services' forecasts of maximum demand reflect a realistic expectation of the demand forecast required to achieve the opex objectives.

Our approach to forecasting output growth

We have adopted the following output growth measures and weightings:

- customer numbers (67.6 per cent)
- circuit length (10.7 per cent)
- ratcheted maximum demand (21.7 per cent).

These output measures are consistent with the output variables used by Economic Insights to measure productivity in its opex cost function analysis. This approach is consistent with the Guideline. AusNet Services also adopted these output measures.

To develop the opex cost function Economic Insights selected the outputs, in consultation with stakeholders, using the following three selection criteria.

1. The output aligns with the NEL and NER objectives.
2. The output reflects services provided to customers.
3. Only significant outputs should be included.

Economic Insights discusses the process for selecting the output specification in its economic benchmarking assessment of opex for the NSW and ACT electricity distributors.⁹¹

We note that, while VECUA had some issues with our approach to forecasting output growth, it considered that overall our approach is more reflective of the change in outputs required than the approaches proposed by the Victorian service providers.⁹²

Forecast growth in peak demand

We used the forecast customer numbers and circuit length reported by AusNet Services in its reset RIN. This produces an average annual growth rate of 1.57 per cent for customer numbers and 0.86 per cent for circuit length.

However, we have not used the forecast maximum demand numbers reported by AusNet Services in its reset RIN. The Ethnic Community Council of Victoria, VECUA, and the Victorian Greenhouse Alliances all noted that the Victorian service providers' peak demand forecasts were higher than those forecast by AEMO.⁹³ The Victorian Energy Consumer and User Alliance also noted that the Victorian distributors' past peak demand forecasts 'were subsequently proven to be overblown'. It also stated it was concerned that AEMO has consistently overestimated its energy forecasts in recent years.⁹⁴

For the reasons discussed in attachment 6, appendix C, we are not satisfied that AusNet Services' forecasts of maximum demand reflect a realistic expectation of the demand forecast required to achieve the opex objectives. Instead we have used AEMO's 2014 transmission connection point maximum demand forecasts.⁹⁵ AEMO forecasts no growth in maximum demand

B.4.4 Forecast productivity growth

We have applied a zero per cent productivity growth forecast in our estimate of the overall rate of change. We base this on our expectations of the forecast productivity for an efficient service provider in the short to medium term. This is consistent with

⁹¹ Economic Insights, *Economic Benchmarking Assessment of Operating Expenditure for NSW and ACT Electricity DNSPs*, 17 November, pp. 9, 10.

⁹² Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July, p. 45.

⁹³ Ethnic Community Council of Victoria, *Submission to the Australian Energy Regulator Victoria Electricity Pricing Review*, 15 July 2015, p. 1; Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July, p. 14; Victorian Greenhouse Alliances, *Submission*, 15 July 2015, p. 32.

⁹⁴ Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July, p. 15.

⁹⁵ <http://www.aemo.com.au/Electricity/Planning/Forecasting/AEMO-Transmission-Connection-Point-Forecasting/Transmission-Connection-Point-Forecasting-Report-for-Victoria>.

Economic Insights' recommendation to apply zero forecast productivity growth for other distribution network service providers such as Ergon Energy.⁹⁶

AusNet Services also included forecast productivity growth of zero in its rate of change. It considered that, in the absence of evidence that suggests the efficiency frontier is improving, applying a productivity adjustment in the rate of change would not produce the best forecast of total opex. It stated that the rate of change should therefore assume no change in productivity over the 2016–20 regulatory control period.⁹⁷

The Guideline states that we will incorporate forecast productivity in the rate of change we apply to base opex when assessing opex. Forecast productivity growth will be the best estimate of the shift in the productivity frontier.⁹⁸

We consider past performance to be a good indicator of future performance under a business as usual situation. We have applied forecast productivity based on historical data for the electricity transmission and gas distribution industries where we consider historical data to be representative of the forecast period.

To reach our best estimate of forecast productivity we have considered Economic Insights' economic benchmarking, AusNet Services' proposal, our expectations of the distribution industry in the short to medium term, and observed productivity outcomes from electricity transmission and gas distribution industries.

We have applied a zero productivity forecast for AusNet Services for the following reasons:

- While data from 2006–13 period indicates negative productivity for distribution network service providers on the efficient frontier, we do not consider this is representative of the underlying productivity trend and our expectations of forecast productivity in the medium term. The increase in the service provider's inputs, which is a significant factor contributing to negative productivity, is unlikely to continue for the forecast period.
- Measured productivity for electricity transmission and gas distribution industries are positive for the 2006–13 period and are forecast to be positive.

We discuss each of these reasons in detail in the sections below.

Forecast outlook and historical productivity

As noted above, forecast productivity is our best estimate of the shift in the frontier for an efficient service provider. Typically we consider the best forecast of this shift would

⁹⁶ Economic Insights, *Response to Ergon Energy's Consultants' Reports on Economic Benchmarking*, 7 October 2015, p. 29.

