TransGrid

Transitional revenue proposal

2014/15

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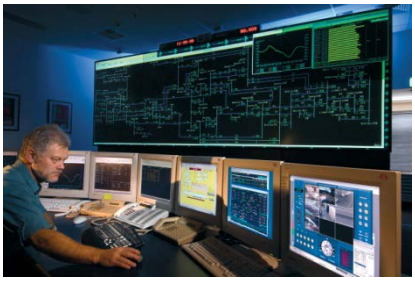

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1 Executive Summary

TransGrid is pleased to present its transitional revenue proposal for the 2014/15 year.

TransGrid is the major electricity transmission network service provider in New South Wales and the Australian Capital Territory. TransGrid's role is to provide efficient, reliable transmission services to New South Wales, the Australian Capital Territory and the National Electricity Market.

TransGrid has worked hard in the current regulatory control period to pursue efficiencies, implement continuous improvement programs, manage costs and defer expenditure where prudent. These achievements benefit consumers in this proposal, in which TransGrid has contained forecast revenue growth no higher than CPI for 2014/15 to 2018/19.

This transitional revenue proposal sets out the indicative expenditure and revenue TransGrid requires in accordance with the transitional arrangements established in the *Economic Regulation of Network Service Providers* rule change in 2012.

This is a "placeholder" revenue proposal for the 2014/15 year which will effectively be set aside when the Australian Energy Regulator (AER) makes its decision on the full revenue proposal. The transitional revenue proposal provides indicative estimates only and does not constrain the actual or revised forecasts and other information to be submitted in the full revenue proposal in May 2014. The full revenue proposal will contain the most current, up to date forecasts of the expected costs and activities of the business.

A Changing World

The five years since TransGrid's last revenue proposal have seen a time of unprecedented change in the electricity industry. At the time of lodgement of the last revenue proposal the recent level of economic uncertainty had not been anticipated, a less ambitious renewable energy target applied, take-up of energy efficiency initiatives was minimal and solar bonus schemes in New South Wales and the Australian Capital Territory had not commenced.

TransGrid is responsive to the changing world. It has deferred over $600 million of capital expenditure in response to changes in electricity demand patterns. Consumers directly benefit from these decisions in this revenue proposal, with forecast revenue over the next five years some $230 million lower due to the deferrals. TransGrid has connected renewable generation, pursued low-cost methods of improving the capacity of flow paths and improved project initiation and delivery processes to be able to respond more rapidly when short notice needs arise.

As demand forecasts remain subdued, TransGrid has responded and this proposal features significantly less capital expenditure for network augmentations than previous proposals.

Priced Affordably

In recent years significant price rises have occurred for all electricity consumers. TransGrid understands that electricity is an essential service, and that consumers should pay no more than necessary for their electricity supply.

While transmission is a small component of most bills, at approximately 7% on average for residential and small business consumers, TransGrid understands that every dollar is important and that recent electricity price rises have added to household and business financial pressures.

In 2012 TransGrid announced a revenue freeze for 2013/14, in order to reduce volatility in prices. This initiative was intended to minimise the price impact of TransGrid's transmission services on consumers.

Electricity consumers in New South Wales and the Australian Capital Territory currently pay amongst the lowest transmission costs in the National Electricity Market. This proposal forecasts revenue increases no higher than CPI over the next five years to continue this trend.

Efficient

TransGrid's efficiency has been demonstrated over many years through benchmarking studies with both Australian and international peers.

TransGrid is commercially focused and has responded to the incentives established by the AER. In particular, in the current regulatory control period TransGrid has undertaken a thorough review of its business activities, improving efficiencies and reducing costs. Consumers will benefit from these initiatives through TransGrid's lower forecast expenditure requirements from July 2014. These changes are most significant in operating expenditure for business support.

The expenditure forecasts in this proposal comprise the efficient costs required to sustainably provide the transmission services on which the people of New South Wales and the Australian Capital Territory depend.

Asset Renewal for Sustainability

The interconnected electricity transmission network in New South Wales was first developed in the mid 1950s and 1960s, with a large number of assets commissioned at that time. The interconnected network was developed to improve efficiency and reliability above that of individual networks with local generation that existed at the time.

Transmission equipment is typically designed and manufactured with an intended life, on average, of around 40 to 50 years. To date TransGrid has mainly undertaken replacement and refurbishment of individual items of equipment to keep existing substations operational at the lowest cost. This has been an appropriate strategy in the current and previous regulatory control periods.

However, when the majority of equipment in a substation reaches the end of its serviceable life or the majority of structures on a transmission line reach the end of their serviceable lives at around the same time, a complete rebuild can be a more prudent and economic option.

TransGrid has included a number of substation and transmission line renewal projects in this proposal, as substations and transmission lines constructed in the 1950s and 1960s have started to reach a condition that reflects the end of their serviceable lives. Given the significant number of assets constructed when the transmission network was first developed, this has led to a material increase in the number of assets requiring replacement over the next five years.

TransGrid has proposed an asset renewal program in this proposal that comprises the most economic combination of replacement and refurbishment options to ensure a sustainable electricity supply. The asset renewal program is essential to ensure the safety of staff, contractors and the public and maintain a reliable electricity supply.

Informed by Consumers

Given the importance of the revenue reset to TransGrid and all electricity consumers, TransGrid is undertaking a comprehensive consumer engagement program to ensure the full revenue proposal takes into consideration consumers' perspectives and priorities.

Consumer workshops have been held to discuss operating expenditure, capital expenditure, incentive schemes, demand management, pricing methodology and the rate of return. The workshops have sought to explore aspects of the revenue proposal to better understand the most important aspects from a consumer's perspective and understand if TransGrid's priorities and objectives are aligned with consumers.

Workshops have been held with residential consumers, small and medium businesses, large industrial and commercial customers and a range of consumer representative groups. This has been supplemented by TransGrid's "Have Your Say" website that has shared the workshop content and findings to maximise the opportunities for all consumers to share their perspectives and priorities with TransGrid and request further information.

TransGrid also published a Pricing Methodology Consultation Paper to assist consumers and stakeholders in formulating their views on TransGrid's Pricing Methodology. The consultation paper considers the principles and issues that must be addressed in efficient transmission pricing. Public submissions were sought and a program developed to ensure consumers and stakeholders are informed and involved throughout the development of TransGrid's Pricing Methodology.

Feedback from consumers has had a direct impact on TransGrid's approach to network support solutions and the Pricing Methodology. It will also ensure ongoing and improved consumer and community engagement. TransGrid's newly developed community consultation on major capital projects was strongly endorsed by both large energy users and consumer representative groups. This new approach is being implemented on TransGrid's "Powering Sydney's Future" project, which is examining supply requirements to the Sydney CBD.

In addition, valuable feedback has been received on the information consumers need to understand, and have confidence in, TransGrid's capital expenditure plans. Understanding the perceptions with which consumers approach the industry and the information they need to interpret the revenue proposal will result in a more accessible and transparent revenue proposal when TransGrid submits its full revenue proposal in May 2014.

In the Interests of Consumers

This proposal has been prepared to align with the National Electricity Objective and be in the long term interests of consumers.

Capital expenditure is forecast to be around 20% lower in the next five years than in the current regulatory control period. This reflects the recent changes in electricity demand patterns but still ensures TransGrid is able to maintain the reliability and safety of the transmission network. The impact on transmission revenues from forecast capital expenditure assists TransGrid in keeping revenue requirements below CPI.

Operating expenditure trends at less than 0.6% above CPI on average over the next five years. The first year's increase is primarily driven by enhanced consumer and community engagement, regulatory obligations arising from new guidelines issued by the AER and a demand management initiative endorsed by consumers. A forecast increase in labour costs primarily accounts for the trend in later years.

To minimise price rises for consumers, TransGrid has ensured its smoothed revenue forecast increase is no higher than CPI for 2014/15 to 2018/19. From the maximum allowed revenue in 2013/14, consumers would see a 3% real decrease in average transmission prices in 2014/15 followed by price changes below CPI over the remaining years. From TransGrid's revenue freeze in 2013/14, it is a 5% real increase in average transmission prices in 2014/15 followed by price changes below CPI over the remaining years.

Estimated Maximum Allowed Revenue

TransGrid's revenue path for 2014/15 to 2018/19 remains in line with CPI despite a number of external pressures on costs. The most notable of these pressures is due to forecast growth in a range of industries in which New South Wales is strong,[1] which is expected to place pressure on labour rates in excess of CPI.

The indicative maximum allowed revenue for 2014/15 to 2018/19, based on indicative inputs, is shown in Table 1.1.

[1] Deloitte Access Economics, *Positioning for Prosperity? Catching the Next Wave*, 2013, p19 and Deloitte Access Economics, *Business Outlook*, September 2013, p94.

Table 1.1
Indicative Revenue ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19
Return on Capital	543	569	596	629	657
Return of Capital (Regulatory Depreciation)	92	104	116	98	110
Operating Expenditure	192	196	199	206	216
Efficiency Carryover	25	10	12	21	4
Tax Allowance	46	49	69	71	75
Unsmoothed Revenue	**897**	**929**	**992**	**1,026**	**1,062**
Smoothed Revenue	**930**	**953**	**977**	**1,002**	**1,027**
X-Factor	**2.92%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Source: TransGrid. Totals may differ due to rounding.

TransGrid's proposed transitional revenue for 2014/15 is $930 million. Taking into consideration the outlook over the next five years, this represents the smoothest revenue path for consumers.

The mix of capital expenditure in 2014/15 to 2018/19 is significantly different from any period in recent history for TransGrid. In particular load driven investment is small, reflecting the significant change in recent electricity usage. In contrast, replacement expenditure has increased significantly from that of the current regulatory control period, reflecting many of the assets built during the establishment of the transmission network in the 1950s and 1960s reaching the end of their serviceable lives.

The indicative forecast capital expenditure for 2014/15 to 2018/19 is shown in Table 1.2.

Table 1.2
Indicative Forecast Capital Expenditure ($m nominal)

Category	2014/15	2015/16	2016/17	2017/18	2018/19
Augmentation	60	58	131	96	32
Replacement	245	258	263	202	191
Security/Compliance	30	39	49	71	62
Support the Business	40	42	36	36	35
Total	**375**	**396**	**479**	**405**	**320**

Source: TransGrid. Totals may differ due to rounding.

2 Introduction

TransGrid is pleased to present its transitional revenue proposal for the 2014/15 year.

TransGrid is the major electricity transmission network service provider in New South Wales and the Australian Capital Territory. Its network transmits electricity from generators to directly connected large energy users and distribution networks, which in turn distribute electricity to local households and businesses.

The network provides an essential service to New South Wales and the Australian Capital Territory, including both the national capital and the largest state capital city in Australia. Over 7 million consumers rely on TransGrid's network to provide them with the electricity supply on which they have come to depend.

TransGrid's network is the backbone of the National Electricity Market (NEM), enabling energy trading between the three largest states along the east coast and supporting the competitive wholesale electricity market.

TransGrid's role is to provide efficient, reliable transmission services to New South Wales, the Australian Capital Territory and the National Electricity Market.

2.1 Background

This transitional revenue proposal sets out TransGrid's indicative estimated maximum allowed revenue for the 2014/15 transitional year, together with the supporting information required by the National Electricity Rules (Rules).[2]

The need for a transitional revenue proposal arose from the *Economic Regulation of Network Service Providers* rule change published by the Australian Energy Market Commission (AEMC) in November 2012. While essentially maintaining the regulatory framework, the rule change reduced the level of prescription in the National Electricity Rules and required the AER to publish six guidelines on its approach to a number of aspects of regulation.

To provide sufficient time for the guidelines to be published and apply to upcoming revenue determinations, the full determination process for network service providers due to lodge proposals in 2013, including TransGrid, was deferred by a year.

The transitional revenue determination process is an abridged process to set a maximum allowed revenue for the first year of the upcoming regulatory control period. This revenue will

[2] The requirements of a transitional revenue proposal are set out in Rule 11.57.2(b) with additional information in Rule 11.58.2(b).

effectively be a "placeholder" revenue, and the revenue requirements for 2014/15 will be reviewed in full by the AER when assessing the full revenue proposal. The difference in revenue between the transitional and full determinations will be adjusted in the full revenue determination.

Accordingly the AER's transitional determination will only apply for the 2014/15 year and only until the AER replaces it with its full revenue determination in April 2015.

2.2 Length of Transitional Regulatory Control Period

The transitional regulatory control period is a one year period, the 2014/15 financial year.

To ensure a stable price path for consumers, revenue is generally smoothed across a regulatory control period. As the 2014/15 year will ultimately be part of the subsequent regulatory control period, and the transitional arrangements in the National Electricity Rules require indicative forecasts to be provided for four years after the transitional year,[3] this transitional proposal takes into account expected revenue smoothing over a five year period. Accordingly, five year forecasts are included in the transitional revenue proposal.

The transitional revenue proposal provides, amongst other things, an indicative estimate of forecast capital expenditure and operating expenditure. It provides an indicative range for the rate of return, which takes into account available market information and expected market trends, and has regard to the *Rate of Return Guideline* published by the AER in December 2013.

Some differences in forecasts between the transitional proposal and the final full revenue proposal to be submitted in May 2014 should be expected, largely due to the passage of time and as new information becomes available.

The rate of return forecast has been prepared in a very short time from the AER publishing its final guidelines. These guidelines represent a fundamental change to arrangements for calculating the rate of return and more work will be undertaken prior to submission of the full revenue proposal.

Although TransGrid has provided five year forecasts in this transitional revenue proposal, it intends to propose a four year regulatory control period in the full revenue proposal, comprised of the 2014/15 transitional year and three subsequent years. The adoption of a four year regulatory control period supports the AEMC's goal of alignment of electricity transmission revenue determinations.

2.3 Confidential Information

TransGrid has not identified any aspects of the transitional revenue proposal document to be confidential.

2.4 The Importance of Price

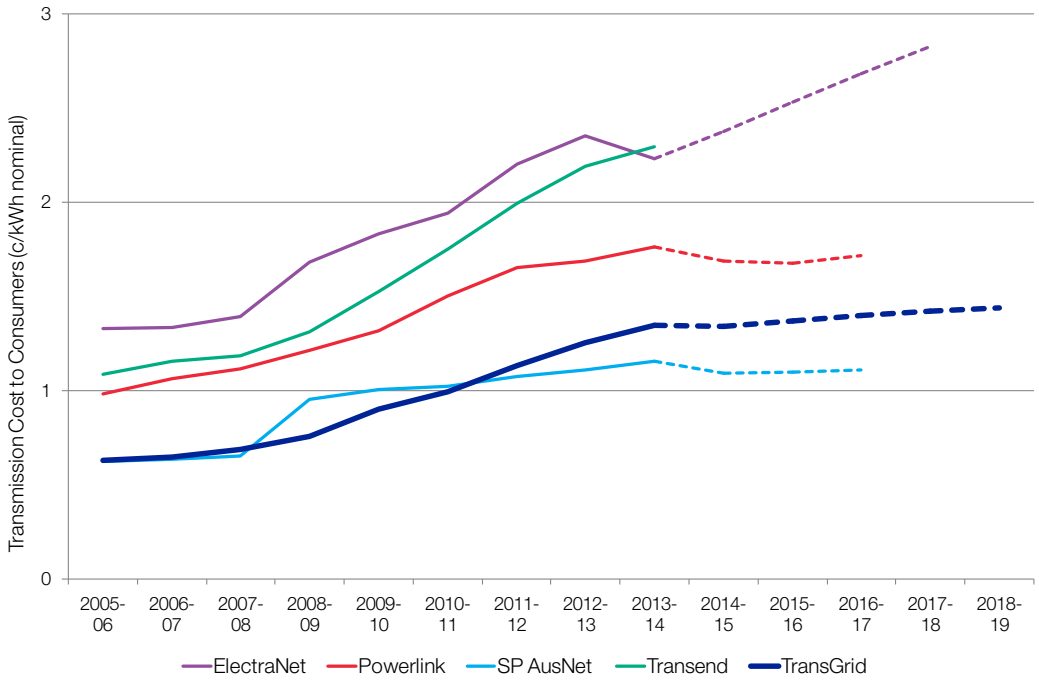
In recent years significant price rises have occurred for all electricity consumers. TransGrid understands that electricity is an essential service, and that consumers should pay no more than necessary for their electricity supply. While transmission is a small component of most bills, at approximately 7% on average for residential and small business consumers,

[3] *National Electricity Rules*, Rule 11.58.2(b)(6).

