



Draft decision

TasNetworks transmission determination

2015–16 to 2018–19

Attachment 7: Operating expenditure

November 2014

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Note

This attachment forms part of the AER's draft decision on the transmission determination for TasNetworks' 2015–19 regulatory control period. It should be read in conjunction with other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – maximum allowed revenue

Attachment 2 – regulatory asset base

Attachment 3 – rate of return

Attachment 4 – value of imputation credits

Attachment 5 – regulatory depreciation

Attachment 6 – capital expenditure

Attachment 7 – operating expenditure

Attachment 8 – corporate income tax

Attachment 9 – efficiency benefit sharing scheme

Attachment 10 – capital expenditure sharing scheme

Attachment 11 – service target performance incentive scheme

Attachment 12 – pricing methodology

Attachment 13 – pass through events

Attachment 14 – negotiated services

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Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AASB	Australian Accounting Standards Board
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ARPC	Australian Reinsurance Pool Corporation
ASRR	aggregate service revenue requirement
augex	augmentation expenditure
Benchmarking report	AER, <i>Electricity transmission network service providers annual benchmarking report</i> , November 2014
capex	capital expenditure
capex incentive guideline	AER, <i>Capital Expenditure Incentive Guideline for Electricity Network Service Providers</i> , November 2013
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
DAE	Deloitte Access Economic
DRP	debt risk premium
EBA	enterprise bargaining agreement
EBSS	efficiency benefit sharing scheme
EGWWS	electricity, gas, water and waste services
EMCa	Energy Market Consulting associates

Shortened form	Extended form
ERP	equity risk premium
EUAA	Energy Users Association of Australia
Guideline	AER, <i>Expenditure forecast assessment guideline for electricity transmission</i> , November 2013
JGN	Jemena Gas Networks
MAR	maximum allowed revenue
MEU	Major Energy Users
MJA	Marsden Jacob Associates
MRP	market risk premium
MTFP	multilateral total factor productivity
MW	megawatts
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
NTNDP	National Transmission Network Development Plan
NTSC	negotiated transmission service criteria
NSW	New South Wales
opex	operating expenditure
PFP	partial factor productivity
PPI	partial performance indicators
PPI	producer price index

Shortened form	Extended form
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
TFP	total factor productivity
TNSP	transmission network service provider
TSBC	Tasmanian Small Business Council
TUoS	transmission use of system
version one of the EBSS	AER, <i>Electricity transmission network service providers: Efficiency benefit sharing scheme</i> , September 2007
version two of the EBSS	AER, <i>Efficiency benefit sharing scheme for electricity network service providers</i> , November 2013
WACC	weighted average cost of capital
WPI	wage price index

7 Operating expenditure

Opex refers to the operating, maintenance and other non-capital expenses incurred in the provision of prescribed transmission services. Opex is one of the building blocks we use to determine service providers' total revenue requirement.

7.1 Draft decision

We are satisfied that TasNetworks' forecast opex reasonably reflects the opex criteria.¹ TasNetworks' estimate of the total required opex for the 2014–19 period (which includes the 2014–15 transitional regulatory control period and the 2015–19 subsequent regulatory control period), is outlined in table 7.1.²

Table 7.1 Our draft decision on total opex (\$million, 2013–14)

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
AER draft decision	44.0	43.4	43.6	43.9	43.4	218.3

Source: TasNetworks, proposal; AER analysis.

7.2 TasNetworks' proposal

TasNetworks proposed a forecast opex of \$218.3 million (2013–14) for the 2014–19 period. The proposed opex is \$29.4 million (or 11.8 per cent) lower than the actual opex of \$247.7 million (2013–14) over the 2009–14 regulatory control period.³

The decrease in TasNetworks' proposed opex comes mostly from forecast efficiency improvements of \$29.8 million (2013–14) over the regulatory control period. These improvements are attributed to reduced staffing levels, rationalisation of duplicate systems and improved ways of delivering services to customers.⁴

7.3 Assessment approach

We decide whether or not to accept the service provider's total forecast opex. We accept the service provider's forecast if we are satisfied that it reasonably reflects the opex criteria.⁵ If we are not satisfied, we must replace it with a total forecast opex that we are satisfied does reasonably reflect the opex criteria.⁶

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 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 service provider's forecast is intended to cover the expenditure that will be needed to achieve the operating expenditure objectives. These objectives are:⁸

¹ NER, clause 6A.6.6(c).

² NER, clause 6A.6.6(c) and 6A.6.6(e).

³ TasNetworks, *Tasmanian transmission revenue proposal*, 31 May 2014, p. 91.

⁴ TasNetworks, *Tasmanian transmission revenue proposal*, 31 May 2014, pp. 86–87.

⁵ NER, clauses 6A.6.6(c), 6A.14.1(3).

⁶ NER, clauses 6A.6.6(d), 6A.13.2(b)(3), 6A.14.1(3)(ii).

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

- (1) Meeting or managing the expected demand for prescribed transmission services over the regulatory control period
- (2) Complying with all applicable regulatory obligations or requirements associated with providing prescribed transmission services
- (3) Where there is no regulatory obligation or requirement, maintaining the quality, reliability and security of supply of prescribed transmission services and maintaining the reliability and security of the transmission system.
- (4) Maintaining the safety of the transmission system through the supply of prescribed transmission services.

We assess the proposed total forecast opex against the opex criteria set out in the NER. The opex criteria provide that the total forecast must reasonably reflect:⁹

- (1) the efficient costs of achieving the operating expenditure objectives; and
- (2) the costs that a prudent operator would require to achieve the operating expenditure objectives; and
- (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]'.¹⁰

In deciding whether or not we are satisfied the service provider's forecast reasonably reflects the opex criteria we must have regard to the opex factors.¹¹ We attach different weight to different factors when making our decision to best achieve the NEO. This approach has been summarised by the AEMC as follows:¹²

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 we have regard to are:

- the most recent annual benchmarking report that has been published under clause 6A.31 and the benchmark operating expenditure that would be incurred by an efficient service provider over the relevant regulatory control period
- the actual and expected operating expenditure of the service provider during any preceding regulatory control periods

⁸ NER, clause 6A.6.6(a).

⁹ NER, clause 6A.6.6(c).

¹⁰ AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. 113.

¹¹ NER, clause 6A.6.6(e), 6A.14.1(3)(ii).

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

- the extent to which the operating expenditure forecast includes expenditure to address the concerns of electricity consumers as identified by the 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 service provider under clauses 6A.6.5, 6A.7.4 or 6A.7.5
- the extent the operating expenditure forecast is referable to arrangements with a person other than the service provider that, in the opinion of the AER, 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 6A.8.1(b)
- the most recent NTNDP and any submissions made by AEMO, in accordance with the NER, on the forecast of the service provider's required operating expenditure
- the extent to which the service provider has considered and made provision for efficient and prudent non-network alternatives
- any relevant project assessment conclusions report required under 5.16.4
- any other factor the AER considers relevant and which the AER has notified the service provider in writing, prior to the submission of its revised Revenue Proposal under clause 6A.12.3, is an operating expenditure factor.

For this determination, there are additional operating expenditure factors that we will take into account under the last opex factor above:

- (a) data contained in any economic benchmarking RIN, category analysis RIN, reset RIN or annual reporting RIN
- (b) data sets that support other assessment techniques consistent with the approach set out in our Guideline

as updated from time to time.

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 section.

More broadly, we also note in exercising our discretion, we take into account the revenue and pricing principles which are set out in the NEL.¹³

The Expenditure Forecast Assessment Guideline

After conducting an extensive consultation process with service providers, users, consumers and other interested stakeholders we issued our Guideline in November 2013 together with an

¹³ NEL, s. 16(2); s. 7A.

explanatory statement.¹⁴ Our Guideline sets out our intended approach to assessing operating expenditure in accordance with the NER.¹⁵

We may depart from the approach set out in the Guideline but if we do so we have to give reasons for doing so. In this determination we have not departed from the approach set out in the Guideline. In our Framework and Approach paper for each service provider, we set out our intention to apply our Guideline approach in making this determination.

Our approach is to compare the service provider's total forecast opex with an alternative estimate that we develop ourselves.¹⁶ By doing this we form a view on whether we are satisfied that the service provider's proposed total forecast opex reasonably reflects the criteria. If we conclude the proposal does not reasonably reflect the opex criteria, we use our estimate as a substitute forecast. 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:¹⁷

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.

Our estimate is unlikely to exactly match the service provider's forecast because the service provider may not adopt the same forecasting method. However, if the service provider's inputs and assumptions are reasonable, its method should produce a forecast consistent with our estimate.

If a service provider's total forecast opex is materially different to our estimate and there is no satisfactory explanation for this difference, we may form the view that the service provider's forecast does not reasonably reflect the opex criteria. Conversely, if our estimate demonstrates that the service provider's forecast reasonably reflects the expenditure criteria, we will accept the forecast.¹⁸ Whether or not we accept a service provider's forecast, we will provide the reasons for our decision.¹⁹

Building an alternative estimate of total forecast opex

Our approach to forming an alternative estimate of opex involves five key steps:

1. We typically use the service provider's actual opex in a single year as the starting point for our assessment. While categories of opex can vary from year to year, total opex is relatively recurrent.
2. We assess whether opex in that base year reasonably reflects the opex criteria. We now have a number of different techniques by which can test the efficiency of opex in the base year. If necessary, we make an adjustment to the base year expenditure to ensure that it reflects the opex criteria. We can utilise the same techniques available to assess the efficiency of base year opex to make an adjustment to base year opex.

¹⁴ AER, *Expenditure forecasting assessment guideline - explanatory statement*, November 2013.

¹⁵ NER clause 6A.5.6.

