



Draft decision
TransGrid transmission determination
2015–16 to 2017–18
Overview

November 2014

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Note

This overview forms part of the AER's draft decision on TransGrid's revenue proposal 2015–18. It should be read 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

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Attachment 14 – negotiated services

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Shortened forms

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

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

1 Our draft decision

TransGrid is the principal transmission network service provider (TNSP) in New South Wales (NSW). We, the Australian Energy Regulator (AER), regulate the allowed revenues of TransGrid and other TNSPs in the national electricity market (NEM).

This is one of the first draft decisions we have made following changes to the National Electricity Rules (NER) and National Electricity Law (NEL) in 2012 and 2013. The amended NER encourage us to approach decision making more holistically, with a greater emphasis on the efficient costs of providing network services. As part of our Better Regulation program in 2013 we have also developed more sophisticated tools with which we can assess efficient costs. Our Better Regulation program emphasises the importance of transparency and consultation in making our decisions.

This draft decision is one of the key steps in reaching our final decision. Our final decision will be released in April 2015. Before that, TransGrid will have the opportunity to submit a revised proposal in response to this draft decision. Stakeholders will also have the opportunity to make submissions to us on our draft decision and TransGrid's revised proposal. While we welcome submissions on any aspect of this draft decision, we have highlighted certain areas where we are particularly interested in hearing stakeholders' views. Following receipt of the revised proposal and submissions, we will then make our final decision taking everything we have heard into account.

We have made a draft decision on the revenue that TransGrid may recover from its customers over the 2015–18 regulatory control period. In total, our draft decision provides an allowance of \$2310.5 million (\$ nominal)¹ which TransGrid will recover from its customers over three financial years beginning 1 July 2015.

In NSW and the ACT, transmission charges represent approximately 7 per cent of a customer's average annual electricity bill.² To estimate the bill impact, we assume that our changes to transmission charges are passed through to end users, but that other components of the electricity bill (for example distribution, wholesale and retail energy costs) are held constant. On this basis our draft decision for TransGrid, considered in conjunction with our other transmission decisions,³ would result in a decrease in average annual electricity bills for residential customers in NSW and the ACT of \$24 and \$21 respectively in 2015–16.

Figure 1-1 shows TransGrid's past total revenue (both allowed and actual),⁴ proposed total revenue and our draft total revenue allowance.⁵

¹ This amount excludes revenue for the 2014-15 transitional year.

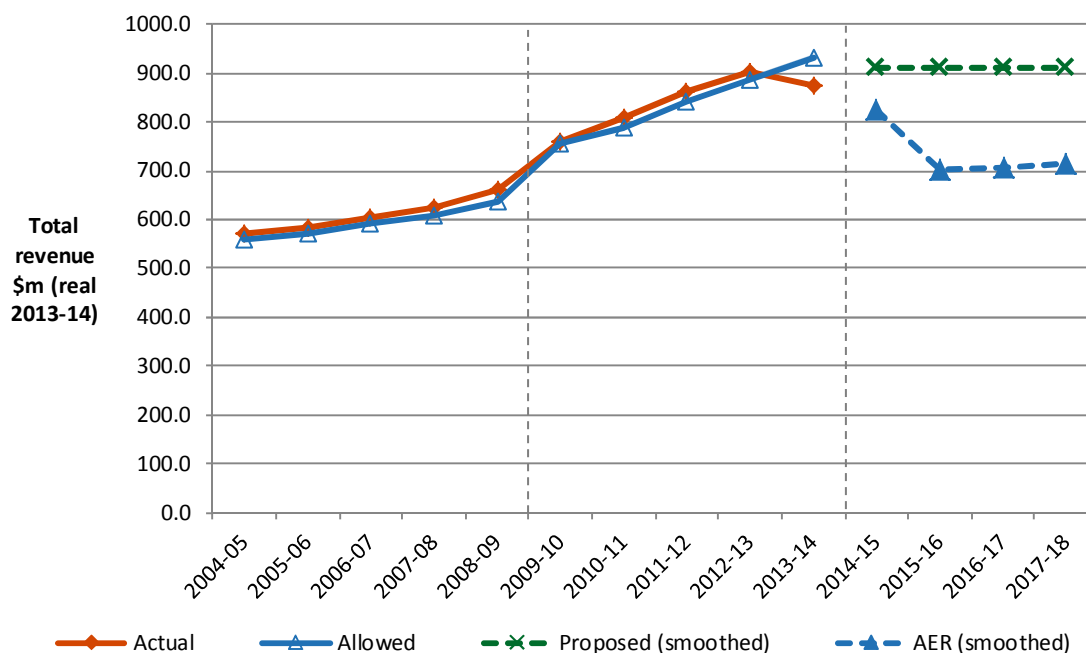
² TransGrid, *Revenue proposal*, May 2014, p. 18.

³ Transmission charges for NSW and ACT customers will also be affected by transmission revenues determined for Directlink, Ausgrid and ActewAGL.

⁴ The actual for 2013–14 is an estimate provided by the service provider.

⁵ The draft decision revenue for 2014–15 is based on the AER's placeholder decision for this year made under the transitional rules.

Figure 1-1 TransGrid's past total revenue, proposed total revenue and AER draft decision revenue allowance (\$ million, 2013–14)



Source: AER analysis.

If we had accepted TransGrid's proposal, TransGrid would have been permitted to recover \$3046.2 million (\$ nominal) in revenue over the 2015–18 regulatory control period.⁶ We are not satisfied that this proposed allowed revenue would contribute to the achievement of the National Electricity Objective (NEO) to the greatest degree, as required by the NEL.⁷

This document provides the reader with an overview of our draft decision. It offers an insight into the issues we considered, the conclusions we made and how those conclusions were reached. Detailed reasons for each of the elements of our draft decision can be found in attachments and appendices accompanying this decision.

TransGrid's proposal puts forward revenue broadly in line with its current levels. The total revenue we propose to allow in this draft decision reflects the underlying drivers of the costs of providing transmission services in TransGrid's area. Specifically, circumstances have changed since the last regulatory control period such that there has been a material easing in the pressure on costs since we made our last determination in 2009. Consequently, our draft decision provides for less revenue (on average) than what was approved in the last period.

The underlying drivers influencing our draft decision include the following:

- Financial market conditions. Our draft decision reflects current financial market conditions. Our decision in 2009 was made at the height of uncertainty surrounding the global financial crisis. Interest rates and risk premiums are now materially lower than in 2009.

⁶ TransGrid's proposal did not take account of the transitional placeholder revenue for 2014–15. This proposed amount has been adjusted to reflect the true-up for the placeholder revenue.
⁷ NEL, s. 16(1)(d).

- Demand. System peak demand in NSW decreased on average by around 3.9 per cent per annum over the past five years. In addition, growth in peak demand is expected to be modest in the 2015–18 regulatory control period. These expectations indicate a reduced need for growth related expenditure in the forthcoming period.
- Reliability. Network performance metrics show that TransGrid's performance has remained relatively stable—or has improved—since 2009. This suggests that a more modest asset replacement program will be required in the forthcoming period.
- Risk assessment. In the course of our review of TransGrid's proposal we have come to the view that its risk management processes are overly risk averse and result in higher capex forecasts than are reasonably necessary.

Our analysis has taken these underlying drivers into account and this is reflected in the total revenue allowance we have calculated. The total allowed revenue we have determined is broadly in line with the trend in revenue that was allowed in the 2004–09 regulatory control period. In 2009, there were a range of pressures present that led to a step up in total allowed revenue. This draft decision reflects an easing in many of the underlying drivers that influenced the revenue outcome in 2009. By contrast, we have found that TransGrid's proposal does not adequately incorporate these underlying drivers.

Key constituent decisions

Our draft decision on TransGrid's total revenue allowance is predicated on a number of constituent decisions,⁸ listed in appendix A. Their combined effect is an overall revenue allowance for TransGrid that is lower than what we approved for the 2009–14 regulatory control period, and a reduction of around 24 per cent from TransGrid's proposed (adjusted) total revenue forecast. We consider this is consistent with trends that have tended to moderate the need for investment in the electricity network sector.

Our total revenue allowance reflects adjustments we have made to key aspects of TransGrid's proposal. This includes:

- Rate of return. We are not satisfied that TransGrid's proposed (indicative) 8.83 per cent rate of return achieves the rate of return objective. We have therefore not accepted TransGrid's proposal. The NER define the rate of return objective as follows: that the rate of return is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to TransGrid in respect of the provision of many network services.⁹ Using our rate of return guideline as our starting point, we have allowed a rate of return of 7.24 per cent (nominal vanilla) that achieves the rate of return objective and will allow TransGrid to fund its efficient network investment.
- Total forecast capital expenditure (capex). We are not satisfied that TransGrid's proposed total forecast capex of \$1,387.4 million (\$2013–14) reasonably reflects the capex criteria. Our proposed substitute capex is \$922.3 million (\$2013–14), which represents around a 34 per cent reduction compared to the proposal. The principal drivers for our substitute capex amount are a reduction in replacement capex of 30 per cent based on the findings of a technical review undertaken by EMCa and reductions in relation to security and compliance expenditure and strategic property acquisitions. We have accepted TransGrid's forecasts in relation to growth related capex.

⁸ NER, cl. 6A.14.1.

⁹ NER, cl. 6A.6.2(b).

- Total forecast operating expenditure (opex). We are not satisfied that TransGrid's proposed total forecast opex reasonably reflects the opex criteria.¹⁰ Our estimate of the total forecast opex TransGrid would require over the forecast period is \$659.7 million (\$2013–14), around 16 per cent less than TransGrid's forecast. The key areas of difference between our alternative estimate and TransGrid's proposal arise from its forecasting method, which included selective adjustments to increase the base year expenditure used to forecast opex, and proposed step changes which we are not satisfied are necessary or efficient.

We are satisfied that our draft decision strikes an appropriate balance between the efficient investment, operation and use of electricity services that contribute to the achievement of the NEO. We are satisfied the overall revenue allowance we propose for TransGrid provides a return sufficient to promote efficient investment, while also providing TransGrid incentives to operate its network more efficiently.

2 About our draft decision – context and framework

The NEL anticipates that there may be two or more possible overall outcomes that will or are likely to contribute to the achievement of the NEO. In those cases, we must make the decision we are satisfied will contribute to the achievement of the NEO to the greatest degree.¹¹

This overview sets out why we are satisfied that our draft decision will contribute to the achievement of the NEO to the greatest degree.¹² Specifically, we address section 16 of the NEL which sets out how we must exercise our regulatory functions and powers. This overview sets out our holistic analysis. The Australian Energy Market Commission (AEMC) and Ministers considered taking a more holistic approach is essential to our task, under the regulatory and limited merits review regimes.¹³ The attachments and appendices that follow include more specific detailed analysis for each constituent component of this draft decision. This overview is based on that detailed analysis, especially in identifying key interrelationships that drive our overall draft decision.¹⁴

The NEL and the NER provide the legal framework under which we operate. The NEO is the central feature of the legal framework. The NEO is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—

price, quality, safety, reliability and security of supply of electricity; and

the reliability, safety and security of the national electricity system.¹⁵

The NEL also includes the revenue and pricing principles (RPP), which support the NEO.¹⁶ As the NEL requires¹⁷, we have taken the RPPs into account throughout our analysis. The RPPs are:

A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in—

- providing direct control network services; and
- complying with a regulatory obligation or requirement or making a regulatory payment.

A regulated network service provider should be provided with effective incentives in order to promote economic efficiency with respect to direct control network services the operator provides. The economic efficiency that should be promoted includes—

- efficient investment in a distribution system or transmission system with which the operator provides direct control network services; and
- the efficient provision of electricity network services; and
- the efficient use of the distribution system or transmission system with which the operator provides direct control network services.

Regard should be had to the regulatory asset base with respect to a distribution system or transmission system adopted—

¹¹ NEL, s. 16(1)(d).

¹² For the reasons set out throughout this decision, we do not consider TransGrid's proposal would contribute to the achievement of the NEO. Therefore, we do not need to address s. 16(1)(d) of the NEL. However, in any case, our reasoning demonstrates that we are also satisfied that our draft decision would contribute to the achievement of the NEO to a greater degree than TransGrid's proposal.

¹³ AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, pp. xi, 10, 19, 35, 148.

¹⁴ See especially sections 5 and 6 below.

¹⁵ NEL, s. 7.

¹⁶ NEL, s. 7A.

¹⁷ NEL, s. 16(2).

- in any previous—
 - as the case requires, distribution determination or transmission determination; or
 - determination or decision under the National Electricity Code or jurisdictional electricity legislation regulating the revenue earned, or prices charged, by a person providing services by means of that distribution system or transmission system; or
- in the Rules.

A price or charge for the provision of a direct control network service should allow for a return commensurate with the regulatory and commercial risks involved in providing the direct control network service to which that price or charge relates.

Regard should be had to the economic costs and risks of the potential for under and over investment by a regulated network service provider in, as the case requires, a distribution system or transmission system with which the operator provides direct control network services.

Regard should be had to the economic costs and risks of the potential for under and over utilisation of a distribution system or transmission system with which a regulated network service provider provides direct control services.

We regulate TNSPs' revenue allowances for providing electricity network services in the NEM. The NEL and NER operate to allow a TNSP a reasonable opportunity to recover at least efficient costs. We set revenue allowances to balance all of the elements of the NEO and RPPs, consistent with Ministers' view that all of these principles are equally vital.¹⁸ The revenue allowance determines the amount that TNSPs can recover from customers through network charges.

Chapter 6A of the NER provides specifically for the economic regulation of TNSPs. It includes detailed rules about the constituent components of our decisions, which are intended to contribute to the achievement of the NEO.¹⁹

Given this legislative framework, we consider the NEO and how to achieve it throughout our decision making processes.

2.1 Structure of our draft decision

Our draft decision consists of two parts:

Part A: Overview

This overview sets out why we consider our overall draft decision contributes to the achievement of the NEO to the greatest degree. The overview:

- states our draft decision to reject TransGrid's proposal and the total revenue allowance we propose to approve
- outlines the context and framework of our decision. It discusses the NEO²⁰ and section 16 of the NEL, being the manner in which we must perform our economic regulatory functions and powers
- sets out the reasons for our overall decision, including why we consider our approach will, or is likely to, contribute to the achievement of the NEO.

¹⁸ Hansard, SA House of Assembly, 27 September 2007 pp. 965.

¹⁹ NEL, s. 88.

AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, p. 8.

²⁰ NEL, s. 16.

Part B: Attachments

Our attachments support the overview by setting out:

- our detailed analysis of TransGrid's regulatory proposal and our detailed reasons for developing an alternative total revenue allowance, by building block, and why we are satisfied that our decision, as a whole, contributes to the achievement of the NEO
- our demonstrated account of the revenue and pricing principles
- a compilation of the constituent components of our draft decision.

2.2 What is different about this decision?

This is one of the first draft decisions we have made following changes to the NEL and NER in 2012 and 2013. The NEL and NER were changed to provide greater emphasis on the NEO and greater discretion to us.²¹ The amended NER allow and encourage us to approach decision making more holistically to meet overall objectives consistent with the NEO and RPPs.²² These changes also sought to give consumers a clearer and more prominent role in the decision making process.²³

In 2013, the NEL was changed with similar aims in mind. Energy Ministers intend that the long term interests of consumers should be a key focus in determining our decision.²⁴ The changes also encourage analysis of the decision as a whole in light of the NEO when making decisions on constituent components.²⁵

These legislative changes have made this decision different from our previous decisions. In particular, for the first time, we have specifically assessed our overall revenue decision and its contribution to the achievement of the NEO.²⁶ We consider this an appropriate change as we determine an overall revenue allowance.²⁷ We do not seek to interfere in the decisions a TNSP will make about how and when to spend the total capital and operating expenditure allowances to run its network. For example, we do not approve individual capital expenditure (capex) projects that a TNSP must then implement. Rather, we determine the sum total of revenue that we consider satisfies the requirements of the NEL and NER.²⁸ Consistent with incentive regulation, it is then for the TNSP to determine the particulars of how this allowance is applied in the next regulatory control period (usually five years). As the overall

²¹ NEL, ss. 16(1)(d) and 71P(2a)(c).
AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, pp. i, iii, iv, vi, vii, 8, 24 32, 36, 38, 45, 49, 67, 68, 90, 96 106, 112 and 113.

Hansard, SA House of Assembly, 26 September 2013 p. 7172.

²² For example, NER, cl. 6A.6.2(b), 6A.6.6(a), 6A.6.7(a).

AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, pp. xi, 10, 19, 32 and 35.

²³ AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, esp. pp. 166–170.

²⁴ Hansard, SA House of Assembly, 26 September 2013 p. 7171.

²⁵ NEL, ss. 2, 16, 71A and 71P which focus the AER's decision making and merits review at the overall decision, rather than its constituent components.

Hansard, SA House of Assembly, 26 September 2013 pp. 7171 and 7173; See also NEL, ss. 2, 16 and 71A which focus the AER's decision making and merits review at the overall decision, rather than its constituent components.

SCER, *Regulation Impact Statement – Limited Merits Review of Decision-Making in the Electricity and Gas Regulatory Frameworks*, 6 June 2013 pp. i, ii, 6–7, 10, 36, 41 and 76.

²⁶ See sections 5 and 6.

²⁷ NEL, ss. 2, 16, 71A and 71P.

²⁸ AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, esp. p. vii

revenue allowance is the key binding feature of our draft decision, it is important that we specifically assess its contribution to the achievement of the NEO.

2.3 Understanding the NEO

The NEO is to promote three factors in the long term interests of consumers:

- efficient investment in
- efficient operation of
- efficient use of

electricity services.

Energy Ministers have provided us with a substantial body of analysis and explanation that guides our understanding of the NEO.²⁹ The long term interests of consumers are not delivered by any one of the NEO's factors in isolation, but rather by balancing them.³⁰

In general, we consider that we will achieve this balance and, therefore, contribute to the achievement of the NEO where consumers are provided a reasonable level of service at the lowest sustainable price.³¹ In most industries, competition creates this outcome. Competition drives suppliers to develop their offerings to attract customers. Where a supplier's offering is not attractive it risks being displaced by other suppliers.

However, in the energy networks industry the usual competitive disciplines do not operate. The TNSPs are largely natural monopolies. Many of the products they offer are essential services for most consumers. Consequently, in an uncompetitive environment, consumers have little choice but to accept the quality and price the TNSPs offer.

The NEL and NER aim to remedy the absence of competition by empowering us, as the regulator, to make decisions that are in the long term interests of consumers. In particular, we might need to require the TNSPs to offer their services at a different price than they would choose themselves. By its nature, this process will involve exercising regulatory discretion to balance the NEO's various factors.

It is important to recognise that there is no unique correct answer that will solely contribute to the achievement of the NEO. The nature of decisions in the energy sector is such that there may be a range of economically efficient decisions, with different implications for the long term interests of consumers.³² At the same time, however, there are a range of outcomes that are unlikely to advance the NEO to a satisfactory extent. For example, we do not consider that the NEO would be advanced if allowed revenues encourage overinvestment and result in prices so high that consumers are unwilling or unable to efficiently use the network.³³ This could have significant longer term pricing implications for those consumers who continue to use network services. Equally, we do not consider the NEO would be advanced if allowed revenues result in prices so low that investors are unwilling to invest as

²⁹ Hansard, SA House of Assembly, 9 February 2005 pp. 1451–1460.
Hansard, SA House of Assembly, 27 September 2007 pp. 963–972.
Hansard, SA House of Assembly, 26 September 2013 pp. 7171–7176.

³⁰ Hansard, SA House of Assembly, 26 September 2013 p. 7173.

³¹ Hansard, SA House of Assembly, 9 February 2005 p. 1452.

³² *Re Michael: Ex parte Epic Energy* [2002] WASCA 231 at [143].

³³ Energy Ministers also accept this view – see Hansard, SA House of Assembly, 26 September 2013 p. 7172.
NEL, s. 7A(7).

required to adequately maintain the appropriate quality and level of service, creating longer term problems in the network.³⁴ This can have adverse consequences for safety, security and reliability of the network.