TransGrid understands that every dollar is important and that recent electricity price rises have added to household and business financial pressures. For households, an affordable electricity service is essential in an environment of increasing pressures on the cost of living. For small businesses and large industrial users, an affordable electricity service can provide the competitive edge in Australian and international markets.

Electricity consumers in New South Wales and the Australian Capital Territory currently pay amongst the lowest transmission costs in the NEM, and this proposal seeks to maintain this position. Figure 2.1 shows the historical and forecast contributions of the major transmission networks in the NEM to an indicative consumer bill.

Figure 2.1
Transmission Cost to Consumers



Source: AER performance reports, revenue determinations and SP AusNet 2014-2017 revised proposal.

In 2011 the AEMC published a report on trends in residential electricity price movements and the drivers behind those trends. For New South Wales it found that transmission was the least contributor to electricity price rises, as shown in Table 2.3.[4]

[4] AEMC, *Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014*, 25 November 2011, p34. The AEMC has published more recent reports in 2012 and 2013 on retail electricity price movements, however as the reports consider future price movements the 2011 report best represents recent increases. Further, the 2012 report notes that due to changes in distribution pricing bands its figures are not representative of TransGrid's contribution to price movements.

Table 2.3
Contributors to Electricity Price Movements in New South Wales

Component	Percentage of Price Increase
Wholesale energy, including the effect of price on carbon	38%
Distribution	36%
Green energy	12%
Retail	7%
Transmission	6%

Source: AEMC, *Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014*, 25 November 2011.

TransGrid understands that although transmission is a small component of most bills, every dollar is important.

In 2012 TransGrid announced a revenue freeze for 2013/14, in order to reduce volatility in prices. Further, this proposal forecasts revenue growth that is no higher than CPI for the following five years. These initiatives are intended to minimise the price impact of TransGrid's transmission services on consumers on an ongoing basis, and are reflected in the forecasts in Figure 2.1.

2.5 Transition to the New National Electricity Rules

In accordance with the National Electricity Rules, this transitional proposal is based on Chapter 6A except where it is varied by the transitional rules in Chapter 11, Division 3 as follows:

- The current negotiating framework and pricing methodology will continue to apply in the transitional year.
- An overview paper is not required.
- No Regulatory Information Notice has been served for the transitional proposal.
- The Framework and Approach paper to apply to the full proposal (including the transitional year) is not due to be published until the date of submission of this transitional proposal.

The proposed rate of return in this proposal must, amongst other things, have regard to the new *Rate of Return Guideline*.

The requirements for the transitional revenue proposal are specified in the replacement clauses set out in 11.57.2(b) of the National Electricity Rules:

(a) An affected TNSP must submit a transitional Revenue Proposal to the *AER* at least 5 months before the expiry of the current regulatory control period of that affected TNSP.

(b) A transitional regulatory proposal must include (but need not be limited to) the following matters:

(1) an amount that the affected TNSP proposes will be the *maximum allowed revenue* for the transitional regulatory control period, it being acknowledged that such amount will

not be calculated in accordance with the provisions of the Rules that would otherwise apply to the calculation of the *maximum allowed revenue*; and

(2) the matters referred to in clause 6A.10.1(f)(2) of current Chapter 6A.

(c) The *Revenue Proposal* must comply with the requirements of, and must contain or be accompanied by such information as is required by, any relevant *regulatory information instrument*.

The requirements for information to accompany the transitional revenue proposal are specified in Rule 11.58.2(b):

At the same time as an affected TNSP submits its transitional Revenue Proposal to the AER, it must also submit the following accompanying information to the AER:

(1) an indicative estimate of the value of the regulatory asset base for the relevant *transmission system* as at the beginning of the transitional regulatory control period;

(2) an indicative range for the rate of return that should be applied to the regulatory asset base referred to in subparagraph (1), which takes into account available market information and expected market trends, and has regard to the *Rate of Return Guidelines* published by the AER;

(3) an indicative estimate of forecast operating expenditure and capital expenditure for the transitional regulatory control period;

(4) an indicative estimate of the cost of corporate tax and depreciation for the transitional regulatory control period;

(5) an indicative range of the affected TNSP's revenue requirements, for the provision of *prescribed transmission services*, for the transitional regulatory control period and for each of the subsequent four *regulatory years*, which is based on the information and inputs referred to in subparagraphs (1) to (4) and such other information or inputs as the affected TNSP considers to be relevant and as it includes in the information that accompanies the transitional Revenue Proposal;

(6) a summary of the affected TNSP's plan for expenditure for the transitional regulatory control period and the subsequent four *regulatory years*, together with an explanation of how this proposed expenditure is consistent with the proposed *maximum allowed revenue* that is set out in the transitional Revenue Proposal;

(7) the revenue that the affected TNSP estimates it will earn from the provision of *prescribed transmission services* during the last *regulatory year* of its current regulatory control period; and

(8) such other information or inputs as the affected TNSP considers to be relevant to the approval by the AER, under clause 11.58.3, of its *maximum allowed revenue* for the transitional regulatory control period.

This transitional proposal includes the information required by both Rules 11.57.2(b) and 11.58.2(b).

2.6 Consumer Engagement

TransGrid has commenced a comprehensive consumer engagement program. One of the initial outcomes of this program is to ensure this proposal takes into consideration current consumers' issues and priorities. The consumer engagement program is being established as an ongoing dialogue between TransGrid and consumers that will inform TransGrid's business plans into the future.

A range of approaches has been taken to consumer engagement to capture as representative a sample of views, understandings, priorities and concerns as possible. The program started by talking to consumers at a relatively high level as TransGrid developed a clearer understanding of the baseline understanding of TransGrid and the electricity transmission sector. From there it moved progressively to specific topics to engage on the detail of the revenue reset program, with a focus on the topics of interest or priority for consumers.

Features of the program and specific outcomes will be discussed in greater detail in the full revenue proposal. Nevertheless a summary of the activities to date is as follows.

Consumer Roundtables

The program commenced with consumer roundtables in Parramatta and Dubbo to understand high level views of consumers in both urban and rural areas. These consumers were engaged by a market research firm to be representative of the demographics of electricity consumers. This stage has been used to inform later stages of development of the consumer program.

More detailed full day consultation with representatives from consumer groups, independent think tanks, local government, environment groups and large energy users followed. Representatives were engaged by direct invitation and travel expenses were covered where requested. These workshops sought to drill into aspects of the revenue proposal to better understand the most important aspects from a consumer's perspective, and sought to understand if TransGrid's priorities and objectives were aligned with consumers. Understanding where consumers felt there was need for change in how TransGrid undertook its business was a priority of the consultation.

Feedback from these workshops has had a direct impact on TransGrid's approach to network support solutions, consumer engagement and pricing methodology. In addition, feedback on TransGrid's newly developed community consultation on major capital projects was strongly endorsed. This approach is being implemented in TransGrid's "Powering Sydney's Future" project which is examining potential network needs to supply the Sydney CBD. Further information on this project is available on TransGrid's website.

Valuable feedback has been received on the information consumers need to understand and have confidence in TransGrid's capital expenditure plans. Improving TransGrid's understanding of the perceptions with which consumers approach the industry, and the information they need to interpret the revenue proposal, will result in a more accessible and transparent full revenue proposal in May 2014.

Consumer Website

A consumer focussed website was developed that allows TransGrid to continue the thematic discussion with consumers, drawing on the insights taken from the consumer workshops. The website encourages consumers to "Have Your Say" and comment on aspects of the revenue proposal and TransGrid's operations and plans that are of interest or importance to them. The full content from the workshops was also placed on the website alongside independently prepared reports of the sessions to invite a broader base of consumers into the conversation.

For more information on TransGrid's consumer program and what consumers have been saying please go to www.yoursaytransgrid.com.au.

Deliberative Forums

TransGrid reflected on the content of the full day workshops with consumer representatives and large energy users, and then went back to consumers with a series of market research focus groups known as deliberative forums. These are shorter, more focused and structured forums to seek consumers' views on specific aspects of TransGrid's plans. As with the consumer roundtables, participants were engaged via a market research firm to ensure demographic representation. The forums were held in the Sydney CBD, Parramatta and Wagga Wagga. Key outcomes and TransGrid's response are discussed in Section 2.6.1 on page 17.

Consumer Survey

A survey was undertaken of more than 1,000 consumers on their energy consumption attitudes, current behaviours and future intentions. This information was gathered to help interpret energy forecasts and inform future planning requirements. The information gathered in this survey has allowed TransGrid to better assess the need for contingent projects in the revenue proposal.

Improvements to Community Consultation Processes

Over the last 18 months TransGrid has undertaken a number of measures to improve its consultation with the community, and how it plans and delivers projects to communities.

In 2012-2013 TransGrid openly participated in the *Review of Electricity Supply to the Mid North Coast* by Robert Rollinson, and is pleased to note that a large number of the recommendations from the review have already been advanced. In response to this review, TransGrid revised its approach to community engagement and commissioned its own external and public review of its project consultation practices.

The resulting report, *TransGrid Review of Public Consultation* by the RPS Group, has assisted TransGrid to revise its approach to community and stakeholder engagement. TransGrid has committed to opening up its planning processes, engaging with the community from the onset of a project and consulting with the community over the full life cycle of a project. This change represents a significant shift in the way in which TransGrid communicates with its stakeholders by starting conversations with the community earlier, involving the community in decision making processes, and collaborating with them to develop effective, sustainable and holistic energy solutions.

TransGrid also publishes *The Buzz* e-newsletter which updates TransGrid's customers and interested stakeholders on business operations, community investment and other matters.

Annual Planning Report

Each year TransGrid publishes a Transmission Annual Planning Report, a public document which provides clear and relevant information on TransGrid's proposed network investment portfolio. A public forum is held each year to present the key features of the Annual Planning Report. Typically this forum is attended heavily by industry representatives. TransGrid is currently reviewing how to best broaden participation in this event. TransGrid's aim is to provide the public with a better understanding of the state's high-voltage transmission network and TransGrid's role on a day-to-day basis.

2.6.1 Key Outcomes of Consumer Engagement

Price/Reliability Balance

In the deliberative forums with residential and small business consumers, TransGrid sought views on consumers' willingness to pay for reliability. Responses showed that almost two thirds of consumers are willing to pay an increase of around $4 per year, which is within CPI, to maintain current levels of reliability. Almost one third would prefer to pay the same as now and accept slightly more blackouts, and a small number would prefer to pay slightly less than now and accept more blackouts.

The outcome of this consultation is that there is a good level of consumer support for investment levels consistent with the transitional revenue proposal and TransGrid's investment program is well aligned with the majority of consumers' priorities.

Demand Forecasts

At the large energy users forum, concern was raised that demand forecasts may not sufficiently take into account the challenges facing the manufacturing sector at the present time and may be optimistic. Given this uncertainty, TransGrid is assessing its capital portfolio against a scenario of falling peak demand to establish the sensitivity of the program to this. TransGrid will provide further detail on the outcomes of this review in the full revenue proposal. Whilst TransGrid must plan in accordance with the best available forecasts, TransGrid has reviewed its capital governance process to ensure investment decisions are made as "late" as possible in the investment process, and repeatedly reviewed right up to letting of contracts for construction.

Demand Management

At all consumer forums TransGrid presented its historical approach and current initiatives relating to demand management. Consumers were generally supportive of initiatives to reduce peak demand and reduce or defer network investment.

At the forums TransGrid sought consumers' views on how aggressively it should continue to pursue initiatives to encourage demand management, given that much of the work in this area is in research or pilot programs. TransGrid put to consumers the concept of an increase in the demand management innovation allowance of $2 million per year to more aggressively pursue developments in this area. Large energy users were supportive of increased encouragement of demand management, subject to a value proposition. The majority of residential and small business consumers also supported the increase.

In response to consumer support for an increased effort to encourage demand management, TransGrid has proposed a demand management innovation allowance of $3 million per year in the upcoming regulatory control period, which is an increase of $2 million per year compared to the current regulatory control period. Further detail will be provided in the full proposal.

Project Consultation

TransGrid presented a new approach to consultation on major projects at the forums, which it has adopted following recent reviews of its consultation processes by the AER, Robert

Rollinson,[5] and RPS Group,[6] an independent consulting firm. One of the key changes of the new approach is to start to consult with the affected community earlier, at the stage of establishing the project need, and in the context of the changing world. This encompasses the consideration of factors beyond demand forecasts such as demographics, consumer behaviour, third party demand side initiatives and other relevant trends.

Consumers strongly supported TransGrid's improved approach to consultation.

Management of Stranded Assets

Recent declines in electricity demand, together with growth in embedded generation such as domestic solar, have raised uncertainty about future trends in electricity demand. A range of plausible scenarios for the future have been identified, including the prospect of consumers going "off grid", that is, being entirely self sufficient with local electricity supplies rather than taking supplies from the grid or having the grid as a backup.

Consumer representatives at TransGrid's consumer representative forums asked TransGrid to consider the implications of commissioning assets with lives of 40 to 50 years now, when some of these assets may progressively not be required over the next 20 to 30 years if consumers disconnect from the grid. These assets would then be stranded assets.

TransGrid has considered this possibility in the context of its long term asset management plans. If assets progressively become stranded over 20 to 30 years TransGrid would be able to respond by:

- relocating high voltage equipment to replace other equipment requiring replacement, avoiding the procurement cost of new equipment;
- reusing or recycling other substation infrastructure such as steelwork; and
- selling property or making it available for other infrastructure such as community electricity storage.

To date TransGrid has not been approached by communities seeking to disconnect from the grid, however it will continue to monitor electricity demand and the potential for communities to go "off grid" and respond accordingly.

Pricing

In November 2013 TransGrid issued a consultation paper on transmission pricing, as part of the review of its Pricing Methodology for the upcoming regulatory control period. Whilst this is not a requirement of the regulatory process it is an issue of high importance for consumers.

As submissions have closed recently, the outcomes of this consultation are still being assessed and will be reflected in the Pricing Methodology submitted to the AER in May 2014.

[5] Robert Rollinson, *Review of Electricity Supply to the Mid North Coast*, http://www.energy.nsw.gov.au/__data/assets/pdf_file/0006/467448/MNC-Review-Final-Report.pdf.
[6] RPS Group, *TransGrid Review of Public Consultation,* http://www.transgridreview.com.au/.

3 Operating Environment and Drivers

In the five years since TransGrid's last revenue determination, the electricity industry has seen unprecedented change.

This change has come through the convergence of a number of factors. Economic growth has been subdued due to the global financial crisis in 2008 and subsequent uncertainty in global markets. The strong Australian dollar has made it challenging for Australian industries to compete internationally, resulting in the closure and scaling back of some industries.