⁹⁷ AusNet Services, *Regulatory proposal*, 30 April 2015, p. 193.

⁹⁸ AER, *Better regulation explanatory statement expenditure forecast assessment guideline*, November 2013, p. 65.

be based on recent data. However, this requires a business as usual situation where the historical data is representative of what is likely to occur in the forecast period.⁹⁹

Analysis from Economic Insights using MTFP and opex cost function models showed that from 2006 to 2013, the distribution industry experienced negative productivity growth.¹⁰⁰ This means that the distribution industry inputs specified under the models increased at a greater rate than the measured outputs.

According to Economic Insights' modelling, the average annual output growth from 2010 to 2013 for the distribution industry was 0.6 per cent. During this period, the output measures of customer numbers and circuit length grew by 1.2 per cent and 0.5 per cent respectively. Maximum demand decreased by 4.1 per cent from its peak in 2009.¹⁰¹ However, total input quantity increased by 2.8 per cent per annum from 2010 to 2013.¹⁰² This has been driven by substantial increases in both opex and capital inputs.

We note past step changes will also decrease measured productivity. A step change will increase a service provider's opex without necessarily increasing its outputs. For example, a change in a regulatory obligation may increase a service provider's compliance costs without increasing its ratcheted maximum demand, line length or customer numbers.

We note that in Victoria for the 2011–2015 period, the increase in regulatory obligations related to bushfires was forecast to be 9.0 per cent of total opex.¹⁰³ We consider the increase in bushfire safety requirements to be a one off step increase in the cost of compliance. We also approved a \$35.5 million (\$2009–10) step change for SA Power Network's vegetation clearance pass through as a result of changing weather conditions.¹⁰⁴

⁹⁹ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and ACT electricity DNSPs*, 20 October 2014, p. 41.

¹⁰⁰ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and ACT electricity DNSPs*, 20 October 2014, p. 20, p. 40.

¹⁰¹ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and ACT electricity DNSPs*, 20 October 2014, pp. 44–45.

¹⁰² Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and ACT electricity DNSPs*, 20 October 2014, p. 45.

¹⁰³ AER, *Final decision: CitiPower Ltd and Powercor Australia Ltd vegetation management forecast operating expenditure step change*, August 2012, p. 2. AER, *CitiPower Pty Distribution determination 2011-15*, September 2012, p. 17. AER, *Powercor Australia Ltd Distribution determination 2011-15*, October 2012, p. 26. AER, *Final decision: Powercor cost pass through application of 13 December 2011 for costs arising from the Victorian Bushfire Royal Commission*, May 2011, p. 96. AER, *Final decision - appendices: Victorian electricity distribution network service providers - Distribution determination 2011-2015*, October 2011, pp. 301-304. AER, *Final Decision: SP AusNet cost pass through application of 31 July 2012 for costs arising from the Victorian Bushfire Royal Commission*, 19 October 2012, p. 3. AER, *SPI Electricity Pty Ltd Distribution determination 2011-2015*, August 2013, p. 20. AER, *Jemena Electricity Network (Victoria) Ltd: Distribution determination 2011-2015*, September 2012, p. 22. AER, *AusNet Services Distribution: Distribution determination 2011-2015*, September 2012, p. 19.

¹⁰⁴ AER, *SA Power Networks cost pass through application for vegetation management costs arising from an unexpected increase in vegetation growth rates*, July 2013, p. 6.

If we used historical productivity to set forecast productivity, this would incorporate the effect of past step changes which as shown above have negatively impacted on measured opex productivity. We do not consider past step changes should affect forecast productivity.

VECUA considered that the distributors' productivity declined during the previous regulatory control period because we provided excessive opex allowances. It considered this should not be used to justify poor productivity outcomes in future years.¹⁰⁵ We agree that the productivity performance we have seen in the 2006–13 period should not be used as the basis for forecasting productivity in the 2016–20 period, for the reasons above. In part this is due to step changes resulting from new regulatory obligations that were introduced in this period.

Other industries and proposed productivity

In estimating forecast productivity for the distribution industry we have also had regard to the electricity transmission and gas distribution industry and distribution network service provider's productivity forecasts.¹⁰⁶

Measured declines in productivity in the electricity distribution sector are unlikely to reflect longer term trends. Economic Insights notes:

We also note that a situation of declining opex partial productivity is very much an abnormal situation as we normally expect to see a situation of positive technical progress rather than technical regress over time. While we acknowledge the distinction between the underlying state of technological knowledge in the electricity distribution industry and the impact of cyclical factors that may lead to periods of negative measured productivity growth, the latter would be expected to be very much the exception, step change issues aside.