¹⁶ AER, *Expenditure forecast assessment guideline*, November 2013, p. 7.

¹⁷ AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p.112.

¹⁸ NER, clause 6A.6.6(c).

¹⁹ NER, clause 6A.14.2.

3. As the opex of an efficient service provider tends to change over time due to price changes, output and productivity, we trend the adjusted base year expenditure forward over the regulatory control period to take account of those changes. We refer to this as the rate of change.
4. We then adjust the base year expenditure to account for any other forecast cost changes over the forthcoming regulatory control period that would meet the opex criteria. This may be due to new regulatory obligations and efficient capex/opex trade-offs. We call these step changes.
5. Finally we add any additional opex components which have not been forecast using this approach. For instance, we forecast debt raising costs based on the costs incurred by a benchmark efficient service provider. If we removed a category of opex from the selected base year, we will need to consider what additional opex is needed for this category in forecasting total opex.

Underlying our approach are two general assumptions:

1. the efficiency criterion and the prudence criterion in the NER are complementary
2. past actual expenditure was sufficient to achieve the expenditure 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 our Guideline (and we have sometimes referred to it as the base-step-trend method in our past regulatory decisions).

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 expenditure 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 the benchmark efficient costs of providing opex.

We have set out more detail about each of the steps we follow in constructing our forecast below.

Step 1—Starting point—base year expenditure

We prefer 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, we have 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, we penalise the service provider when it is relatively less efficient. This gives us 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 category of opex in the base year is not going to be included in prescribed services opex in the 2014–19 period we will remove it.
- Rather than use all opex 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 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 these reductions in opex flow through to consumers as long as base year 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 year expenditure

Regardless of the base year we choose, the service provider's actual expenditure may not reflect 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 test whether actual expenditure in that year should be used to forecast efficient opex in the next regulatory control period.

As we set out in our Guideline, to assess the efficiency of a service provider's actual expenditure, we use a number of different techniques.²⁰

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:

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.²¹

To assess the efficiency of the base year, we have regard to the results of our economic benchmarking techniques which compare the efficiency of a service provider's use of inputs to produce outputs. From this, we can compare the productivity of a service provider over time, and to other service providers. For this decision we have used MTFP modelling, and partial productivity indicators.

We also have regard to trends in total level opex. We have also used historical data to construct partial performance indicators to inform our assessment of the efficiency of the base year expenditure.

²⁰ AER, *Expenditure forecast assessment guideline*, November 2013, p. 22.

²¹ AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. 97.

If we determine that a service provider's base year expenditure does not reasonably reflect the opex criteria, we will not use it as our starting point for our estimate of total forecast opex. Rather, we will adjust it so it reflects an efficient, recurrent level of opex that does reflect the opex criteria. To arrive at an adjustment, we use the same techniques we used to assess the service provider's efficiency.

Step 3—Rate of change

Once we have chosen an efficient starting point, we apply an annual escalator to take account of the likely continuing changes to efficient opex over the forecast period. Efficient opex in the forecast regulatory control period could reasonably differ from the efficient starting point due to changes in:

- prices
- outputs
- productivity.

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

Step 4—Step changes

We then consider if there is other opex needed 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 our Guideline explains, we will typically compensate a service provider for step changes only if efficient base year opex and the rate of change in opex of an efficient service provider do not already compensate for the proposed costs.²²

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

In our final step, we make any further adjustments we need for our opex forecast to achieve the opex objectives. 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 total opex forecast.

Comparing the service provider's proposal with our estimate

Having established our estimate of total forecast opex we can test the service provider's proposed total forecast opex. This includes comparing our alternative total with the service provider's total forecast opex. However, we also assess whether the service provider's forecasting method, assumptions, inputs and models are reasonable, and assess the service provider's explanation of how that method results in a prudent and efficient forecast.

The service provider may be able to adequately explain any apparent differences between its forecast and our estimate. We can only determine this on a case by case basis using our judgment.

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

This approach is supported by the AEMC's decision when implementing the changes to the NER in November 2012. The Commission stated:²³

... the AER could be expected to approach the assessment of a NSP's expenditure (capex or opex) forecast by determining its own forecast of expenditure based on the material before it. Presumably this will never match exactly the amount proposed by the NSP. However there will be a certain margin of difference between the AER's forecast and that of the NSP within which the AER could say that the NSP's forecast is reasonable. What the margin is in a particular case, and therefore what the AER will accept as reasonable, is a matter for the AER exercising its regulatory judgment.

If we are not satisfied there is an adequate explanation for the difference between our opex forecast and the service provider's opex forecast, we will use our opex forecast in determining a service provider's total revenue requirement.

As outlined in our Guideline, if the prudent and efficient opex allowance to achieve the opex objectives is lower than a service provider's current opex, we would expect a prudent operator would take the necessary action to improve its efficiency. We would expect a service provider (including its shareholders) to bear the cost of any inefficiency. To do otherwise, would mean electricity network consumers would fund some costs of a service provider's inefficiency. Accordingly, if our opex forecast is lower than a service provider's current opex we would generally not consider it appropriate to provide a transition path to the efficient allowance. This approach appears to be reflected in the NER, which provides that we must be satisfied that the opex forecast reasonably reflects the efficient costs of a prudent operator given reasonable expectations of demand and cost inputs to achieve the expenditure objectives.²⁴

7.4 Reasons for draft decision

We are satisfied that TasNetworks' total forecast opex reasonably reflects the opex criteria. In making our decision we had regard to the opex factors as listed in section 7.3 above. We reached this conclusion after undertaking our analysis using our guideline opex forecasting approach. When we compare TasNetworks' total forecast opex with our estimate of the efficient opex a prudent operator would require to achieve the opex objectives, TasNetworks' proposal is not materially different.

The key area which explains the difference between TasNetworks' proposal and ours is the forecast rate of change. In particular, TasNetworks proposed lower output growth and higher forecast productivity throughout the forecast period. TasNetworks also proposed on average a higher price change. However, since TasNetworks' 2014–15 price change is lower than ours, the effect of the higher prices in the later years is diminished.

We summarise TasNetworks' proposed total forecast opex and our alternative estimate in table 7.2.

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

²⁴ AER, *Expenditure forecast assessment guideline - Explanatory statement*, November 2013, p. 23.

Table 7.2 TasNetworks proposed vs AER alternative estimate of total forecast opex (\$million, 2013–14)

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
TasNetworks' proposal/ AER draft decision	44.0	43.4	43.6	43.9	43.4	218.3
AER alternative estimate	46.7	46.6	46.7	47.5	47.6	235.1
Difference	1.9	2.5	2.3	2.9	3.5	13.2

Source: TasNetworks, proposal; AER analysis.

Our reasons for why we are satisfied that TasNetworks' total forecast opex reasonably reflects the opex criteria are set out in more detail below:

- Section 7.4.1 outlines the difference between TasNetworks' forecasting method compared with our guideline forecasting approach.
- Section 7.4.2 outlines the choice of base year used to forecast opex for the regulatory control period.
- Section 7.4.3 outlines our assessment of proposed step changes.
- Section 7.4.4 and appendix A outlines our assessment of the trend (or rate of change) used to forecast opex in the 2014–19 period. This includes a discussion of the three elements comprising the rate of change—price, output and productivity changes.
- Section 7.4.5 outlines our assessment of proposed cost of debt.

7.4.1 Forecasting method

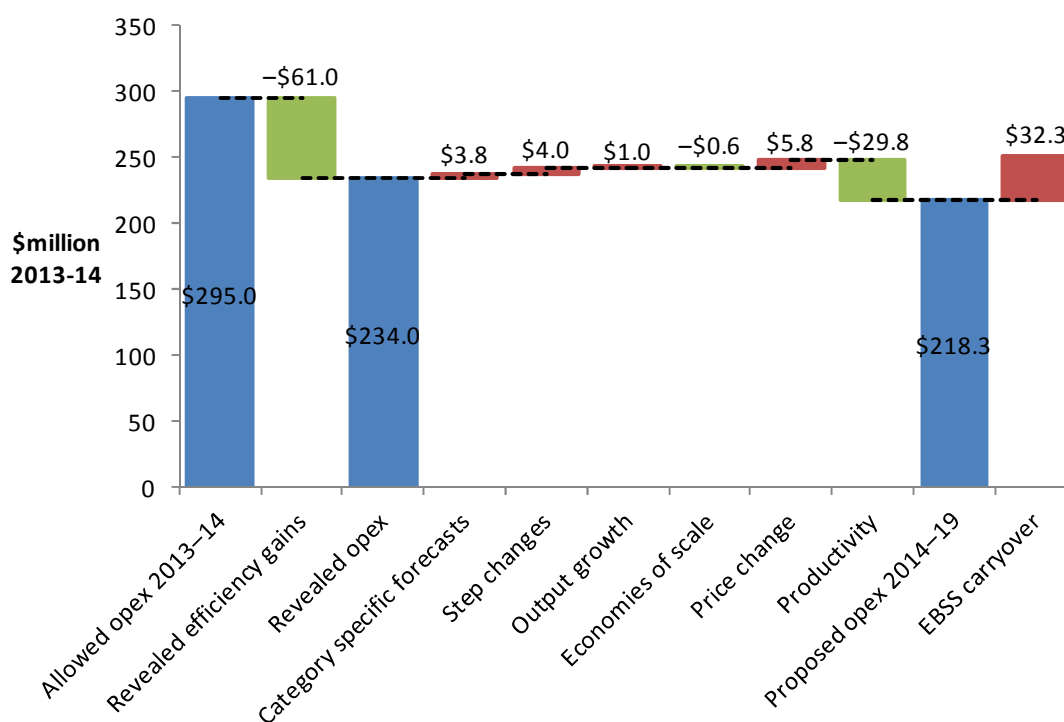
We have reviewed TasNetworks' forecasting method to assess whether it explains why its forecast opex is lower than our alternative estimate of total opex. We consider that TasNetworks' forecasting method is not the key driver of the difference.