At the same time, electricity price increases and government policy have created incentives to pursue widespread installation of domestic solar panels and energy efficiency initiatives. Stakeholder and community expectations have evolved in recent years with higher expectations on early and more detailed consultation on business activities.

These factors have been considered in the development of the forecasts in this proposal.

3.1 Economic Development in New South Wales and the Australian Capital Territory

3.1.1 New South Wales

The New South Wales economy has the largest Gross State Product in Australia, reaching $471 billion in 2012/13.[7]

In 2011 the New South Wales Government released a ten year plan, *NSW 2021*,[8] setting out its goals for the state through to 2021. The plan includes targets to increase business investment in New South Wales, increase the value of primary industries and mining production, increase the population in regional New South Wales and increase exports from New South Wales.

[7] Australian Bureau of Statistics, *Australian National Accounts: State Accounts*, 28 November 2013.
[8] NSW Government, *NSW 2021: A Plan to Make NSW Number One*, 2011.

The *NSW 2021* plan also sets targets for a reduction in energy consumption through efficient energy use.

The transmission services provided by TransGrid underpin the economic development of the state. This transitional proposal has been developed to align with the *NSW 2021* plan. It ensures that TransGrid's network provides the necessary level of reliability to support local business. It supports regional and mining developments through the inclusion of forecast capital expenditure for specific expansions of the network where mine investment is currently underway. It also recognises the success of energy efficiency programs and initiatives, which have been taken into account in the peak demand forecasts on which forecast capital expenditure is based.

3.1.2 Australian Capital Territory

The Australian Capital Territory is home to Australia's national capital city, Canberra.

The Canberra Plan[9] sets out the Australian Capital Territory Government's vision and goals for the territory. Its economic objective is:

> To ensure that a strong, dynamic, resilient and diverse economy meets the needs of the Canberra community now and into the future; to maintain economic growth that promotes a fully sustainable city; and to promote the ACT's place as the heart of the economic region.

The Canberra Plan, together with the *ACT Planning Strategy*,[10] includes plans for current and future residential land release and commercial and industrial development. This would continue the population growth experienced in the Australian Capital Territory over recent years, which is above the national average.[11]

TransGrid is working with the Australian Capital Territory Government to ensure that the transmission network provides the level of reliability appropriate to support the national capital.

3.2 Electricity Demand

Electricity demand is a key driver of growth in transmission services. Transmission services are required to provide sufficient capacity to meet electricity demand at times of peak within the range of likely operating conditions.

3.2.1 Responding to Peak Demand Forecasts

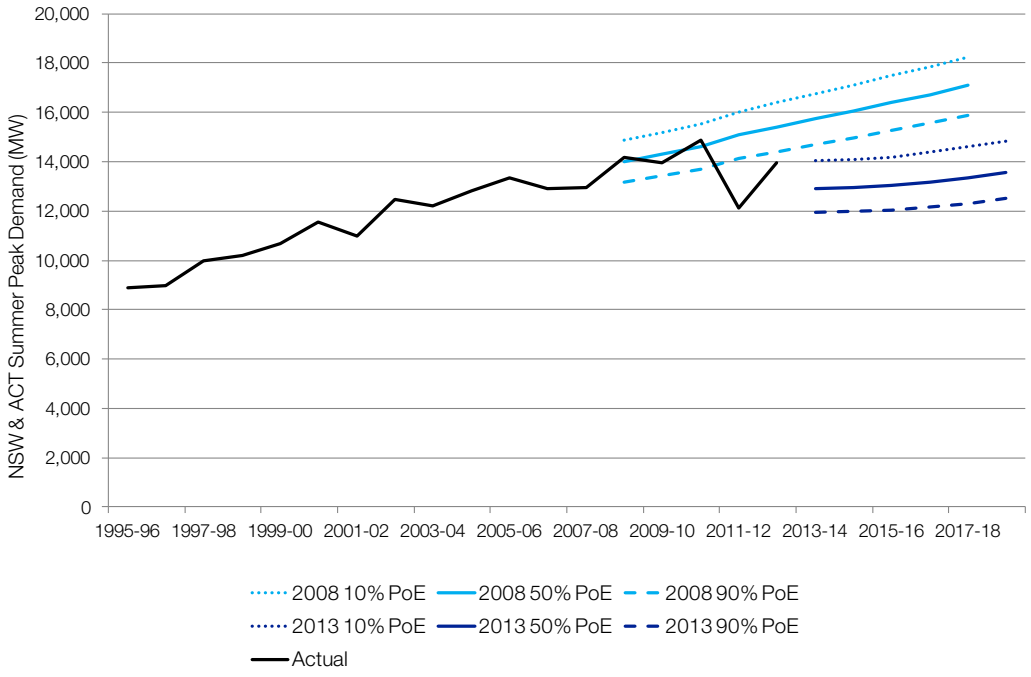
The past few years have seen marked changes in trends for peak demand growth across New South Wales and the Australian Capital Territory. This has largely been driven by consumers responding to government energy efficiency policies, green energy policies, the impact of global economic conditions on major industry and consumer confidence, and electricity price increases.

Figure 3.1 provides a comparison of the peak demand forecasts at the time of TransGrid's last revenue proposal and the forecasts used in this proposal. Forecasts are expressed in terms of the Probability of Exceedance (PoE). For example, a 10% PoE is the level of demand that is expected to be exceeded one year in ten. Both 10% PoE (one year in ten)

[9] ACT Government, *The Canberra Plan: Towards our Second Century*, 2008.
[10] ACT Government, *ACT Planning Strategy*, July 2012.
[11] ACT Government, *Report on Implementation of The Canberra Plan – Towards Our Second Century*, June 2013.

and 50% PoE (one year in two) forecasts are used for TransGrid's network planning, as outlined in the transmission network planning standard for New South Wales.[12]

Figure 3.1
Comparison of Peak Demand Forecasts in 2008 and 2013



Source: AEMO, *Electricity Network Forecasting Report 2013* and TransGrid, *Annual Planning Report 2008*.

TransGrid has responded to the change in forecast peak demand during the current regulatory control period by deferring over $600 million of projects where the need has been pushed out to a later date and cancelling projects that are no longer necessary. Consumers directly benefit from this responsive behaviour from the start of the following regulatory control period, through a lower opening regulatory asset base for the period.

Significant projects that have been deferred out of the current regulatory period include:

- Bannaby to South Creek 500kV transmission line
- Dumaresq to Lismore 330kV transmission line
- Reinforcement of supply to South Coast
- Beaconsfield 330kV Busbar
- Stroud to Taree 132kV transmission line
- Kemps Creek to Liverpool 330kV transmission line

The Australian Energy Market Operator (AEMO) is the independent forecaster of energy and demand in the NEM and provides state level demand forecasts for New South Wales and the Australian Capital Territory. AEMO's *National Electricity Forecasting Report 2013* forecasts growth in electricity demand over the next ten years at an average of 1% per year,

[12] Industry & Investment NSW, *Transmission Network Design and Reliability Standard for NSW*, December 2010.

as shown in Figure 3.1.[13] This growth is driven by projected population increases in New South Wales and the Australian Capital Territory, which outweigh the downward pressures on demand from energy efficiency initiatives.

Over the next five years, forecast demand generally remains within the capacity of TransGrid's network given the very low forecast growth rate. Consequently, there is only a very minimal amount of capital expenditure planned to augment the network over this period. This is in contrast to the last decade or so of network investment requirements to meet projected growth in maximum demand.

3.3 Renewable Energy Targets

In 2001 the Australian Government established a Mandatory Renewable Energy Target, which targeted the introduction of 9,500 GWh of new renewable energy generation by 2010. Over 2009-2011 the scheme was reviewed and the current Renewable Energy Target introduced, increasing the target of new generation to 45,000 GWh by 2020 and introducing a solar credits scheme.

The moderation in demand growth over the last few years has diminished the need for additional large generation to be introduced in the National Electricity Market. However, if the current Renewable Energy Target is maintained, it will provide an incentive for further renewable generation to be introduced between now and 2020.

TransGrid has received a number of enquiries from renewable generation proponents about connecting to the transmission network in New South Wales. If these connections proceed, increases in rating to certain flow paths may be necessary to accommodate the changes to generation patterns in New South Wales.

TransGrid intends to propose a contingent project in the full revenue proposal to increase the rating of certain flow paths on the shared network, which would be triggered if needed to accommodate the changes to generation patterns arising from investment in significant levels of renewable generation.

3.4 Facilitating the National Electricity Market

Transmission networks form the platform on which the competitive wholesale National Electricity Market operates. In some cases, an augmentation of a transmission network may not be required to meet electricity demand but may deliver economic benefits that are larger than the cost of the augmentation. These are known as net market benefits.[14]

In the current regulatory control period TransGrid has completed a project to increase the rating of a major transmission line between Tamworth and Armidale. The additional transmission capacity delivered by this project will result in market benefits that are greater than the project cost. TransGrid has also installed dynamic rating systems on some transmission lines, and reviewed the transfer limits of the Queensland – New South Wales Interconnector (QNI) in conjunction with Powerlink Queensland.

[13] AEMO, *National Electricity Forecasting Report 2013*, June 2013, p4-1.
[14] AER, *Regulatory Investment Test for Transmission Application Guidelines*, June 2010, pp14-32.

3.5 Asset Renewal for Sustainability

The interconnected electricity transmission network in New South Wales was first developed in the mid 1950s and 1960s, with a large number of assets commissioned at that time. The interconnected network was pursued to improve efficiency and reliability above that of individual networks with local generation that existed at that time.

Transmission equipment is typically designed and manufactured with an intended life, on average, of around 40 to 50 years. To date TransGrid has undertaken the minimum level of replacement and refurbishment to keep existing substations operational at the lowest cost. This has been an appropriate strategy in the current and previous regulatory control periods.

However, when the majority of equipment in a substation reaches the end of its serviceable life or the majority of structures on a transmission line reach the end of their serviceable lives at around the same time, a complete rebuild can be a more prudent and economic option. TransGrid has included a number of substation and transmission line renewal projects in this proposal, as substations and transmission lines constructed in the 1950s and 1960s have started to reach a condition that reflects the end of their serviceable lives. Given the significant number of assets constructed when the transmission network was first developed, this has led to a material increase in the number of assets requiring replacement over the next five years.

TransGrid has proposed an asset renewal program in this proposal that comprises the most economic combination of replacement and refurbishment options to ensure a sustainable electricity supply. The asset renewal program is essential to ensuring the safety of staff, contractors and the public and maintaining a reliable electricity supply.

This is a similar approach to that taken by other transmission network service providers in Australia and internationally which are managing networks of a similar age.[15]

[15] AER, *Final Decision: Powerlink Transmission Determination 2012/13 to 2016-17*, April 2012, OFGEM, *RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas*, 2012, p64 and OFGEM, *Fact Sheet 67*, 2006, p2.

4 Capital Expenditure

Capital expenditure is expenditure on the infrastructure and assets that provide transmission services. These include new assets that increase capacity on the network, replacement of existing assets that are reaching the end of their serviceable lives and minor assets such as information technology and vehicles.

Capital expenditure in 2014/15 to 2018/19 is forecast to be significantly different from any period in recent history, and around 20% lower in the next five years than in the current regulatory control period. The forecasts comprise an efficient investment portfolio that reflects recent change in the electricity industry and are in the long term interests of consumers.

In particular load driven investment is small, reflecting the significant change in recent electricity usage. In contrast, replacement expenditure has increased significantly from that of the current regulatory control period, reflecting an increasing population of assets reaching the end of their serviceable lives. This expenditure is necessary to maintain the reliability and safety of the transmission network.

4.1 Forecast Capital Expenditure

TransGrid's indicative forecast capital expenditure for 2014/15 to 2018/19 is shown in Table 4.1.

Table 4.1
Indicative Forecast Capital Expenditure ($m nominal)

Category	2014/15	2015/16	2016/17	2017/18	2018/19
Augmentation	60	58	131	96	32
Replacement	245	258	263	202	191
Security/Compliance	30	39	49	71	62
Support the Business	40	42	36	36	35
Total	**375**	**396**	**479**	**405**	**320**

Source: TransGrid. Totals may differ due to rounding.

4.2 Capital Expenditure Objectives

In line with the National Electricity Objective, the National Electricity Rules set out the capital expenditure objectives to be achieved by forecast capital expenditure.

The capital expenditure objectives are to:

1. Meet or manage the expected demand for prescribed transmission services over that period
2. Comply with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services
3. To the extent that there is no applicable regulatory obligation or requirement in relation to:
   (i) the quality, reliability or security of supply of prescribed transmission services; or
   (ii) the reliability or security of the transmission system through the supply of prescribed transmission services,

   to the relevant extent:

   (iii) maintain the quality, reliability and security of supply of prescribed transmission services; and
   (iv) maintain the reliability and security of the transmission system through the supply of prescribed transmission services
4. Maintain the safety of the transmission system through the supply of prescribed transmission services.[16]

The applicable regulatory obligations in relation to the quality, reliability and security of supply that apply to TransGrid are set out in the *Transmission Network Design and Reliability Standard for NSW* published by NSW Trade & Investment.

This chapter sets out the indicative forecast capital expenditure TransGrid considers is required to achieve the capital expenditure objectives and applicable regulatory obligations in 2014/15 to 2018/19.

4.3 Forecasting Methodology

The capital expenditure forecasts in this proposal are based on business cases supported by economic justification for each investment. They comprise the efficient costs required to sustainably provide transmission services to New South Wales and the Australian Capital Territory.

TransGrid is required to plan and build its network consistent with network planning standards established by NSW Trade & Investment.[17] TransGrid is currently leading the discussion within the industry and with NSW Trade & Investment on potential changes to the planning standards methodology.