As noted by VECUA, both the electricity transmission and gas distribution industries experienced positive opex productivity growth during the 2006–13 period.¹⁰⁷ For electricity transmission network service providers average annual industry productivity growth was 0.85 per cent and for gas distribution Jemena Gas Networks proposed an average annual opex productivity growth of 0.95 per cent of which 0.83 per cent was attributed to the shift in the frontier.¹⁰⁸

¹⁰⁵ Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July 2015, pp. 45–46.

¹⁰⁶ This includes productivity forecasts from Endeavour Energy, Essential Energy, ActewAGL, Ausgrid, Ergon Energy, Energex and SA Power Networks.

¹⁰⁷ Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July, p. 46.

AER, *TransGrid transmission determination – draft decision*, Attachment 7, Appendix A, November 2014; AER, *JGN gas distribution determination – draft decision*, Attachment 7, Appendix A, November 2014.

¹⁰⁸ AER, *JGN gas distribution determination – draft decision*, Attachment 7, Appendix A, November 2014.

Cyclical factors and regulatory obligations for the distribution sector may be the reason for the lower measured productivity in the distribution industry compared to the transmission and gas distribution industries. Over the medium to long term, however, we expect the distribution network service providers to have underlying productivity growth rates comparable to the electricity transmission and gas distribution industries. This is because the specific factors that have resulted in declining productivity for the distribution industry are unlikely to apply over the medium to long term and the distribution industry should be broadly similar to other energy networks. In the absence of information suggesting when this return to positive productivity growth will occur we are satisfied that the best forecast of productivity growth is zero.

VECUA noted some of its participants operate within asset intensive industry sectors that have delivered positive opex productivity growth during the 2006–13 period. It did not accept that there is any justification for the electricity distribution sector to have lower productivity expectations than those sectors. It therefore expected us to determine positive productivity growth rates for the Victorian distributors, aimed at bringing their productivity back into line with their previous productivity levels, and into line with the levels being achieved by the electricity transmission sector and other asset intensive industry sectors.¹⁰⁹

Similarly, DEDJTR expected that firms operating in a competitive environment should achieve some productivity improvements. It stated the EBSS should reward service providers for productivity improvements that are greater than those expected in a business as usual environment. They should not be rewarded for achieving a business as usual level of productivity growth.¹¹⁰ We agree that service providers should not be rewarded for achieving a business as usual level of productivity growth. Consistent with the Guideline, we have forecast productivity growth as the best estimate of the shift in the productivity frontier.¹¹¹

DEDJTR also expected an additional level of productivity growth associated with the rollout of smart meters so that the service providers' customers realise the benefits for their investment in the smart meter rollout.¹¹² DEDJTR stated that:

The Victorian Government has recently undertaken an independent assessment of the benefits of the AMI program realised to date and likely to be realised over the longer term. This work shows that the benefits associated with the installation of the smart meters have now largely been realised and that the value added benefits, which are now a focus of the program, are starting to be realised. Further benefits are expected to be realised over the next regulatory control period, subject to actions being taken and some risks.

¹⁰⁹ Victorian Energy Consumer and User Alliance, *Submission to the AER Victorian Distribution Networks' 2016-20 Revenue Proposals*, 13 July, pp. 45–46.

¹¹⁰ DEDJTR, *Submission to Victorian electricity distribution pricing review*, 13 July, p. 8.

¹¹¹ AER, *Better regulation explanatory statement expenditure forecast assessment guideline*, November 2013, p. 65.

¹¹² AER, *Better regulation explanatory statement expenditure forecast assessment guideline*, November 2013, p. 65.

To the extent that the AMI rollout is mostly complete and the associated benefits have now largely been realised those benefits will be reflected in the service providers' base year expenditure. DEDJTR did not identify or quantify the 'value added benefits' or the further benefits it expects to be realised over the 2016–20 regulatory control period. Without this information we cannot incorporate them into our opex forecast. We note that DEDJTR did not provide us the independent assessment of the benefit the AMI program that it referred to.

The CCP stated that we should review the purpose and application of the productivity growth forecast in the rate of change. It stated we should consider the impact of the forecast productivity growth with the benchmarking analysis and the EBSS incentives.¹¹³ We consider that the incentive to minimise opex is primarily set at the margin. We designed the EBSS to work with the ex-ante opex and our opex forecasting approach to provide a continuous incentive at the margin. We designed the incentive to balance the incentive to reduce capex and maintain the level of service. The incentive at the margin is unaffected by the forecast productivity growth, to the extent it is not based on the individual NSPs own historic productivity growth. The CCP seem to suggest that overly generous opex allowances reduce this incentive. We agree that overly generous opex allowances may reduce the incentive to reduce opex. We do not see this as a productivity growth forecast issue but a total opex forecasting issue. We think it equally applies to all components of our opex forecasting approach.

¹¹³ CCP, *Response to proposals from Victorian electricity distribution network service providers*, 5 August 2015, pp. 40–41.