TasNetworks' forecasting method

TasNetworks describes its opex forecasting method in its revenue proposal.²⁵ The revenue impacts of TasNetworks' forecasting method are disaggregated in figure 7.1, which shows the drivers of change between TasNetworks' allowed opex in 2013–14 and its proposed opex allowance for the 2014–19 period.

²⁵ TasNetworks, *Tasmanian transmission revenue proposal*, 31 May 2014, pp. 80–82; TasNetworks, *2014–19 Revenue proposal forecasting methodology*, November 2013, pp. 14–19.

Figure 7.1 Forecasting method impacts (\$million, 2013–14)



Source: AER analysis.

Many aspects of TasNetworks' opex forecasting method are similar to our guideline forecasting approach:

- TasNetworks used revealed expenditure in 2012–13 as its base opex. This reduced its forecast opex by \$61.0 million (2013–14) compared to setting opex for each year of the 2014–19 regulatory control period equal to TasNetworks' allowed opex for 2013–14. We have assessed TasNetworks' base opex in section 7.4.2.
- TasNetworks added forecast step change costs for new regulatory obligations, which increased its opex forecast by \$4.0 million (2013–14). We have assessed these proposed step changes in section 7.4.3.
- TasNetworks accounted for forecast output change by applying annual growth factors to its forecast controllable opex. This increased its opex forecast by \$1.0 million (2013–14). We have assessed these proposed growth factors in section A.4.3 of appendix A.
- TasNetworks escalated its forecast controllable opex to account for forecast changes in its labour prices. These forecast labour price changes increased its opex forecast by \$5.8 million (2013–14). We have assessed these proposed forecast labour price changes in section A.4.2 of appendix A.
- TasNetworks subtracted \$29.8 million (real 2013–14) from its total opex forecast for forecast productivity change, which we assess in section A.4.4 appendix A.

There are some differences, including:

- deducting non-recurrent and one-off items from its base year expenditure

- adding back forecasts for each of the non-recurrent and one-off items removed from base opex
- adding a bottom up forecast of 'other costs'.

Revealed efficiency gains and the EBSS

TasNetworks' opex forecasting approach is a variation of our base-step-trend approach outlined in our Guideline.²⁶ Our guideline forecasting approach uses actual expenditure in a single year as the basis for forecasting future expenditure. TasNetworks used 2012–13 as the base year. Setting annual opex equal to TasNetworks' reported opex for 2012–13 would require \$234.0 million (2013–14) in total over the 2014–19 period. This is \$61.0 million lower than setting opex equal to TasNetworks' allowed opex for 2013–14 for each year of the 2014–19 period.

One of the opex factors we must have regard to when assessing the service providers opex forecasts is whether the opex forecast is consistent with the EBSS.²⁷ In turn, the EBSS must provide for a fair sharing of efficiency gains and losses between service providers and network users.²⁸ Network users receive their share of efficiency gains through lower opex forecasts that reflect the efficiencies that the service provider is being rewarded for through the EBSS. If forecast opex does not reflect these efficiencies then network users never receive their share of these efficiency gains. Thus, in assessing TasNetworks' opex forecast we must consider whether it provides network users their share of efficiency gains made by TasNetworks. In this instance TasNetworks opex forecast does pass on the revealed efficiency gains in the revealed base opex, which it uses as a basis to forecast opex. However, we must test the forecast increase in expenditure to ensure network users receive their share of efficiency gains. We do this by reviewing the forecasting method adopted by TasNetworks and comparing TasNetworks' forecast against our own estimate. This includes assessing the rate of change and step changes proposed by TasNetworks. We also consider whether TasNetworks has treated movements in provisions consistently in the actual opex amounts used to calculate EBSS carryovers and the base opex used to forecast opex for the 2014–19 period.

Category specific forecasts

TasNetworks' forecasting method did not rely on revealed expenditure to forecast the following cost categories:

- revenue reset costs
- insurance and self-insurance premiums
- network support costs
- debt raising costs.

These category specific forecasts raised TasNetworks' opex forecast by \$3.8 million (2013–14) compared to leaving these costs in the base and escalating by the rate of change.

We stated in our Guideline that we would assess whether using alternative forecasting techniques in combination with a revealed cost forecasting approach produces a total opex forecast consistent with the opex criteria.²⁹

²⁶ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, pp. 22–24.

²⁷ NER clause 6A.6.6(e)(8).

²⁸ NER clause 6A.6.5(a).

²⁹ AER, *Expenditure forecast assessment guideline for transmission*, November 2013, p. 22.

Generally it is best to use the same forecasting approach for all cost categories of opex because hybrid forecasting approaches (that is, combining revealed cost and category specific methods) can produce biased opex forecasts inconsistent with the opex criteria. Using a category specific forecasting method for some opex categories may produce better forecasts of expenditure for those categories but this may not produce a better forecast of total opex.

For example, the forecast of total opex will systematically exceed the efficient level of opex if a category specific forecasting approach is used to forecast opex categories:

- with low expenditure in the base year compared to other years, or
- with a greater rate of change than total opex.

Within total opex we would expect to see some variation in the composition of expenditure from year to year. If a category specific forecasting approach is used to forecast those categories where base year opex was low, but not for those where base opex was high, forecast total opex will systematically exceed the efficient level of opex.

The same logic applies to the rate of change of individual opex categories and total opex. If opex categories where expenditure is rising faster than total opex are excluded then the remaining categories will be rising at a slower rate than total opex or declining. If the total opex rate of change is applied to those remaining categories then the total opex forecast will systematically exceed the efficient level of opex.

Despite our concerns with hybrid forecasting approaches, TasNetworks' forecast opex increases attributable to these category specific forecasts is mostly attributable to forecast debt raising costs. TasNetworks used the AER's Guideline benchmark approach to forecasting debt raising costs, which increased its forecast opex by \$4.8 million dollars. We discuss debt raising costs in our rate of return attachment.

Absent debt raising costs TasNetworks' bottom up forecasts would have decreased its opex forecast. It has not forecast any network support costs, consistent with the base year and its forecast average annual total insurance and self-insurance expenditure is less than it spent in the base year.

Given this we are consider that TasNetworks' forecasting approach does not systematically produce opex forecasts that exceed the efficient level of expenditure required by TasNetworks to meet the opex objectives.

7.4.2 Base year opex

We consider TasNetworks' proposed 2012–13 expenditure, subject to one minor adjustment for movement in provisions, is a reasonable base year for the purpose of forecasting opex for the 2014–19 period. Our considerations in forming this view are set out below.

Our analysis addresses points raised in a number of submissions which queried the efficiency of TasNetworks' base opex.

The MEU and TSBC questioned the efficiency of TasNetworks' proposed base opex.³⁰

³⁰ We also received submissions from Nyrstar and Bell Bay Aluminium that submit that TasNetworks' base opex is not efficient; however they refer to 2007–08 as the base year. We note that TasNetworks propose 2012–13 as the base year.

The MEU commended TasNetworks for reducing opex but considered that TasNetworks is not currently operating at the efficient frontier. In addition, TasNetworks forecast lower costs for the 2014–19 period, which the MEU stated indicates that the base year cannot be considered the most efficient. It noted that an inefficient base would cast doubts on the efficiencies of forecast opex.³¹

The TSBC also did not consider that TasNetworks' proposed base year represents an efficient level of opex. It stated that the base opex is still significantly higher than the average for the 2004–09 regulatory period.³²

Whether or not a service provider forecasts its total opex using a single year revealed expenditure approach, we develop our own estimate to determine the reasonableness of the service provider's forecast. This enables us to compare the service provider's forecast with a forecast that we are satisfied reasonably reflects the opex criteria. To do this, we first determine which year of past actual expenditure to use for the starting point (base year). The chosen base year should reflect an efficient re-current level of opex as the starting point for the forecast.

Typically, we use the revealed expenditure of the second or third last year of the preceding regulatory control period. The second last year is usually the most recent available at the time of making our final determination for the next period. To the extent expenditure drivers change over time it is likely to best reflect the forecast period.

If a service provider has responded to the incentive framework, and sought to maximise its profits, the actual opex incurred in a single year should be a good indicator of the efficient opex required. However, we must test this. As outlined in the Guideline, we use a combination of techniques to assess whether base opex reasonably reflects an efficient, recurrent level of opex. If we find material inefficiencies or material one-off costs in a proposed base year, we do not rely on expenditure in that year as the basis for forecasting. If so, we first look for an alternative base year that does reflect an efficient recurrent level of opex.

If no alternative base year can be identified we apply an efficiency adjustment to the estimated final year expenditure. When determining whether to adjust the estimated final year expenditure, we have regard to whether rewards or penalties accrued under the EBSS provide for the service provider and its network users to fairly share efficiency gains or losses.

Which year should be used as the base year?

We have used 2012–13 as the base year to forecast our alternative estimate of opex. We used this to test TasNetworks' opex forecast against the opex criteria.

Our choice of base year is consistent with TasNetworks' proposed opex forecast. TasNetworks' proposed the use of 2012–13 as the base year (subject to adjustments) because.³³

- it considered it benchmarked well
- it has decreased its operating expenditure in the 2009–14 regulatory control period, during a period where the industry has on average increased expenditure

³¹ Major Energy Users, *Submission to TasNetworks revenue proposal*, August 2014, p. 44.

³² Tasmanian Small Business Council, *Submission to TasNetworks revenue proposal*, August 2014, p. 34.

³³ TasNetworks, *Tasmanian transmission revenue proposal*, 31 May 2014, p. 82.