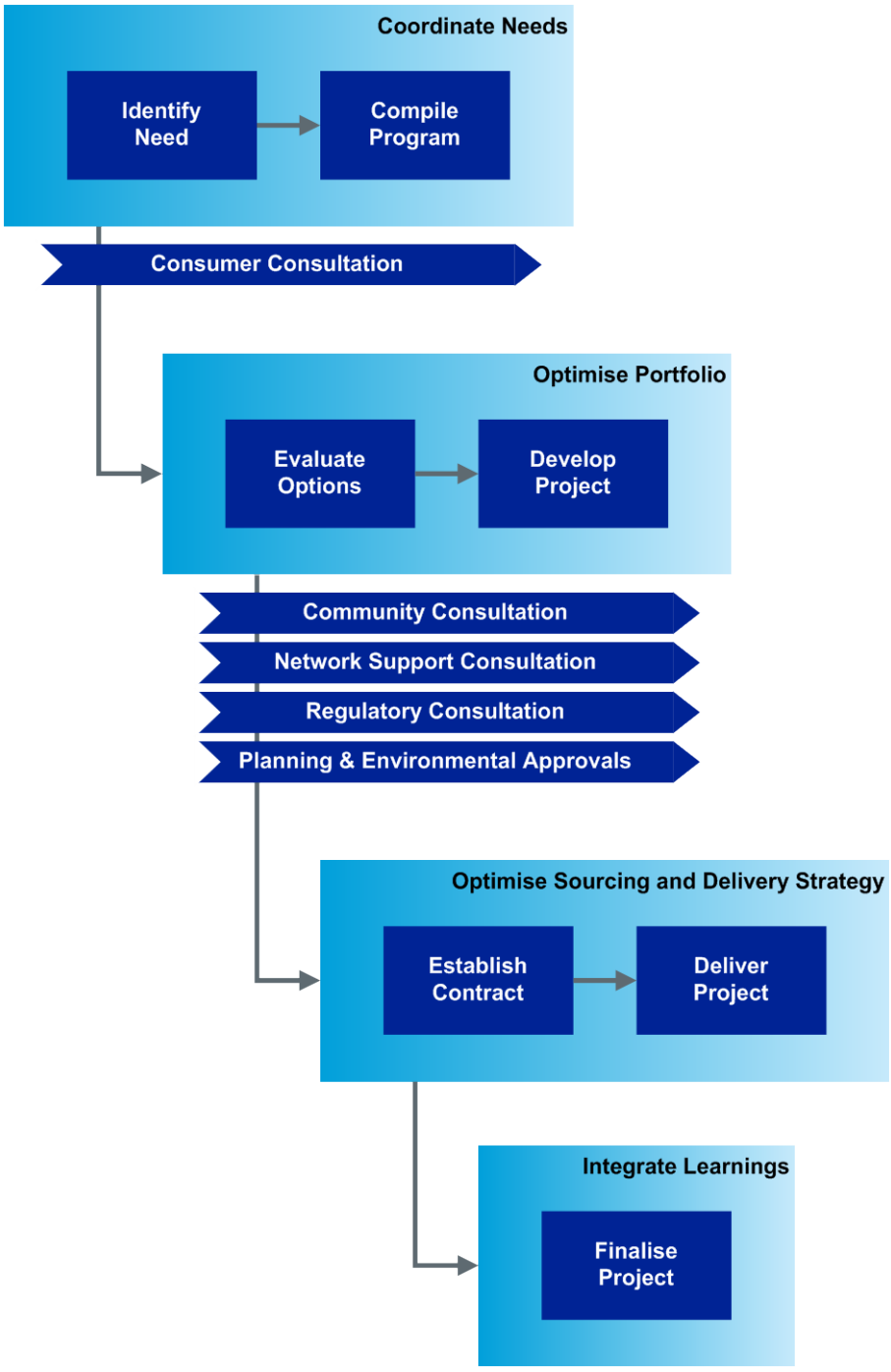
Should changes in planning standards proceed, there will be some changes to TransGrid's network plans and capital investment portfolio. This transitional proposal reflects the existing planning standards that apply to TransGrid. However, TransGrid will revisit all affected network plans should the technical standards be changed. TransGrid will keep the AER, consumers and stakeholders well informed of these developments.

[16] *National Electricity Rules*, Rule 6A.6.7(a).
[17] NSW Trade & Investment, *Transmission Network Design and Reliability Standard for NSW*, December 2010.

TransGrid's asset management framework is aligned with the PAS 55 publicly available asset management specification, ensuring that the asset management practices reflect international good electricity industry practice.

The majority of TransGrid's forecast capital expenditure relates to the network. TransGrid has developed a *Network Investment Process* that is used to develop the capital portfolio relating to the network. The full process is shown in Figure 4.1 as it applies to major capital works. An abridged version of the process applies to minor projects and programs of work.

Figure 4.1
Network Investment Process



TransGrid's capital expenditure is forecast as a bottom-up build up of projects and programs of work. Projects are individually scoped to meet specific network needs, such as needs to augment the network or replace assets reaching the end of their serviceable lives. Programs of work are groups of similar minor projects, such as replacement of a particular model of equipment that exhibits consistent issues across the network.

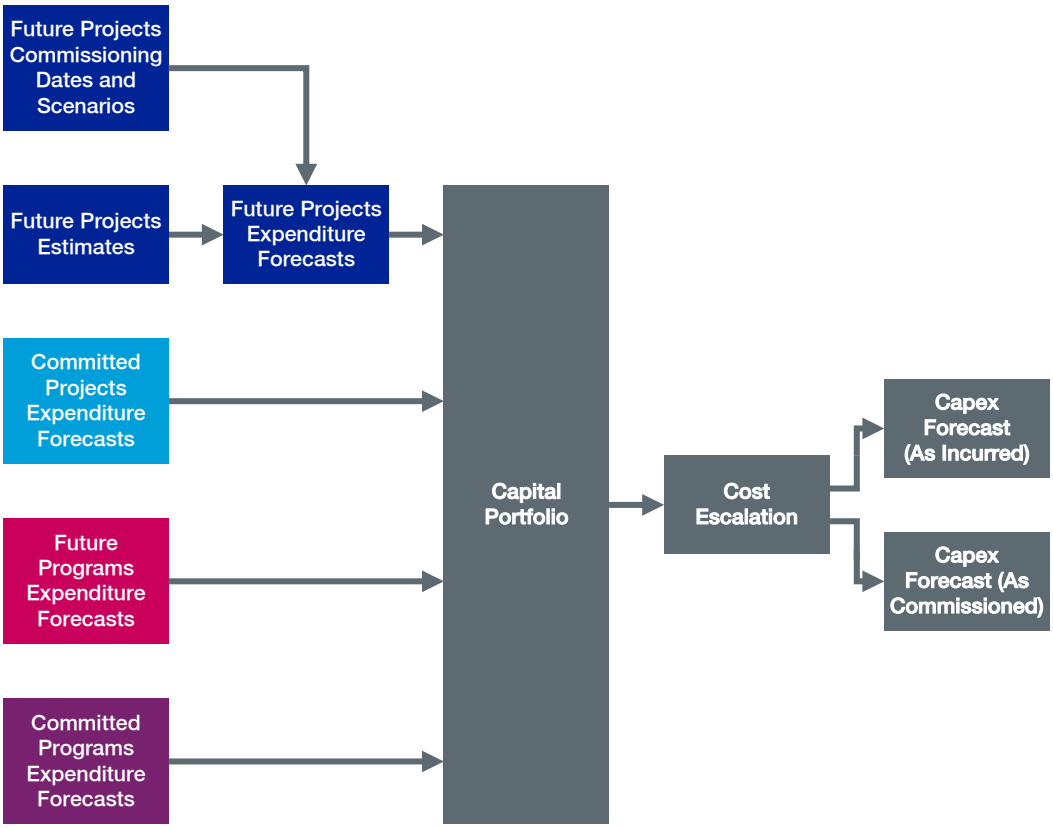
Projects and programs of work are justified based on technical requirements and cost/benefit evaluation. To develop the capital expenditure forecasts for the revenue proposal, more than 2,000 planning and scoping documents have been prepared in alignment with the *Network Investment Process*. These documents have been reviewed for quality assurance by teams of external engineering specialists.

4.3.1 Capital Accumulation Model

The projects and programs of work are compiled in the capital accumulation model. The model aggregates the expenditure profiles of individual projects and allows for expenditure on future projects to be modelled under a number of scenarios such as market and demand scenarios. It also applies escalation for labour, commodities and property. Projects are costed in 2013 year dollars and then escalation is applied to reflect the relevant timing of the expenditure within the regulatory control period.

The capital accumulation model methodology is shown in Figure 4.2.

Figure 4.2
Capital Accumulation Model Methodology



For a detailed description of TransGrid's network planning and forecasting methodology please refer to TransGrid, *Approach to forecasting 2014/15 – 2018/19* on TransGrid's "Have Your Say" website, www.yoursaytransgrid.com.au.

4.4 Significant Projects

The portfolio for 2014/15 to 2018/19 comprises 11 augmentation projects, 9 distribution network connection projects, 78 replacement projects, 6 security/compliance programs of work and 80 programs of work for smaller replacement strategies. In addition, the support the business category includes capital expenditure associated with information technology, vehicles and minor plant.

This section describes the most material augmentation and replacement projects that contribute to the forecast capital expenditure.

4.4.1 Queensland – New South Wales Interconnector Upgrade

The Queensland – New South Wales interconnector (QNI) was commissioned in 2001 to connect the New South Wales and Queensland transmission systems. At present, power flows across QNI can be constrained by stability or thermal constraints.

An upgrade of the power transfer capability across QNI to allow it to operate at its full thermal capacity will provide market benefits. The benefits include increased competition between generators, increased sharing of generation sources across the interconnector and reduced wholesale energy costs.

TransGrid and Powerlink commenced a joint Regulatory Investment Test for Transmission (RIT-T) for an upgrade to the interconnector with the publication of a Project Specification Consultation Report (PSCR) in June 2012.

Evaluation of options is nearing completion and the two potential preferred options are the installation of dynamic and static reactive plant, or installation of series compensation.

This project has an estimated total cost of $178m.

4.4.2 Substation Renewal

In recent years, many of TransGrid's substations commissioned in the 1950s and 1960s have shown condition indications of nearing the end of their serviceable lives. TransGrid proposes to renew seven substations in 2014/15 to 2018/19 and there are three further substations for which work will commence in the period, as shown in Table 4.2.

The scope of a renewal comprises the most economically efficient works required to restore the substation's condition. Depending on the particular condition issues at each substation this may consist of selected plant replacements, in-situ rebuild or rebuild on a different site.

Table 4.2
Substation Renewals ($m 2013/14)

Substation	Commissioning Year	Renewal Year	Cost ($m)	Proposed Method
Yanco	1969	2016	16	Selected plant replacement
Cooma	1954	2016	35	Rebuild nearby
Burrinjuck	1950	2017	14	Rebuild in-situ with GIS
Tamworth 132	1961	2017	41	Rebuild adjacent
Orange	1954	2017	25	Rebuild in-situ with GIS
Vales Point	1962	2018	53	Rebuild in-situ
Canberra	1967	2019	58	Selected plant replacement
Wagga 132	1955	2020	52	Rebuild in-situ
Munmorah	1967	2020	30	Rebuild in-situ
Newcastle	1969	2021	51	Selected plant replacement

4.4.3 Secondary System Renewal

Secondary systems comprise control, metering and protection systems that enable monitoring, automation and manual control of the network.

The technology used in secondary systems has changed significantly over the last thirty years. The original secondary systems used in TransGrid's network were electromechanical relay-based systems. In the 1980s the available technology for new secondary system devices moved to solid-state systems, and more recently the technology has shifted again to microprocessor based systems.

Microprocessor based secondary systems have many advantages compared to earlier technologies including increased functionality, accuracy, flexibility, and the ability for multiple electromechanical relays to be replaced with one microprocessor based relay. However, as for most microprocessor based devices, they have a shorter life cycle and support cycle, and reach de-support and obsolescence sooner than earlier technologies. Whereas electromechanical relays could remain in service for over 40 years, the serviceable life of microprocessor based systems is 15 years or less. In addition, older electromechanical and solid state devices are no longer available and lack availability of spare parts, and microprocessor based systems are now industry standard.

The proposed secondary system renewals are shown in Table 4.3.

Table 4.3
Secondary System Renewals ($m 2013/14)

Secondary System	Renewal Year	Cost ($m)
Tumut	2015	12
Balranald	2016	5
Albury	2016	11
Sydney West	2016	35
Griffith	2016	18
Hume	2017	4
Kangaroo Valley	2017	9
Deniliquin	2018	6
ANM	2018	5
Taree	2018	26
Sydney North	2019	41
Armidale	2019	15
Murrumburrah	2019	5
Buronga	2020	4
Beryl	2020	6
Liddell	2020	22
Haymarket	2021	9
Avon	2021	6
Sydney South	2022	43

4.4.4 Transmission Line Life Extension

The vast majority of TransGrid's "main grid" transmission lines, operating at 500kV, 330kV and 220kV, are constructed with steel towers. In coastal or polluted areas, corrosion of these towers occurs more quickly than in inland or drier areas. Older lower voltage transmission lines, operating at 132kV, are constructed with wood poles. These poles deteriorate over time.

TransGrid has assessed the condition of a number of coastal steel tower transmission lines as requiring renewal. The most efficient option is to undertake life extension works on towers, which involves corrosion treatment and painting or in some cases replacement of towers. On average, it is expected that this work will extend the life of these assets by 25 years.

TransGrid has also assessed the condition of a number of wood pole transmission lines as requiring renewal. These will typically be addressed by replacement of the wood poles with

concrete poles using the same conductors, or reconstruction of the transmission line including replacement of conductors.

The transmission lines for which renewals and life extension works are proposed are shown in Table 4.4.

Table 4.4
Transmission Line Renewals and Life Extensions ($m 2013/14)

Transmission Line	Year	Cost ($m)
Line 24 Vales Point to Eraring life extension	2016	2
Line 970 Yass to Burrinjuck pole replacement	2016	3
Line 90 Eraring to Newcastle life extension	2016	3
Line 96H Coffs Harbour to Koolkhan pole replacement	2016	14
Line 11 Dapto to Sydney South life extension	2017	14
Line 18 Dapto to Kangaroo Valley life extension	2017	2
Line 93 Eraring to Newcastle life extension	2017	1
Line 944 Wallerawang to Orange North rebuild	2017	68
Line 99J Yanco to Griffith rebuild	2018	23
Line 99F Yanco to Uranquinty pole replacement	2018	14
Line 22 Vales Point to Sydney North life extension	2018	4
Line 17 Avon to Macarthur life extension	2018	1
Line 21 Sydney North to Tuggerah life extension	2019	12
Line 23 Munmorah to Vales Point life extension	2019	3
Line 26 Sydney West to Vales Point life extension	2019	3
Line 959/92Z Sydney North to Sydney East life extension	2019	7
Line 8 Dapto to Marulan life extension	2019	6
Line 10 Avon to Dapto life extension	2019	3
Line 2M Munmorah to Tuggerah life extension	2019	7
Line 16 Avon to Marulan life extension	2019	2

4.4.5 Transmission Line Low Spans

In recent years, technologies such as aerial laser surveys have become commercially viable. These technologies provide accurate measurement of transmission line clearances and vegetation growth, with greater accuracy and less effort than previous manual techniques.

TransGrid has conducted aerial laser surveys of all transmission lines. The surveys have identified a number of spans that, based on accurate measurement, do not meet the necessary clearances between the transmission line conductors and ground. Sufficient

clearances to ground are necessary to maintain public safety and minimise the risk of bushfires being started by the transmission network.

TransGrid has commenced remedial work on the highest priority transmission lines to increase the clearances between the conductors and ground. It has also implemented interim risk management measures on spans on other lines.

The forecast capital expenditure in this proposal includes projects to address low spans on the remaining lines. These projects have led to an increase in expenditure in the security/compliance category compared to previous regulatory control periods.

4.5 Potential Contingent Projects

4.5.1 Powering Sydney's Future

Powering Sydney's Future is a current TransGrid project to investigate the underlying factors that may drive any need to reinforce supply capacity to the Sydney inner metropolitan area and CBD in the near future. This forms part of a broad stakeholder consultation strategy around the most appropriate ways of matching the electricity network capacity to the future needs.

The Sydney inner metropolitan area and CBD are presently supplied by two 330kV cables in TransGrid's network and a number of 132kV cables in Ausgrid's underlying network.

Recently four factors have arisen that impact the ability of the network to supply the forecast demand in this area. These are:

- Forecast load growth in the Sydney inner metropolitan area;
- The planned retirement of a number of 132kV cables within Ausgrid's network that are approaching the end of their serviceable lives;
- A decrease in the capacity of TransGrid's 41 cable due to environmental factors and changes in ground conditions. The cable now needs to be carefully managed and its rating reviewed regularly to avoid damage; and
- A decrease in the capacity of some Ausgrid 132kV cables, for similar reasons to TransGrid's 41 cable.

The streams of investigation currently underway are:

- Consultation with the community in the Sydney CBD and surrounding affected area on their views on the need for the project;
- Consideration of alternative reliability standards and the impact on the timing of works;
- Assessment of potential for demand response, noting that TransGrid procured 35MW of demand response in the Sydney inner metropolitan area in Summer 2012/13;
- Assessment of impact of energy efficient appliances, energy efficiency initiatives and potentially electric vehicles; and
- Consideration of long term demographic trends in Sydney.