2.4 The transitional and subsequent regulatory control periods

In November 2012, the AEMC introduced major changes to the economic regulation of TNSPs under chapter 6A of the NER (the new rules).³⁵

Prior to the making of the new rules, TransGrid's transmission determination was due to commence on 1 July 2014 and would apply for a period of five years. However, the process was delayed so consumers would receive the benefit of the new rules.

To allow for an expedited transition to the new rules, the AEMC made transitional rules in chapter 11 of the NER under which there would be two regulatory control periods to cover the following periods:³⁶

- a regulatory control period covering the period 1 July 2014 to 30 June 2015, referred to in the NER as 'the transitional regulatory control period', and
- a regulatory control period beginning 1 July 2015 referred to in the NER as 'the subsequent regulatory control period'.³⁷

For the transitional regulatory control period, we made a fast-tracked placeholder determination on 28 March 2014 for TransGrid. In that determination, we were not satisfied with TransGrid's proposed maximum allowed revenue for the transitional regulatory control period and instead approved an alternative maximum allowed revenue by adjusting a limited number of inputs to TransGrid's proposal. We approved this as a placeholder allowance that would later be adjusted (or 'trued-up') in our full determination for the subsequent regulatory control period.

A more detailed explanation of our placeholder determination and a description of how we apply the true up are set out in appendix B.

TransGrid proposed a three year subsequent regulatory control period (1 July 2015 to 30 June 2018). Under the NER, regulatory control periods are typically five years but TransGrid's proposal of three years was permitted under the transitional rules.³⁸ We accepted a regulatory control period of three years for TransGrid.

Rules applicable to this decision

We assessed TransGrid's regulatory proposal under version 58 of the NER as modified. Clause 11.58.5 of the Transitional Rules outlines that unlike the new version of the rules, we are excluded from using TransGrid's 2009–2014 period to conduct an ex post review of its capital expenditure.³⁹

³⁴ NEL, s. 7A(6).

³⁵ AEMC Final Rule Determination, *National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012.

³⁶ NER, cl.11.57.1 defines 'transitional regulatory control period' and 'subsequent regulatory control period'. Clause 11.58.2 outlines the requirements of a transitional regulatory proposal and cl.11.58.4 the subsequent regulatory control period

NER, cl.11.57.1 definitions.

³⁷ Under NER, cl. 6A.14.3(e), the AER must approve a proposed period of 5 years. The definition of 'regulatory control period' for a TNSP is "a period of not less than five regulatory years in which a total revenue cap applies to that provider by virtue of a revenue determination" (NER, Chapter 10). However, under the transitional rules in Chapter 11, the AER must approve a period of 4 years if proposed by the TNSP, for the period beginning 1 July 2015, and otherwise could approve a proposed period of 'less than 4 regulatory years but not less than 3 regulatory years' or 'a period of more than 4 regulatory years': clause 11.58.4(l).

³⁹ NER, schedule 6A.2.2A, cl. 11.58.5.

This means we are not permitted to adjust any of TransGrid's opening RAB for any inefficient capex (as assessed to reasonably reflect the capex criteria and in a manner consistent with the capex objectives) during the 2009–14 period. However, historical capex and opex does inform our assessment of expenditure forecasts.

3 Our approach to this decision and why it contributes to the achievement of the NEO

We must perform our functions in a manner that will or is likely to contribute to the achievement of the NEO.⁴⁰ This section focuses on the manner in which we have made this draft decision. Section 4 discusses material issues and shows how we take account of stakeholder views. Section 3 and 4 are largely about our process in line with section 16(1)(a) and (b) of the NEL.

Sections 5 and 6 focus more on the outcome of our draft decision. Section 5 explains how we have taken into account interrelationships between constituent components of our draft decision. Section 6 explains why we consider our draft decision is preferable, in that it contributes to the achievement of the NEO to the greatest degree.

3.1 Better Regulation program

Following the 2012 changes to the NER, we spent much of 2013 consulting on and refining our assessment methods and approaches to decision making. We referred to this as our Better Regulation program. The objective of this program was to refine our approaches, with a greater emphasis on incentive regulation.⁴¹ The resulting guidelines support our decision making framework as set out in section 16 of the NEL.

The Better Regulation program was designed to be an inclusive process that provided an opportunity for all stakeholders to be engaged and provide their input.⁴² We tested our views and heard from a range of stakeholders. Our consultation and engagement gives us confidence the approaches set out in the guidelines will result in decisions that contribute to the achievement of the NEO and form an important baseline in future decision making. In particular, we directly engaged consumers in the process through our Consumer Reference Group.⁴³ We facilitated direct engagement between network service providers and consumers through participation in forums and almost 140 meetings held with stakeholders over the course of the program.⁴⁴ Consumers and network service providers also made written submissions on our draft guidelines and explanatory statements, responded to advice from our experts and provided their own consultant reports.

One of the themes that emerged from our consultation was a desire from stakeholders for clarity about the approach we would take in arriving at our decisions. In particular, many stakeholders argued that greater clarity would aid investment in the sector.⁴⁵

During our consultation processes, there were differences of opinion, particularly between network businesses and consumers. Often there was no consensus. In such cases, we determined an outcome that we were satisfied would best balance the competing interests and the range of factors in the NEL and NER that contribute to the NEO. These outcomes went some way to satisfying all parties. Section 16 of the NEL recognises that the regulatory framework allows for potentially more than one outcome and we consider that the guidelines that resulted from this comprehensive engagement with all stakeholders provide a solid foundation for our decision making.

⁴⁰ NEL, s. 16(1)(a).

⁴¹ AER, *Overview of the Better Regulation reform package*, April 2014, pp. 4 and 7–13.

⁴² AER, *Overview of the Better Regulation reform package*, April 2014, pp. 4 and 7–13.

⁴³ AER, *Assessment of the Consumer Reference Group*, March 2014. This document includes information on training provided to CRG members, meetings and CRG member feedback. It can be accessed at www.aer.gov.au/node/19166.

⁴⁴ AER, *Overview of the Better Regulation reform package*, April 2014, pp. 20–21.

⁴⁵ See for example – AER, *Rate of Return Guideline*, December 2013 pp. 25 and 66.

The guidelines we developed include:

- Expenditure forecast assessment guideline – describes the process, techniques and associated data requirements for our approach to setting efficient expenditure allowances for network businesses.
- Expenditure incentives guideline – sets out our capital expenditure incentives and efficiency benefit sharing schemes which are designed to give electricity network businesses incentives to spend efficiently and share the benefits of efficiencies with consumers.
- Rate of return guideline – sets out how we determine the return that network businesses can earn on their investments. Applied consistently over time, the guideline provides regulatory stability and increased certainty through greater transparency of the key components of the rate of return and how these are assessed.
- Consumer engagement guideline for network service providers – aims to help network businesses develop strategies to engage systematically, consistently, effectively and strategically with consumers on issues that are significant to both parties
- Shared asset guideline – outlines how consumers will benefit from the other services electricity network businesses may provide using the assets consumers pay for.
- Confidentiality guideline – sets out how network businesses must make confidentiality claims over information they submit to us. This guideline balances protecting genuinely confidential information with ensuring that stakeholders can access sufficient information on issues affecting their interests.

Our guidelines are available on our website,⁴⁶ and summarised in appendix C.

⁴⁶ <http://www.aer.gov.au/networks-pipelines/guidelines-and-schemes>

4 Material issues and opportunity to be heard

The NEL requires us to inform stakeholders of the material issues we are considering and to give them a reasonable opportunity to make submissions in respect of this decision.⁴⁷

The starting point for our draft decision was to assess TransGrid's regulatory proposal against the NEL and the NER.⁴⁸ In doing so, we applied our guidelines and assessment tools and gathered submissions from stakeholders and the Consumer Challenge Panel (CCP). We considered TransGrid's regulatory proposal in light of submissions, its performance to date and its operating environment. A high level overview of these processes follows. A list of stakeholder submissions follows at appendix E.

4.1 Our engagement

Effective consultation with stakeholders is essential to the performance of our regulatory functions. In summary, throughout the review process, we engaged with stakeholders by:

- establishing the CCP to assist us to make better regulatory determinations by providing input on issues of importance to consumers
- publishing an issues paper to help stakeholders engage with, and meaningfully respond to, issues in TransGrid's regulatory proposal that we considered material to consumers
- hosting a public forum in Sydney on 10 July 2014 so stakeholders could question the AER, CCP and TransGrid on its regulatory proposal
- considering eight stakeholder submissions and three CCP submissions on TransGrid's regulatory proposal
- having the CCP present its advice in response to TransGrid's regulatory proposal to the AER Board in July 2014
- having TransGrid present its revenue proposal to the AER Board in August 2014, and again in October 2014, so questions could be raised and key issues explained
- convening regular meetings between the CCP and AER staff to discuss key issues
- consulting on benchmarking measures prepared by us and Economic Insights, jointly relevant to the preparation of the annual benchmarking report and our assessment of TransGrid's regulatory proposal.

AER staff, including our technical advisors and consultants, directly engaged with staff at TransGrid, and tested material and information underpinning its revenue proposal. During this process, we requested and considered additional information from TransGrid.

4.1.1 Our issues paper

We published an issues paper to help stakeholders engage with, and meaningfully respond to, issues in TransGrid's regulatory proposal. Under the transitional rules, we were not required to prepare an

⁴⁷ NEL, s. 16(1)(b).

⁴⁸ AEMC, *Rule Determination, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012 National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, p. 111.

issues paper.⁴⁹ However we thought it was important to provide a guide to stakeholders on key issues and where they could focus their responses in light of the volume of material submitted. We therefore structured our issues paper by providing a high level perspective on TransGrid's proposal and our initial observations followed by some analysis around key drivers of TransGrid's proposal.⁵⁰

4.1.2 Outcome of submissions

Most submissions considered TransGrid's regulatory proposal is not in the long term interests of consumers and recommended that we should reject aspects of the proposal.

Most stakeholders did not support TransGrid's proposed operating expenditure, replacement capital expenditure, and rate of return. They questioned the increase in operating and maintenance expenditure, arguing that maintenance costs should decline given the capital investment in new assets in the previous period. They noted that a reduction in forecast augmentation and total forecast capital expenditure was the correct response to falling demand for electricity, but questioned the significant increase in forecast replacement capital expenditure. Further, most stakeholders contended that TransGrid's proposed rate of return is higher than it would be if TransGrid followed our guideline, and appears excessive given the low risks faced by regulated network businesses.

Stakeholders also questioned the demand forecasts TransGrid used as a basis for capital expenditure and revenue and recommended that AEMO's updated 2014 forecasts should be used instead.

Several stakeholders submitted that TransGrid's proposed methodology attempts to address a number of issues that either would require a Rule or guideline change, or would be best dealt with at a NEM-wide level as part of a broader review of NEM transmission pricing arrangements.

⁴⁹ NER, cl.6A.11.3(b)-(b2) requires the AER publish an issues paper, however cl. 11.57.2(a) of the transition rules excludes these sections from this determination.

⁵⁰ AER, *Issues paper TransGrid, TasNetworks (Transend), TransGrid revenue proposals for the next regulatory control period*, July 2014. A copy is available at <http://www.aer.gov.au/node/23143>.

5 Constituent components and interrelationships

The NEL requires us to specify how the constituent components of our decision relate to each other and how we have taken those interrelationships into account in making our decision.⁵¹ When considering any constituent component of a decision as complex as a transmission determination, it is important to also consider the interrelationships between constituent components. Ultimately, a transmission determination is an overall decision and must be considered as such. Considering constituent components in isolation ignores the importance of these interrelationships, would not contribute to the achievement of the NEO and, in the past, has resulted in regulatory failures.⁵²

Interrelationships can take various forms including:

- underlying drivers and context are likely to affect many constituent components of our decision. For example, forecast demand affects the efficient levels of capex and opex in the regulatory control period and it also affects how overall revenue is translated into individual prices.
- direct mathematical links between different components of a decision. For example, the value of imputation credits has an impact on the appropriate tax allowance; the benchmark efficient entity's debt to equity ratio has a direct effect on the cost of equity, the cost of debt and the overall vanilla rate of return.
- trade-offs between different components of revenue. For example, undertaking a particular capex project may affect the need for opex and vice versa.
- trade-offs between forecast and actual regulatory measures. The reasons for one part of a proposal may have impacts on other parts of a proposal. For example, an increase in augmentation to the network means the TNSP has more assets to maintain, leading to higher opex requirements.
- the TNSP's approach and attitude to managing its network. The TNSP's governance arrangements and its approach to risk management will influence most aspects of the proposal, including the capex/opex trade-off.

Interrelationships are also a useful tool when approaching decision making more holistically. This is especially the case for underlying drivers that are likely to affect many aspects of revenue simultaneously. In these cases, individual drivers may substantially influence the overall efficient revenue allowance. As a result, while there is no tool to directly estimate an efficient overall revenue allowance, underlying drivers can indicate the direction and broad magnitude of changes to the efficient level of overall revenue.

Consumer preferences should also be reflected throughout the proposal. More particularly, if the TNSP states investment is needed because consumers want it, the TNSP needs to show that it has effectively engaged with consumers to evidence this is the case. Any deficiency in consumer engagement will mean consumer views will be reflected less in the proposal. This is likely to impact most aspects of the proposal.

⁵¹ NEL, s. 16(c).

⁵² SCER, *Regulation Impact Statement: Limited Merits Review of Decision-Making in the Electricity and Gas Regulatory Frameworks – Decision Paper*, 6 June 2013 p. 6

5.1 Key drivers impacting revenue

Below, we summarise the key underlying drivers for this decision and illustrate how they impact on the constituent components of our decision. We then examine the cumulative effect of these drivers on the efficient level of overall revenue. In our attachments and appendices we include our analysis of the other interrelationships between constituent components of this decision.

Financial market conditions

- We estimate the returns on equity and debt for a benchmark efficient business in accordance with our rate of return guideline. This approach supports the allowed rate of return objective in the NER—for the overall rate of return to be commensurate with the efficient financing costs of a benchmark efficient business.
- The investment environment has improved since our previous decision. Our last decision for TransGrid was made during the height of uncertainty surrounding the global financial crisis (GFC).⁵³ Since then perceptions of risk have subsided and interest rates have fallen, as evidenced by falling credit risk premiums. The Reserve Bank of Australia has also lowered its target cash rate. As a consequence, the lower cost of capital for debt and equity translate into lower financing costs necessary to attract efficient investment.
- Using our rate of return guideline as our starting point, we have assessed a rate of return that achieves the rate of return objective and the NEO and will allow TransGrid to fund its network investment. This is lower than the rate of return TransGrid received in the 2009 decision and is in contrast to TransGrid's proposal which was to maintain its rate of return at historically high levels.

Regulatory asset base

- TransGrid underspent its capex forecast for the 2009–14 regulatory control period. While its RAB in that period was based on its forecast capex forecast, its opening RAB for this period will be based on its lower actual capex. This means that the opening RAB at 1 July 2014 is lower than was forecast at the last reset. All else being equal, this would generate lower future revenue requirements than expected at the end of the 2009–14 regulatory control period.

Past capital expenditure

- While the RAB has not increased to the extent expected, TransGrid's past capital expenditure and the outputs of that expenditure reveals that its capital efficiency has been steadily declining over time. Its performance is lower than that of other transmission networks. This suggests that efficient reductions in capex are achievable.
- As noted above, TransGrid underspent its capex forecast for the 2009–14 period. It proposes further reductions in capex for 2015–18. However, as in the 2009–14 period, most of the significant reduction in capex TransGrid proposes for the 2015–18 period is a product of falling demand and reduced need for augmentation of its network. There are other elements of its proposed capex where we could expect to see greater efficiency. For example, our independent review of TransGrid's proposal highlighted potential concerns with higher than expected capital expenditure on asset replacement over the 2009–14 regulatory control period. The review also questioned the justification for further increases in TransGrid's forecast capex for 2015–18 when

⁵³ Lehman Brothers filed for Chapter 11 bankruptcy protection on September 15, 2008. This is generally considered the date the GFC started. See <http://dm.epiq11.com/LBH/Project>.

network performance metrics such as system minutes, line outages, transformer outages and reactive plant outages have been relatively stable—or have improved—since 2009.

Demand

- System peak demand in New South Wales decreased on average by around 3.9 per cent per annum over the past five years. In addition, growth in peak demand is expected to be, on average, 1.13 per cent per annum over the 2015–18 period. These expectations indicate that only modest amounts of growth related expenditure will be required in the forthcoming period.
- The demand forecasts that have informed TransGrid's proposal are considerably lower than previous forecasts, and we consider reasonably reflect a realistic level of demand. AEMO has forecast similar trends of low system demand growth for the NSW region to that forecast by TransGrid.
- We understand NSW NSPs are in the process of updating their demand forecasts, so that further reductions can be expected between our draft and final decisions. This updated information may lead to further downward revisions to expenditure forecasts in TransGrid's revised proposal and our final decision.
- As we would expect, one of the results of this trend is the significant (92 per cent) reduction in TransGrid's augmentation expenditure (augex) forecast compared to the 2009–14 regulatory control period. For the reasons discussed in attachment 6, we have accepted TransGrid's forecast augex for the purposes of calculating a total capex forecast for 2015–18 because it aligns with the low levels of demand growth forecast for that period. However, we have rejected TransGrid's proposed 'Powering Sydney's Future' contingent project, and related opex, which more recent demand forecasts suggest will not be required of TransGrid in the 2015–18 period.

Risk assessment and management

- In the course of our own review of TransGrid's proposal and the independent review conducted by our consultants, EMCa, we have identified what we consider to be systemic weaknesses in the derivation of TransGrid's proposed replacement expenditure (repex) forecast for 2015–18. We consider the combined effect of TransGrid's governance and risk management framework and its risk quantification leads to an overestimation of the risk associated with its assets, and in turn an overstatement of, and unjustified upwards bias in, its proposed forecast repex.
- EMCa's specific findings included that, for each of TransGrid's four key repex programs:
 - opportunities for deferral or reduction of project scope have not been identified;
 - quantification of project risk cost is likely overstated; and
 - consideration of lower cost options has not been demonstrated.

EMCa also identified instances in which relatively new assets were replaced unnecessarily early as part of broader replacement programs, and suggested the life of some assets could potentially be extended by using existing assets as spares.

- EMCa has also questioned the lack of evidence of performance or reliability issues for specific assets to support a substantial increase in repex over the coming period. It suggested that some assets appear to have been targeted as part of replacement technology strategies rather than concerns with asset condition. Again as noted above, TransGrid's performance under common

metrics, and as reported against the STPIS, does not suggest that current levels of reliability are at risk.

- EMCa estimates the resultant overstatement in TransGrid's repex forecast to be in the order of 20 to 30 per cent. In rejecting TransGrid's capex forecast, the replacement capex forecast in our draft decision has adjusted for this overstatement, adopting the higher end of the range proposed by EMCa. We consider this is warranted in light of the real concerns we have with certain aspects of TransGrid's forecasting methodology which is largely based on a bottom-up assessment approach that is excessively conservative, and does not reflect prudent consideration of its forecast capex at a portfolio level throughout the 2015–2018 period.

Efficiency

- Overall, we are not satisfied that TransGrid's proposed total opex and capex forecasts reasonably reflect the opex and capex criteria and the levels of efficiency it should be achieving. For the reasons outlined in more detail in attachments 6 and 7, we consider these forecasts exceed the efficient levels of expenditure that a prudent operator would require to achieve the opex and capex objectives.
- For opex, we reached this conclusion after undertaking our analysis using the single year revealed expenditure approach.⁵⁴ When we compare TransGrid's total forecast opex with our estimate of the efficient opex a prudent operator would require to achieve the opex objectives, TransGrid's proposal is materially higher.
- Similarly, with the exception of its forecast augex we do not consider TransGrid's capex forecasting methodology is a sufficient basis on which to derive an efficient forecast of its total capex requirement. TransGrid has applied a bottom-up assessment without testing the outcomes with a top-down assessment to confirm efficiency of its overall forecast. As discussed above, this is compounded by a risk assessment that our independent review found to be excessively conservative and lacking in justification of project timing and priority—this is discussed further in attachment 6.
- Consequently, we consider that TransGrid's forecast opex and capex are overstated. TransGrid ought to be able to provide its current level of service whilst being able to achieve consistent improvements to its costs of providing these services to consumers.