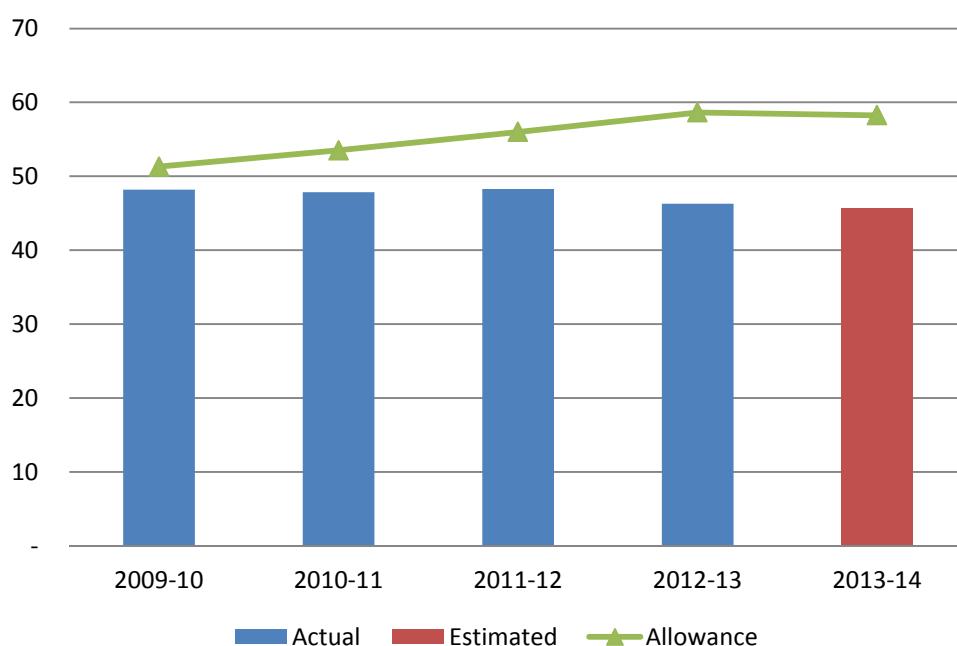
- 2012–13 expenditure is similar to expenditure in 2006–07, the base year used to forecast the 2009–14 regulatory control period
- 2012–13 is the most recent audited financial year available.

Subject to our review of the benchmarking, we consider using 2012–13 as the base year to forecast opex for the 2014–19 period will likely produce opex forecasts consistent with the opex criteria because:

- To the extent expenditure drivers change over time, the most recent year with available data is likely to best reflect expenditure in the forecast period.
- Once we remove movement in provisions and network support costs, total opex decreased over the 2009–14 regulatory control period (figure 7.2). We made adjustments for movements in provisions in the base year for the reasons discussed below. This reduced TasNetworks' base year expenditure by \$0.2 million from the amount it reported for 2012–13. TasNetworks' reported actual opex for the 2009–14 regulatory control period included provisions.
- TasNetworks' total operating expenditure in 2012–13 is the lowest of all years in the current regulatory control period. This indicates that TasNetworks is not managing its expenditure to artificially maximise the proposed base year expenditure. These outcomes are consistent with a business responding to the EBSS.
- When assessing the service provider's opex forecasts we must have regard to whether the opex forecast is consistent with the EBSS.³⁴ The EBSS that applied to TasNetworks in the 2009–14 regulatory control period assumes 2012–13 is the base year used to forecast opex for the 2014–19 period. If the EBSS and opex forecast assume different base years then network users may not receive their share of efficiency gains. Therefore, using a 2012–13 base year for forecasting opex is consistent with the application of the EBSS to TasNetworks.

³⁴ NER, clause 6A.6.6(e)(8).

Figure 7.2 TasNetworks' actual opex (\$m real 2013-14)



Source: TasNetworks
 Note: Opex minus network support costs and provisions.

How efficient is revealed expenditure?

In assessing whether TasNetworks' revealed base year expenditure is materially inefficient, we have had regard to the results of various benchmarking analysis.³⁵ On the whole, and as explained below, our benchmarking analysis for TasNetworks is inconclusive. Therefore, we have no evidence to suggest that TasNetworks revealed base year expenditure is materially inefficient.

Economic benchmarking

We examined TasNetworks' opex relative to other transmission network service providers in our benchmarking report.

One approach applied in the benchmarking report is MTFP. Using MTFP we measure the productivity of transmission networks across time and against each other. MTFP measures total outputs relative to all inputs and takes into account the multiple types of inputs and outputs of transmission networks. In the benchmarking report we recognise that work on whole-of-business benchmarking of transmission networks remains in its infancy. We consider there remain a number of analytical challenges that need to be overcome before firm conclusions can be drawn regarding the relative efficiency of transmission networks.³⁶

It is difficult to draw any firm conclusions regarding the relative efficiency of the transmission networks—including TasNetworks—based upon the benchmarking results in the report. Depending on the measure selected the relative efficiency of the networks change.

We consider however, that our opex MPFP is an appropriate basis for forecasting the rate of change in opex going forward. As noted by Economic Insights, output growth rates and opex input quantity

³⁵ AER, *Better Regulation: Expenditure forecast assessment guideline for Electricity Transmission*, November 2013, pp. 22–23.

³⁶ AER, *Electricity transmission network service providers annual benchmarking report*, November 2014, p. 6.

growth rates can be calculated with a higher degree of confidence and used to forecast opex partial productivity growth for the next regulatory control period.³⁷

Partial performance indicators

In assessing the efficiency of TasNetworks' opex, we do not consider that any significant conclusions can be drawn from its performance under the PPIs.

In our benchmarking report we examined a number of opex PPIs to compare the relative performance of transmission businesses. PPIs are used to compare the performance of businesses in delivering one type of output. PPIs provide a useful means of comparing and identifying where certain types of expenditure may be above efficient levels. However, variations in a service providers' performance across different PPIs also could be attributable to differences in the nature of the transmission networks. This means that the relative quantum of their outputs may differ depending on the measure selected. Service providers have discretion in how they allocate resources due to expenditure trade-offs, such as repairing equipment (opex) or replacing equipment (capex). We need to consider the expenditure trade-offs in our opex assessment when using PPIs.

The results of the opex PPI analysis appear in appendix A of the benchmarking report.³⁸ TasNetworks performs around the average of the other service providers on most PPI measures but performs relatively poorly on opex per MW of maximum demand served. Examining the PPIs holistically, we cannot draw the conclusion that TasNetworks' base opex is materially inefficient. Huegin attributes some of TasNetworks' poor benchmarking results to the relatively large fixed component of overheads, relative to the small size of the network and the associated loss of scale economies.³⁹

We also had regard to the Huegin base year opex efficiency report submitted by TasNetworks as part of its revenue proposal.⁴⁰ Huegin applied a number of techniques that we indicated in the Guideline would be used in our opex assessment, such as econometric analysis and high level category analysis. The results show that TasNetworks' opex appears efficient on some measures but not on others. Huegin's analysis also provides reasons for why TasNetworks' opex appears inefficient in some cases.⁴¹

The MEU and Nyrstar raised concerns with the use of metrics comparing opex to RAB in the Huegin report, noting that the metric is influenced by movements in the RAB and is therefore not an appropriate representation of opex efficiency.⁴² The MEU noted that RAB based assessments are distorted when significant capex is made in the networks and these assessments must be treated with extreme caution.⁴³ The MEU also raised concerns with the benchmarking work due to the focus on the performance of the few Australasian electricity transmission networks. The MEU considers the benchmarking is lacking without integrating overseas comparisons or integrating comparisons with capital intensive firms operating in competitive markets.⁴⁴ We recognise the issue of RAB based assessment and do not include it in our own economic benchmarking analysis.

³⁷ Economic Insights, *Economic Benchmarking Assessment of Operating Expenditure for NSW and Tasmanian Electricity TNSPs*, November 2014, p. 2.

³⁸ AER, *Electricity transmission network service providers annual benchmarking report*, November 2014, pp. 26–28.

³⁹ Huegin, *Transmission benchmarking study 2013: Report for Transend*, March 2014, p. 3.

⁴⁰ Huegin, *Transend base year operating expenditure efficiency: A review by Huegin Consulting Group of the adequacy of the 2012/13 year as the regulatory base year*, February 2014.

⁴¹ Huegin, *Transmission benchmarking study 2013: Report for Transend*, March 2014, pp. 50–51.

⁴² Nyrstar, *Submission to TasNetworks revenue proposal*, August 2014, p. 1; Major Energy Users, *Submission to TasNetworks revenue proposal*, August 2014, p. 43.

⁴³ Major Energy Users, *Submission to TasNetworks revenue proposal*, August 2014, pp. 43–44.

⁴⁴ Major Energy Users, *Submission to TasNetworks revenue proposal*, August 2014, p. 43.

Adjustment for movement in provisions

In forming our base year estimate we have removed reported movements in provisions from reported opex in 2012–13. This reduces our base year by \$0.2 million from the reported amount in 2012–13.

A provision is a type of accrual accounting practice. A business records an increase in a provision where it expects it will incur a future cost but the timing and/or amount of the cost to be incurred is uncertain. Increases in provisions are often allocated to expenditure, and in particular, to opex. Accordingly, if a business considers it is likely it will incur a future cost, or it expects the cost will be different than it has previously reported, its reported actual expenditure will increase. However, the business may not actually incur the cost for some time. When the cost is actually incurred it does not affect reported expenditure.

TasNetworks' reported actual opex for the 2009–14 regulatory control period included provisions for annual leave, long service leave, superannuation, employee incentive payments and organisational restructuring. The amount reported as a provision in 2012–13 for these costs was \$0.2 million more than the cost TasNetworks actually incurred in delivering these obligations in 2012–13.