As there is at this stage still some uncertainty regarding the timing and extent of works that may be needed to address this need, a project to address the need has not been included in this transitional proposal. Depending on the outcome of TransGrid's research into the underlying factors the full revenue proposal may include a project to address this need, within forecast capital expenditure or as a contingent project or with a demand management solution.

4.5.2 Reinforcement of Capacity in Southern New South Wales

TransGrid has received a number of enquiries for the connection of new generation in southern New South Wales. Some new generation has recently been commissioned or is at an advanced design stage, and some is forecast to be commissioned towards the end of the next regulatory control period.

There are two projects that may result from the commissioning of additional generation in southern New South Wales:

- Upgrade of the 330kV transmission lines between Snowy and Yass/Canberra, Yass and Marulan, and installation of phase shifting transformers to control power flows at Bannaby and Marulan.
- Construction of a new 330kV single circuit transmission line between Yass and Bannaby.

Presently these projects meet the requirements for contingent projects in Rule 6A.8 of the National Electricity Rules. TransGrid will consider the most current information at the time of the full revenue proposal and may propose these projects as contingent if they continue to meet the requirements for contingent projects.

4.6 External Advice

TransGrid has commissioned expert advice from leading Australian technical experts and independent advisers to provide external inputs and assurance reviews to support the capital expenditure forecast. The advisers are listed in Table 4.5. In this transitional proposal, while the external work is in progress, indicative values have been used.

Table 4.5
Key External Providers for Capital Expenditure Forecast

Adviser	Input or Assurance Advice
Synergies Economic Consulting	Advice on appropriate labour cost escalator and treatment of labour productivity
Independent Economics	Labour cost escalation, being Wage Price Index for the NSW Electricity, Gas, Water and Waste Services sector
SKM	Commodity cost escalation
BIS Shrapnel	Property cost escalation
SKM	Review of capital program documentation
Evans & Peck	Review of estimating process and advice on treatment of cost estimating risk
SKM, PB and Aurecon	Cost estimation comparisons to externally test efficiency of capital project estimates
SKM	Review of capital project estimating database for efficiency
NERA	Advice on contingent project triggers

4.7 Historical Capital Expenditure

TransGrid's historical capital expenditure for the 2009/10 to 2013/14 regulatory control period is shown in Table 4.6.

Table 4.6
Historical Capital Expenditure ($m nominal)

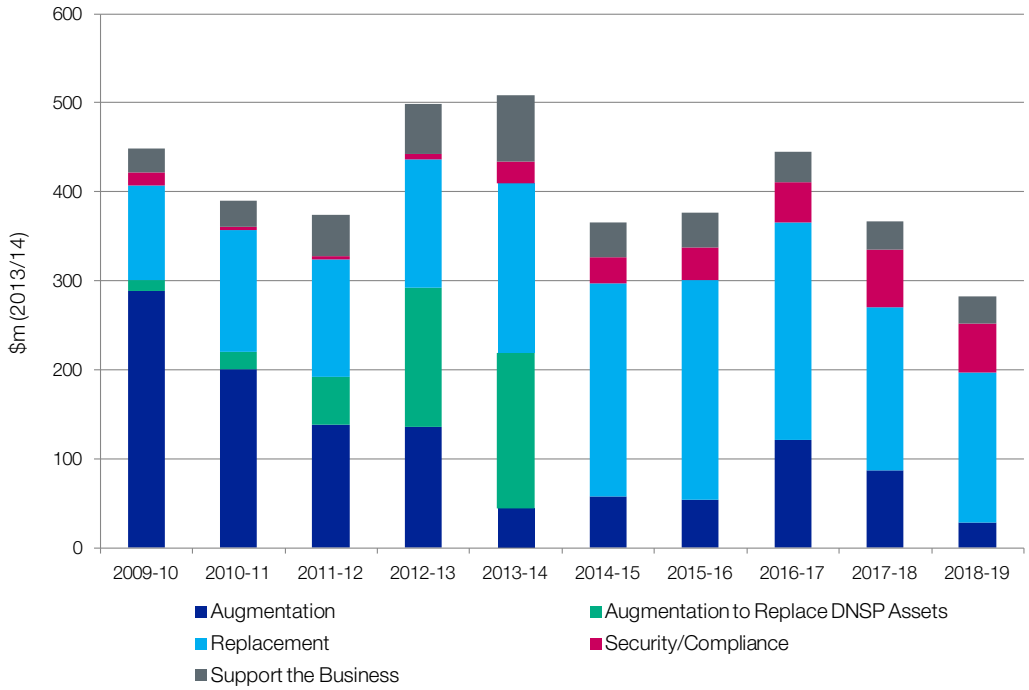
Category	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Actual	2013/14 Expected
Augmentation	261	187	132	132	44
Augmentation to Replace DNSP Assets[18]	10	18	51	153	175
Replacement	97	128	127	140	191
Security/Compliance	13	3	3	6	24
Support the Business	24	28	44	54	74
Total	**405**	**364**	**356**	**485**	**508**

Source: TransGrid. Totals may differ due to rounding.

[18] The Western Sydney Supply Project is a project to be commissioned in 2014 that comprises a new 330kV supply from western Sydney to the inner west. While it is an augmentation to TransGrid's network, the project replaces several 132kV Ausgrid cables which will be decommissioned.

A trend for comparison of historical and forecast expenditure is shown in Figure 4.3. The trend is in common dollar terms for comparability.

Figure 4.3
Historical and Forecast Capital Expenditure Trend ($m 2013/14)



Source: TransGrid.

4.8 Relationship with STPIS

The forecast capital expenditure in the proposal does not include expenditure to improve performance under the Service Target Performance Incentive Scheme (STPIS) or for projects included in the Network Capability Incentive Project Action Plan (NCIPAP). Appendix A provides details on the Network Capability Incentive Project Action Plan.

5 Operating Expenditure

Operating expenditure is the ongoing expenditure required to provide transmission services. This includes planning the network, managing assets, 24 hour monitoring and operation of the network, maintenance and business activities.

TransGrid has responded to the commercial drivers for cost control and the incentives within the regulatory framework in the National Electricity Rules. In the 2009/10 to 2013/14 regulatory control period TransGrid has pursued efficiencies throughout its business. The operating expenditure forecasts in this transitional revenue proposal reflect these efficiencies and comprise the efficient costs required to sustainably provide the transmission services in 2014/15 to 2018/19.

Operating expenditure trends at less than 0.6% above CPI on average over the next five years. The first year's increase is primarily driven by enhanced consumer and community engagement, regulatory obligations arising from new guidelines issued by the AER and a demand management initiative endorsed by consumers. A forecast increase in labour costs primarily accounts for the trend in later years.

5.1 Forecast Operating Expenditure

TransGrid's indicative forecast operating expenditure for 2014/15 to 2018/19 is shown in Table 5.1. Employee entitlements have been projected on a cash basis in these forecasts.

Table 5.1
Indicative Forecast Operating Expenditure ($m nominal)

Category	2014/15	2015/16	2016/17	2017/18	2018/19
Controllable Operating Expenditure	177	180	182	187	196
Debt Raising Costs	9	9	10	10	11
Insurance	6	7	8	9	10
Self-Insurance	0	0	0	0	0
Network Support	0	0	0	0	0
Total	**192**	**196**	**199**	**206**	**216**

Source: TransGrid. Totals may differ due to rounding.

5.2 Operating Expenditure Objectives

In line with the National Electricity Objective, the National Electricity Rules set out the operating expenditure objectives to be achieved by forecast operating expenditure.

The operating expenditure objectives are to:

1. Meet or manage the expected demand for prescribed transmission services over that period
2. Comply with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services
3. To the extent that there is no applicable regulatory obligation or requirement in relation to:
   (i) the quality, reliability or security of supply of prescribed transmission services; or
   (ii) the reliability or security of the transmission system through the supply of prescribed transmission services,

   to the relevant extent:
   (iii) maintain the quality, reliability and security of supply of prescribed transmission services; and
   (iv) maintain the reliability and security of the transmission system through the supply of prescribed transmission services
4. Maintain the safety of the transmission system through the supply of prescribed transmission services.[19]

The applicable regulatory obligations in relation to the quality, reliability and security of supply that apply to TransGrid are set out in the *Transmission Network Design and Reliability Standard for NSW* published by NSW Trade & Investment.

This chapter sets out the indicative forecast operating expenditure TransGrid considers is required to achieve the operating expenditure objectives and applicable regulatory obligations in 2014/15 to 2018/19.

5.3 Forecasting Methodology

The AER has stated a clear preference to use a base – step – trend methodology for the majority of forecast operating expenditure. This is consistent with the framework of incentive based regulation, in which incentives lead firms to reveal their efficient costs. This results in an efficient base year from which future expenditure can be forecast. TransGrid agrees that this is a reasonable approach for most operating expenditure.

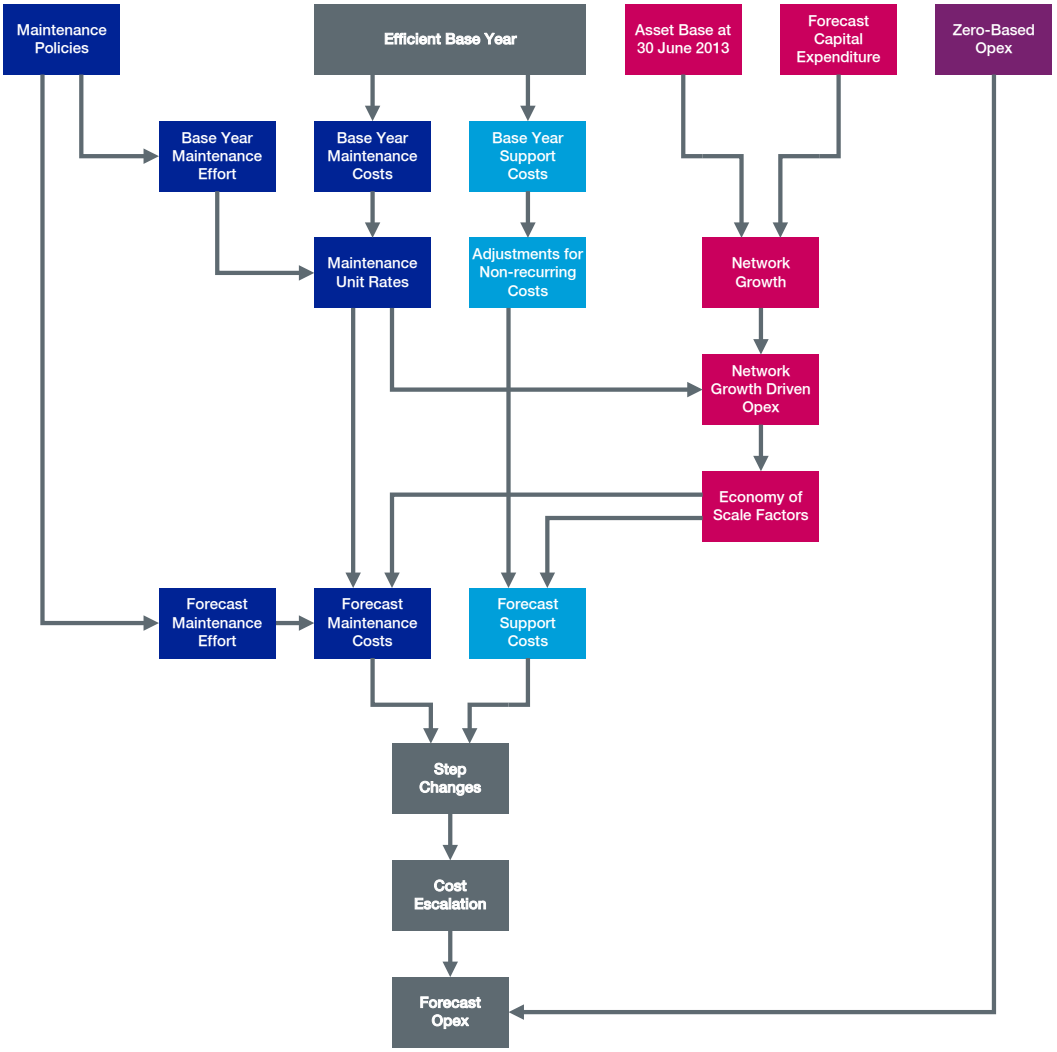
The operating expenditure has been forecast using TransGrid's operating expenditure model. The model forecasts:

- maintenance expenditure based on work volumes forecast by the maintenance scheduling system and unit rates from the base year;
- major operating projects (MOPS) as a zero-based portfolio of projects;
- insurance, self-insurance, network support and debt raising costs as zero-based forecasts; and
- other categories using a base – step – trend approach.

[19] *National Electricity Rules*, Rule 6A.6.6(a).

The methodology used in the model is shown in Figure 5.1.

Figure 5.1
Operating Expenditure Methodology



TransGrid has used methods other than base – step – trend for expenditure categories where they provide a more accurate forecast.

Major operating projects are more similar in nature to capital projects than operating expenditure, and TransGrid estimates them accordingly using a zero-based portfolio approach. The use of a trend based on historical expenditure is not suited to take into account the distinct needs that drive this expenditure, and may under or over forecast the efficient costs required to meet the operating expenditure objectives.

Insurance costs are based on external insurance estimates from TransGrid's insurance provider, the Treasury Managed Fund (TMF), which is the self-insurance fund of the NSW Government. TransGrid switched from the commercial insurance market to TMF in 2012/13 when access to TMF cover was made available to TransGrid. TMF offers a more comprehensive level of insurance cover than TransGrid would be able to secure in the commercial market and at a lower cost than in the commercial market.

To ensure this approach remains the most cost-effective going forward, TransGrid has sought estimates for insurance coverage from the commercial market for 2014/15 to 2018/19. These estimates were sourced from Marsh, independent experts in insurance cover. The savings for consumers of TMF cover compared to market estimates amount to $33 million over this time.

Self-insurance costs are based on independent, actuarially assessed self insurance premiums from Marsh and align with the comprehensive level of insurance cover TransGrid is able to source from TMF. Under the TMF arrangements, self-insurance is limited to only one class of event, gradual environmental contamination, which is a significant reduction from the range of events TransGrid would be obliged to self-insure if it were covered by the commercial market.

TransGrid notes that in the event TransGrid were no longer able to access TMF insurance cover then its insurance and self insurance costs are estimated by Marsh to increase by approximately $6.5 million per year.

Network support is forecast as a zero-based build up of specific contracts to meet network needs, where these are in place or supported by a completed Regulatory Investment Test for Transmission. At the time of submission of this transitional proposal, future projects have not yet reached this stage in the investment process and have not been included in the indicative forecasts.

Debt raising costs are forecast based on those costs facing a benchmark efficient firm, consistent with the approach to determining the allowed rate of return. TransGrid has calculated the debt raising costs based on advice from Incenta, expert economic advisers. Incenta's approach has evolved from prior approaches developed by Allens Consulting Group and more recently PwC, and proposes a fresh look at debt raising costs following detailed evaluation of requirements facing businesses which are credit rated by Standard & Poors. Incenta has estimated the debt raising cost at approximately 24 basis points per year on the notional revenue proposal debt.

Base – Step – Trend Approach

The base – step – trend approach forecasts expenditure from a base year that reflects an efficient level of operating expenditure. This proposal uses actual 2012/13 operating expenditure as a starting point for the base year, being the most recent audited expenditure available.

TransGrid proposes one adjustment to actual 2012/13 expenditure to determine a sustainable base year from which to forecast future expenditure.