Individually, each of these key drivers has impacted the constituent components of our decision. However, it is their cumulative impact that is particularly important. Together, they indicate a consistent picture. TransGrid's efficient level of overall revenue during the 2015–18 regulatory control period should decrease substantially, compared both to the current regulatory control period and TransGrid's proposal. This is consistent with the overall revenue level derived from the detailed analysis in our attachments and appendices.

⁵⁴ Referred to in the Expenditure Forecast Assessment Guideline as the 'base-step-trend' approach.

6 Why our decision, as a whole, is preferable

The NEL anticipates that there may be more than one outcome that will or is likely to contribute to the achievement of the NEO. In those cases, we must make the decision we are satisfied will contribute to the achievement of the NEO to the greatest degree.⁵⁵

Under the new framework we have turned our mind to the question of what outcome would contribute to the achievement of the NEO to the greatest degree. There is no sole assessment approach that would enable us to determine this question objectively. The NEL recognises this by making our task subjective. It empowers us to determine what we are satisfied contributes to the achievement of the NEO to the greatest degree.⁵⁶ In turn, we must determine how we will satisfy ourselves of this requirement. We consider this inherently involves exercising regulatory judgement.

Consistent with Energy Ministers' views, we consider a decision will contribute to the achievement of the NEO to the greatest degree when we are satisfied that it delivers the best balance between the NEO's factors.⁵⁷ To assess this, we specifically consider whether we are satisfied that:

- the overall revenue allowance is consistent with the key drivers
- the constituent components of a potential decision comply with the NER's requirements.

This is a relative assessment. Some stakeholders may consider that some potential outcomes do not contribute to the achievement of the NEO. However, we have not sought to determine that issue. Rather, we have considered which potential outcome we are satisfied makes the greatest contribution to the achievement of the NEO.

We acknowledge that there are a range of alternative outcomes that might contribute to the achievement of the NEO. This is particularly the case because, for several components of our decision (e.g. equity beta or the MRP) we could reasonably select several point estimates from within a range. In turn, this could result in different overall revenue allowances.

We do not consider that it is practical or necessary to consider every possible permutation specifically. However, for the reasons in our attachments and appendices we are satisfied that the specific estimates we have selected will or are likely to contribute to the achievement of the NEO to the greatest degree. In particular, we are aware of the consequences of underinvestment for the long term interests of consumers and, therefore, have consistently selected estimates we are satisfied provide TransGrid with a reasonable opportunity to recover at least efficient costs.⁵⁸

We are satisfied that our draft decision contributes to the achievement of the NEO to the greatest degree.⁵⁹ As figure 1-1 (in section 1 of this overview)) illustrates, over the 2004–09 regulatory control period, there was a relatively steady trend in TransGrid's revenue. The 2009–14 regulatory control period saw substantial increases in revenue. This was driven by factors which are no longer relevant.

⁵⁵ NEL, s. 16(1)(d).

⁵⁶ NEL, s. 16(1)(d)

⁵⁷ Hansard, SA House of Assembly, 26 September 2013 p. 7173.

⁵⁸ NEL, s. 7A(2) and (6).

⁵⁹ For the reasons set out throughout this decision, we do not consider TransGrid's proposal would contribute to the achievement of the NEO. Therefore, we do not need to address s. 16(1)(d) of the NEL. However, in any case, our reasoning demonstrates that we are also satisfied that our draft decision would contribute to the achievement of the NEO to a greater degree than TransGrid's proposal.

However, as discussed in section 5, we are now seeing a number of key drivers that indicate substantial revenue reductions are appropriate. We have also identified several opportunities for TransGrid to materially improve efficiency in how it invests in, operates and promotes use of its network. Our draft decision reflects these.

We are also satisfied, for the reasons set out in our attachments and appendices, the constituent components of our draft decision comply with the NER's requirements.

As discussed in section 3, our decision reflects the approaches set out in our guidelines, which were developed with extensive stakeholder input. We are satisfied they provide a consistent and balanced framework that encourages efficiency in electricity networks for the long term interests of consumers. When compared to TransGrid's proposal, we are satisfied that our draft decision strikes a better balance between the efficient investment operation and use of electricity services that contribute to the achievement of the NEO. We are satisfied the overall revenue allowance for TransGrid provides a return sufficient to promote efficient investment, while also providing TransGrid incentives to operate its network more efficiently.

We acknowledge that our draft decision sets an overall revenue allowance for TransGrid that is significantly lower than in the 2009–14 regulatory control period and in its proposal. However, we consider this is appropriate, given the key drivers of efficient revenue for the 2014-18 period. It is also consistent with trends that have tended to moderate the need for investment in the electricity network sector.

TransGrid's proposal notes many of the same key drivers of efficient revenue as we have set out in section 5. However, while the key drivers of efficient revenue indicate a substantial revenue reduction is appropriate, this is not reflected in TransGrid's proposal.

In our attachments and appendices, we have included detailed analysis explaining why we consider several constituent components of TransGrid's proposal do not comply with the NER's requirements.

7 Total revenue requirements and impact on price

The total revenue cap represents our forecast of the efficient costs a prudent operator would incur in providing transmission network services for the 2015–18 regulatory control period.

7.1 Draft decision

Our draft decision on TransGrid's total revenue cap over the 2015–18 regulatory control period is \$2310.5 million (\$ nominal).⁶⁰ This is \$735.7 million (or 24.2 per cent) less than TransGrid's revenue proposal.⁶¹ Table 7-1 shows our draft decision on TransGrid's building block costs and unsmoothed revenues and the resulting smoothed revenues. Attachments to our draft decision discuss in detail each building block cost and its elements, our approaches to assessment, and the interrelationships between elements and across years. Together, these support our overall revenue allowance.

Table 7-1 AER's draft decision on TransGrid's proposed revenues (\$ million, nominal)

	2014–15	2015–16	2016–17	2017–18	Total
Return on capital	445.1	456.5	466.9	475.4	1843.9
Regulatory depreciation ^a	93.2	109.9	126.1	111.7	440.9
Operating expenditure	170.2	172.6	177.0	182.1	701.9
Efficiency benefit sharing scheme (carryover amounts)	21.5	14.4	17.3	11.5	64.6
Net tax allowance	21.1	22.9	36.9	37.4	118.4
Annual building block revenue requirement (unsmoothed)	751.1	776.3	824.3	818.0	3169.6
Annual expected MAR (smoothed)	845.4	747.4	769.9	793.1	3155.9
X factor (%)	n/a ^b	n/a ^c	–0.5% ^d	–0.5% ^d	n/a

Source: AER analysis.

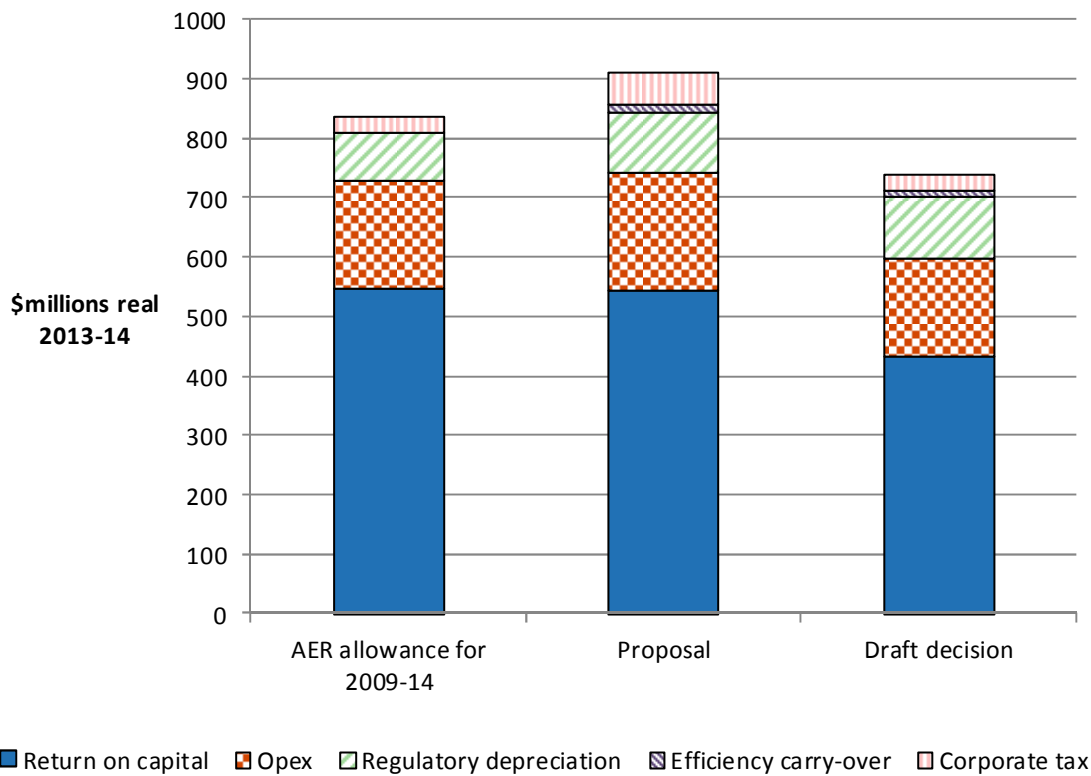
- (a) Regulatory depreciation is straight-line depreciation net of the inflation indexation on the opening RAB.
- (b) TransGrid is not required to apply an X factor for 2014–15 because we set the 2014–15 MAR in this decision consistent with the placeholder MAR approved in the transitional determination. We have set the 2014–15 MAR equal to TransGrid's placeholder MAR (\$845.4 million) for 2014–15. The MAR for 2014–15 is around 11.7 per cent lower than the approved MAR (\$934.2 million) in the final year of the 2009–14 regulatory control period (2013–14) in real terms, or 9.5 per cent lower in nominal terms.
- (c) TransGrid is not required to apply an X factor for 2015–16 because we set the 2015–16 MAR in this decision. The MAR for 2015–16 is around 13.7 per cent lower than the approved MAR for 2014–15 in real terms, or 11.6 per cent lower in nominal terms.
- (d) The X factor will be revised to reflect the annual return on debt update.

Figure 7-1 compares (on average) our draft decision on TransGrid's building block costs against what was proposed by TransGrid for the 2015–18 period, and what we approved for the 2009–14 regulatory control period.

⁶⁰ This amount excludes the placeholder revenue for the transitional 2014–15 year.

⁶¹ TransGrid's proposed revenue cap of \$2942.6 million for the 2015–18 regulatory control period did not take account of the transitional placeholder revenue for 2014–15. The proposed total revenue cap for that period, after being adjusted to reflect the true-up for the placeholder revenue, is \$3046.2 million.

Figure 7-1 AER's draft decision and TransGrid's proposed annual building block costs (\$ million, 2013–14)

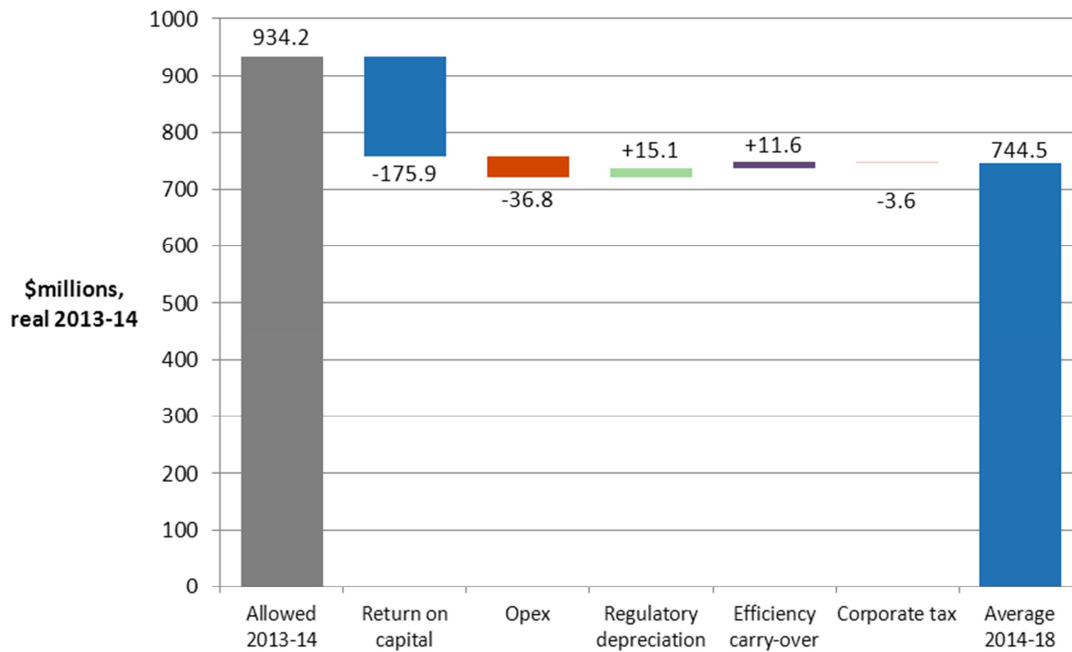


Source: AER analysis.

Figure 7-2 shows the size of the changes in the building block costs from our draft decision and how these impact on revenues on average. The allowed revenue for 2013–14 is used as a base from which the impact of the changes can be shown.⁶² For example, the most significant change is to the return on capital allowance, which reduces the annual building block revenue requirement on average by about \$175.9 million.

⁶² TransGrid's allowed revenue for 2013–14 was \$934 million. TransGrid implemented a self-imposed 'revenue freeze' in 2013–14, instead targeting \$863 million. For Figure 7-2 we have adopted the full amount of \$934 million for 2013–14.

Figure 7-2 AER's draft decision on building block costs (\$ million, 2013–14)

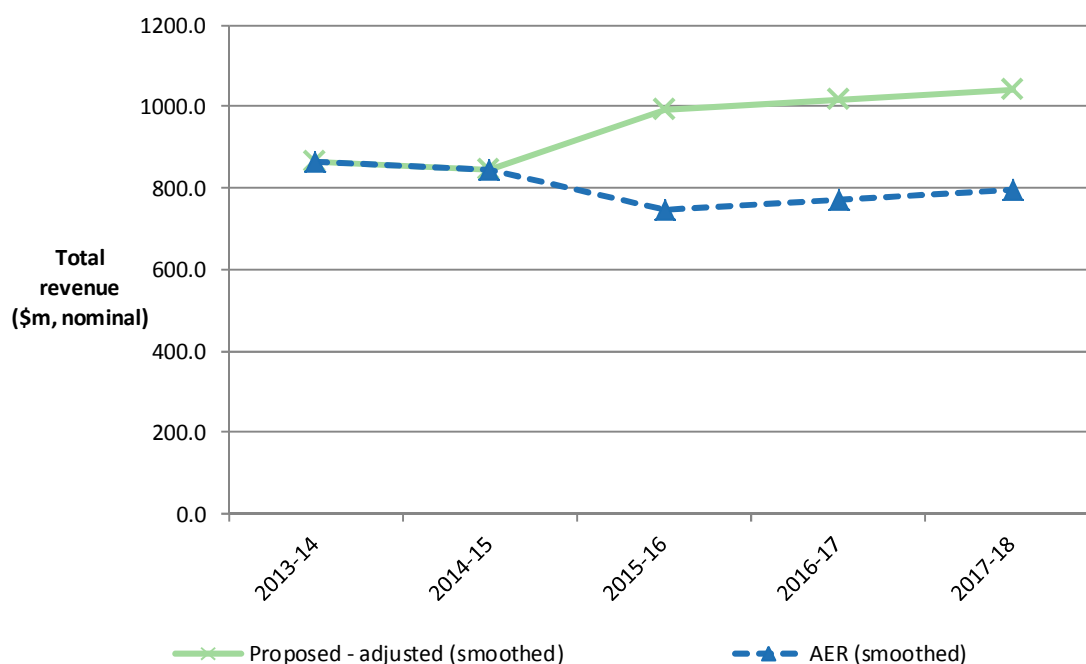


Source: AER analysis.

Notes: 'Allowed 2013-14' is the smoothed revenue approved by the AER for that year. In order to calculate building block changes, this figure is notionally divided in the same proportion as allowed building block revenue over the 2009–14 regulatory control period. As discussed below TransGrid's actual revenue target in 2013–14 is below the approved revenue.

Figure 7-3 compares our draft decision on TransGrid's expected maximum allowed revenues (MARs) with TransGrid's proposal (adjusted to reflect the transitional placeholder decision) for the 2014–19 period. In this figure, the two lines both start from the transitional placeholder decision. This placeholder revenue was used as the basis from which prices for 2014–15 were determined. Because TransGrid did not account for the placeholder decision in its proposal, there would be an increase in revenues between 2014–15 and 2015–16 to get back to TransGrid's proposed trend.

Figure 7-3 AER's draft decision on MAR compared with TransGrid's proposed (adjusted) MAR for 2014–18 (\$ million, nominal)



Source: AER analysis.

The smoothing we conducted to determine the MAR for each year also achieves the NER requirement for a true-up in relation to the transitional year of 2014–15. The placeholder revenue from the transitional decision for 2014–15 is used as a base from which the smoothing occurs. This means the MAR for 2014–15 matches what was targeted for pricing purposes for that year. The smoothing process requires us to equate the smoothed and unsmoothed revenues over the entire 2014–18 period in net present value terms. Any difference between the annual building block revenue requirement for 2014–15 now determined by us in this decision and the placeholder amount is trueed-up through this smoothing process. The difference is being effectively spread over the remaining three years of the 2014–18 period. Attachment 1 explains the smoothing process further.

We note that TransGrid has under-recovered \$71 million in its allowed MAR for 2013–14. We understand that this under-recovery has arisen as a result of TransGrid's decision to adopt a 'revenue freeze' in 2013–14. We have no role in considering the regulatory treatment of this under-recovery in this decision. TransGrid is able to recover any shortfall in revenue that is below the approved MAR in future years. Any decision by TransGrid to recover this revenue would affect transmission prices for its customers independently of the AER's determination for the 2014–18 period.

7.2 Indicative impact of transmission charges on electricity bills in NSW and the ACT

Our draft decision on TransGrid's expected MAR ultimately affects the annual electricity bills paid by consumers. However, TransGrid's expected MAR does not directly translate to bill impacts for several reasons. First, because TransGrid operates under a revenue cap, changes in the consumption of electricity will affect the transmission charges ultimately paid by consumers. Second, although TransGrid is the main transmission network service provider in NSW and the ACT, smaller components of the transmission network are operated by Ausgrid, ActewAGL and Directlink. The transmission charges for this entire region will reflect the joint effect of our decisions for all these

businesses. Finally, transmission charges are just one component of a customer's total annual electricity bill.

In NSW and the ACT, transmission charges represent approximately 7 per cent of a customer's average annual electricity bill.⁶³ We estimate the joint effect of our transmission determinations on the average annual electricity bills for residential and small business customers as follows. We take the total annual transmission network revenues and divide it by AEMO's forecast annual energy delivered in NSW/ACT.⁶⁴ We assume other components of the electricity bill (for example distribution, wholesale and retail energy costs) are held constant.

Table 7-2 shows the estimated impact of our draft decision on the average residential customer's annual electricity bill in NSW and the ACT over the 2014–18 period, compared with what was proposed.

Table 7-2 AER's estimated impact of our transmission draft decisions on the average annual electricity bills for residential customers in NSW and ACT over 2014–18 (\$ nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
TNSP proposals					
NSW residential annual bill ^a	2227	2240	2244	2248	2252
Annual change		13 (0.6%)	4 (0.2%)	4 (0.2%)	4 (0.2%)
ACT residential annual bill ^b	1959	1971	1974	1977	1981
Annual change		12 (0.6%)	3 (0.2%)	3 (0.2%)	3 (0.2%)
AER draft decision					
NSW residential annual bill ^a	2227	2225	2201	2205	2208
Annual change		-2 (-0.1%)	-24 (-1.1%)	4 (0.2%)	4 (0.2%)
ACT residential annual bill ^b	1959	1957	1936	1939	1942
Annual change		-2 (-0.1%)	-21 (-1.1%)	3 (0.2%)	3 (0.2%)

Source: AER analysis; AER, *Energy Made Easy*; IPART, *Final report: Review of regulated retail prices for electricity - from 1 July 2013 to 30 June 2016*, June 2013, p. 5; ICRC, *Draft report-Standing offer electricity prices from 1 July 2014*, p. 160.