To set our base year we prefer to use the costs a service provider actually incurred in delivering its obligations. To do this, we replace the provision charged to opex in the base year with the cost incurred in delivering the obligation in that year. This better ensures that the base year is based on the service provider's revealed expenditure for that year.

The alternative to this approach would be to leave reported provisions in reported expenditure in the base year. While this approach is consistent with accounting conventions, we do not consider this approach to be preferable for setting prices. As noted above, provisions relate to costs likely to be incurred in the future by a service provider not costs that have been actually incurred. As there is some uncertainty regarding when the cost is to be incurred and/or the amount to be incurred we consider there is a greater risk of forecasting error from adopting this approach. Therefore, consistent with the approach flagged in our Guideline, we have removed the movement in provisions.⁴⁵

7.4.3 Step changes

We did not assess the step changes proposed by TasNetworks. This is because TasNetworks indicated to us that:⁴⁶

... the step changes have been absorbed as efficiency savings in the final forecast opex requirement. That is, they have been forecast as known additional costs to be incurred by TasNetworks, however, as part of the ongoing drive to reduce costs, they have been absorbed, or removed from the final forecast opex requirement, along with additional efficiency savings. ...

... the step changes outlined are effectively not being requested for as part of our opex requirement for the 2014-19 regulatory period. Whilst these additional costs will be incurred, they will be absorbed by the business as part of the ongoing efficiency reductions.

TasNetworks identified two step changes in opex it forecasts it will incur the 2014–19 period (see table 7.3).⁴⁷

⁴⁵ AER, *Expenditure forecast assessment guideline*, November 2013, p.22.

⁴⁶ Transend, Response to information request: AER Transend Opex 02, received 8 August 2014, p.1.

⁴⁷ TasNetworks, *Tasmanian transmission revenue proposal*, 31 May 2014, pp.84–85.

Table 7.3 TasNetworks proposed step changes (\$million, 2013–14)

Proposed step change	2014-15	2015-16	2016-17	2017-18	2018-19	Total
AEMO operating agreement	0.4	0.4	0.4	0.4	0.4	1.9
Better Regulation program	0.4	0.4	0.4	0.4	0.4	2.1
Total step changes	0.8	0.8	0.8	0.8	0.8	4.0

Source: Transend, *Revenue proposal*, May 2014, Table 6.2, p. 85.

The TSBC submitted that it does not object to the TasNetworks' proposed step changes but the efficient and prudent costs need to be established.⁴⁸

The EUAA considered that the figure requested for the transfer of AEMO functions is based on the revenue stream from AEMO rather than reflecting true incremental cost.⁴⁹

We have considered the impact of these step changes when assessing TasNetworks' proposed forecast productivity for the 2014–19 period. We considered the above submissions when making this assessment. These considerations are explained in the rate of change section (see section 7.4.4).

We have not included any step changes in formulating our alternative estimate of opex forecast.

7.4.4 Rate of change

We have adopted our forecast rate of change for our alternative estimate of opex. Our forecast rate of change is lower than TasNetworks' proposed forecast rate of change.

The efficient level of expenditure required by the services providers in the 2014–19 period may differ from that required in the final year of the 2009–14 regulatory control period. Once we have determined the efficient opex required in the final year of the of the 2009–14 regulatory control period we apply a forecast annual rate of change to forecast opex for the 2014–19 period. The annual rate of change is forecast as:

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

Where Δ denotes the proportional change in a variable.

The rate of change captures the year on year change in efficient expenditure. Specifically it accounts for forecast changes in output levels, prices and productivity (such as economies of scale). These three opex drivers should explain all changes in efficient opex. The output and productivity change variables capture the forecast change in the quantity of inputs required. The price change variable captures the forecast change in the prices of those inputs.

We have assessed TasNetworks' proposed labour price changes, network growth and productivity as an overall rate of change figure. The main driver of the difference between our forecast rate of change and TasNetworks' rate of change is TasNetworks' higher productivity change forecast.

⁴⁸ Tasmanian Small Business Council, Submission to TasNetworks revenue proposal, August 2014, p. 35.

⁴⁹ Energy Users Association of Australia, Submission to TasNetworks revenue proposal, August 2014, p. 11.

Our forecast of productivity change is based on the historical performance of the electricity transmission industry. TasNetworks' productivity change forecast includes merger efficiencies between Aurora and Transend and an additional productivity target of 1.75 per cent in the first year and 0.5 per cent for the remaining years of the 2014–19 period.⁵⁰ These factors contribute to higher productivity growth than has been achieved in the electricity transmission industry over the past eight years.

Our forecast of labour price change, which is based on forecasts from Deloitte Access Economics and Independent Economics, is lower than TasNetworks', which is based on Independent Economics' forecasts. However, this difference is outweighed by the difference between the two productivity forecasts.

Table 7.4 compares TasNetworks' forecast of the overall rate of change, and each rate of change component, with our forecast.

The main differences between our rate of change and TasNetworks' are:

- TasNetworks proposed lower output change
- TasNetworks proposed higher forecast productivity change throughout the forecast period, in particular the first year of the 2014–19 period. These are a result of proposed efficiencies from the merger between Transend and Aurora Energy and an additional 0.5 per cent efficiency target for controllable opex.⁵¹
- TasNetworks proposed a higher average annual price change. However, since TasNetworks' 2014–15 price change is lower than ours the effect of the higher prices in the later years is offset by the compounding effect of lower prices earlier in the forecast period.

Our detailed assessment of TasNetworks' rate of change is in appendix A.

Table 7.4 Forecast rate of change (per cent)

	2014–15	2015–16	2016–17	2017–18	2018–19
TasNetworks' proposal					
Price change	-0.04	0.95	1.83	1.91	1.86
Output change	0.01	0.01	0.24	0.01	0.37
Productivity change	4.90	1.48	2.60	2.44	2.75
Overall rate of change	-4.93	-0.53	-0.57	-0.57	-0.58
AER alternative estimate					
Price change	0.34	0.50	0.55	0.85	1.02
Output change	0.39	0.12	0.30	1.81	0.19
Productivity change	0.86	0.86	0.86	0.86	0.86
Overall rate of change	-0.13	-0.24	-0.01	1.80	0.36

⁵⁰ TasNetworks, *Tasmanian transmission revenue proposal*, 31 May 2014, pp. 86–87

⁵¹ TasNetworks, *Tasmanian transmission revenue proposal*, 31 May 2014, p. 87.

	2014–15	2015–16	2016–17	2017–18	2018–19
Difference	4.80	0.30	0.56	2.37	0.94

Source: AER analysis

7.4.5 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 of the rate of return attachment.

7.4.6 Interrelationships

In assessing TasNetworks' total forecast opex we took into account other aspects of TasNetworks' regulatory proposal, and other constituent components of our draft decision including:

- the operation of the EBSS in the 2009–14 regulatory control period in our choice of 2012–13 as the base year used to develop our alternative estimate of total opex (see section 7.4.2)
- the operation of the EBSS in the 2009–14 regulatory control period, which provided TasNetworks an incentive to reduce opex in 2012–13 (see section 7.4.2)⁵²
- the impact of forecast capex on forecast output change in the rate of change that we applied to the efficient base opex to develop our alternative estimate of total opex (see section A.4.3 of appendix A).

7.4.7 Assessment of opex factors

In deciding whether or not we are satisfied the service provider's forecast reasonably reflects the opex criteria we have regard to the opex factors.⁵³ Table 7.5 summarises how we have taken the opex factors into account in making our draft decision.

Table 7.5 AER consideration of opex factors

Opex factor ^(a)	AER's consideration
The most recent annual benchmarking report we have published under clause 6A.31 and the benchmark operating expenditure that would be incurred by an efficient service provider over the relevant regulatory control period	<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 transmission 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</p>

⁵² NER clause 6A.6.6(e)(8).

⁵³ The opex factors are set out in NER cl. 6A.6.6(e).

Opex factor ^(a)	AER's consideration
	<p>the relevant period.</p> <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 the multilateral total factor productivity modelling and partial productivity indicators included in our annual benchmarking report.⁵⁴ This report was published with the release of our TasNetworks draft decision.</p> <p>In building up our total opex forecast estimate we also applied the results from the opex partial factor productivity modelling for estimating the opex rate of change.</p>
<p>The actual and expected opex of the service provider during any preceding regulatory control periods</p>	<p>Our revealed cost approach is based on an assessment of actual opex in the preceding regulatory control period. This works in conjunction with the EBSS that applied in the previous regulatory control period, providing for a comparison of actual and expected costs. The STPIS encourages the service provider to achieve the opex objectives with their actual expenditure in the past regulatory control period. Together, we therefore derived likely future costs that will be needed to meet the opex objectives from past actual and expected opex in the preceding regulatory control period.</p> <p>In assessing the efficiency of the base year expenditure we also had regard to trends in total level opex. We used historical data collected in the economic benchmarking and category analysis RINs to construct category analysis benchmarks. We used this information to inform our assessment of the efficiency of the base year expenditure.</p>
<p>The extent to which the operating expenditure forecast includes expenditure to address concerns of electricity consumers as identified by the 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.⁵⁵</p> <p>We examined the service provider's engagement with consumers and made assessments about the extent to which concerns identified by consumers are reflected in the opex forecast.</p>
<p>The relative prices of operating and capital inputs</p>	<p>The relative prices of operating and capital inputs are typically assessed as a part of any step changes related to opex/capex trade-offs. TasNetworks did not propose any opex/capex trade-offs.</p> <p>The relative prices of operating and capital inputs are included in our multilateral total factor productivity modelling, which uses relative prices to calculate the reasonable level of operating and capital inputs required by an efficient firm.</p>
<p>The substitution possibilities between operating and capital</p>	<p>Our multilateral total factor productivity modelling provides an</p>

⁵⁴ AER, *Electricity transmission network service providers annual benchmarking report*, November 2014.