In 2012/13 TransGrid responded to a significant issue with the safety performance of an easement maintenance contractor. While TransGrid attempted to work with the contractor to resolve the issue, this was not successful and eventuated in the termination of the contract. TransGrid has subsequently established a new easement maintenance contract, however the time required to establish the new contract led to an unavoidable eight month break in easement maintenance in part of NSW.

The response to the safety performance issue meant that $2 million of easement maintenance was not completed in 2012/13. TransGrid proposes to make an adjustment to the base year to reinstate the uncompleted maintenance expenditure, to ensure forecasts are derived from a sustainable level going forward. In addition, one-off expenditure has had to be included in the following three years to catch up on this essential activity.

The adjustment to the base year for the uncompleted maintenance expenditure is accompanied by a commensurate reduction in the 2012/13 savings under the Efficiency Benefit Sharing Scheme, to ensure that there is no double-recovery of this adjustment.

Easement Maintenance

An easement is the corridor of land along which a transmission line runs. Easement maintenance refers to the clearing and trimming of vegetation under and around transmission lines and structures, including maintenance of access tracks, to ensure staff are able to access the transmission line when required for maintenance and incident response.

Easement maintenance ensures that vegetation is kept below the height that could encroach on transmission line conductors. It maintains the reliability of the network by avoiding interruptions to transmission line availability, and significantly reduces the risk of starting a bushfire.

There are a number of inherent hazards associated with easement maintenance work. Easements that require vegetation management are generally over steep and uneven terrain, including the Snowy Mountains, Blue Mountains, and other national parks. Vegetation clearing requires workers to use chainsaws, brushcutters and machinery to manage the vegetation within strict environmental constraints. Because of the significant hazards, effective work health and safety practices are paramount while undertaking these activities. TransGrid does not compromise on the safety of its workers or contractors.

Employee Entitlements

In recent revenue determinations the AER has indicated a preference to base operating expenditure forecasts on the forecast cash costs paid for employee entitlements such as long service leave and contributions to certain superannuation schemes, rather than the methodology used in the financial accounts of “provisions” to recognise the value of employee entitlements earned in the period.

Employee entitlements in TransGrid’s operating expenditure allowance for the 2009/10 to 2013/14 regulatory control period were based on a provisions approach. In this transitional proposal TransGrid has forecast operating expenditure for employee entitlements based on forecast cash costs paid, in line with the approach taken by the AER in recent revenue determinations.

Figure 5.2 on page 44 shows historical and forecast operating expenditure with employee entitlements costed using both provisions and actual cash cost approaches.

Employee Entitlements

Employee related entitlements are accrued employee benefits TransGrid is required to recognise as current liabilities in its financial accounts, in accordance with the accounting standards with which TransGrid is required to comply. These include provisions for long service leave entitlements and defined benefit superannuation schemes that are long term in nature.

Because of their future long-term nature, movements in long service leave and defined benefit provisions are subject to prevailing discount rates at each financial reporting date and determined annually by actuarial assessment. This has led to significant variation between years, notably during the Global Financial Crisis, as reflected in operating expenditure accounts.

Step Changes

TransGrid has responded to the commercial drivers for cost control and the incentives within the regulatory framework in the National Electricity Rules. As a commercial and efficient business TransGrid continually reviews its business model, strategies and processes and pursues opportunities to improve its business operations. The results of these efforts are evident under the efficiency benefit sharing scheme.

Eight step changes have been applied to the forecast expenditure, where there are clear changes to the cost base that are not reflected in the base year.

Many of the efficiency improvements TransGrid has made in the current regulatory period were completed prior to the base year of 2012/13, and are therefore already reflected in the revealed costs in the base year. These include:

- A move to Treasury Managed Fund, the NSW Government self-insurer, for insurance;
- Reduction in travelling costs with the introduction of videoconferencing;
- Savings from IT outsourcing contract negotiation;
- Consolidation of warehousing functions across regions; and
- Transition to a co-sourcing arrangement for the internal audit function.

There are three efficiency improvements that will take effect during or after the base year. The cost savings realised by these efficiencies are therefore not already included in base year costs, and are manually adjusted out of the base year. These are summarised in Table 5.2.

Table 5.2
Efficiency Step Decreases ($m 2013/14)

Step Change	Driver	Annual Estimate ($m)
Change to Sydney office accommodation (from mid 2014/15)	Accommodation strategy	-2.1
Payroll efficiencies	Improvements in IT systems to automate payroll functions	-0.6
Closure of Yass control room	Efficiency improvements to control room rosters	-0.1

Source: TransGrid.

TransGrid is also subject to a number of new obligations and social responsibilities that will commence after the base year. These are listed in Table 5.3. The easement maintenance catch up is additional to the $2 million of ongoing easement maintenance costs reinstated to the base year.

Table 5.3
New Obligations and Social Responsibilities ($m 2013/14)

Step Change	Driver	Annual Estimate ($m)
Rental fees for communication towers on crown lands	IPART review of rental arrangements and fee schedules	0.2
Ongoing requirements arising from the AER's Better Regulation program	New regulatory obligations	0.5
Easement maintenance catch up after safety performance issue	Response to safety obligations	0.7
Transfer of AEMO system operator functions	New regulatory obligations	0.9
Consumer engagement program	New regulatory obligations and to meet changing consumer expectations	1.0 – 2.6
Revenue reset	Regulatory obligation	0.5 – 2.0
Demand Management Innovation Allowance	Consumer expectations	2.0

Source: TransGrid. Ranges reflect expenditure in individual years of the upcoming regulatory control period.

Trends

TransGrid faces cost pressures above the consumer price index (CPI). These are primarily from growth in the network which increases the number of assets to be maintained and labour rate increases which are forecast to increase at a rate higher than CPI.

The operating expenditure forecast includes escalation for network growth, adjusted for economies of scale. It also includes labour rate escalation based on the wage price index (WPI) for the electricity, gas, water and waste services (EGWWS) sector in New South Wales.

5.4 External Advice

TransGrid has commissioned expert advice from leading Australian technical experts and independent advisers to provide external inputs and assurance reviews to support the operating expenditure forecast. The advisers are listed in Table 5.4. In this transitional proposal, while the external work is in progress, indicative values have been used.

Table 5.4
Key External Providers for Operating Expenditure Forecast

Adviser	Input or Assurance Advice
Synergies Economic Consulting	Advice on appropriate labour cost escalator and treatment of labour productivity
Independent Economics	Labour cost escalation, being Wage Price Index for the NSW Electricity, Gas, Water and Waste Services sector
SKM	Review of standard maintenance units for efficiency
SiCorp	Forecast of insurance premiums
Marsh	Forecast of market insurance premiums and self-insurance allowances
Mercer	Actuarial advice on superannuation contributions
Incenta Economic Consulting	Benchmark debt raising costs

5.5 Historical Operating Expenditure

To enable comparison, TransGrid's historical operating expenditure for the 2009/10 to 2013/14 regulatory control period is shown in Table 5.5. Historical actual operating expenditure reflects a provisions approach to employee entitlements, consistent with the last revenue determination and financial accounts. The variability in the historical operating expenditure trend is largely due to movements in these employee entitlement provisions.

Table 5.5
Historical Operating Expenditure ($m nominal)

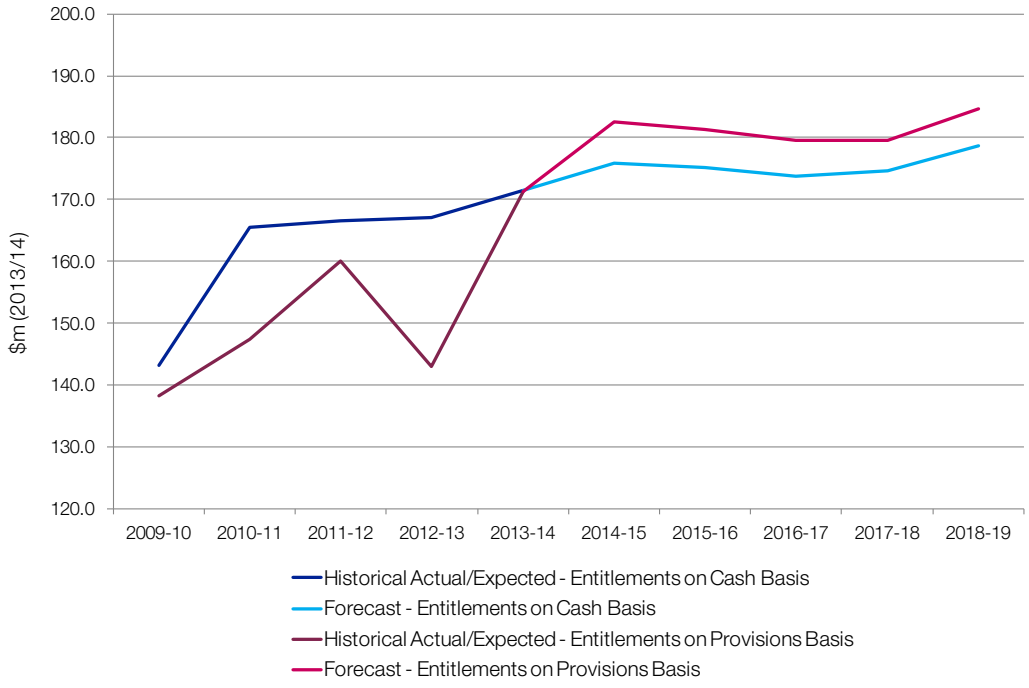
Category	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Actual	2013/14 Expected
Controllable Operating Expenditure	123	136	149	137	171
Self-Insurance	2	1	3	1	1
Network Support	18	0	0	6	0
Total	**143**	**137**	**152**	**144**	**172**

Source: TransGrid. Totals may differ due to rounding.

The trend in historical and indicative forecast operating expenditure is shown in Figure 5.2.

In recent determinations the AER has expressed a preference for the use of cash costs rather than provisions, and this transitional proposal forecasts operating expenditure based on cash costs for employee entitlements. Figure 5.2 therefore also shows historical and forecast operating expenditure with employee entitlement costs based on the cash approach and provisions approach.[20] The trend is in common dollar terms for comparability.

Figure 5.2
Historical and Forecast Operating Expenditure Trend ($m 2013/14)



Source: TransGrid. Excludes network support and debt raising costs.

[20] From 2013/14 the September 2011 revision of AASB 119 applies, which changes the accounting requirements for employee related provisions. This is reflected in the increase in the provisions trend from 2013/14.

5.6 Relationship with STPIS

The forecast operating expenditure in the proposal does not include expenditure to improve performance under the Service Target Performance Incentive Scheme (STPIS) or for projects included in the Network Capability Incentive Project Action Plan (NCIPAP). Appendix A provides details on the Network Capability Incentive Project Action Plan.

6 Regulatory Asset Base

TransGrid has calculated its opening Regulatory Asset Base in accordance with the Clause 6A.6.1, Schedule 6A.2 and Schedule 6A.1.3(5) of the National Electricity Rules.

6.1 Roll Forward Methodology

The AER's roll forward model has been used to establish the opening Regulatory Asset Base (RAB) as at 1 July 2014. The opening RAB has been calculated based on actual depreciation, in line with the *Economic Regulation of Network Service Providers* rule change.

The details of all amounts, values and other inputs used for the proposal are included in the roll forward model submitted together with this proposal.

6.2 Roll Forward Value of the Regulatory Asset Base

An indicative estimate of the roll forward value of the regulatory asset base as at 1 July 2014 is $6,104 million. This is shown in Table 6.1.

Table 6.1
Indicative Roll Forward Regulatory Asset Base ($m nominal)

RAB	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Actual	2013/14 Expected
Opening RAB	4,218	4,581	4,930	5,184	5,618
Net Capital Expenditure as Incurred	420	378	361	503	513
Straight-line Depreciation	-179	-182	-184	-199	-223
Inflation Adjustment	122	153	78	130	154
Closing RAB	4,581	4,930	5,184	5,618	6,063
Adjustment for Actual Capital Expenditure in 2008/09 Plus Return					41
Opening RAB 1 July 2014					**6,104**

Source: TransGrid. Totals may differ due to rounding.

6.3 Forecast Regulatory Asset Base

TransGrid has applied the methodology used in the post tax revenue model to calculate an indicative estimate of the RAB for 2014/15 to 2018/19. This indicative estimate is shown in Table 6.2.

Table 6.2
Indicative Forecast Regulatory Asset Base ($m nominal)

RAB	2014/15	2015/16	2016/17	2017/18	2018/19
Opening RAB	6,104	6,395	6,696	7,071	7,387
Net Capital Expenditure	383	406	491	415	327
Straight-line Depreciation	-246	-266	-285	-277	-296
Inflation Adjustment	154	161	169	179	187
Closing RAB	**6,395**	**6,696**	**7,071**	**7,387**	**7,604**

Source: TransGrid. Totals may differ due to rounding.

7 Rate of Return

This chapter sets out the rate of return to apply in the transitional revenue proposal.

The National Electricity Rules require that at the time TransGrid submits its transitional revenue proposal it must also submit:

> an indicative range for the rate of return that should be applied to the regulatory asset base referred to in subparagraph (1), which takes into account available market information and expected market trends, and has regard to the Rate of Return Guidelines published by the AER.[21]

TransGrid notes that the final AER Rate of Return Guideline was published in late December 2013. Accordingly TransGrid is still undertaking analysis to support the rate of return elements of the full revenue proposal. Nevertheless, this transitional proposal provides the AER and all interested stakeholders with a clear guide on the approach TransGrid believes best fits the National Electricity Objective, the Revenue and Pricing Principles, the National Electricity Rules and the Rate of Return Objective. This approach ensures a rate of return which promotes efficient investment for the long term interests of consumers.

From within the indicative range, TransGrid has selected a conservative point estimate of 8.9% to determine the indicative maximum allowed revenue for the transitional year of 2014/15.

7.1 Rate of Return Guidelines

TransGrid notes that the *Rate of Return Guidelines* sets out the method that the AER proposes to use to estimate the allowed rate of return for electricity and gas network businesses.

TransGrid supports the AER's conclusion in the Guidelines that the debt issued by a benchmark electricity network business has a term of 10 years and a BBB+ credit rating. Further, TransGrid supports the conclusion that an efficient service provider staggers maturity dates of its debt to minimise refinancing risk. TransGrid agrees that a trailing average portfolio approach to the cost of debt allowance best reflects the actual cost of debt of a benchmark efficient entity as stated by the AER that:

> We consider that holding a portfolio of debt with staggered maturity dates is likely an efficient debt financing practice of the benchmark efficient entity operating under the trailing average portfolio approach.

[21] Rule 11.58.2(b)(2).

> We consider that the regulatory return on debt allowance under the trailing average portfolio approach is, therefore, commensurate with the efficient debt financing costs of the benchmark efficient entity.
>
> We further consider that the trailing average portfolio approach is consistent with other requirements of the rules, RPP, and the objectives.[22]

TransGrid's current debt portfolio staggers the maturity dates on its debt. As a result, and as previously submitted as part of the AER's Guideline consultation process,[23] the immediate adoption of a trailing average would best match TransGrid's actual financing practices. The immediate adoption of a trailing average would also avoid the identified risks and costs associated with the "on the day" approach, which creates significant pricing volatility and risk for consumers and revenue and profit risk for businesses.