(a) Based on the annual electricity bill for a typical consumption of 6500 kWh per year during the period 1 July 2013 to 30 June 2014. The bill reflects regulated charges in each distribution zone only. Sample postcode: Ausgrid (2112), Endeavour (2500), Essential (2650).

(b) Based on an average residential customer in the ACT consuming 8000 kWh of electricity per year.

Similarly, Table 7-3 shows the estimated impact of our draft decision on the average small business customer's annual electricity bill in NSW and the ACT over the 2014–18 period compared with what was proposed.

⁶³ TransGrid, *Revenue proposal*, May 2014, p. 18.

⁶⁴ More specifically, we sum the annual expected MAR for TransGrid and Directlink, and the annual expected revenues for Ausgrid and ActewAGL for their transmission assets (but not their distribution assets).

Table 7-3 AER's estimated impact of our transmission draft decisions on the average annual electricity bills for small business customers in NSW and ACT over 2014–18 (\$ nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
TNSP proposals					
NSW small business annual bill ^a	3584	3605	3611	3617	3624
Annual change		21 (0.6%)	6 (0.2%)	6 (0.2%)	6 (0.2%)
ACT small business annual bill ^b	2939	2956	2962	2966	2972
Annual change		17 (0.6%)	5 (0.2%)	5 (0.2%)	5 (0.2%)
AER draft decision					
NSW small business annual bill ^a	3584	3580	3542	3548	3553
Annual change		–4 (–0.1%)	–38 (–1.1%)	6 (0.2%)	6 (0.2%)
ACT small business annual bill ^b	2939	2936	2905	2909	2914
Annual change		–3 (–0.1%)	–31 (–1.1%)	5 (0.2%)	5 (0.2%)

Source: AER analysis; AER, *Energy Made Easy*; IPART, *Final report: Review of regulated retail prices for electricity - from 1 July 2013 to 30 June 2016*, June 2013, p. 5; ICRC, *Draft report-Standing offer electricity prices from 1 July 2014*, p. 160.

(a) Based on the annual electricity bill sourced from Energy Made Easy for a typical consumption of 10000 kWh per year during the period 1 July 2013 to 30 June 2014. The bill reflects regulated charges in each distribution zone only. Sample postcode: Ausgrid (2112), Endeavour (2500), Essential (2650).

(b) Based on an average small non-residential customer in the ACT consuming 10000 kWh of electricity per year.

8 Key elements of the building blocks

There is no one tool that by itself can determine an overall revenue allowance. Therefore in setting our alternative overall revenue allowance for TransGrid of \$2310.5 million (\$nominal) for the 2015–18 regulatory control period we:

- apply relevant tests under the NER, the assessment methods and tools developed as part of our Better Regulation guidelines and consider information provided by TransGrid, the CCP, consultants and stakeholder submissions
- consider our total revenue allowance against section 16 of the NEL, including the constituent decisions and the interrelationships we discussed in section 5.

8.1 The building block approach

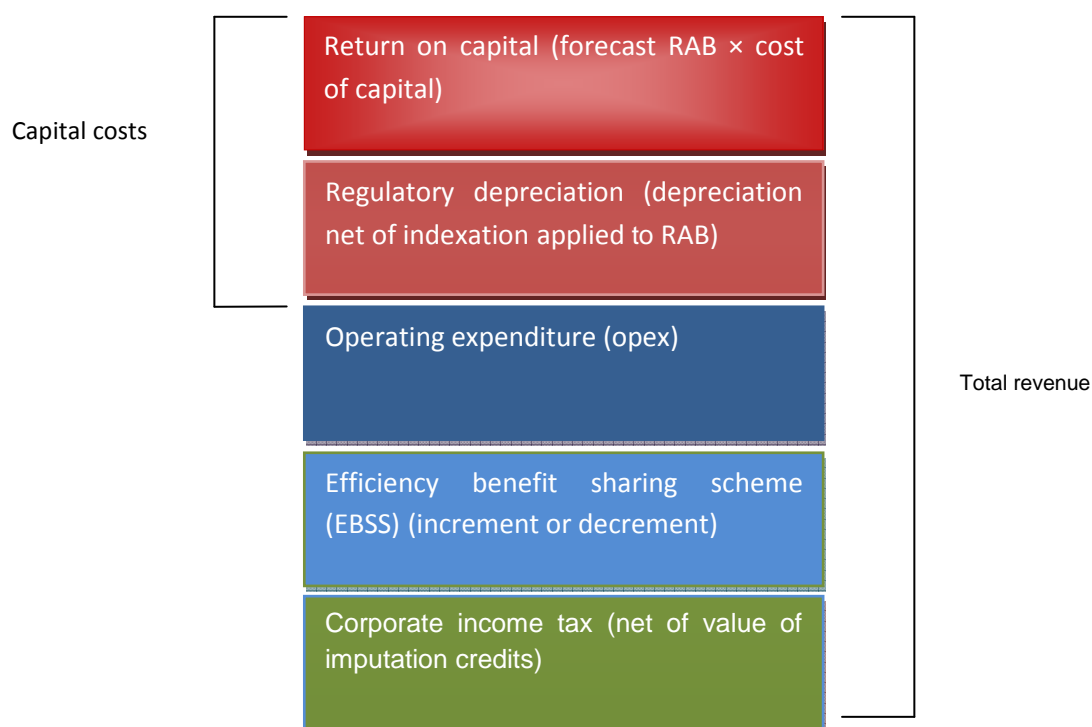
We have employed the building block approach to determine TransGrid's annual revenue requirement—that is, we based the annual revenue requirements on our estimate of the efficient costs that TransGrid is likely to incur in providing transmission network services. The building block costs, illustrated in Figure 8-1, include:⁶⁵

- indexation of the RAB
- a return on the RAB (return on capital)
- depreciation of the RAB (return of capital)
- forecast opex
- increments or decrements resulting from incentive schemes such as the efficiency benefit sharing scheme (EBSS)
- the estimated cost of corporate income tax.

Our assessment of capex directly affects the size of the RAB and therefore the revenue generated from the return on capital and return of capital building blocks.

⁶⁵ NER, cl. 6A.5.4.

Figure 8-1 The building block approach for determining total revenue



The following section summarises our decision by building block and provides our high level reasons and analysis.

8.2 Regulatory asset base

The RAB is the value of TransGrid's assets that are used to provide transmission network services. These include transmission poles and wires, substations, IT systems, land and easement, motor vehicles and buildings. The RAB is the value on which TransGrid earns a return on capital. Further, TransGrid earns a depreciation allowance (or a return of capital) on assets in its RAB. The RAB is therefore an important input to the return on capital and depreciation building blocks, and thus to the revenue requirement.

As part of this draft decision, we are required to assess TransGrid's proposed opening value for the RAB for each year of the 2014–18 regulatory control period.⁶⁶ Our assessment involved:

- rolling forward the opening RAB at 1 July 2009 to determine the closing RAB at 30 June 2014
- using our draft decision on forecasts of depreciation, capex, disposals and inflation for the 2014–18 regulatory control period to roll forward TransGrid's forecast RAB for each year of that period.

8.2.1 Draft decision

Our draft decision is to accept TransGrid's opening RAB of \$6146.7 million at 1 July 2014.⁶⁷ We forecast a closing RAB at 30 June 2018 of \$6696.8 million.

⁶⁶ NER, cl. 6A.6.1 and schedule 6A.2.

⁶⁷ This RAB value is based on as-incurred capex. We note that TransGrid has revised its 2008–09 and 2010–11 actual capex (increased by \$1.8 million and \$1.0 million respectively) due to refinement of the asset classifications once projects

We determine that the forecast depreciation approach is to be used to establish the RAB at the commencement of the regulatory control period from 1 July 2018 for TransGrid.

Table 8-1 and Table 8-2 set out our draft decision on the roll forward of the RAB values for TransGrid's 2009–14 regulatory control period and the forecast RAB values for the 2014–18 period respectively.

Table 8-1 AER's draft decision on TransGrid's RAB for the 2009–14 regulatory control period (\$ million, nominal)

	2009–10	2010–11	2011–12	2012–13	2013–14 ^a
Opening RAB	4217.5	4578.8	4926.0	5174.6	5607.2
Capital expenditure ^b	418.5	376.2	354.8	502.2	565.5
CPI indexation on opening RAB	121.8	152.6	78.1	129.5	164.3
Straight-line depreciation ^c	-179.0	-181.7	-184.2	-199.1	-222.3
Closing RAB	4578.8	4926.0	5174.6	5607.2	6105.7
Difference between estimated and actual capex (1 July 2008 to 30 June 2009) ^d					25.2
Return on difference for 2008–09 capex ^d					15.8
Opening RAB as at 1 July 2014					6146.7

Source: AER analysis.

(a) Based on estimated capex. We will update the RAB roll forward for actual capex in the final decision.

(b) As incurred, net of disposals, and adjusted for actual CPI.

(c) Adjusted for actual CPI. Based on as-commissioned capex.

(d) This is the true-up adjustment relating to the 2008–09 capex estimate (final year of previous regulatory control period) used in the 2009 determination to account for the difference between that estimate and actual capex that is now available.

Table 8-2 AER's draft decision on TransGrid's RAB for the 2014–18 period (\$ million, nominal)

	2014–15	2015–16	2016–17	2017–18
Opening RAB	6146.7	6303.0	6447.5	6564.1
Capital expenditure ^a	249.5	254.4	242.7	244.4
Inflation indexation on opening RAB	153.7	157.6	161.2	164.1
Straight-line depreciation ^b	-246.9	-267.4	-287.3	-275.8
Closing RAB	6303.0	6447.5	6564.1	6696.8

Source: AER analysis.

are commissioned. These revisions are reflected in the proposed RFM. TransGrid stated that these revisions will be shown in its 2013–14 regulatory accounts to be submitted to the AER later this year.

- (a) As incurred, and net of disposals. In accordance with the timing assumptions of the post-tax revenue model (PTRM), the forecast capex includes a half-WACC allowance to compensate for the six month period before capex is added to the RAB for revenue modelling.
- (b) Based on as-commissioned capex.

8.2.2 Summary of analysis and reasons

We have reviewed the key inputs to TransGrid's proposed roll forward model (RFM) and found that these reconciled with relevant data sources such as ABS data, regulatory accounts and the 2009 decision models.

We forecast TransGrid's closing RAB to be \$6696.8 million at 30 June 2018, which represents a reduction of around 7.3 per cent from TransGrid's proposed amount. The main reasons for this reduction are our adjustments to:

- forecast capex (attachment 6)
- forecast depreciation (attachment 5).

Details of our approach in deriving the value of the RAB and relevant interrelationships are set out in attachment 2.

8.3 Rate of return (return on capital)

The allowed rate of return provides a network service provider (NSP) a return on capital to service the interest on its loans and give a return on equity to investors. The return on capital building block is calculated as a product of the rate of return and the value of the regulatory asset base (RAB).⁶⁸

8.3.1 Draft decision

We are not satisfied that TransGrid's proposed (indicative) 8.83 per cent return is such that it achieves the allowed rate of return objective. We are satisfied that the allowed rate of return of 7.24 per cent (nominal vanilla⁶⁹) we determine, subject to updating, achieves the allowed rate of return objective.⁷⁰ The allowed rate of return of 7.24 per cent will be updated annually. This is because our draft decision is to apply a trailing average portfolio approach to estimating debt which incorporates annual updating of the allowed return on debt.⁷¹ Our draft decision is set out in Table 8-3.

Table 8-3 AER's draft decision on TransGrid's rate of return (nominal)

	2009–14 AER decision	2015–18 TransGrid's proposal	2015–18 AER draft decision
Nominal risk free rate (cost of equity)	5.86%	N/A ^(a)	3.55% ^(b)
Equity risk premium	6.0%	6.35% ^(c)	4.55%
MRP	6.0%	N/A ^(d)	6.5%
Equity beta	1.0	N/A ^(d)	0.7
Gearing ratio	60.0%	60.0%	60.0%

⁶⁸ NER, cl.6A.6.2(a).

⁶⁹ The nominal vanilla WACC combines a post-tax return on equity and a pre-tax return on debt, for consistency with other building blocks.

⁷⁰ NER, cl.6A.6.2(b).

⁷¹ NER, cl.6A.6.2(i)(2).

	2009–14 AER decision	2015–18 TransGrid's proposal	2015–18 AER draft decision
Inflation forecast	2.47%	2.52%	2.50%
Nominal post-tax return on equity	11.86%	10.5%	8.1%
Nominal pre-tax return on debt	8.85%	7.72%	6.67% ^(e)
Nominal vanilla WACC	10.05%	8.83%	7.24%

Source: AER analysis; TransGrid, *Revenue proposal*, May 2014; AER, *Statement of updates for TransGrid's transmission determination*, March 2010.

- (a) TransGrid proposed a multiple model approach, and did not propose a specific value for the risk free rate. However, its consultant, NERA applied a prevailing risk free rate of 4.14 per cent in most of its model specifications. This risk free rate estimate is based on an averaging period of 20 business days ending 31 March 2014. The prevailing risk free rate is to be updated for the final decision. See: NERA, *Return on capital of a regulated electricity network*, May 2014, pp. 87, 94, 96, 104.
- (b) This is a prevailing indicative risk free rate based on a 20 business day averaging period from 17 September to 15 October 2014. The risk free rate is to be updated for the final decision.
- (c) NERA indicated that the AER's ERP of 455 basis points is 180 basis points lower than the ERP that is implied by the 10.5 per cent return on equity it proposed ($4.55 + 1.80 = 6.35$). See: NERA, *Return on capital of a regulated electricity network*, May 2014, p. 73, footnote 202.
- (d) TransGrid did not propose specific values for equity beta and MRP because it proposed a multiple model approach. However, its consultant, NERA, applied a MRP of 7.26 per cent and equity beta of 0.58 in its preferred SLCAPM specification. See: NERA, *Return on capital of a regulated electricity network*, May 2014, pp. 45, 87.
- (e) This return on debt estimate, subject to our final decision, will be used to update the revenues we previously determined for the 2014–15 (transitional) regulatory year.

8.3.2 Summary of analysis and reasons

Our approach

We consider that our approach, which includes a process that lends itself to capturing a broad range of material from all stakeholders while founded on the rate of return framework, would result in an estimate of the rate of return that contributes to achieving the allowed rate of return objective. Our approach is based on the rate of return framework in the NER. Under this framework, our key task is to determine an overall rate of return that we are satisfied achieves the allowed rate of return objective.⁷² An important feature of the rate of return framework is the recognition that there is no one correct answer that achieves the allowed rate of return objective.⁷³

Prior to the submission of this regulatory proposal, as required by the rate of return framework, in December 2013, we published the Rate of Return Guideline (the Guideline).⁷⁴ The Guideline was designed through extensive consultation and included effective and inclusive consumer participation.⁷⁵ We agree with stakeholders that certainty and predictability of outcomes in rate of return issues could materially benefit the long term interest of consumers.⁷⁶

⁷² NER, cl.6A.6.2(b).

⁷³ AEMC, *Rule determination: National electricity amendment (Economic regulation of network service providers) Rule 2012: National gas amendment (Price and revenue regulation of gas services) Rule 2012*, 29 November 2012, p. 67 (AEMC, *Final rule change determination*, November 2012); AEMC, *Final rule change determination*, November 2012, p. iv; AEMC, *Final rule change determination*, November 2012, p. 38; The High Court of NZ stated: 'In determining WACC, precision is therefore an elusive and perhaps non-existent quality. Setting WACC is, we suggest, more of an art than a science. The use of WACC, in conjunction with RAB values, to set prices and revenue in price-quality regulation gives significance to WACC estimates that may not exist outside this context.' *Wellington International Airport Ltd & Others v Commerce Commission* [2013] NZHC 3289, para. 1189.

⁷⁴ NER, cl.6A.6.2(m).

⁷⁵ www.aer.gov.au/node/18859

⁷⁶ ENA, *Response to the draft rate of return guideline of the AER*, 11 October 2013, p.1, AER, *Explanatory statement to the rate of return guideline (appendices)*, December 2013, Appendix I, Table I.4, pp.185–186.

Return on equity

Our return on equity estimate is determined by applying the iterative six step process set out in the Guideline (foundation model approach). We have had regard to a large amount of relevant information, including various equity models. At different stages of the process we have used this material to inform a return on equity estimate that contributes to the allowed rate of return objective.

The evidence indicates that the Sharpe–Lintner capital asset pricing model (SLCAPM) is the superior model in terms of estimating expected equity returns. We have therefore adopted this model as our foundation model. We commissioned expert reports from Professor Michael McKenzie and Associate professor Graham Partington and Associate professor John Handley. Both confirm that employing our foundation model approach and using the SLCAPM as the foundation model, in the context of the vanilla WACC formula is expected to lead to a rate of return that meets the allowed rate of return objective.⁷⁷

Our SLCAPM input parameters (MRP and equity beta) are determined after considering a range of relevant material and determining a point estimate that is most suited for our task. We evaluated our SLCAPM point estimate against other information. The critical allowance for an equity investor in a benchmark efficient entity is the allowed equity risk premium (ERP) over and above the estimated risk free rate at a given time.⁷⁸ Our estimate of the ERP for the benchmark efficient entity is 4.55 per cent. Applying the standard SLCAPM, this equals the MRP multiplied by the equity beta. Hence, we have compared ERP estimates where relevant (graphically presented in Figure 8-2). We find that our ERP estimate is within the range of other information available to inform the return on equity. Our analysis shows that:

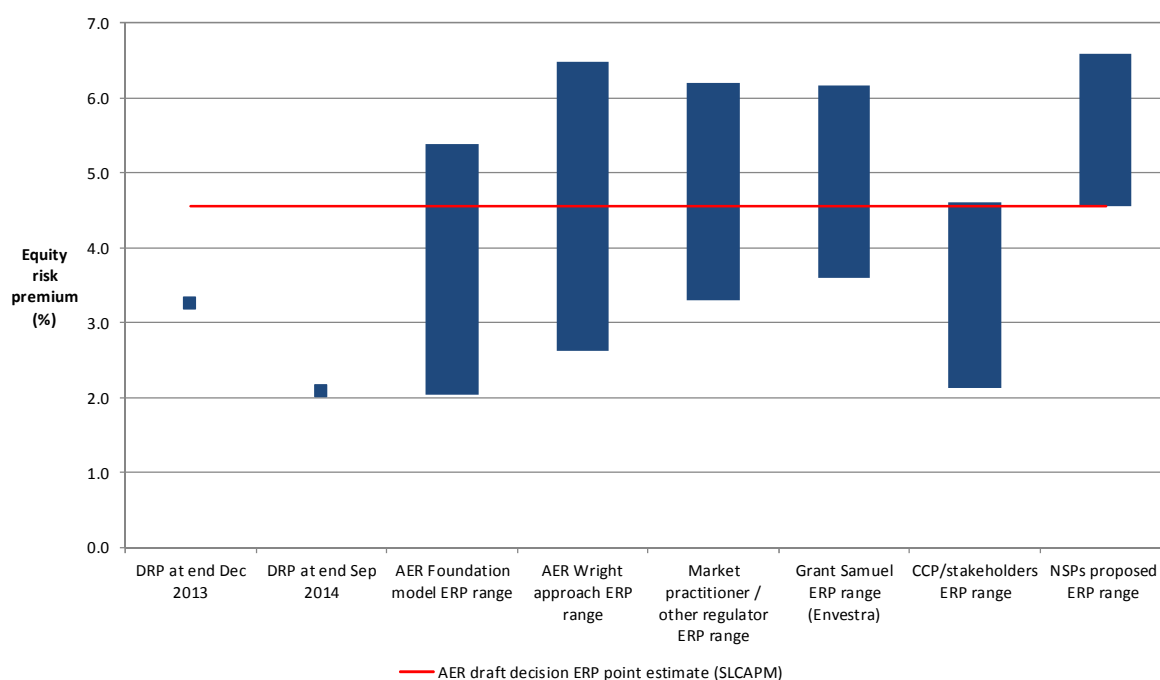
- The Wright approach to specifying the CAPM results in an ERP range of 2.6 to 6.5 per cent. This equates to a return on equity range of 6.2 to 10.1 per cent with a prevailing risk free rate.
- ERP estimates from other market participants (independent valuers, brokers and other regulators) for comparable firms range from 3.3 to 6.2 per cent. This equates to a return on equity range of 6.9 to 9.8 per cent with the prevailing risk free rate.
- Our SLCAPM return on equity estimate is about 2.5 per cent above the prevailing return on debt. This reflects the difference between our ERP of 4.55 per cent and the debt risk premium (DRP) on 10 year BBB bonds of approximately 2.08 per cent.⁷⁹

⁷⁷ McKenzie & Partington, *Part A: Return on equity, Report to the AER*, October 2014, p.13; John Handley, *Advice on return on equity: Report prepared for the AER*, October 2014, p.3.