⁵⁵ AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. 101, p. 115.

Opex factor ^(a)	AER's consideration
expenditure	indication of opex efficiency. We considered whether there are more efficient and prudent trade-offs in investing more or less in capital in place of ongoing operations.
Whether the operating expenditure forecast is consistent with any EBSS, STPIS or small-scale incentive scheme that applies to the service provider	The consistent operation of incentive schemes with our preferred revealed costs forecasting method is a cornerstone of our approach to forecasting an alternative opex. In addition, we take incentive schemes into account in choosing the base year to use for our alternative forecast of opex.
The extent the operating expenditure forecast is referable to arrangements with a person other than the service provider that, in the opinion of the AER, do not reflect arm's length terms	If we identify costs incurred to related party businesses, we examine whether this adversely affects the service provider's opex forecast. We did not identify any related party matters which would influence TasNetworks' opex forecast.
Whether the operating expenditure forecast includes an amount relating to a project that should more appropriately be included as a contingent project under clause 6A.8.1(b)	We considered whether any projects would more appropriately be included as a contingent project. We did not identify any opex that should be included as a contingent project.
The most recent NTNDP and any submissions made by AEMO, in accordance with the Rules, on the forecast of the service provider's required operating expenditure.	We examined these factors and took them into account in considering whether the proposed total forecast opex reasonably reflects the opex criteria.
The extent to which the service provider has considered and made provision for efficient and prudent non-network alternatives	We did not identify any non-network alternatives that required a capex/opex trade-off step change to be included in the total forecast opex.
Any relevant project assessment conclusions report required under 5.16.4.	We identified any RIT-T project that was submitted by the TasNetworks and ensured that the conclusions were appropriately addressed in the total forecast opex.
Any other factor the AER considers relevant and which the AER has notified the service provider in writing, prior to the submission of its revised revenue proposal under 6A.12.3, is an operating expenditure factor.	We have used our benchmarking data sets including, but not necessarily limited to data contained in any economic benchmarking RIN, category analysis RIN, reset RIN or annual reporting RIN

Source: AER analysis

Note: (a) The opex factors are set out in NER cl. 6A.6.6(e).

The NER require that we notify the service provider in writing of any other factor we identify as relevant to our assessment, prior to the service provider submitting its revised regulatory proposal.⁵⁶ Table 7.6 identifies these factors.

Table 7.6 Other factor we have had regard to

Opex factor	Consideration
Our benchmarking data sets including, but not necessarily limited to:	This information may potentially fall within opex factor (4). However, for absolute clarity, we are using data we gather from NEM service providers to provide insight into the

⁵⁶ NER, clause 6A.6.6(e)(14).

1. data contained in any economic benchmarking RIN, category analysis RIN, reset RIN or annual reporting RIN benchmark operating expenditure that would be incurred by an efficient and prudent transmission network service provider over the relevant regulatory period.
2. data sets that support other assessment techniques consistent with the approach set out in our Guideline

as updated from time to time.

A Opex 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 efficient opex for each year of a regulatory control period might differ from expenditure in the base year.

As set out in our Guideline, we have developed an opex forecast incorporating the rate of change to account for the following factors:⁵⁷

- price change⁵⁸
- output change
- productivity change

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

We add any other changes in opex over the regulatory control period (that are not compensated either in base opex or our rate of change) as step changes.

A.1 Position

On average, our forecast of the overall rate of change is higher than TasNetworks' over the forecast period. Table A.1 shows TasNetworks' and our overall rate of change in percentage terms for the 2014–19 period.

The differences in each forecast rate of change component are:

- our forecast of price change is on average 0.65 percentage points lower than TasNetworks'
- our forecast of output change is 0.43 percentage points higher than TasNetworks'
- our forecast of productivity change is 1.97 percentage points lower than TasNetworks'.

The reasons for the differences between each rate of change component are discussed below.

Our rate of change assessment methodology and the reasons for taking this position are discussed in the sections below.

Table A.1 TasNetworks and AER rate of change (per cent)

	2014–15	2015–16	2016–17	2017–18	2018–19
TasNetworks	–4.93	–0.53	–0.57	–0.57	–0.58
AER	–0.14	–0.25	–0.02	1.79	0.35
Difference	4.79	0.29	0.55	2.36	0.93

Source: AER analysis

⁵⁷ AER. *Better Regulation explanatory statement expenditure forecast assessment guideline*, November 2013, p. 61.

⁵⁸ We note the guidelines referred to price growth, output growth and productivity growth. We have changed the term growth to change to reflect that these components can be either positive or negative.

A.2 TasNetworks' proposal

Table A.2 shows TasNetworks' proposed annual change in opex for each rate of change component as reported in TasNetworks' reset RIN.

TasNetworks used a different methodology to form its view about the opex rate of change than set out in the Guideline.

The rate of change approach applies a percentage change to the previous year's opex. TasNetworks' proposed rate of change drivers in Table A.2 express the impact of each rate of change component in dollar terms. To allow for a like with like comparison we have expressed each of TasNetworks' rate of change components in annual percentage terms below in Table A.3.

Table A.2 TasNetworks' proposed opex by rate of change drivers (\$000, 2013–14)

	2014–15	2015–16	2016–17	2017–18	2018–19
Base opex	44 424	44 424	44 424	44 424	44 424
Price change (cumulative)	–33	349	1 081	1 840	2 573
Output change (cumulative)	6	8	104	108	255
Productivity change (cumulative)	–4 250	–4 842	–5 879	–6 850	–7 939

Source: TasNetworks reset RIN tables 2.16.1.

Table A.3 TasNetworks' opex rate of change (per cent)

	2014–15 ^a	2015–16	2016–17	2017–8	2018–19
Price change	–0.04	0.95	1.83	1.91	1.86
Output change	0.01	0.01	0.24	0.01	0.37
Productivity change	4.90	1.48	2.60	2.44	2.75
Total rate of change	–4.93	–0.53	–0.57	–0.57	–0.58

Note: (a) We have taken the square root of the growth between 2012/13 and 2014–15 to obtain a one year annualised rate of change for 2014–15.

Source: TasNetworks' reset RIN, AER analysis.

For labour price changes, TasNetworks proposed the use of its enterprise agreement for the first two years of the regulatory control period and forecasts from Independent Economics for the remaining years of the regulatory control period.⁵⁹ TasNetworks assumed non-labour price changes are to increase in line with CPI.⁶⁰

TasNetworks' proposed asset growth escalation factors is based on TasNetworks' capital expenditure plans and adjusted for economies of scale.⁶¹

TasNetworks also proposed efficiencies as a result of the merger between Transend and Aurora Energy and an additional 0.5 per cent efficiency target for controllable opex.⁶²

⁵⁹ TasNetworks, *Revenue Proposal*, 31 May 2014, pp. 63–64.

⁶⁰ TasNetworks, *Revenue Proposal*, 31 May 2014, p. 86.

⁶¹ TasNetworks, *Revenue Proposal*, 31 May 2014, p. 85.

⁶² TasNetworks, *Revenue Proposal*, 31 May 2014, pp. 86–87.

A.3 Assessment approach

As discussed above, our assessment of the annual change in expenditure is made in the context of our assessment of TasNetworks' proposed total forecast opex.

The rate of change itself is a build-up of various components to provide an overall holistic number that represents our forecast of annual change in overall opex during the 2014–19 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 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 change component of the rate of change, whereas we consider this to be a productivity change. 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 change forecast. Otherwise, this will double count the effect of economies of scale.

Price change

Under our rate of change approach we escalate opex by the forecast change in prices. The price change is made up of labour price changes and non-labour (which includes materials) price changes. The change in prices accounts for the price of key inputs that do not move in line with the CPI and form a material proportion of TasNetworks' expenditure.

To determine the appropriate forecast change in labour prices we have assessed forecasts from Independent Economics, BIS Shrapnel and Deloitte Access Economics. These forecasts are based on the consultants' view of general macroeconomics trends for the utilities industry and the overall Australian economy. Our consideration of the choice of labour price forecast is discussed below in section A.4.2.

Output change

The 'output change' 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. Any subsequent adjustment for economies of scale is considered as a part of productivity.

To measure output change, we select a set of output measures and apply a weighting to these measures. We have chosen the same output change measures and weightings as used in our MTFP analysis used in the benchmarking report. This ensures output change is measured consistently through time and across transmission network service providers.

The historical output change for TasNetworks has been obtained from our Economic Benchmarking RIN. The Economic Benchmarking RIN provides a consistent basis to benchmark the inputs and outputs of each service provider. This allows us to consistently compare the change in output overtime and across service providers.

The forecast output change has been calculated based on forecasts obtained from the reset RIN which have been prepared on the same basis as the Economic Benchmarking RIN.

More information on how we have estimated output change is discussed below in section A.4.3.

Productivity change

The 'productivity change' measure is based on the service provider's historical productivity changes in using its inputs to produce outputs. Our change in productivity measure is based on the electricity transmission industry's historical productivity changes in producing outputs over its inputs. Our forecast productivity is based on the historical MPFP results estimated by Economic Insights.⁶³

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

At a broad level productivity measures the effectiveness of a service provider at using its inputs to generate outputs.

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.

More information on how productivity has been estimated is discussed below in section A.4.4.

⁶³ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and Tasmanian electricity TNSPs*, 10 November 2014, p. 2.

Other considerations

Interaction with our base opex and step changes

As noted above, the rate of change approach is used in conjunction with our assessment of efficient base opex and step changes to determine total opex. We cannot make adjustments to base opex and step changes without also considering its effect on the opex rate of change, and, in particular, productivity.