However, TransGrid has considerable concerns with other key aspects of the AER's proposed approach and believes that they are inconsistent with the National Electricity Objective. TransGrid is specifically concerned with:

- the imposition of a transition to the trailing average return on debt;
- the conclusion that the Sharpe-Lintner CAPM is superior to all other return on equity models and its adoption as the "foundation model" for estimating the expected return on equity; and
- the definition of a reasonable range for the expected return on equity for a benchmark electricity network business to be bounded by the Sharpe-Lintner CAPM, populated by:
  - prevailing yields on 10 year Commonwealth Government Securities (CGS);
  - an equity beta of between 0.4 and 0.7; and
  - a market risk premium (MRP) of between 5.0 and 7.5 per cent.

A brief outline of these concerns is set out as follows.

7.1.1 The Proposed Imposition of a Transition to Trailing Average

The Proposed Transition Does Not Allow TransGrid a Benchmark Efficient Entity Costs

TransGrid considers that the adoption of the proposed transition would result in a clear underestimate of the efficient debt benchmark compared with the immediate adoption of a trailing average. The adoption of the proposed transition would impose unnecessary risks and costs on TransGrid and so its adoption cannot promote the AER's objective of efficient debt financing practices. The proposed transition cannot be said to allow the efficient costs of a benchmark firm where it results in a cost of debt below the trailing average cost of debt which the AER has found to be an efficient benchmark.

The AER must determine an allowed rate of return that achieves the allowed rate of return objective at the time of the determination. The allowed rate of return objective is that the rate of return for a Transmission Network Service Provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that

[22] AER, *Better Regulation: Explanatory Statement – Rate of Return Guideline*, December 2013, *7.3.3 Efficient debt financing practices and conceptual approach to return on debt estimation*, p102
[23] TransGrid submission, *Rate of Return Guideline Consultation Paper, 27 June 2013.*

which applies to the Transmission Network Service Provider in respect of the provision of prescribed transmission services.

Having determined that a trailing average is an efficient measure of the financing costs of a benchmark entity, it would seem inappropriate to require a transition to a benchmark the entity already uses. The AER's insistence on a transition is contrary to the National Electricity Objective as TransGrid will not have the incentives to achieve efficient investment, and efficient operation and use of, electricity services in the long term interests of consumers. It is also contrary to the AEMC's stated purpose for the transition, which is:

> ...intended to promote consideration of concerns raised by service providers with regard to transitions from one methodology to another. Its purpose is to allow consideration of transitional strategies so that any significant costs and practical difficulties in moving from one approach to another is taken into account.[24]

It seems clear therefore that the AER's application of a transition to TransGrid is inappropriate and inconsistent with the AEMC's intent, as TransGrid is facing no such significant costs or practical difficulties arising from the regulatory change to a trailing average approach.

TransGrid notes the statement of the Energy Users' Association of Australia (EUAA) that:

> If the reason for changing the arrangements for the return on debt is that the current arrangement is flawed, and that a rolling average is a better solution (both propositions now widely accepted) how can any change resulting from the correction of a flawed arrangement be "undue" or "sub-optimal", and hence deserving of a transition arrangement?[25]

TransGrid also notes the statements of the Major Energy Users (MEU) that:

> …if the change was to be from a trailing average approach to an "on the day" approach, the MEU would consider that there is a need for a transition as the risk increases for NSPs
>
> The MEU does not see the need for a transition period for changing from the current "on the day" approach to the trailing average approach.[26]

The Proposed Transition is Inconsistent with the National Electricity Rules

Clause 6A.6.2(j) of the National Electricity Rules provides that, subject to the return on debt being estimated such that it contributes to the rate of return objective, the methodology adopted to estimate the return on debt may, without limitation, be designed to result in the return on debt reflecting:

- the return that would be required by debt investors in a benchmark efficient entity if it raised debt at the time or shortly before the making of the revenue determination for the regulatory control period;
- the average return that would have been required by debt investors in a benchmark efficient entity if it raised debt over an historical period prior to the commencement of a regulatory year in the regulatory control period; or
- some combination of the returns referred to in the two dot points above.

TransGrid agrees with the AER's ultimate conclusion that a trailing average approach to estimate the allowed return on debt will promote the achievement of the allowed rate of

[24] AEMC, *Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, p85.
[25] EUAA, *Submission on rate of return consultation paper*, p15.
[26] MEU, *Submission on the rate of return consultation paper*, p44.

return objective, as providing a rate of return that is commensurate with the efficient financing costs of a benchmark efficient entity.

However, there would appear to be flaws in the analysis conducted by the AER, and the AER's application of the Rules, in reaching that conclusion. These flaws are evident in the AER's proposal to apply transitional arrangements to all transmission network service providers (TNSPs) even if, like TransGrid, they adopt the trailing average approach in their current financing practices. The AER assumes that a benchmark efficient entity would have in the past aligned its financing practices with regulatory approaches to estimating the cost of debt and the manner in which they would have done this, even if to do so would have been inefficient. TransGrid has advised in earlier submissions to the AER during consultation on the Guidelines that TransGrid's debt management practices are efficient.

The AEMC has also made statements consistent with the view that there is no single efficient debt management practice. Specifically, the AEMC noted that:

> A number of different approaches to estimating the return on debt may meet the overall rate of return objective.[27]

The AEMC further commented that:

> Currently service providers have varying abilities to match their debt servicing costs to the regulatory allowance for the return on debt. Some of the smaller privately-owned service providers appear able to hedge their interest rate very well, but larger state-owned service providers such as those in NSW and Queensland appear unable to enter into these hedges because the relevant financial markets are not sufficiently deep to meet their requirements. The reduction in risks for equity holders of moving to an historical trailing average approach is greater for those least able to currently match their debt servicing costs to the regulatory allowance. For those able to achieve a good match currently the introduction of a trailing average approach may slightly increase the risks for equity holders. [28]

In the explanatory statement, the AER's assessment of whether transitional arrangements are required is conducted through the lens of what the financing practice of a benchmark efficient entity would have been in the past had the entity operated under a particular regulatory approach to estimating the cost of debt. This is not the correct approach and not the approach that is required to be taken pursuant to the Rules.

What the Rules require is an identification in the Rate of Return Guidelines of the methodologies the AER proposes to use in estimating the allowed rate of return, including how the methodologies are proposed to result in the determination of a return on debt in a way that is consistent with the allowed rate of return objective. As noted above, the allowed rate of return objective requires the rate of return to be commensurate with the efficient financing costs of a benchmark efficient entity.

TransGrid considers that what is therefore required is identification of the efficient financing costs of a benchmark efficient entity – not an identification of the efficient financing costs of an entity operating under any particular regulatory approach (that is, trailing average approach, an "on the day" approach, or some combination of the two).

TransGrid's view is that the task under the Rules is to identify what a benchmark efficient entity would do and estimate the efficient financing costs of that approach. The regulatory approach to estimating the cost of debt is defined once it has been identified what a

[27] AEMC, *Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, page iv.
[28] AEMC, *Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, pp75-76.

benchmark efficient entity would do, as opposed to selecting the regulatory approach and then estimating what efficient financing costs would be under that approach.

In settling on the trailing average approach in the Rate of Return Guidelines, the AER has accepted that a benchmark efficient entity would not raise all debt required to satisfy its financing needs once for every regulatory control period (that is, just ahead of the start of each regulatory control period). Rather, a benchmark efficient entity will have a staggered debt portfolio. Having accepted that proposition, the question is then what are the efficient financing costs associated with an entity that has a staggered debt portfolio. It is then this allowance that is to be provided for in TransGrid's forthcoming regulatory control period as required by clause 6A.6.2(a) of the Rules.

Consistent with what a benchmark efficient entity would do, TransGrid's historic financing practice has been to stagger refinancing of its debt portfolio. Given this, TransGrid does not require any transition in order for the trailing average approach to be applied to estimate its return on debt over the forthcoming regulatory control period.

To the extent the AER may have formed a view about what financing practices a benchmark efficient entity may have adopted under previous regulatory approaches to determining the return on debt, TransGrid submits that these are either:

- irrelevant, because what is required is an estimate of the cost of debt in the forthcoming regulatory control period based on the efficient financing costs of a benchmark efficient entity, which the AER considers should be estimated by reference to a trailing average approach. Having determined the relevant benchmark, it is not open to the AER to then apply transitional arrangements on the basis of a different benchmark financing structure which it has not found to be consistent with the Rules, the Revenue and Pricing Principles, and the National Electricity Objective; or
- incorrect, insofar as the AER appears to have formed a view that a benchmark efficient entity would have only adopted one practice under the "on the day" approach being holding a debt portfolio with a staggered maturity dates and using swap transactions to hedge interest rate exposure for the duration of a regulatory control period.

Clause 6A.6.2(k) requires regard to be had to a number of factors in estimating the return on debt. Relevantly these factors include the desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity, and any impacts on a benchmark efficient entity that could arise as a result of changing the methodology that is used to estimate the return on debt from one regulatory control period to the next. Having regard to these factors indicates that it would not be appropriate to apply transitional arrangements to TransGrid.

In respect of the desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity, it is clear that given TransGrid already has in place a financing practice that implements a trailing average, providing no transition to the regulatory trailing average approach will minimise any difference between the return on debt and the return on debt of a benchmark efficient entity. Given the AER has accepted that a trailing average approach will provide a rate of return that is commensurate with the efficient financing costs of a benchmark efficient entity, to apply a transitional approach that prevents the full estimation of these costs on a trailing average basis until 2024 will not operate to

minimise the difference between the return on debt that will be determined for TransGrid and the return on debt of a benchmark efficient entity.

In relation to any impacts on a benchmark efficient entity that could arise as a result of changing the methodology that is used to estimate the return on debt from one regulatory control period to the next, TransGrid's actual financing practices mean that no transition to the trailing average approach is required. In fact, the imposition of transitional arrangements to TransGrid would operate to delay both TransGrid and its customers from realising the benefits of greater alignment of regulatory practices with efficient financing practices.

In summary, having found that the efficient financing costs of a benchmark efficient entity should be determined by reference to a trailing average approach, it would be incorrect for the AER to impose transitional arrangements that would prolong for a period of 10 years the full application of the trailing average approach to TransGrid. Such an approach is inconsistent with the Rules, which requires the identification of efficient financing costs of a benchmark efficient entity in the relevant regulatory control period, and not by reference to any other regulatory control period, and not in light of any particular historic regulatory approach to determining the cost of debt.

7.1.2 The Adoption of a "Foundation Model"

TransGrid notes that the cost of equity is the more challenging component of the cost of capital, as it cannot be observed on either an ex-ante or ex-post basis.

The Sharpe-Lintner Capital Asset Pricing Model is proposed to be the "foundation model" for determining the cost of equity for regulated energy networks. The *Rate of Return Guidelines* states that:

> … the Sharpe-Lintner CAPM is superior to the alternative return on equity models… It is logical to expect, therefore, that in most circumstances our final estimate of the expected return on equity will be close to the foundation model.[29]

TransGrid's concern is that the proposed foundation model approach is inconsistent with the Rule requirements to have regard to all relevant models, data and related information when reaching a cost of equity estimate. In effect, evidence or models that are inconsistent with the estimates derived from the foundation model are likely to be wrongly excluded.

TransGrid's view is that determining the allowed cost of equity requires a "facts based" assessment of all relevant evidence or models with regard to their strengths, weaknesses, challenges and anomalies.

TransGrid notes that in the Energy Networks Association (ENA) response to the *Draft Rate of Return Guidelines* four different financial models were set out which are relevant to the estimation of the cost of equity for a benchmark electricity or gas network business. TransGrid supports the consideration of multiple financial models when estimating the cost of equity.

7.1.3 The Reasonable Range of the "Foundation Model"

The *Rate of Return Guidelines* states that a reasonable range for the cost of equity for a benchmark electricity network business is bounded by the Sharpe-Lintner CAPM, populated by:

[29] AER, *Better Regulation, Explanatory Statement, Rate of Return Guideline*, December 2013, p64.

- prevailing yields on 10 year Commonwealth Government Securities (CGS);
- an equity beta of between 0.4 and 0.7; and
- a market risk premium (MRP) of between 5.0 and 7.5 per cent.

In other words, the equity premium (that is, the premium required to invest equity in a benchmark energy network business over the yield of a riskless asset) is between 2.0 and 5.25 per cent. Further, on the basis of an observed risk free rate of 4.08 per cent (20 business days to 30 September 2013) the estimated reasonable range for the cost of equity is between 6.08 and 9.33 per cent.

TransGrid believes that the reasonable range derived from the "foundation model" highlights a downward bias in the AER's preferred cost of equity model. This can be demonstrated when the reasonable range is compared with the Reserve Bank of Australia's (RBA's) estimate of the yield on BBB corporate debt for September 2013 of 7.33 per cent. In other words, the lower bound of the AER's reasonable range for the cost of equity is 125 basis points below the return provided to benchmark debt and over a third of the AER's cost of equity reasonable range is also below this benchmark. A tenet of corporate finance theory is that equity is priced above debt given that it carries more risk.

7.2 TransGrid's Proposed Indicative Range for Rate of Return and Point Estimate

Table 7.1 sets out TransGrid's proposed indicative point estimate for the rate of return on TransGrid's regulated assets during the transitional year, together with an indicative lower and upper bound.[30] This is based on a preliminary assessment of:

- the immediate adoption of a trailing average cost of debt; and
- the cost of equity using a range of financial models;

TransGrid proposes a conservative point estimate of the rate of return for the transitional year of 8.9 per cent. This point estimate has been used to determine the indicative maximum allowed revenue for the transitional year of 2014/15.[31]

Table 7.1
Indicative Range and Point Estimate for Rate of Return

Parameter	Lower Bound	Upper Bound	Point Estimate
Nominal vanilla WACC	8.8%	9.5%	8.9%

Source: TransGrid.

7.3 Gamma

TransGrid proposes to adopt a gamma of 0.25 measured as the product of the payout ratio (0.7) and utilisation rate, theta (0.35). This is consistent with the methodologies and evidence provided by the ENA in its response to the AER's draft *Rate of Return Guideline* and the

[30] Note that in developing these WACC estimates for the transitional revenue proposal, TransGrid has relied on publicly available studies on the cost of capital for a benchmark energy network. Detailed expert economic and financial analysis will be prepared for the full proposal.
[31] As required by Rule 11.57.2(b)(b)(1) of the Rules.

Australian Competition Tribunal's (Tribunal's) 2010 Energex decision. TransGrid notes that in the final Guideline the AER has:

- adopted a payout ratio of 0.7, in agreement with both the methodology and outcome applied by the Tribunal in the Energex decision; and
- introduced a new approach to assessing the market value of distributed credits resulting in a theta value of 0.7.

On the basis of these conclusions the final guideline adopts a gamma value of 0.5.

Given that the final Guideline was published on 18 December 2013, TransGrid has had a very limited opportunity to understand the AER's new approach to assessing theta, including a new "conceptual goalposts" approach which was not consulted upon during the guideline development process. TransGrid will provide a comprehensive response to the AER's new approach to valuing theta as part of the full revenue proposal in May 2014.

TransGrid's preliminary view is that theta should continue to be valued on the basis of evidence derived from market value studies. This position is consistent with the position of the ENA in its response to the draft Guideline and the arguments put forward by the Tribunal in the Energex decision. Further, the best evidence available from market studies supports a value of 0.35[32] for theta, and therefore a gamma value of 0.25.

[32] SFG, *Dividend drop-off estimate of theta: Final Report Re: Application by Energex Limited (No 2) [2010] ACompT 7*, 21 March 2011.

8 Depreciation

This chapter presents TransGrid's indicative estimate of the depreciation on prescribed assets in 2014/15 to 2018/19.

The allowable regulatory depreciation is also referred to as "return of capital" that is net of the straight-line depreciation and the annual inflation effect on the opening regulatory asset base.