⁷⁸ Our task is to determine the efficient financing costs commensurate with the risk of providing regulated network service by an efficient benchmark entity (allowed rate of return objective). Risks in this context are those which are compensated via the return on equity (systematic risks).

⁷⁹ To calculate this, we use the RBA's published yields on 10 year BBB non-financial corporate bonds, specifically, the spread to CGS yields (as at 30 September). These are not reflective of our draft decision return on debt estimate which is calculated as an average of the RBA and Bloomberg (BVAL) data series. We have also made an extrapolation adjustment to the RBA data series.

Figure 8-2 Other information comparisons with the AER allowed ERP



Source: AER analysis and various submissions and reports
 Notes: A detailed explanation of this figure can be found in attachment 3: Rate of return.

Return on debt

Our return on debt estimate is derived using the trailing average approach. This is a change from the current period which applied an on-the-day approach. Our return on debt estimate incorporates a transition from the current on-the-day approach to the new trailing average approach.

We assessed the trailing average approach relative to the other approaches a regulator can apply to estimate the return on debt under the rules.⁸⁰ We conclude that on balance, the trailing average approach is preferable because it may better contribute to the achievement of the allowed rate of return objective.⁸¹ We are satisfied that a benchmark efficient entity would hold a staggered portfolio of long term (10 year) debt. By this we mean that 10 per cent of the debt is new or refinanced each year. This means that for the 2014–2018 period, the benchmark efficient entity will be issuing new debt or refinancing existing debt each year. It also means that at the start of that period, the benchmark efficient entity will have in place a portfolio of debt that is existing debt and was issued in the past. We consider it is reasonable to update 10 per cent of the benchmark efficient entity's return on debt annually going forward. Our application of the trailing average approach is based on a simple average approach that provides for 10 per cent of the benchmark efficient entity's debt portfolio to be refinanced/issued each regulatory year.

There is agreement between service providers (regulatory proposals currently before us) and us on the use of the trailing average approach and that an efficient benchmark entity would hold a staggered portfolio of long term (10 year) debt. However, there is no agreement between TransGrid and ourselves on how we should move from the current approach to the trailing average.

⁸⁰ NER, cl.6A.6.2(j).
⁸¹ NER, cl.6A.6.2(h).

We are satisfied that it is reasonable to commence the trailing average with an initial estimation of the return on debt that is then progressively updated over the period of the trailing average. For new debt that is progressively issued in the 2014–18 period and beyond, we apply the trailing average approach immediately. For existing debt that was issued before the commencement of the 2014–18 period, we continue to apply the on-the-day approach until that debt is refinanced. We update the debt portfolio by 10 per cent each year, consistent with a staggered debt portfolio with a benchmark debt term of 10 years. After 10 years, the entire debt portfolio will have been updated and incorporated into the trailing average approach, and the transition is complete. This approach is the same as the transitional arrangements we proposed in the rate of return guideline. Our transitional arrangements:

- minimises the potential mismatch between the allowed return on debt and the actual return on debt of the benchmark efficient entity as it transitions its financing practices, and
- avoids potential windfall gains or losses to service providers or consumers from changing the regulatory regime for the return on debt.

We adopt a 10 year term for the return on debt with a BBB+ credit rating. Whilst all service providers with current regulatory proposals agree with us on the term, Ausgrid, Endeavour Energy, Essential Energy, ActewAGL and JGN proposed a BBB credit rating.⁸² We are satisfied that our benchmark efficient entity operating within Australia in gas, electricity, distribution or transmission networks face similar degrees of risk, including similar credit risks. Accordingly, we are satisfied that one benchmark credit rating should apply in our decisions for each of these sectors. Adopting a single credit rating is consistent with our adoption of a single definition of the benchmark efficient entity, and with the NER.

We use the debt yields from a third party data provider for estimating the return on debt. All service providers with current regulatory proposals have proposed to use a third party dataset for estimating the return on debt. We reviewed the data from Bloomberg (BVAL curve) and the RBA to be satisfied on the data that is most likely to reflect the efficient financing costs of a benchmark efficient entity at this time. We find that neither the RBA curve nor the BVAL curve is directly implementable in its published form for our purposes. However, we consider that both curves can be implemented in a way that will be sufficiently robust, fit for purpose and replicable, and through the automatic application of a formula, as required by the NER.⁸³ We are satisfied that an average of the two data series will contribute to achieving the allowed rate of return objective.

8.4 Value of imputation credits (gamma)

Under the Australian imputation tax system, investors can receive an imputation credit for income tax paid at the company level.⁸⁴ For eligible investors, this credit offsets their Australian income tax liabilities. If the amount of imputation credits received exceeds an investor's tax liability, that investor can receive a cash refund for the balance. Imputation credits are therefore a benefit to investors in addition to any cash dividend or capital gains they receive from owning shares.

In determining a service provider's revenue allowance, the rules require that the estimated cost of corporate income tax be estimated in accordance with a formula that reduces the estimated cost by

⁸² Ausgrid, *Regulatory proposal*, May 2014, pp. 70–71; Endeavour Energy, *Regulatory proposal*, May 2014, pp. 104–105, Essential Energy, *Regulatory proposal*, May 2014, pp. 90–92; ActewAGL, *Regulatory proposal*, 2 June 2014 (resubmitted 10 July 2014), p. 255; JGN, *Access arrangement information*, 30 June 2014, p. 9.

⁸³ NER cl.6A.6.2(l).

⁸⁴ *Income Tax Assessment Act 1997*, parts 3–6.

the 'value of imputation credits'.⁸⁵ That is, the revenue allowance granted to a service provider to cover its expected tax liability must be reduced in a manner consistent with the value of imputation credits.

8.4.1 Draft decision

We do not accept TransGrid's proposed value of imputation credits of 0.25. Instead, we adopt a value of imputation credits of 0.4.

The value we adopt is lower than the value of 0.5 proposed in the rate of return guideline. Although we have broadly maintained the approach to determining the value of imputation credits set out in the guideline, we have re-examined the relevant evidence and estimates. This re-examination, and new evidence and advice considered since the guideline, led us to depart from the value in the guideline.

8.4.2 Summary of analysis and reasons

Estimating the value of imputation credits is a complex and imprecise task. There is no consensus among experts on the appropriate value or estimation techniques to use.

Consistent with the relevant academic literature, we estimate the value of imputation credits as the product of the distribution rate and the utilisation rate. While there is a widely accepted approach to estimating the distribution rate, there is no single accepted approach to estimating the utilisation rate and there is a range of evidence relevant to the utilisation rate. This includes:

- The proportion of Australian equity held by domestic investors (the 'equity ownership approach')—this approach reflects that domestic investors are typically able to use imputation credits to reduce their tax liability or redeem for cash, whereas foreign investors cannot.
- The reported value of credits used by investors in Australian Taxation Office (ATO) statistics ('tax statistics')—this approach reflects that the ATO maintains records of the amount of imputation credits claimed by investors in their tax returns.
- Implied market value studies—while there is no separate market in which imputation credits are traded, and therefore there is no observable market price for imputation credits, this approach reflects that the value of imputation credits can be inferred from the change in market prices of financial instruments which trade with and without imputation credits attached.

In estimating the utilisation rate, we place:

- significant reliance upon the equity ownership approach
- some reliance upon tax statistics, and
- less reliance upon implied market value studies.

The relative importance that we assign to each approach is supported by advice received from Associate professor John Handley of the University of Melbourne and Associate professor Martin Lally of Victoria University Wellington.⁸⁶

⁸⁵ NER, cl. 6.4.3(a)(4), 6.4.3(b)(4), 6.5.3, 6A.5.4(a)(4), 6A.5.4(b)(4) and 6A.6.4; NGR, rr. 76(c) and 87A.

⁸⁶ J. Handley, *Report prepared for the Australian Energy Regulator: Advice on the value of imputation credits*, 29 September 2014; M. Lally, *The estimation of gamma*, 23 November 2013, p. 4.

Overall, the evidence on the distribution rate and the utilisation rate suggests that a reasonable estimate of the value of imputation credits is within the range 0.3 to 0.5. From within this range, we choose a value of 0.4. This is because:

- The balance of evidence from the equity ownership approach, on which we have placed the most reliance, suggests a value between 0.4 and 0.5.
- The evidence from tax statistics suggests the value could be lower than 0.4. Therefore we choose a value at the lower end of the range suggested by the balance of evidence from the equity ownership approach (that is, 0.4).
- A value of 0.4 is reasonable in light of the evidence from implied market value studies and the lesser degree of reliance we place upon these studies.

In determining the value of imputation credits, we considered the wide range of evidence before us with regard to its merits. We consider that a value of imputation credits of 0.4 is reasonable because:

- It is within the range of values indicated by the evidence, and the relevance of the evidence is supported by expert opinion.
- It primarily reflects an estimate of the utilisation rate from the equity ownership approach. Handley considered this the most important approach to estimating the utilisation rate, relative to the alternatives of tax statistics and implied market value studies.⁸⁷ The equity ownership approach was Lally's second preference after his recommendation for a utilisation rate of 1.⁸⁸
- It is within the 'preferred' range for the value of imputation credits in Handley's recent advice.⁸⁹
- Based on the evidence before us at this time, adopting a value of imputation credits that is rounded to one decimal place appropriately reflects the uncertainty and imprecision associated with this parameter. This uncertainty is evident in the range of views and values espoused by experts. The imprecision of determining the value of imputation credits was emphasised by Handley.⁹⁰

8.5 Regulatory depreciation (return of capital)

We use regulatory depreciation to model the nominal asset values over the 2014–18 period and set the depreciation allowance as part of the overall revenue allowance for TransGrid. The regulatory depreciation allowance is the net total of the straight-line depreciation (negative) amount and the (positive) amount from indexation of the RAB.

We have to decide on whether to approve the depreciation schedules submitted by TransGrid setting out its proposed allowance. If we do not approve TransGrid's depreciation schedules we must determine alternative depreciation schedules to apply to TransGrid as set out in the NER.⁹¹

⁸⁷ J. Handley, *Report prepared for the Australian Energy Regulator: Advice on the value of imputation credits*, 29 September 2014, p.31.

⁸⁸ M. Lally, *The estimation of gamma*, 23 November 2013, p. 4. Lally's recommendation of a utilisation rate of 1 is based on his consideration that, because we use a domestic rate of return framework, we should assume that all investors in the market are domestic (and therefore eligible to make full use of imputation credits).

⁸⁹ J. Handley, *Report prepared for the Australian Energy Regulator: Advice on the value of imputation credits*, 29 September 2014, p.3.

⁹⁰ J. Handley, *Report prepared for the Australian Energy Regulator: Advice on the value of imputation credits*, 29 September 2014, p.32.

⁹¹ NER, 6A.6.3(b)

Attachment 5 sets out our detailed reasons for our draft decision on TransGrid's regulatory depreciation allowance and depreciation schedules.

8.5.1 Draft decision

Our draft decision is to determine alternative depreciation schedules, and hence, the regulatory depreciation allowance, to apply to TransGrid.⁹² Table 8-4 sets out our draft decision on TransGrid's depreciation allowance for the 2014–18 period. Our draft decision sets the allowance at \$440.9 million (\$ nominal), 3.1 per cent, more than TransGrid's proposal.

Table 8-4 AER's draft decision on TransGrid's depreciation allowance for the 2014–18 period (\$ million, nominal)

	2014–15	2015–16	2016–17	2017–18	Total
Straight-line depreciation	246.9	267.4	287.3	275.8	1077.4
Less: inflation indexation on opening RAB	153.7	157.6	161.2	164.1	636.5
Regulatory depreciation	93.2	109.9	126.1	111.7	440.9

Source: AER analysis.

8.5.2 Summary of analysis and reasons

We do not accept TransGrid's proposed regulatory depreciation allowance of \$427.6 million (\$ nominal) for the 2014–18 period. Instead, for the following reasons, we determine a regulatory depreciation allowance of \$440.9 million (\$ nominal) for TransGrid:

- We accept TransGrid's proposed straight-line method, and standard asset lives used to calculate the regulatory depreciation allowance. We consider that TransGrid's proposed standard asset lives are consistent with those approved in the 2009–14 transmission determination and reflect the nature and economic lives of the assets.⁹³
- We accept TransGrid's proposed weighted average method to calculate the remaining asset lives as at 1 July 2014. This because the proposed method applies the approach as set out in the roll forward model (RFM).
- We do not accept other components of TransGrid's proposal—for example, the forecast capex (attachment 6) and the forecast inflation rate (attachment 3). In particular, the lower forecast inflation rate used in this draft decision means the resulting regulatory depreciation allowance (which nets out the inflation indexation on the opening RAB) is higher than proposed.

Details of our approach in deriving the value of the regulatory depreciation allowance and relevant interrelationships are set out in attachment 5.

⁹² NER, cl. 6A.6.3(b).

⁹³ NER, cl. 6A.6.3(b).

8.6 Capital expenditure

Capital expenditure (capex) refers to the capital expenses incurred in the provision of network services. The return on and of forecast capex for prescribed transmission services are two of the building blocks we use to determine TransGrid's total revenue requirement.

8.6.1 Draft decision

We are not satisfied that TransGrid's proposed total forecast capex of \$1,387.39 million (\$2013–14) reasonably reflects the capex criteria. Our substitute estimate of TransGrid's total forecast capex for the 2014–2018 period, which we are satisfied does reasonably reflect the capex criteria, is \$922.34 million (\$2013–14), as set out in Table 8-5.

Table 8-5 Our draft decision on TransGrid's total forecast capex (\$ million 2013–14)

	2014–15	2015–16	2016–17	2017–18	Total
TransGrid's proposal	353.5	400.9	311.0	322.0	1,387.4
AER draft decision	240.8	239.4	223.0	219.1	922.3
Difference	112.7	161.5	88.0	102.9	465.1
Percentage difference	32%	40%	28%	32%	34%

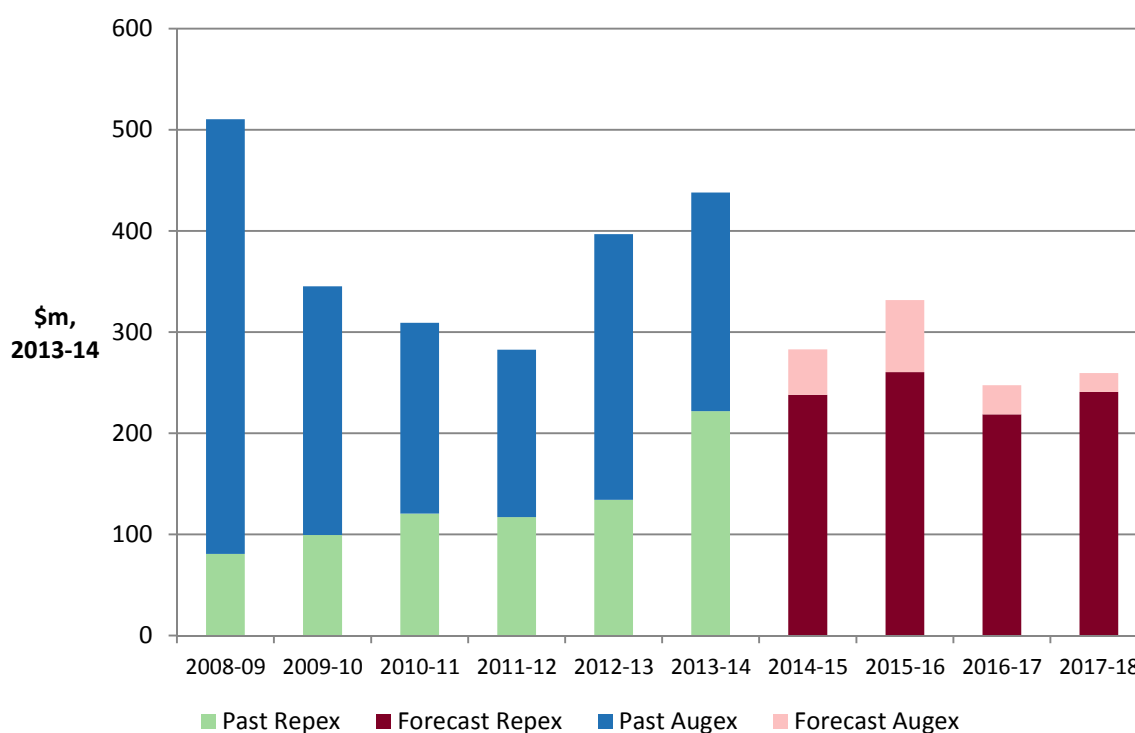
Source: AER analysis.

Note: Numbers may not total due to rounding.

8.6.2 Comparison of historical and forecast capital expenditure

TransGrid has proposed less capex for the 2014–18 period than it spent in the previous period. As shown in Figure 8-3, underlying the overall fall in the proposed capex are substantial changes in the composition of the proposed expenditure. During the 2009–14 period, TransGrid spent an average of \$155.8 million (\$2013–14) per year on replacement capex (repex). TransGrid is proposing to increase this expenditure to an average of \$239 million per year (an increase in annual average expenditure of 48 per cent). This increase is offset by a reduction in growth-related capex (augmentation and connections) from an annual average of \$228.5 million (\$2013–14) to \$46.7 million annually (a reduction in annual average expenditure of 81 per cent), with most of this expenditure driven by proposed strategic land acquisitions.

Figure 8-3 Trend in Augex and Repex



Source: AER analysis.

8.6.3 Summary of analysis and reasons

Replacement expenditure

Repex is non-demand driven capex. It involves replacing an asset with its modern equivalent where the asset has reached the end of its economic life, measured by an asset's condition, technology or operating environment. TransGrid proposed \$952.2 million (\$2013–14) of forecast repex.

The amount of repex included in our substitute estimate of total capex is \$647.6 million (\$2013–14) (30 per cent less than proposed by TransGrid). This is based on our trend analysis of past total repex and key repex programs. It is also based on EMCa's review of TransGrid's governance and risk management, cost forecasting method and four key proposed repex programs.

EMCa identified a number of systemic issues in TransGrid's proposal. This has led to TransGrid overestimating the risk associated with its assets and in turn, overstating and its proposed forecast repex. EMCa found that TransGrid's proposed forecast repex is overstated in the order of 20 to 30 per cent. In particular, we accept EMCa's specific findings that, for each of TransGrid's four key repex programs:

- opportunities have not been identified to defer and/or reduce the scope of projects
- there is evidence that the quantification of the project risk costs is likely to be overstated
- a consideration of lower cost options to address risks has not been demonstrated
- there are examples where there is the replacement of relatively new assets as part of a broader asset replacement project for some assets

- there is likely to be the potential to extend the life of some assets by using existing assets as spares
- there is no evidence of performance issues for specific assets that would support a substantial increase in replacement needs
- it appears that some assets are targeted for replacement based on replacement technology strategies rather than on asset condition grounds.

EMCa's review suggested that TransGrid's repex should be reduced by 20 to 30 per cent. We have reduced TransGrid's proposed forecast repex by 30 per cent. Whilst this is at the higher end of the range proposed by EMCa, it is warranted in light of the concerns we have with aspects of TransGrid's forecasting methodology. In particular, TransGrid's forecasting methodology is largely based on a bottom-up assessment approach that is excessively risk averse. It does not evidence a holistic and strategic consideration or assessment of TransGrid's entire forecast capex program at a portfolio level, and how the timing and prioritisation of certain capital projects or programs have been determined over both the short and the long-term.