For example, if we adjust an inefficient service provider's base opex to that of an efficient service provider we must also set the productivity to reflect an efficient service provider's productivity.

This interrelationship is also important for our step change assessment. Our forecast rate of change is influenced by historical data. Our measured productivity will include the effect of past step changes which typically increase a service provider's inputs. This will lower our measured productivity. If we include an allowance for step changes in forecast opex, there is a risk that a service provider will be compensated twice for step changes.⁶⁴

Comparison with our previous cost escalation approach

Under our previous approach to setting the trend in opex, we assessed real cost escalations (this is similar to price change) and output change separately. Any productivity changes were assessed based on labour productivity for real cost escalations and economies of scale for output change.

This approach is less robust than our opex rate of change approach because accounting for both labour productivity and economies of scale separately could result in double counting productivity effects.

In practice, this meant that we could either apply labour productivity or economies of scale but not both. In our recent determinations we applied an adjustment for economies of scale rather than labour productivity because economies of scale estimates were more robust than labour productivity estimates. However, we noted this approach did not account for all productivity changes and that a single productivity measure would be more accurate.⁶⁵

A.4 Reasons for position

To provide greater detail on how we have estimated our forecast rate of change, the sections below have been separated into the three main rate of change components. Where relevant these components have been compared to TasNetworks' implicit rate of change using information provided in the reset RIN.

A.4.1 Overall rate of change

We consider TasNetworks' overall rate of change to be reasonable. TasNetworks' proposal takes into account labour price changes, output change and productivity. Table A.4 compares our overall rate of change to TasNetworks.

⁶⁴ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and Tasmanian electricity TNSPs*, 10 November 2014, p. 17.

⁶⁵ AER, *Final decision SP AusNet Transmission Determination 2014–15 to 2016–17*, January 2014, pp. 64–65.

Table A.4 AER and TasNetworks' overall rate of change (per cent)

	2014–15	2015–16	2016–17	2017–18	2018–19
TasNetworks					
Price change	-0.04	0.95	1.83	1.91	1.86
Output change	0.01	0.01	0.24	0.01	0.37
Productivity change	4.90	1.48	2.60	2.44	2.75
Overall rate of change	-4.93	-0.53	-0.57	-0.57	-0.58
AER					
Price change	0.34	0.50	0.55	0.85	1.02
Output change	0.39	0.12	0.30	1.81	0.19
Productivity change	0.86	0.86	0.86	0.86	0.86
Overall rate of change	-0.14	-0.25	-0.02	1.79	0.35
Difference	4.79	0.29	0.55	2.36	0.93

Source: AER analysis

As part of our assessment we have identified the differences between TasNetworks' rate of change and our rate of change.

The main differences between our rate of change and TasNetworks' rate of change are:

- TasNetworks proposed lower output change
- TasNetworks proposed higher forecast productivity throughout the forecast period, in particular the first year of the regulatory control period.

TasNetworks proposed on average a higher price change. However, since TasNetworks 2014–15 price change is lower than ours the effect of the higher prices in the later years is diminished. We discuss these differences in more detail in the sections below.

A.4.2 Price change

For the forecast opex price changes we have adopted a 62 per cent weighting for labour price and 38 per cent non-labour. Our forecast for the labour price change is based on forecasts of the EGWWS industry and our forecast for non-labour price change is the CPI. Table A.5 shows TasNetworks' proposed forecast price change and our price change.

Our price change methodology is different to TasNetworks' however there is no material difference in total opex under both approaches. This section discusses how we have forecast our opex estimate using our Guideline price change approach.

Table A.5 AER and TasNetworks' forecast price change (per cent)

	2014–15	2015–16	2016–17	2017–18	2018–19
TasNetworks' forecast price change	-0.04	0.95	1.83	1.91	1.86
AER forecast price change	0.34	0.50	0.55	0.85	1.02

Source: TasNetworks, *Revenue Proposal*; AER analysis.

Opex price weightings

The forecast price change is weighted by the proportion of opex that is labour and non-labour. Since opex is not comprised entirely of labour costs, it would not be appropriate to adjust opex by only labour prices.

We adopted a 62 per cent weighting for labour and 38 per cent for non-labour. The labour component is forecast based on the EGWWS industry and the non-labour component is forecast based on the CPI.

These weightings are broadly consistent with Economic Insight's benchmarking analysis which applied weight of 62 per cent EGWWS WPI for labour and 38 per cent for five producer price indexes (PPIs) for non-labour. The five PPIs cover business, computing, secretarial, legal and accounting, and public relations services.⁶⁶

Forecast of producer price indices and CPI

For the purposes of forecasting we have applied the forecast CPI rather than forecasts for each PPI. We recognise that the use of PPIs for historical purposes and CPI for forecasts may be inconsistent. However, sensitivity analysis from Economic Insights showed the effect of using CPI compared to the five PPIs indicated no material difference in the economic benchmarking results. This is because the change in PPI's follows a similar trend to the change in CPI.⁶⁷

To forecast CPI we adopt the RBA's Statement of Monetary Policy and for the years beyond that we apply the mid-point of the RBA's target band. We consider forecasts of the CPI to be more robust than forecasts of the PPIs because the CPI is a more aggregated measure and forecasts of the CPI are more readily available. Further the CPI is subject to the RBA's Statement of Monetary Policy's target band which provides a more robust basis for economists to produce their forecasts. For this reason we have used forecast CPI, rather than PPIs, to forecast the non-labour component of price changes. Economic Insights noted that while the use of these PPIs is likely to be more accurate for historic analysis, it is unlikely to be practical for applications requiring forecasts of the opex price index such as the rate of change. This is because it is very difficult to obtain price forecasts at a finely disaggregated level other than by simple extrapolation of past trends.⁶⁸

If the forecasts of the five PPIs can be forecast with similar accuracy to the CPI, then we would consider the five PPIs to also be an appropriate opex price deflator. However, at this stage we do not consider robust forecasts of the five PPI's are available.

⁶⁶ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and Tasmanian electricity TNSPs*, 10 November 2014, p. 10.

⁶⁷ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and Tasmanian electricity TNSPs*, 10 November 2014, p. 10.

⁶⁸ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and Tasmanian electricity TNSPs*, 10 November 2014, p. 10.

Labour price change

Our choice of the labour price measure seeks to select the efficient labour price for an efficient service provider on the opex frontier. To determine the efficient labour price we require a forecast of the benchmark labour price. We consider forecasts of the EGWWS industry, produced by expert forecasters, to be an appropriate benchmark for TasNetworks' labour price.

We note the main difference between our labour price forecast and TasNetworks' is the use of TasNetworks' enterprise agreement for the first two years of the forecast period and Independent Economics' labour forecasts for the remaining years of the regulatory period without an enterprise agreement.

The section below discusses our position on the choice of labour forecast consultant, the use of enterprise agreements and adjusting for labour productivity.

Choice of labour forecast

To forecast labour we have adopted the average of Deloitte Access Economics and Independent Economics WPI forecasts for the EGWWS sector.

We consider an averaging approach that takes into account the consultant's forecasting history, if available, to be the best method for methodology for picking the labour price.

This is based on our previous analysis which was corroborated by Professor Borland's analysis.⁶⁹ When considering appropriate labour price change forecasts for the SP AusNet gas distribution network we adopted an average of the forecasts prepared by DAE and BIS Shrapnel. We took this approach because DAE typically forecasts lower than actual WPI and BIS Shrapnel typically forecast higher than actual WPI for the Australian EGWWS sector.

Previous analysis by DAE and the AER showed that DAE's forecasts were too pessimistic at the national level. In contrast BIS Shrapnel's were too optimistic and by a greater margin.⁷⁰

TasNetworks engaged Independent Economics to provide labour forecasts. We cannot compare the past accuracy of Independent Economics labour forecasts to DAE and BIS Shrapnel because Independent Economics were not engaged by service providers to provide labour forecasts in our past decisions.

However, we can compare Independent Economics forecasts against DAE's and BIS Shrapnel's forecasts of the NSW EGWWS sector for 2013–14 to 2018–19. These forecasts are shown in Table A.6. Independent Economics has the highest forecasts in both nominal and real terms. Although it is only average 0.1 per cent higher than BIS Shrapnel over the forecast period. This indicates that taking an average of DAE and Independent Economics forecasts produce similar results to taking an average of DAE and BIS Shrapnel.

⁶⁹ AER, *Access arrangement final decision SPI Networks (Gas) Pty Ltd 2013–17, Part 3: Appendices*, March 2013, p. 7.

⁷⁰ AER, *Powerlink Transmission determination 2012–13 to 2016–1, Final decision*, p. 54, April 2012.

Table A.6 Comparison of consultant labour forecasts for NSW EGWWS industry (per cent)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	Average
Nominal							
Deloitte	3.20	3.30	2.90	3.40	3.50	3.30	3.27
Independent Economics	3.07	3.59	3.94	4.56	4.87	4.71	4.12
BIS Shrapnel	3.60	3.40	3.70	4.20	4.50	4.70	4.02
Real							
Deloitte	0.60	0.60	0.40	0.50	1.00	0.90	0.67
Independent Economics	1.53	1.11	1.46	1.95	1.94	1.93	1.65
BIS Shrapnel	0.80	0.60	1.20	1.70	2.00	2.20	1.42
CPI							
Deloitte	2.70	2.50	2.50	2.90	2.50	2.40	2.58
Independent Economics	1.52	2.45	2.45	2.56	2.88	2.72	2.43
BIS Shrapnel	2.80	2.80	2.50	2.50	2.50	2.50	2.60

Source: Deloitte Access Economics, Independent Economics and BIS Shrapnel

We note Independent Economics' forecasts were produced earlier than DAE's and BIS Shrapnel's. The Independent Economics forecasts that were used in CEG's cost escalation report for TasNetworks were dated December 2013.⁷¹

DAE and BIS Shrapnel's forecasts were produced more recently. BIS Shrapnel's report for Jemena Gas Networks (JGN) was dated April 2014⁷² and DAE's report was dated July 2014. This means both BIS Shrapnel and DAE's forecasts potentially reflect more recent data than Independent Economics' forecasts.