Security and compliance capex

TransGrid proposed \$129.6 million (\$2013–14) for forecast security and compliance capex, which is a threefold increase on actual expenditure in the 2009–14 period. We do not accept that TransGrid's estimate reasonably reflects the required expenditure and have instead included an estimate of \$46 million.

The majority of this capex is to remedy transmission spans that TransGrid has assessed as having insufficient ground clearance following an Aerial Laser Survey (ALS). We note that ground clearance is something that, in many cases, can be managed by TransGrid. Indeed, there are examples of TransGrid managing the risks through the use of relatively low cost measures such as fencing and signage. We sampled approximately 23 per cent of the \$81.1 million proposed to address the transmission low spans issue. Our review found that same systemic issues found in its repex forecast are particularly prevalent in TransGrid's risk assessment of its low transmission line spans. This reflects a bias towards options that seek to eliminate the hazard, rather than seeking out more efficient management options. This results in cost estimates that are not efficient and prudent.

Our view is TransGrid's proposed forecast capex associated with low transmission spans should be reduced by 85 per cent. However, we have reduced the remainder of TransGrid's proposed security and compliance capex by only 30 per cent, consistent with our views on TransGrid's proposed forecast repex. While not targeted for the same detailed review as low transmission spans, we consider the systemic issues EMCa has identified in its review of TransGrid's repex proposal are equally prevalent here.

Growth-related capex

We have accepted TransGrid's proposed forecast augex of \$65.1 million (\$2013–14) and will include this in our estimate of forecast capex. The significant reduction in forecast augex compared with historical augex aligns with the low levels of demand growth forecast over the 2014–2018 period. We have also taken into account the independent assessment by AEMO which found that there is a justified network need for TransGrid's two key augex projects.

We have also accepted TransGrid's connections forecast of \$6.98 million (\$2013–2014) as it is consistent with the forecast drivers in construction activity in commercial and industrial, and multi-dwelling residential premises.

Non-network expenditure

TransGrid forecast total non-network capex of \$145.7 million (\$2013–14) for the 2014–18 period.⁹⁴ This includes capex on information and communications technology, buildings and property, motor vehicles, and other plant and equipment. As part of our assessment of the total capex required for the 2014–18 period, we accept TransGrid's forecast of non-network capex as a reasonable estimate of the efficient costs required for this capex category. We have included it in our estimate of total capex for the 2014-18 period.⁹⁵

Strategic property acquisitions

Strategic property acquisition is the acquisition of land or easements for future use beyond the regulatory control period in which they are acquired. TransGrid forecast capex of \$114.7 million (\$2013–14) for seven strategic property acquisitions.⁹⁶ We are not satisfied that TransGrid has accurately forecast the costs or demonstrated the need for all of the proposed acquisitions. As part of our assessment of total capex required for the 2014-18 period, we consider that forecast capex of \$10.9 million (\$2013–14) is a reasonable estimate of what is required by TransGrid for strategic property acquisitions. We have included this amount in our estimate of total capex for the 2014–18 period.⁹⁷

Given that we are in a period of low maximum demand growth and limited augmentation requirements, we consider that TransGrid's forecast strategic property capex program warranted detailed review to confirm the need and timing for the proposed expenditure. Following this review we conclude that TransGrid has not justified the need for five of the proposed acquisitions. However, we consider that TransGrid has justified the need for easements to be purchased for existing lines in the ACT and the acquisition of a site for a new substation near Beryl.

Contingent Projects

Contingent projects are significant capex projects that may arise in the regulatory control period, but the event or the costs associated with the event are uncertain.⁹⁸ A TNSP's forecast capex does not include expenditure for these projects because they are linked to unique investment drivers (such as expectations of growth in a particular region) known as 'trigger events'.

We have not approved the contingent project proposed by TransGrid for 'Powering Sydney's Future', because updated demand forecasts suggest it is not likely to be required in the 2014–18 period. We have not approved the proposed 'Reinforcement Capacity in Southern New South Wales' contingent project, because the proposed triggers are inconsistent with the NER.

⁹⁴ TransGrid, *Regulatory proposal*, 31 May 2014, p. 66.

⁹⁵ NER, cl. 6A.14.1(2)(ii).

⁹⁶ TransGrid, *Capex accumulation model v3.10*, May 2014.

⁹⁷ NER, cl. 6A.14.1(2)(ii).

⁹⁸ NER, cl. 6A.8.1(c)(5)(i).

8.7 Operating expenditure (opex)

Opex includes forecast operating, maintenance and other non-capital costs incurred in the provision of transmission network services. It includes labour costs and other non-capital costs that TransGrid is likely to require during the 2014–18 period for the efficient operation of its network.

8.7.1 Draft decision

We are not satisfied that TransGrid's proposed total forecast opex reasonably reflects the opex criteria.⁹⁹ Our estimate of the total forecast opex TransGrid would require over the forecast period is \$659.7 million (\$2013–14): 16 per cent less than TransGrid's forecast. Table 8-6 shows our draft decision compared to TransGrid's proposal.

Table 8-6 TransGrid's proposal compared to our draft decision on total opex (\$ million 2013–14)

Year ending 30 June	2014–15	2015–16	2016–17	2017–18	Total
TransGrid's proposal	187.5	196.3	202.9	197.8	784.5
AER draft decision	166.0	164.3	164.4	165.0	659.7
Difference	-21.4	-31.9	-38.6	-32.8	-124.8

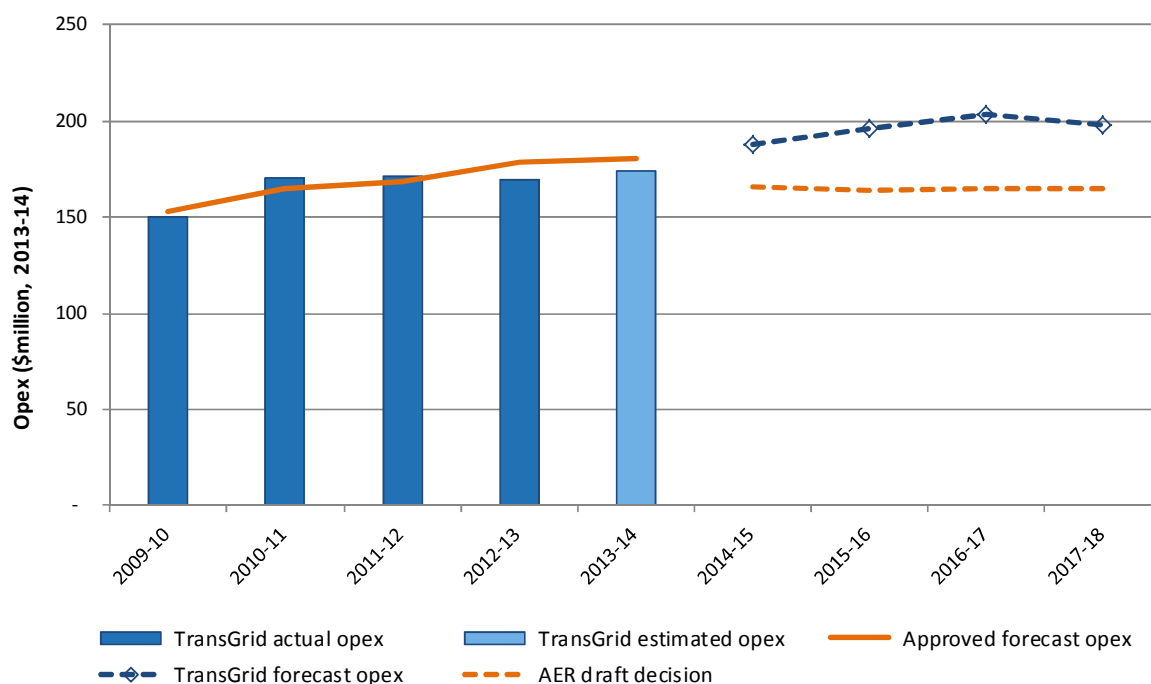
Source: AER analysis.

Note: Includes debt raising costs.

Figure 8-4 shows our draft decision compared to TransGrid's proposal, its past allowances and past actual expenditure.

⁹⁹ NER, cl. 6A.6.6(c).

Figure 8-4 AER draft decision compared to TransGrid's past and proposed opex (\$million, 2013-14)



Source: AER analysis

8.7.2 Summary of analysis and reasons

As noted above, we are not satisfied that TransGrid's total forecast opex reasonably reflects the opex criteria. To assess TransGrid's proposal we developed our own estimate of total forecast opex based on the methodology set out in our Expenditure Forecast Assessment Guideline.¹⁰⁰ We then assessed TransGrid's opex forecast at an overall level in the context of the NER. Our forecast is based on taking an efficient base year of opex from the current regulatory control period, and adding any efficient costs for changes in inputs, outputs and forecast productivity over the regulatory control period. We also add step changes to forecast opex for any other efficient expenditure that is not captured elsewhere in our guideline opex forecasting approach. When we compare TransGrid's total forecast opex with our estimate of the efficient opex a prudent operator would require to achieve the opex objectives, its proposal is materially higher. TransGrid has not demonstrated that its higher forecast reasonably reflects the opex criteria, so we have substituted our estimate.

The key areas of difference between our alternative estimate and TransGrid's proposal are:

- forecasting method—TransGrid developed its forecast using a hybrid 'base-step-trend' approach¹⁰¹ which included 'bottom-up' or 'zero-based' forecasts of certain categories. The difference in forecasting method accounts for \$22.2 million (\$2013–14) of the difference between TransGrid's proposed opex and our estimate.

¹⁰⁰ We have previously referred to this forecasting approach as the 'base-step-trend' approach or the revealed cost approach.

¹⁰¹ This involves different forecasting methods being applied to different categories or components of opex and can have the effect of upwardly biasing the total forecast of opex.

- base year opex—while we used TransGrid's proposed 2012-13 base year opex for estimating our alternative estimate,¹⁰² we did not accept a number of TransGrid's proposed base year adjustments.
- rate of change—TransGrid sought a higher rate of change than our estimate suggested was necessary. The key drivers of this difference are TransGrid's higher output growth, and TransGrid's lower productivity forecast. The difference in rate of change accounts for \$11.6 million (\$2013–14) of the difference between TransGrid's proposed opex and our estimate.
- step changes—TransGrid proposed a number of step changes which we have not included in our opex forecast. Our productivity forecast includes a step change increment (\$7.5 million) that is higher than the amount we would otherwise have approved in step changes (\$2.8 million). We have, however, accepted TransGrid's proposed capex-opex trade-off step change of \$6.4 million because it is a transfer of expenditure from opex to capex and does not change overall expenditure.
- network support—TransGrid proposed \$26.4m of pre-emptive procurement of network support over 2014–18 in the event network support could be used as an alternative to capex for the 'Powering Sydney's Future' contingent project (a joint TransGrid-Ausgrid project). As noted above, we are not approving this contingent project. We have therefore also rejected this element of TransGrid's opex proposal.¹⁰³

8.8 Corporate income tax

The estimated cost of corporate income tax contributes to our determination of the total revenue cap for TransGrid over the 2014–18 period. An allowance for corporate income tax enables TransGrid to recover the costs associated with the estimated corporate income tax payable during that period.

8.8.1 Draft decision

We do not accept TransGrid's proposed cost of corporate income tax allowance of \$230.4 million (\$ nominal) for the 2014–18 period. Instead, we determine a cost of corporate income tax allowance of \$118.4 million (\$ nominal). Table 8-7 sets out our draft decision on TransGrid's corporate income tax allowance for the 2014–18 period. Our draft decision is 48.6 per cent less than the allowance TransGrid proposed.

Table 8-7 AER's draft decision on TransGrid's cost of corporate income tax allowance for the 2014–18 period (\$ million, nominal)

	2014–15	2015–16	2016–17	2017–18	Total
Tax payable	35.2	38.2	61.5	62.4	197.3
Less: value of imputation credits	14.1	15.3	24.6	24.9	78.9
Net corporate income tax allowance	21.1	22.9	36.9	37.4	118.4

Source: AER analysis.

¹⁰² Whole-of-business benchmarking for transmission is in its infancy so we cannot confidently measure the relative efficiency of TransGrid's opex.

¹⁰³ TransGrid, *Sydney inner metropolitan forecasts - adjustments to revenue proposal in light of Ausgrid updated forecasts*, 14 October 2014.

8.8.2 Summary of analysis and reasons

Our draft decision reflects our amendment to the value of imputation credits (gamma) as discussed in attachment 4, which is a key input to calculating TransGrid's cost of corporate income tax.¹⁰⁴ Changes to other building block components that affect revenues also impact the tax calculation.

Details of our approach in deriving the value of the corporate income tax allowance and relevant interrelationships are set out in attachment 8.

¹⁰⁴ NER, cl. 6A.6.4.

9 Incentive schemes

9.1 Efficiency benefit sharing scheme

The efficiency benefit sharing scheme (EBSS) provides an additional incentive for service providers to pursue efficiency improvements in opex.

To encourage a service provider to become more efficient it is allowed to keep any difference between its approved forecast and its actual opex during a regulatory control period. Conversely, if it overspends its allowed opex, it cannot seek to recover this. This is supplemented by the EBSS which provides the service provider with an additional reward for reductions in opex it makes and additional penalties for increases in opex. In total these rewards and penalties work together to provide a constant incentive for a service provider to pursue efficiency gains over the regulatory control period. The EBSS also discourages a service provider from overspending its opex allowance in what it expects will be the base year for the following regulatory control period, in order to receive a higher opex allowance in that period.

9.1.1 Draft decision and reasons for decision

Carryover amounts accrued during the 2009–14 regulatory control period

During the 2009–14 regulatory control period TransGrid operated under the EBSS released in September 2007 for TNSPs (version one of the EBSS).¹⁰⁵ Our draft decision is to apply EBSS rewards of \$45.6 million from the application of the EBSS during the 2009–14 regulatory control period.

The difference between our proposed draft decision amounts and TransGrid’s proposed amounts is outlined in Table 9-1.

Table 9-1 AER’s draft decision and TransGrid’s proposed EBSS carryovers (\$ million, 2013–14)¹⁰⁶

Year ending 30 June	2014–15	2015–16	2016–17	2017–18	Total
TransGrid’s proposal	20.2	6.5	9.0	14.5	50.2
AER’s draft decision	20.9	8.5	10.9	5.2	45.6
Difference	0.7	2.0	1.9	–9.0	–4.6

Source: AER analysis.

The difference between our draft decision EBSS carryover amounts and TransGrid’s proposal relates to different treatment of provisions. Provisions affect the opex used to calculate the EBSS carryover amounts.

To calculate its EBSS carryover amounts TransGrid included, in its opex, provisions it had recorded for employee entitlements such as long service leave and annual leave.

¹⁰⁵ AER, *Electricity transmission network service providers: Efficiency benefit sharing scheme*, September 2007.

¹⁰⁶ Note TransGrid will also receive an adjustment to its revenues for the Efficiency Carryover Mechanism which applied to TransGrid during the 2004–09 regulatory control period.

We do not consider provisions to be actual costs, so we have adjusted the EBSS carryover amounts accordingly. Provisions are a type of accounting adjustment which reflects revised estimates of future costs a business expect to incur. They are not actual costs. To reward or penalise a service provider for changes in provisions would reward or penalise it for changes in assumptions, not efficiency improvements. This would be contrary to the aims of an EBSS under the NER.

Application of the EBSS during the 2015–18 regulatory control period

We propose to apply version 2 of the EBSS to TransGrid during the 2015–18 regulatory control period. We consider the EBSS is needed to:

- continue to encourage TransGrid to pursue efficiency improvements in opex ,and
- to discourage TransGrid from incurring opex to try and influence its opex forecasts in the regulatory control period beginning in 2018.

However our draft decision is to allow fewer exclusions from the EBSS than proposed by TransGrid.

We do not accept TransGrid's proposal to apply a different form of EBSS to opex on major operating projects. The effect of TransGrid's proposal would be that opex on major operating projects would be subject to a different form of EBSS than all other opex. We do not consider there is a strong rationale to use a different type of incentive scheme for opex on major operating projects to other categories of opex.

Attachment 9 sets out our detailed reasons for our draft decision on the EBSS.

9.2 Capital expenditure sharing scheme

The capital expenditure sharing scheme (CESS) provides financial rewards for network service providers whose capex becomes more efficient and financial penalties for those that become less efficient. Consumers benefit from improved efficiency through lower regulated prices.

As part of the Better Regulation program we consulted on and published the capital expenditure incentive guideline, which sets out version 1 of the CESS. The CESS approximates efficiency gains and efficiency losses by calculating the difference between forecast and actual capex. It shares these gains or losses between service providers and consumers.

Under the CESS a service provider retains 30 per cent of the benefit or cost of an underspend or overspend, while consumers retain 70 per cent of the benefit or cost of an underspend or overspend. This means that for a one dollar saving in capex the service provider keeps 30 cents of the benefit while consumers keep 70 cents of the benefit. Conversely, in the case of an overspend, the service provider must bear 30 cents of the cost and consumers 70 cents.

9.2.1 Draft decision

We will apply version 1 of the CESS as set out the capital expenditure incentives guideline to TransGrid in the 2015–18 regulatory control period.¹⁰⁷

¹⁰⁷ AER, *Capex incentive guideline*, Nov 2013, pp. 5–9.

9.2.2 Summary of analysis and reasons

TransGrid proposed to apply the CESS as set out in the capex incentives guideline, but with additional exclusions.

We will apply the CESS to TransGrid as set out in the capex incentive guideline without any further exclusions. We are not satisfied TransGrid's reasons for its proposed exclusions raise new issues different to those we considered during our development of the capital expenditure incentive guideline.

9.3 Service target performance incentive scheme

The STPIS has three components:

- The service component provides a financial incentive for the TNSP to improve and maintain its service performance.
- The market impact component provides an incentive to TNSPs to minimise the impact of transmission outages that can affect the NEM spot price.
- The network capability component funds and incentivises the TNSP to identify and implement incremental changes that would improve the capability of the network when it is most needed.

Attachment 11 sets out our detailed reasons for our draft decision on the STPIS.

9.3.1 Draft decision

Version 4.1 of the service target performance incentive scheme (STPIS) will apply to TransGrid for the 2015–18 regulatory control period.

Service component

We accept TransGrid's proposed performance targets for the service component. However, we do not accept TransGrid's proposed caps and collars. Table 11.1 of attachment 11 sets out our draft decision on TransGrid's service component parameter values.

Market impact component

While we were not required to make a formal decision on a market impact parameter performance target, we did audit and adjust TransGrid's 2011, 2012 and 2013 performance data which was submitted as part of TransGrid's revenue proposal. The average performance over these three years is used to calculate TransGrid's 2014 market impact parameter performance target which we assessed as 745 dispatch intervals.¹⁰⁸

Network capability component

We accept TransGrid's proposed priority projects and improvement targets. Table 11.2 of attachment 11 sets out our draft decision on TransGrid's proposed priority projects, total costs and project ranking.

¹⁰⁸ Regarding the target for the last half of 2014, we pro-rate the performance by measuring the average 2013/2014 performance against the average 2011/2012/2013 target and then multiplying by 0.5.

9.3.2 Summary of analysis and reasons

Service component

We do not accept TransGrid's proposed caps and collars, which do not comply with the requirements of clause 3.2(e) of the STPIS as the values are not based on a sound methodology. We applied our principles-based approach to test the reasonableness of TransGrid's proposed caps and collars. Our preferred approach results in caps and collars that provide a materially stronger incentive for the TNSP to improve and maintain service performance. This is consistent with the approach that we applied to SP AusNet in 2013 and is a conceptually sound method.

Market impact component

We are not required to determine a market impact parameter performance target because it will be set annually as a rolling average during the 2015–18 regulatory control period. The target for the 2015 calendar year, for example, will be an average of TransGrid's 2012, 2013 and 2014 market impact performance, while actual performance in 2015 will be measured as an average of its 2014 and 2015 performance.

We audited TransGrid's 2011, 2012 and 2013 performance and averaged the performance over those three years to calculate TransGrid's 2014 performance target. We adjusted TransGrid's 2011 performance from 872 to 870 dispatch intervals, its 2012 performance from 737 to 773 dispatch intervals and its 2013 performance remained at 593 dispatch intervals. The reasons for these adjustments are set out in table 11.7 of attachment 11. Consequently, TransGrid's market impact parameter performance target for 2014 is 745 dispatch intervals.¹⁰⁹

Network capability component

We accept TransGrid's proposed priority projects and priority project improvement targets, as submitted on 30 May 2014. We noted TransGrid has worked with AEMO to develop a ranking of the proposed network capability projects. Based on AEMO's recommendation and our review, we consider TransGrid's proposed priority projects and priority project improvement targets are consistent with the STPIS requirements and will result in a material benefit.¹¹⁰

¹⁰⁹ Regarding the target for the last half of 2014, we pro-rate the performance by measuring the average 2013/2014 performance against the average 2011/2012/2013 target and then multiplying by 0.5.

¹¹⁰ AER, *Final – Service Target Performance Incentive Scheme, September 2014, clause 5.2.*

10 Consumer engagement

AER's views on effectiveness of TransGrid's consumer engagement

The AEMC intended that the AER have regard to the nature of consumer engagement undertaken and the outcomes of that engagement.¹¹¹

It is clear that TransGrid put considerable time and effort in consumer engagement in the lead up to the submission of its revenue proposal. Submissions from the CCP and other stakeholders support this view.¹¹² Where views depart is the reliability of the consumer preferences TransGrid cites in its revenue proposal as the results of its engagement, and the weight that we can and should give to these in assessing that proposal. It is also apparent that in a number of respects views put directly to the AER in stakeholder submissions on TransGrid's proposal are not necessarily consistent with those TransGrid has identified as resulting from its consumer engagement. These differing views are discussed below.

AER consumer engagement guideline for service providers

To assist service providers, we developed a consumer engagement guideline for network service providers.¹¹³ Our consumer engagement guideline centres on best practice principles which seek to drive consumer engagement and a commitment from service providers to continuously improve engagement across all business operations. Our guideline is not prescriptive but rather places the onus on service providers to develop consumer engagement strategies and activities that best suit their business. Service providers can do this most appropriately because they are in the best position to understand their consumer base and its issues.

We acknowledge that our consumer engagement guideline has only been in effect since November 2013. Therefore, most network service providers' consumer engagement strategies are reflective of the consumer engagement approaches they already had in place. Since the release of the guideline, most service providers have made steps to improve and implement a consumer engagement strategy in line with our guideline to support their proposals. We encourage all service providers to continue in this positive direction. We also recommend that service providers review stakeholder and Consumer Challenge Panel submissions and consult with them on how their consumer engagement strategies can be improved to provide ongoing and genuine engagement and demonstrate how stakeholder input has shaped future proposals and broader business decisions.

Ultimately, we expect service providers to undertake systematic, consistent and strategic engagement with consumers on issues significant to both parties. As set out in our consumer engagement guideline, we have considered how TransGrid:

- equipped consumers to participate in consultation
- made issues tangible to consumers
- obtained a cross section of views
- considered and responded to consumer views

¹¹¹ AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, November 2012, p. 36.

¹¹² See for example: EUAA submission on TransGrid's revenue proposal, p. 1; EMRF submission on TransGrid's revenue proposal, p. 12; CCP6 submission on TransGrid's revenue proposal, p. 3.

¹¹³ AER, *Consumer engagement guideline for network service providers*, November 2013.

We have made this assessment drawing on TransGrid's proposal and submissions from the CCP and other stakeholders. We have also had regard to extent to which TransGrid's opex and capex proposals reflect consumer concerns identified in the course of its engagement with them.¹¹⁴ Our assessment of these opex and capex factors is detailed in the respective opex and capex attachments.

Equipped consumers to participate in consultation and made issues tangible to consumers

TransGrid used a range of approaches to consumer engagement. These were chosen to capture a representative a sample of views, understandings, priorities and concerns.¹¹⁵ It began its engagement with relatively high level discussions to measure consumers' understanding of TransGrid and the electricity industry, before moving on to specific topics relating to its revenue reset program.¹¹⁶

Different strategies were adopted for:

- Consumer, industry and business groups: workshops by direct invitation, presentations from external experts on pricing and rate of return, one-on-one meetings¹¹⁷
- Large energy users: workshops by direct invitation, presentations from external experts on pricing and rate of return¹¹⁸
- Residential and small business customers: consumer roundtables and deliberative forums (with participants recruited by a market research company), a consumer focussed website and online qualitative survey, and consumer behaviour survey. TransGrid used external market research companies for this part of its engagement.¹¹⁹

Engagement with residential and small business customers also appears to have started earlier, with the first consumer roundtables in May and June 2013.¹²⁰ The first workshops for consumer, industry and business groups and large users were in November 2013.¹²¹

Despite these efforts the CCP remains concerned that TransGrid's engagement was more in the nature of informing consumers of its plans than involving or collaborating with them in the development of its proposal.¹²² In support of this view it refers to submissions from large users to the AER. The Energy Markets Reform Forum described TransGrid's interaction with consumers as:

...more of "this is what we have planned" and "the reliability and availability is this and this is what it costs" rather than "how can we provide the service you need which meets your ability to pay".¹²³

Submissions also express reservations about elements of TransGrid's proposal and the way that they were presented in TransGrid's engagement with consumers. For example, as an illustration of its consideration of consumer feedback in its proposal, TransGrid notes that outcomes of consumer engagement support a slight price increase, within CPI, to maintain the same reliability as now.¹²⁴

¹¹⁴ NER, cll. 6A.6.6(e)(5A) 6A.6.7(e)(5A).

¹¹⁵ TransGrid, *Revenue Proposal*, May 2014, p. 35.

¹¹⁶ TransGrid, *Revenue Proposal*, May 2014, p. 35.

¹¹⁷ TransGrid, *Revenue Proposal*, May 2014, p. 35.

¹¹⁸ TransGrid, *Revenue Proposal*, May 2014, p. 36.

¹¹⁹ TransGrid, *Revenue Proposal*, May 2014, pp. 36–37.

¹²⁰ TransGrid, *Revenue Proposal*, May 2014, p. 36.

¹²¹ TransGrid, *Revenue Proposal*, May 2014, pp. 35–36.

¹²² CCP6, *Submission on TransGrid's revenue proposal*, p. 3.

¹²³ EMRF, *Submission on TransGrid's revenue proposal*, p. 13.

¹²⁴ TransGrid, *Revenue Proposal*, May 2014, pp. 39–40.

Less support was cited for options of paying the same for slightly lower reliability, and slightly less for lower reliability. TransGrid concludes that:

Given that the majority are willing to pay a slight increase to maintain the reliability of the transmission network, and that transmission outages can have widespread effects and significant economic impact, it appears that TransGrid's replacement program is appropriate and aligned with consumers' expectations that TransGrid should maintain the reliability of the network at its current level.¹²⁵

Submissions from large users and their representatives challenge both the assumption that prices must increase in order to maintain current reliability levels (and that the same or lower prices would result in lower reliability), and TransGrid's approach in using this assumption as the premise for its questions.¹²⁶

In contrast, feedback on TransGrid's engagement on its pricing methodology¹²⁷ was consistently positive. The same parties found it a good and constructive dialogue, commending in particular TransGrid's release of a consultation paper to help consumers understand how pricing is undertaken.¹²⁸ This aspect of TransGrid's engagement was described as "a good example where current resources and expertise have been able to have an open dialogue where the ideas and views of all parties have been considered"¹²⁹.

Obtained, considered and responded to a cross section of stakeholder views

As noted above, the range of approaches TransGrid used as part of its consumer engagement strategy were chosen to gather a representative sample of consumer views.¹³⁰ For example, participants in TransGrid's consumer roundtables and deliberative forums were recruited by a market research company to be representative of the demographics of electricity consumers.¹³¹

For consumer, industry and business groups and large energy users, TransGrid held an initial workshop or forum in November 2013 to gather opinions on key elements of its draft proposal and a second workshop on April to explain how feedback had been taken into account and seek further comment.¹³² Some participants felt these forums were more about TransGrid providing its views than about detailed discussion about the issues, and that their comments would have had little impact on TransGrid's revenue proposal.¹³³

TransGrid's proposed pricing methodology again stands out in this respect, and was described in the same submissions as reflecting considerable consumer input.¹³⁴

¹²⁵ TransGrid, *Revenue Proposal*, May 2014, p. 40.

¹²⁶ For example, see: Norske Skog Albury Mill submission on TransGrid's revenue proposal, p. 11; EUAA, *Submission on TransGrid's revenue proposal*, pp. 8-9;

¹²⁷ Our assessment of TransGrid's pricing methodology is discussed in attachment 12.

¹²⁸ For example, see EMRF, *Submission on TransGrid's revenue proposal*, pp. 15-16.

¹²⁹ Norske Skog Albury Mill submission on TransGrid's revenue proposal, p. 20.

¹³⁰ TransGrid, *Revenue Proposal*, May 2014, p. 35.

¹³¹ TransGrid, *Revenue Proposal*, May 2014, p. 36.

¹³² TransGrid, *Revenue Proposal*, May 2014, pp. 35-36.

¹³³ EMRF, *Submission on TransGrid's revenue proposal*, p. 16.

¹³⁴ EMRF, *Submission on TransGrid's revenue proposal*, p. 16.

11 Next steps

TransGrid may submit a revised regulatory proposal in response to our draft decision¹³⁵ within 30 business days of its publication.¹³⁶ We must invite written submissions on the draft decision once we publish that decision, a notice of the making of that draft decision, and a notice of a predetermination conference.¹³⁷ Any person may attend the predetermination conference and make a written submission on our draft decision. The due date for written submissions must not be earlier than 30 business days after the holding of the pre-determination conference.¹³⁸

After considering submissions made on the draft decision and any revised revenue proposal, we must make a final decision and transmission determination.¹³⁹ Key dates for our assessment process are set out in Table 11-1.

Table 11-1 Key dates for our assessment process

Task	Date
TransGrid's regulatory proposal submitted to AER	2 June 2014
Published regulatory proposal and supporting documents	20 June 2014
AER public forum	10 July 2014
Stakeholder submissions on regulatory proposal close	8 August 2014
AER issues draft decision	27 November 2014
TransGrid submits revised regulatory proposal	13 January 2015
Stakeholder submissions on draft decision close	6 February 2015
AER issues final decision	April 2015

¹³⁵ NER, cl. 6A.12.3.

¹³⁶ NER, cl. 6A.12.3(a), 11.58.4(n).

¹³⁷ NER, cl. 6A.12.2(a) and (b).

¹³⁸ NER, cl. 6A.12.2(c), 11.58.4(n).

¹³⁹ NER, cl. 6A.13.1.

Appendix A – Constituent components

Our draft transmission decision includes the following constituent components:¹⁴⁰

Constituent component

In accordance with clause 6A.14.1(i) of the NER, the AER has not approved the total revenue cap set out in TransGrid's building block proposal. Our draft decision on TransGrid's total revenue cap over the 2015–18 regulatory control period is \$2310.5 million (\$ nominal). This decision is discussed in Attachment 1 of this draft decision.

In accordance with clause 6A.14.1(ii) of the NER, the AER has not approved the maximum allowed revenue for each regulatory year of the regulatory control period set out in TransGrid's building block proposal. Our draft decision on TransGrid's maximum allowed revenue (MAR) for each year of the 2014–18 period is set out in Attachment 1 of this draft decision.

In accordance with clause 6A.14.1(iii) of the NER, the AER has decided to apply the service component, network capability component and market impact component of Version 4.1 of the service target performance incentive scheme (STPIS) to TransGrid for the 2015–18 regulatory control period. The values and parameters of the STPIS are set out in section 1.1 of Attachment 11 of this draft decision.

In accordance with clause 6A.14.1(iv), the AER's decision on the values that are to be attributed to the parameters for the efficiency benefit sharing scheme (EBSS) that will apply to TransGrid in respect of the 2015–18 regulatory control period are set out in section 9.1 of Attachment 9 of this draft decision.

In accordance with clause 6A.14.1(v) of the NER, the AER has approved the commencement and length of the subsequent regulatory control period as TransGrid proposed in its revenue proposal. The subsequent regulatory control period will commence on 1 July 2015 and the length of this period is three years from 1 July 2015 to 30 June 2018.

In accordance with clause 6A.14.1(2) and acting in accordance with clause 6A.6.7(d), the AER has not accepted TransGrid's total forecast capital expenditure of \$1,387.4 million (\$2013–14). Our substitute estimate of TransGrid's total forecast capex for the 2015–18 period is \$922.3 million (\$2013–14). This is discussed in Attachment 6 of this draft decision.

In accordance with clause 6A.14.1(3) and acting in accordance with clause 6A.6.6(d), the AER has not accepted TransGrid's total forecast operating expenditure of \$784.5 million (\$2013–14). Our substitute estimate of TransGrid's total forecast opex for the 2015–18 period is \$659.7 million (\$2013–14). This is discussed in Attachment 7 of this draft decision.

In accordance with clause 6A.14.1(4)(i), the AER has determined that the proposed 'Reinforcement Capacity in Southern New South Wales' is a contingent project for the purposes of the revenue determination.

In accordance with clause 6A.14.1(4)(ii), the AER is satisfied that the capital expenditure of \$309 million (\$2013–14) for the 'Reinforcement Capacity in Southern New South Wales' contingent project as described in TransGrid's current regulatory proposal reasonably reflects the capital expenditure criteria, taking into account the capital expenditure factors.

In accordance with clause 6A.14.1(4)(iii), the AER has determined that the triggers proposed by TransGrid for the proposed 'Reinforcement Capacity in Southern New South Wales' contingent project are inconsistent with the NER. Our draft decision includes revised triggers to provide greater certainty as to our approach should TransGrid seek to act on this contingent project.

In accordance with clause 6A.14.1(4)(iv), the AER has determined that the proposed 'Powering Sydney's Future' project is not a contingent project.

In accordance with clause 6A.14.1(5A), the AER has determined that version 1 of the capital expenditure sharing scheme

¹⁴⁰ NEL, s. 16(1)(c).

Constituent component

(CESS) as set out the capital expenditure incentives guideline will apply to TransGrid in the 2015–18 regulatory control period. This is discussed in Attachment 10 of this draft decision.

In accordance with clause 6A.14.1(5B) the AER has decided that the allowed rate or return for the 2015–18 regulatory control period in accordance with clause 6A.6.2 is 7.24 per cent (nominal vanilla), as set out in Table 1 of Attachment 3 of the draft decision. This rate of return will be updated annually because our draft decision is to apply a trailing average portfolio approach to estimating debt which incorporates annual updating of the allowed return on debt.

In accordance with clause 6A.14.1(5C) the AER has decided that the return on debt is to be estimated using a methodology referred to in clause 6A.6.2(i)(2), and using the formula to be applied in accordance with clause 6A.6.2(l). The methodology and formula are set out in section 3.1 of Attachment 3 of this draft decision.

In accordance with clause 6A.14.1(5D) the AER has decided that the value of imputation credits as referred to in clause 6A.6.4 is 0.4. This is set out in section 4.1 of Attachment 4 of this draft decision.

In accordance with clause 6A.14.1(5E) the AER had decided, in accordance with clause 6A.6.1 and schedule 6A.2, that the opening regulatory asset base (RAB) as at 1 July 2014 is \$6146.7 million. This is set out in Attachment 2 of this draft decision.

In accordance with clause 6A.14.1(5F) the AER has decided that the forecast depreciation approach is to be used to establish the RAB at the commencement of TransGrid's regulatory control period (1 July 2018). This is discussed in Attachment 5 of this draft decision.

In accordance with clause 6A.14.1(6) the AER has approved TransGrid's proposed negotiating framework. .

In accordance with clause 6A.14.1(7) the AER has specified the negotiated transmission services criteria for TransGrid in Attachment 14 of this draft decision .

In accordance with clause 6A.14.1(8) the AER has not approved TransGrid's proposed pricing methodology for the 2015–18 regulatory control period.

In accordance with clause 6A.14.1(9) the AER has not approved the additional pass through events TransGrid proposed would apply in accordance with clause 6A.6.9.

We do not accept the following proposed pass through events:

- insurer default event
- cyber-related external attack
- gradual environmental contamination event.

We have proposed substitute definitions for the following two events should TransGrid seek to address this in its revised proposal:

- insurance cap event
- terrorism event

This is set out in Attachment 13 of this draft decision.

Appendix B - Arrangements for transitional period

New rules

In November 2012, the Australian Energy Market Commission (AEMC) introduced major changes to the economic regulation of TNSPs under chapters 6A of the NER (the new rules).¹⁴¹

Prior to the making of the new rules, TransGrid's transmission determination was due to commence on 1 July 2014 and would apply for a period of five years. However, the process was delayed so consumers would receive the benefit of the new rules.

To allow for an expedited transition to the new rules, the AEMC made transitional rules in chapter 11 of the NER under which there would be two regulatory control periods to cover the following periods:¹⁴²

- a regulatory control period covering the period 1 July 2014 to 30 June 2015, referred to in the NER as 'the transitional regulatory control period', and
- a regulatory control period covering the period from 1 July 2015 to 30 June 2018¹⁴³ referred to in the NER as 'the subsequent regulatory control period'.¹⁴⁴

The two periods are separate and distinct,¹⁴⁵ however, our decisions concerning these two periods interact in important ways. This appendix explains why and how.

The transitional determination

For the transitional regulatory control period, we made a fast-tracked placeholder determination on 28 March 2014 for TransGrid. It was made following an abbreviated consultation period and was intended to act as a temporary placeholder for 2014–15 to allow for an expedited transition to the new rules.

In a typical transmission determination there are many constituent components relating to the efficient costs of a service provider. In the placeholder determination these components were not subject to our usual detailed assessment to fast track the decision-making process. Some of the decisions in our placeholder determination therefore merely maintained the status quo that had been operating during the previous regulatory control period of 2009–14. For instance, the NER stipulated that although new regulations had introduced a capital efficiency sharing scheme, no new capital efficiency sharing scheme should apply during the transitional regulatory control period. Similarly, any pass through events that had applied during the 2009–14 regulatory control period should continue to apply during the 2014–15 transitional year. Maintaining the status quo in this way was intended to facilitate making a placeholder determination in the short period of time available to allow the transition to the full operation of the rules for the 2015–18 regulatory control period.

Our most complex, and arguably most important, task when we make a transmission determination is to determine the revenues that a service provider may recover each year through its network charges. For the transitional year, the NER transitional rules introduced a fast-tracked approach to assessing

¹⁴¹ AEMC Final Rule Determination, *National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012.

¹⁴² NER, cl.11.57.1 defines 'transitional regulatory control period' and 'subsequent regulatory control period' Cl. 11.58.2 outlines the requirements of a transitional regulatory proposal and cl.11.58.4 the subsequent regulatory control period

¹⁴³ As discussed in section 2.4, we have approved a three year subsequent regulatory control period for TransGrid.

¹⁴⁴ NER, cl.11.57.1 definitions.

¹⁴⁵ NER, cl. 11.58.4(g).

the expected revenues for that year. Rather than make a detailed assessment of the maximum allowed revenue for the transitional year, we conducted a high level assessment of the key inputs used by the service providers to develop their proposed revenues. We were not satisfied with the proposed revenues for the transitional year and instead determined an alternative maximum allowed revenue by adjusting a limited number of inputs to the service providers' proposals, specifically, the rate of return and value of imputation credits (γ). We approved this estimate for each service provider as a placeholder revenue allowance that would later be adjusted (or 'trued-up') in our determination for the 2015–18 regulatory control period. That is, the difference between the notional revenue approved for 2014–15 under this full determination process and the placeholder revenue would be adjusted for in net present value terms over the maximum allowed revenue (MAR) determined for each year of the 2015–18 regulatory control period.

The full transmission determination for 2014–18

Our determination for the 2015–18 regulatory control period is a full determination made under the new rules.

When making our determination of revenues for this period, we are required to determine the notional annual building block revenue requirement for each year of the 2014–18 period (that is, including the 2014–15 transitional year). The unsmoothed annual building block revenue requirement could be quite different between the amounts submitted for the transitional proposal process and for this full proposal process.