The Australia wide EGWWS for 2013–14 was 3.04 per cent in nominal terms⁷³ and CPI was 3.02 per cent for the same period.⁷⁴ This results in a 0.02 per cent real increase in national EGWWS labour. All consultant forecasts for 2013–14 EGWWS labour are higher than the ABS' actual figures.

The MEU noted forecasts by DAE and BIS Shrapnel typically overestimate the WPI and that the AER does not assess the actual accuracy of the forecasts over time.⁷⁵

We have assessed the forecasting performance of both DAE and BIS Shrapnel and, as noted above, we have found that DAE typically forecasts below the actual WPI and BIS Shrapnel forecasts above. We have addressed this issue by averaging consultant forecasts.

⁷¹ CEG, *Escalation factors affecting expenditure forecasts*, December 2013.

⁷² BIS Shrapnel, *Real labour and material cost escalation forecasts to 2019/20 – Australia and New South Wales*, April 2014.

⁷³ ABS, 6345.0 - Wage Price Index, Australia, Table 9b. Ordinary Hourly Rates of Pay Excluding Bonuses: Sector by Industry, Original (Quarterly Index Numbers), 12 August 2014.

⁷⁴ ABS, 6401.0 - Consumer Price Index, Australia, TABLES 3 and 4. CPI: Groups, Weighted Average of Eight Capital Cities, Index Numbers and Percentage Changes, 22 July 2014.

⁷⁵ Major Energy Users, *Tasmanian Electricity Transmission Revenue Reset A response by the Major Energy Users Inc*, August 2014, p. 28.

Based on the expert opinion of DAE and BIS Shrapnel, labour prices are forecast to increase at a greater rate than CPI over the forecast period. We cannot assess the consultants' models, however, we consider updated forecasts should reflect current expectations of the forecast period.

For the purpose of this draft decision, we take the view that an average of DAE and Independent Economics forecasts would be the most reliable predictor of labour price changes.

Use of enterprise bargaining agreements

TasNetworks proposed the use of its enterprise bargaining agreement for the first two years of its labour cost escalations.⁷⁶ TasNetworks' opex and capex forecasts include forecast labour price increases for its internal labour of -0.32 per cent and 1.08 per cent for the first and second years respectively. This compares to our forecasts of 0.86 per cent and 0.93 per cent for EGWWS labour.

We have not adopted TasNetworks' EBA in our price change component.

As noted above, our alternative estimate is based on setting base opex and the rate of change for an efficient service provider rather than the service provider's actual costs.

This is a significant driver of the difference between TasNetworks' implicit rate of change and our rate of change. This effect is particularly pronounced due to compounding.

The CCP submitted that:⁷⁷

The AER must ensure that the electricity networks do not continue with their previous approach of effectively treating EBA outcomes as a "pass through"... The Sub-Panel urges the AER to determine efficient allowances for labour costs that better reflect the long-term interests of consumers...

The MEU also submitted that adjusting costs that have been negotiated by a single firm does not necessarily reflect an efficient outcome.⁷⁸

As noted above we did not adopt TasNetworks' EBA when applying a rate of change in our alternative estimate. Our labour price is based on the forecast of the Tasmanian EGWWS industry which we consider to be a benchmark appropriate for an efficient service provider.

Labour productivity

Our Guideline approach to productivity is adopt an overall service provider specific productivity adjustment rather than adjusting the forecast EGWWS labour price change for EGWWS labour productivity.

The use of service provider specific productivity rather than EGWWS wide productivity is supported by Independent Economics which noted:⁷⁹

There are significant difficulties in measuring productivity in the utilities sector generally and the electricity distribution sector in particular. Hence, it is suggested adjusting for productivity is better undertaken on the basis of a detailed assessment of specific sources of productivity gains within the industry rather than attempting to infer productivity gains using the broader data published by the ABS.

⁷⁶ TasNetworks, *Revenue Proposal*, 31 May 2014, p. 63.

⁷⁷ Consumer Challenge Panel, *AER Consumer Challenge Panel (CCP6 Sub Panel) Submission on the Transend Revenue Proposal*, 4 September 2014, p. 12.

⁷⁸ Major Energy Users, *Tasmanian Electricity Transmission Revenue Reset A response by the Major Energy Users Inc*, August 2014, p. 25.

⁷⁹ Independent Economics, *Labour cost escalators for NSW, the ACT and Tasmania*, 18 February 2014, p. 6.

Since the data for a service provider specific productivity measure is available from our MTFP analysis and this is preferred over an EGWWS labour productivity adjustment, we have applied a service provider specific measure.

Further discussion on how we have accounted for productivity is discussed below in section A.4.4.

A.4.3 Output change

We have adopted the following output change measures and their respective weightings:

- Energy delivered (21.4 per cent)
- Ratcheted maximum demand (22.1 per cent)
- Weighted entry and exit connection points (27.8 per cent)
- Circuit length (28.7 per cent).

These output measures are consistent with the output variables used in our opex cost function analysis to measure productivity. This approach is consistent with our Guidelines.⁸⁰

Productivity effects such as economies of scale are accounted for in our productivity adjustment.

We note TasNetworks' output change is based on the growth of its asset base and included economies of scale. This is in contrast to ours which is based on the outputs from MTFP analysis. This is the main difference between our forecast of output change and TasNetworks'. Table A.7 shows the annual percentage change in our forecast output change and TasNetworks' forecast output change.

Table A.7 AER and TasNetworks forecast output change (per cent)

	2014–15	2015–16	2016–17	2017–18	2018–19
AER forecast output change	0.39	0.12	0.30	1.81	0.19
TasNetworks forecast output change	0.01	0.01	0.24	0.01	0.37

Source: AER analysis.

A.4.4 Productivity

We have adopted the electricity transmission industry average opex partial productivity growth rate of 0.86 per cent from 2006–13 to forecast TasNetworks' opex productivity. This is based on Economic Insights' recommendation to use the historical opex partial productivity growth rates in the absence of a sufficiently robust econometric opex cost function.⁸¹

Our productivity is based on a business as usual scenario.

Economic Insights considered the extrapolation of the electricity transmission industry opex partial productivity growth rate to be reasonable in a 'business as usual' scenario. Our industry wide forecast of productivity is close to what TasNetworks' has achieved in the past. We consider the use of historical productivity to be reasonable in the absence of a robust opex cost function. Economic

⁸⁰ AER, *Better Regulation Expenditure Forecast Assessment Guideline for Electricity Transmission*, November 2013, p. 23.

⁸¹ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and Tasmanian electricity TNSPs*, 10 November 2014, p. 21.

Insights noted that the historical opex partial productivity growth rates will provide a reasonable approximation of the opex cost function.

A robust opex cost function, if available, will allow us to separate out the different productivity effects such as economies of scale and frontier shift.

We note TasNetworks' has forecast a higher productivity change than us. Its forecast productivity change is based on:

- a forecast recurrent opex reduction of \$2.5 million starting in 2014–15 from the merger of Aurora Energy and Transend, and
- a productivity improvement target of 1.75 per cent in 2013–14 and 0.5 per cent in each year thereafter applied to forecast controllable opex.⁸²

Table A.8 shows TasNetworks' and our forecast annual productivity change in percentage terms.

Table A.8 AER and TasNetworks' forecast productivity change (per cent)

	2014–15 ^a	2015–16	2016–17	2017–18	2018–19
AER forecast productivity change	0.86	0.86	0.86	0.86	0.86
TasNetworks' proposed productivity change	4.90	1.48	2.60	2.44	2.75

Source: AER analysis

Our alternative estimate uses a forecast of productivity that assumes a business as usual situation that does not account for the merger efficiencies, which are considered a structural change. Our productivity forecast also does not reflect service provider's pursuing additional efficiency gains such as TasNetworks' target of a 0.5 per cent annual reduction in controllable opex.

This indicates TasNetworks' is pursuing a higher productivity level compared to the electricity transmission industry average between 2006 and 2013.

Interaction between historical productivity and step changes

New service obligations and other step changes reduce a service provider's productivity. This is because the service provider incurs additional costs without increasing measured output. For an example of the impact of step changes on measured productivity growth, see Economic Insights' report.⁸³

Our productivity forecast for TasNetworks of 0.86 per cent is based on average historical productivity in the electricity transmission industry. Since most service providers had step changes the 0.86 per cent forecast allows for some step change activity. The question for us is whether TasNetworks' forecast step changes differ materially from the step changes embedded in the historical numbers.

TasNetworks proposed step changes for new obligations under our Better Regulation Program and changes to TasNetworks' operating agreement with AEMO. The total proposed amount for these step changes is \$4 million over the forecast period.

⁸² TasNetworks, *Revenue Proposal*, 31 May 2014, pp. 86–87.

⁸³ Economic Insights, *Economic benchmarking assessment of operating expenditure for NSW and Tasmanian Electricity TNSPs*, 10 November 2014, p. 17–20.

TasNetworks' proposed step changes account for less than 2 per cent of total opex. This is comparable to the approved step changes in AER decisions on transmission determinations over the past five years. Since we have not increased our forecast of productivity to account for step changes and the forecast outlook for TasNetworks' step changes are similar to historical levels, we consider our productivity forecast has accounted for TasNetworks' step changes.