However, when determining the expected MARs we will permit TransGrid to recover through its charges, we smooth the annual building block revenue requirement from year to year. Because the 2014–15 MAR was already determined by the placeholder decision (and charges have already been set using this amount), this smoothing accounts for the placeholder revenue for the transitional year when determining the expected MARs for the three years of the 2015–18 regulatory control period. This process provides a 'true-up' for any difference between the placeholder revenue for the transitional year and our subsequent determination of the MAR for that year, and a general process of smoothing over the 2015–18 regulatory control period.

The effect of this approach is that the MAR we approve over the four years from 2014–18 is calculated under the new rules. In this way the two regulatory control periods are linked. For the purpose of smoothing revenues, the two regulatory control periods are treated as if they had just been one period. For legal purposes generally, however, the two periods remain separate and distinct regulatory control periods.¹⁴⁶

In this determination, we have sought to reflect the transitional arrangements in the following manner:

- When we need to refer to the four years across the period from 2014–18, we use the phrase '2014–18 period'.
- When we need to distinguish 2014–15 from the 2014–18 period, we refer to it as the transitional year.
- When we refer to official regulatory control period, we use the phrase '2015–18 regulatory control period'.

¹⁴⁶ NER, cl. 11.58.4(g).

Implementing the adjustments ('true-up')

As part of our full determination of notional revenues for the 2014–18 period, we have determined further changes to the rate of return and gamma, and reductions to other costs such as capex and opex. As noted above, the placeholder revenue for 2014–15 reflects changes to the rate of return and gamma only. These further changes mean that the 2014–15 placeholder revenue was too high. An adjustment (or 'true-up') therefore needs to occur.¹⁴⁷

The true-up can be measured as the difference between the placeholder revenue for 2014–15 and the notional MAR for 2014–15 determined by the AER in this draft decision. Table B.1 shows how the true-up amount is determined and that \$94.3 million will be returned to customers over the 2015–18 regulatory control period (adjusted for the time value of money).

Table B-1 True-up for TransGrid (\$ million, nominal)

TransGrid	2014–15
AER draft decision – notional MAR	751.1
AER transitional decision – placeholder revenue	845.4
Difference	–94.3

¹⁴⁷ The size of the true-up reflects not only further reductions in costs from the transitional decision but also any difference in the smoothing profile of revenues that occurred between that transitional decision and this draft decision.

Appendix C – Better Regulation Guidelines

The guidelines which we applied in assessing TransGrid's regulatory proposal are summarised below.

Forecasting efficient expenditure

Our Better Regulation expenditure forecast assessment guideline sets out how we assess a business' revenue proposal and how we determine a substitute forecast when required. Businesses must provide economic analysis to justify the efficiency and prudence of their expenditure proposals. In the absence of economic justification we are unlikely to accept their forecast expenditure.

Our general approach is to assess the efficiency of a network business and determine whether previous spending is an appropriate starting point. If there is evidence of inefficiency we will use benchmarks that reflect efficient costs.

To assess a business's revenue proposal, we apply a range of techniques that typically involve comparing the proposal to estimates we develop from relevant information sources. Where these techniques indicate the expenditures are not efficient, we will set our own efficient forecast. These techniques include:

- economic benchmarking—productivity measures used to assess a business's efficiency overall
- category level analysis—comparing how well a business delivers services for a range of individual activities and functions, including over time and with its peers
- predictive modelling—statistical analysis to predict future spending needs, currently used to assess the need for upgrades or replacement as demand changes (augmentation capex, or augex) and expenditure needed to replace aging assets (replacement capex, or repex)
- trend analysis—forecasting future expenditure based on historical information, particularly useful for opex where spending is largely recurrent and predictable
- cost benefit analysis—assessing whether the business has chosen spending options that reflect the best value for money
- project review—a detailed engineering examination of specific proposed projects or programs
- methodology review—examining processes, assumptions, inputs and models that the business used to develop its proposal
- governance and policy review—examining the business's strategic planning, risk management, asset management and prioritisation.

The expenditure assessment guideline also sets out our principles for guiding our reliance on assessment techniques and a business forecasting approach. These include validity, accuracy and reliability, parsimony, robustness, transparency and fitness for purpose.

In the remainder of this section we explain how as part of our determinations we also calculate the rewards and penalties for past performance under our expenditure incentive schemes. In addition, we explain how we combine our approach to incentives with our forecasting approach to ensure consumers will pay no more than necessary for a safe and reliable energy supply.

Forecasting and reviewing capital expenditure

During a determination we assess the business' past capex and future capex needs. We:

- assess the business' proposed forecast of the total capex it needs to spend over the next period
- update the business' RAB to include the capex it spent in the past during the period, excluding any inefficient capex overspend¹⁴⁸
- calculate the rewards and penalties the business will receive under the capital expenditure sharing scheme (CESS) for capex underspends or overspends it incurred during the period.

We assess the business' total capex forecast by considering the efficiency of the proposed expenditure. Our assessment of the total forecast capex can be informed by indicators of overall network performance and risk. We utilise a range of tools to inform that consideration. We have developed a new tool to better forecast the expenditure needed to build, upgrade or replace network assets to address changes in demand (augmentation capex, or augex). This complements our existing tool that examines the expenditure needed to replace aging assets (replacement capex, or repex). We also consider capex forecasts associated with connections and other customer driven work, non-network capex (for example, IT equipment) and the capitalisation of overhead costs.

We will use our capex forecasting techniques to review what the business spent on capex during the period. The capital expenditure incentives guideline sets out our staged process for this ex post review. If a business' capex exceeds what was forecast, we will examine their spending. If we determine all or some of the overspending was inefficient, the business may not be allowed to add the excess spending to its RAB.¹⁴⁹

The CESS rewards or penalties apply automatically to capex underspends or overspends. However, we may adjust the CESS payments to account for:

- Our ex post review—if the business has overspent and we decide under the ex post review to exclude all or some of the overspend from the RAB we will adjust the CESS payments. Otherwise a business could bear more than 100 per cent of the cost of the excluded capex.
- Capex deferrals—a business may have decided to spend capex at a later time than it had previously planned. We refer to this as capex deferral, and a business may defer capex from one regulatory period into the next. We will adjust the CESS payments where a material proportion of capex is deferred. This means consumers will share in the benefits where material amounts of capex are deferred from one regulatory control period to the next. This also helps deter businesses from deferring capex between regulatory control periods unless it is efficient to do so. When assessing forecast capex we will also consider deferrals and the rewards or penalties under the CESS.

Forecasting and reviewing operating expenditure

During a determination we assess the business' past opex spending and future opex needs. We:

- assess the business' proposed forecast of the total opex it needs to spend over the next period

¹⁴⁸ Under transitional rules no ex post adjustments have been made in this determination. See NER, schedule 6A.2.2A, cl. 11.58.5.

¹⁴⁹ We cannot exclude inefficient capex overspends if a business spent the capex prior to 2014, but this timing differs slightly for different businesses.

- calculate the rewards and penalties (carryover amounts) the business will receive under the EBSS for opex performance during the period.

We forecast opex using the approach outlined in our Expenditure Forecast Assessment Guideline. Under this approach, opex is based on an efficient amount of actual expenditure in a single year (known as 'base opex'), which is multiplied by a forecast rate of change for each year of the forecast period. We then add any step changes for efficient costs that are not captured by the base opex or the rate of change.

We prefer to assess base opex using the service providers revealed expenditure in a single year. If revealed expenditure in the base year reasonably reflects the opex criteria, we will set base opex equal to that revealed expenditure. We use a combination of techniques to assess whether base opex is efficient. If we find base opex to be materially inefficient, we either adjust the base year or substitute an appropriate base year. When determining whether to adjust or substitute base year expenditure, we have regard to whether rewards or penalties accrued under the EBSS will fairly share efficiency gains or losses between the service provider and its customers.

We then apply an annual rate of change to base opex to forecast opex for each year of the forecast regulatory control period. The rate of change captures changes in forecast:

- output
- prices
- productivity.

We then add or subtract step changes for any other expenditure not captured in base opex or the rate of change that is required for forecast opex to meet the opex criteria. Step changes should not double count cost included in other elements of the opex forecast: If it is efficient to substitute capex with opex, a step change may be included for these costs (capex/opex trade-offs).

Determining the allowed rate of return

The allowed rate of return is the forecast of the cost of funds a network business requires to attract investment in the network. To estimate this cost, we consider the cost of the two sources of funds for investments—equity and debt. The return on equity is the return shareholders of the business will require for them to continue to invest. The return on debt is the interest rate the network business pays when it borrows money to invest. We consider that efficient network businesses would fund their investments by borrowing 60 per cent of the required funds, while raising the remaining 40 per cent from equity.

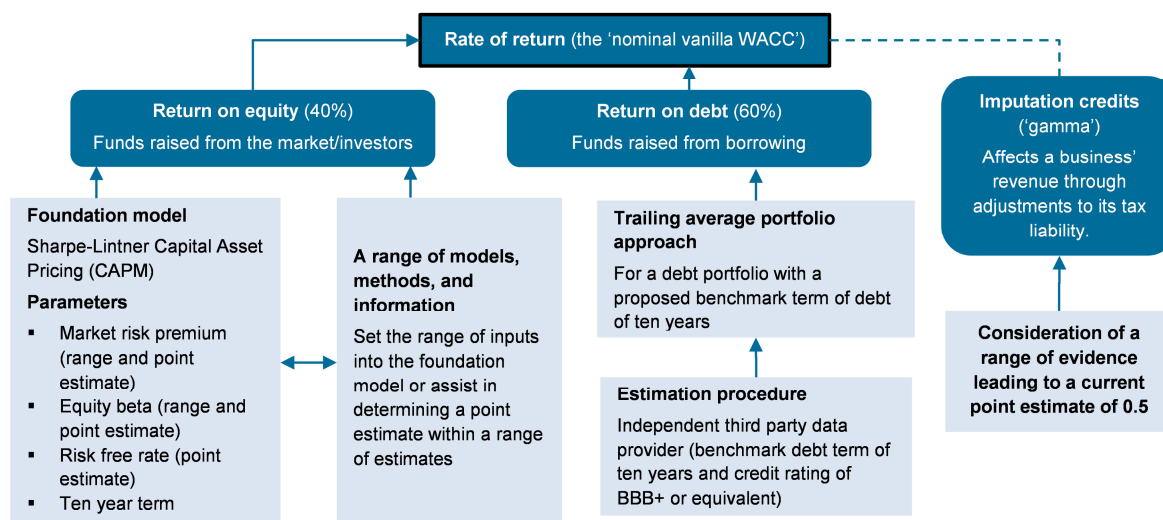
A good estimate of the rate of return is necessary to promote efficient prices in the long term interests of consumers. If the rate of return is set too low, the network business may not be able to attract sufficient funds to be able to make the required investments in the network and reliability may decline. On the flip side, if the rate of return of return is set too high, the network business may seek to spend too much and consumers will pay inefficiently high prices.

The return on investment can make up approximately 50 per cent of revenue needs for network businesses. Our aim is to set a rate of return that delivers sufficient but not excessive returns to support investment in safe and reliable energy networks. The value of the business' capex investments in its RAB is multiplied by the allowed rate of return to determine the total return on

capital the network business can charge energy consumers. So we also aim to set a rate of return that enables business to make efficient choices between capex and opex.

The estimation method set out in our rate of return guideline is shown in figure C.1.

Figure C-1 Better Regulation rate of return guideline estimation method overview



The benchmark efficient business

We estimate the returns on equity and debt for a benchmark efficient business. This approach supports the rate of return objective in the rules—for the overall rate of return to correspond to the efficient financing costs of a benchmark efficient business. By setting a rate of return based on a benchmark, rather than the actual costs of individual businesses, network businesses have incentives to finance their business as efficiently as possible.

We define the benchmark efficient business as one who only provides regulated electricity or gas network services, operating within Australia. This applies to both electricity and gas as the risks across both industries are sufficiently similar such that a single benchmark is appropriate.

Return on equity

Our approach to the return on equity balances providing predictability for investors and consumers while incorporating the latest market data. Recognising there is not one perfect model to estimate the return on equity, our approach draws on a variety of models and information.

Our starting point is the standard Capital Asset Pricing model (CAPM)—our ‘foundation model.’ We then use a range of models, methods, and information to inform our return on equity estimate. We use this information to either set the range of inputs into the CAPM foundation model or assist in determining a point estimate within a range of estimates at the overall return on equity level.

Return on debt

Our approach to the return on debt closely aligns with the efficient debt financing practices of regulated businesses. Our approach is to consider the average interest rate that a network business would face if it raised debt annually in ten equal parcels. This is referred to as the trailing average portfolio approach. This approach assumes that every year, one-tenth of the debt of a network

business is re-financed. As the return on debt is an average of the interest rates over a period of ten years, this approach leads to a relatively stable estimate over time.

Shared asset guideline

The shared asset guideline sets out our approach to sharing the benefits with consumers when a network business is paid for providing unregulated services. We will reduce the amount that business can recover from electricity consumers to reflect the unregulated revenues.

Network businesses have the opportunity to propose alternative approaches. However, we will be unlikely to accept alternatives if they leave consumers worse off than under our approach in the guideline.

The guideline sets out how we reduce consumer costs for shared assets:

- **Materiality:** we will take action when the unregulated revenues from shared assets are more than 1 per cent of a service provider's total annual revenue
- **Method:** we will reduce a service provider's regulated revenues by around 10% of the value of unregulated revenues earned from shared assets
- **Information reporting:** what we'll require from service providers to determine shared asset cost reductions.

Our shared asset mechanism forecasts the annual unregulated revenue that a network business is expected to earn from shared assets.

This forecast is then compared to the revenue that is required to provide regulated services. If the total unregulated revenue is expected to be greater than 1 per cent of the regulated revenue, we will apply a cost reduction.

This clear and transparent materiality threshold balances administrative effort with potential consumer benefits.

The cost reduction will reduce a network business' regulated revenue by 10 per cent of the value of its expected total unregulated revenues from shared assets in that year. This reduces the amount to be recovered from consumers and consequently electricity prices.

The potential value of the cost reduction is capped by the electricity rules, so that the reduction cannot exceed the regulated revenue from those assets.

Consumer engagement guideline for network service providers

The consumer engagement guideline for network service providers sets out a framework for electricity and gas service providers to better engage with consumers. The guideline aims to help these businesses develop strategies to engage systematically, consistently and strategically with consumers on issues that are significant to both parties.

We expect each service provider to develop consumer engagement approaches and strategies that address the best practice principles and the four components of the guideline that are explained below.

Implementing the guideline will help service providers demonstrate how their spending proposals contribute to the objectives contained in the national electricity and gas laws. That is, that their spending proposals promote efficient investment in, and efficient operation and use of, energy services for the long term interests of energy consumers.

Service providers must describe how they have engaged with consumers, and how they have sought to address any relevant concerns identified as a result of that engagement. Service providers present this information in an overview report to their regulatory or revenue proposals.

Underpinning the guideline are four best practice principles. They overarch all aspects of consumer engagement, so service providers should use these principles in undertaking each component of the guideline:

- Clear, accurate and timely communication—we expect service providers to provide information to consumers that is clear, accurate, relevant and timely, recognising the different communication needs and wants of consumers.
- Accessible and inclusive—we expect service providers to recognise, understand and involve consumers early and throughout the business activity or expenditure process.
- Transparent—we expect service providers to clearly identify and explain the role of consumers in the engagement process, and to consult with consumers on information and feedback processes.
- Measurable—we expect service providers to measure the success, or otherwise, of their engagement activities.

The guideline is structured around four components. The components set out a process for service providers to develop and implement new or improved consumer engagement activities to meet the best practice principles:

- Priorities—we expect service providers to identify consumer cohorts, and the current views of those cohorts and their service provider; outline their engagement objectives; and discuss the processes to best achieve those objectives.
- Delivery—we expect service providers to address the identified priorities via robust and thorough consumer engagement.
- Results—we expect service providers to articulate the outcomes of their consumer engagement processes and how they measure the success of those processes reporting back to us, their business and consumers
- Evaluation and review—we expect service providers to periodically evaluate and review the effectiveness of their consumer engagement processes.

Appendix D – Material issues and opportunity to be heard

In considering TransGrid's proposal and in reaching our draft decision, we undertook a range of processes to inform interested parties of material issues under consideration and provided reasonable opportunities to be heard.

The newly formed Consumer Challenge Panel (CCP) played a significant role in our processes of assessing the proposal before us. The CCP advised us on issues that are important to consumers and provided consumer perspectives, particularly those of residential and small business consumers. Members of the CCP bring with them experience in regulation, networks, economics, finance and consumer engagement.¹⁵⁰

The purpose of the CCP is to assist us to make better regulatory determinations by providing input on issues of importance to consumers. Regulatory determinations are technical and complex processes which can make it difficult for ordinary consumers to participate. The expert members of the CCP bring consumer perspectives to us to better balance the range of views we consider as part of our decisions.

The role of CCP members includes:

- advising us on whether a TNSP's proposal is justified in terms of the services to be delivered to customers; whether those services are acceptable to, and valued by, customers; and whether the proposal is in the long term interests of consumers
- advising us on the effectiveness of a TNSP's engagement with its customers and how this engagement has informed, and been reflected in, the development of its proposal.

The CCP provided advice on TransGrid's regulatory proposal which was published on our website.¹⁵¹ We address the detail of the CCP's submission in conducting our detailed analysis (see attachments).

In short, the CCP does not support TransGrid's regulatory proposal as being in the long term interests of consumers.

In response to TransGrid's regulatory proposal, we also received eight submissions.¹⁵² Appendix E lists all submissions received. We regularly engaged with TransGrid both before and during the review, to seek information and clarification on issues relevant to the 2014–18 period.

Consultants

We commissioned the following independent consultants for our draft decision:

- Deloitte Access Economics, for advice on forecast growth in labour costs
- Energy Market Consulting associates (EMCa), for advice on technical aspects of TransGrid's past and forecast expenditure (capex)

¹⁵⁰ AER, *Statement of intent 2014–15 to COAG Energy Council*, 2014, p. 5. CCP members involved in the TransGrid reset are Mr Hugh Grant and Ms Ruth Lavery. Member biographies and information on the CCP is available at www.aer.gov.au/node/19305.

¹⁵¹ CCP advice is available at www.aer.gov.au/node/11483.

¹⁵² All submissions are available at www.aer.gov.au/node/11483.

- Economic Insights for advice on benchmarking
- Professor Olan Henry, University of Liverpool, Professor Michael McKenzie, University of Liverpool, Associate professor Graham Partington, University of Sydney, Associate professor John Handley, University of Melbourne and Associate professor Martin Lally, Victoria University of Wellington, for advice on rate of return.

We engaged these consultants to help us determine whether technical aspects of TransGrid's proposal are reasonable. The consultants' advice also helps us develop our substitute expenditure forecast (if required). While we seek the consultants' advice and expertise to help understand the proposal from a technical perspective, we are not bound to use the consultants' forecast or adjustments as a replacement. We use judgment in adopting their advice and consider a broader array of interconnecting information including engineering, economic and legal matters.

Internal expertise

We also boosted our internal expertise by appointing four in-house technical advisors to provide us with greater industry expertise, particularly in power system engineering. The new technical advisor group was established in late October 2013. They bring significant technical knowledge and electricity industry experience to the AER.

The technical advisors complement the internal expertise we have already developed. They have improved our use of external consultants and helped implement new regulatory approaches developed under the Better Regulation program. Our staff are also assisted by the ACCC/AER Regulatory Economic Unit (REU). REU comprises seven specialist economists who provide advice to the ACCC's regulatory areas, including the AER, whose staffing and support are provided by the ACCC. Six of the seven REU economists have PhDs in economics and related fields.

Appendix E – List of submissions

We received eight submissions in response to TransGrid's regulatory proposal:

- Consumer challenge panel
- Powerlink
- ElectraNet
- Norske Skog Paper Mills (Australia) Limited
- Origin Energy
- a group of Australian electricity generators¹⁵³
- EnerNOC Pty Ltd
- Energy Users Association of Australia (EUAA)
- The Energy Markets Reform Forum (EMRF).

¹⁵³ Delta Electricity, Snowy Hydro, Stanwell Corporation, ERM Power, Hydro Tasmania, Energy Australia, GDF Suez Australian Energy, Alinta Energy, Origin Energy and CS Energy provided a joint submission.