8.1 Actual Depreciation

In the *Economic Regulation of Network Service Providers* rule change,[33] the AEMC stated that in relation to depreciation, for consistency the use of actual or forecast depreciation to calculate the opening value of the RAB for both the transitional and subsequent regulatory control periods will be as set out in the current regulatory determination.

The AER will determine the method to be used to establish the opening RAB for the period after the subsequent regulatory control period when it makes the full revenue determination in April 2015. On this basis, the opening RAB is based on actual depreciation.

8.2 Depreciation Methodology

In accordance with the requirements of Clause 6A.6.3, TransGrid has applied the straight-line depreciation method to each asset category in the RAB over the economic life of the asset across the regulatory control period, based on the value of the assets included in the RAB at the beginning of each regulatory year.

The Post Tax Revenue Model (PTRM)[34] commences the annual depreciation calculation for a new asset over its standard asset life in the year after the capital expenditure is commissioned. The existing assets as at 1 July 2014 are depreciated over their remaining asset lives. The remaining asset lives are calculated within the PTRM.

Assets that are forecast to be disposed of or decommissioned are removed from the asset base in the same asset class in the year of disposal.

TransGrid's depreciation calculation details are contained in the completed PTRM submitted with this transitional revenue proposal.

[33] AEMC, *Rule Determination, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, p247 section 12.10.3.
[34] The PTRM is a model provided by the AER and to be used by transmission businesses in preparing the revenue proposal. The PTRM calculates the Maximum Allowed Revenue for the revenue proposal based on the costs set out in this proposal.

8.3 Asset Classes and Lives

Clause 6A.6.3(b) of the National Electricity Rules states that the depreciation schedules must depreciate using a profile that reflects the nature of the assets or category of assets over the economic life of that asset or category of assets.

TransGrid has assigned regulatory lives to well recognised classes of assets that reflect the assets' expected technical lives.

Rule 6A.6.3(b)(3) states that the economic life of the relevant assets and the depreciation methodologies and rates underpinning the calculation of actual depreciation for a given regulatory control period must be consistent with those determined for the same assets on a prospective basis in the transmission determination for that period.

TransGrid has added a new asset class "Transmission Line Life Extension". This asset class is used to record capital expenditure works which would result in life extension of transmission line assets, such as corrosion treatment, painting and replacement of fittings. This will not result in any change in economic lives or depreciation rates determined in previous revenue determinations.

The asset classes and standard lives for the upcoming regulatory control period are shown in Table 8.1. These asset categories and lives have been used in the PTRM to forecast TransGrid's revenue requirements.

Table 8.1
Asset Categories and Standard Lives

No	Asset Class	Asset Life (Years)
1	Transmission Lines (2014-19)	50
2	Underground Cables (2014-19)	45
3	Substations (2014-19)	40
4	Secondary Systems (2014-19)	15
5	Communications (2014-19)	10
6	Business IT (2014-19)	4
7	Minor Plant, Motor Vehicles and Mobile Plant (2014-19)	8
8	Transmission Line Life Extension (2014-19)	25
9	Land and Easements	N/A

8.4 Remaining Asset Lives

Clause 6A.6.3 of the National Electricity Rules states that the economic life of the relevant assets and the depreciation methodologies and rates underpinning the calculation of depreciation for a given regulatory control period must be consistent with those determined for the same assets on a prospective basis in the transmission determination for that period.

For existing assets, TransGrid has used the same asset lives in accordance with the Rules. The weighted average remaining asset lives calculation incorporated within the Roll Forward Model[35] and PTRM has been adopted by TransGrid to calculate remaining asset lives.

8.5 Depreciation Forecast

Regulatory depreciation is made up of straight-line depreciation and an adjustment for the annual inflation of the opening RAB.

The indicative estimated regulatory depreciation allowance is shown in Table 8.2.

Table 8.2
Indicative Depreciation Forecast ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19
Straight-line Depreciation	246	266	285	277	296
Less: Inflation Adjustment on RAB	-154	-161	-169	-179	-187
Regulatory Depreciation	**92**	**104**	**116**	**98**	**110**

Source: TransGrid. Totals may differ due to rounding.

[35] The Roll Forward Model is provided by the AER and is to be used by transmission businesses in calculating the opening value of the regulatory asset base to be used in the revenue proposal.

9 Corporate Income Tax

Clause 6A.5.4(a)(4) requires that the estimated cost of the corporate income tax allowance must be made as part of the post-tax nominal approach to the revenue determination.

9.1 Tax Depreciation

For the purpose of estimating the cost of income tax, TransGrid has calculated tax depreciation on a straight-line basis, using the AER's Roll Forward Model and Post Tax Revenue Model (PTRM). The asset lives applied for tax purposes are the same as standard asset lives which are set out in Table 8.1 of this proposal.

TransGrid's indicative estimate of forecast tax depreciation for 2014/15 to 2018/19 calculated using the AER's PTRM is set out in Table 9.1. This has been used to calculate TransGrid's indicative estimated corporate income tax allowance.

Table 9.1
Indicative Forecast Tax Depreciation Schedule ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19
Tax Depreciation	196	208	165	155	167

Source: TransGrid.

9.2 Tax Allowance

TransGrid has estimated its allowance for corporate income tax in accordance with the methodology set out in Clause 6A.6.4 of the National Electricity Rules.

The AER's PTRM has been used to provide an indicative estimate of the tax allowance. The indicative estimate of forecast income tax is shown in Table 9.2.

Table 9.2
Indicative Estimated Corporate Tax Allowance ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19
Corporate Income Tax	61	66	92	95	100
Less: Value of Imputation Credits	-15	-16	-23	-24	-25
Total Allowance	**46**	**49**	**69**	**71**	**75**

Source: TransGrid. Totals may differ due to rounding.

10 Maximum Allowed Revenue

TransGrid's revenue proposal is calculated based on the post-tax building block approach.

This approach is set out in clause 6A.5.4 of the Rules and the AER's post-tax revenue model (PTRM).

The detailed information substantiating the building block components has been described in the preceding chapters. This chapter summarises the building block approach and presents the resultant maximum allowed revenue and x-factor calculated along with the average price path.

10.1 Building Block Approach

TransGrid has applied the AER's building block approach to estimate an indicative revenue requirement. This indicative revenue requirement is then smoothed with an "x-factor".

A brief summary for each building block component is set out in the rest of this chapter along with unsmoothed and smoothed revenue requirements.

10.1.1 Regulatory Asset Base

The indicative estimate for the regulatory asset base over 2014/15 to 2018/19 is set out in Table 10.1.

Table 10.1
Indicative Forecast Regulatory Asset Base ($m nominal)

RAB	2014/15	2015/16	2016/17	2017/18	2018/19
Opening RAB	6,104	6,395	6,696	7,071	7,387
Net Capital Expenditure	383	406	491	415	327
Straight-line Depreciation	-246	-266	-285	-277	-296
Inflation Adjustment	154	161	169	179	187
Closing RAB	**6,395**	**6,696**	**7,071**	**7,387**	**7,604**

Source: TransGrid. Totals may differ due to rounding.

10.1.2 Equity Raising Cost

TransGrid has applied the AER's Dividend Payout Ratio Methodology for forecasting equity raising costs and consequently has no allowance for these costs included in this transitional revenue proposal.

10.1.3 Inflation Assumption

TransGrid has applied 2.53% inflation based on the Reserve Bank of Australia November 2013 monetary policy for 2013/14 and 2014/15 and the mid-point of the target inflation band of 2-3% for the remaining eight years.

10.1.4 Return on Capital

The return on capital is calculated based on applying the indicative post-tax vanilla nominal weighted average cost of capital (WACC) to the indicative estimated opening RAB in the respective year using the AER's PTRM. The calculation for the WACC of 8.9% is discussed in Chapter 7 of this proposal.

The indicative estimate for the return on capital for 2014/15 to 2018/19 is shown in Table 10.2. TransGrid notes that under the trailing average approach (with or without transition), the cost of debt will be updated annually. Without knowledge of future market movements, TransGrid has assumed the same WACC rate applying to all years. TransGrid notes that the return on capital in future years will vary in accordance with movements in the trailing average cost of debt and the numbers below are indicative only.

Table 10.2
Indicative Return on Capital ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Opening RAB	6,104	6,395	6,696	7,071	7,387	
Return on Capital	**543**	**569**	**596**	**649**	**657**	**2,995**

Source: TransGrid.

10.1.5 Depreciation

The depreciation calculation is discussed in detail in Chapter 8 of this proposal. The indicative estimate for regulatory depreciation is derived from the AER's PTRM. An indicative estimate of depreciation over 2014/15 to 2018/19 is shown in Table 10.3.

Table 10.3
Indicative Depreciation Forecast ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Regulatory Depreciation	92	104	116	98	110	521

Source: TransGrid.

10.1.6 Operating Expenditure

The indicative estimate of operating expenditure is discussed in Chapter 3 of this proposal. The indicative estimate for forecast operating expenditure over 2014/15 to 2018/19 is shown in Table 10.4.

Table 10.4
Indicative Operating Expenditure Forecast ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Controllable Operating Expenditure	177	180	182	187	196	921
Debt Raising Costs	9	9	10	10	11	48
Insurance	6	7	8	9	10	39
Self-Insurance	0	0	0	0	0	0
Network Support	0	0	0	0	0	0
Total	**192**	**196**	**199**	**206**	**216**	**1,008**

Source: TransGrid. Totals may differ due to rounding.

10.1.7 Corporate Tax Allowance

The indicative estimate for the corporate tax allowance is discussed in Chapter 9 of this proposal. The indicative estimate for the corporate tax allowance is shown in Table 10.5.

Table 10.5
Indicative Corporate Tax Allowance ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Tax Allowance	46	49	69	71	75	311

Source: TransGrid.

10.2 Maximum Allowed Revenue

The indicative estimate for unsmoothed revenue requirement for each year of the period is calculated as the sum of the building block components. Based on the building blocks outlined in the previous sections, the indicative estimate for the 2014/15 unsmoothed revenue requirement is shown in Table 10.6.

TransGrid notes that under the trailing average approach (with or without transition), the cost of debt will be updated annually. Without knowledge of future market movements, TransGrid has assumed the same WACC rate applying to all years. TransGrid notes that the WACC, and accordingly the Maximum Allowed Revenue, in future years will vary in accordance with movements in the trailing average cost of debt.

Table 10.6
Indicative Unsmoothed Revenue Requirement ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Return on Capital	543	569	596	629	657	2,995
Return of Capital (Regulatory Depreciation)	92	104	116	98	110	521
Operating Expenditure	192	196	199	206	216	1,008
Efficiency Carryover	25	10	12	21	4	71
Net Tax Allowance	46	49	69	71	75	311
Annual Building Block Revenue Requirement (Unsmoothed)	**897**	**929**	**992**	**1,026**	**1,062**	**4,906**

Source: TransGrid. Totals may differ due to rounding.

10.3 Smoothed Maximum Allowed Revenue

The x-factor and the indicative smoothed revenue requirement are shown in Table 10.7. This is TransGrid's proposed indicative smoothed revenue requirements for 2014/15 to 2018/19 based on the WACC point estimate of 8.9%.

Table 10.7
Indicative X-factor and Smoothed Revenue Requirement ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Unsmoothed Revenue	897	929	992	1,026	1,062	4,906
Smoothed Revenue	930	953	977	1,002	1,027	4,890
X-factor	**2.92%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	

Source: TransGrid. Totals may not add due to rounding.

Rule 11.58.2(b)(5) requires TransGrid to propose an indicative range for the revenue requirements for the 2014/15 to 2018/19 years. The revenue range in Table 10.8 is derived from the upper and lower bound WACC range in Table 7.1, and all other inputs are the same as those used to derive the revenue in Table 10.7.

Table 10.8
Indicative Range for Smoothed Revenue Requirement ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Smoothed Revenue – Upper WACC Range	979	1,004	1,029	1,055	1,082	5,150
Smoothed Revenue – Lower WACC Range	922	945	969	993	1,018	4,847

Source: TransGrid. Totals may not add due to rounding.

10.4 Estimated Prescribed Revenue for 2013/14

In February 2013 TransGrid announced a revenue freeze for prescribed services for 2013/14. The estimated prescribed revenue to be collected for 2013/14 is $863m. The AER allowance for TransGrid's prescribed revenue for 2013/14 is $934m.

10.5 Average Price Path

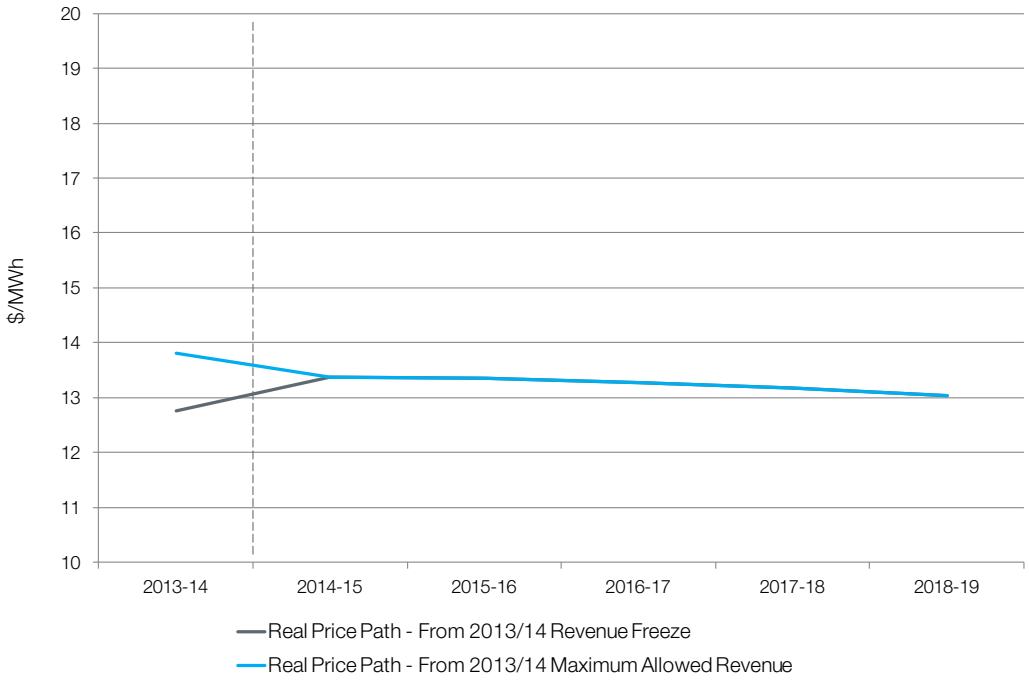
TransGrid determines its transmission prices based on the AER's approved revenue and the pricing principles in Rule 6A.23 of the Rules. The average price path is calculated using the AER's PTRM and it is estimated based on dividing the indicative estimated revenue requirement by the AEMO forecast energy delivered in New South Wales.[36] Price movements for individual customers may vary depending on usage and location.

To minimise price rises for consumers, TransGrid has ensured its smoothed revenue forecast is no higher than CPI for 2014/15 to 2018/19. As a result of the indicative forecasts in this transitional revenue proposal, average transmission prices are expected to increase marginally for the first year of the upcoming regulatory control period followed by below CPI price changes in all future years.

The indicative average price path following the revenue freeze in 2013/14 is shown in Figure 10.1.

[36] AEMO, *National Electricity Forecasting Report*, 2013.

Figure 10.1
Indicative Average Price Path ($m 2013/14)



11 Efficiency Benefit Sharing Scheme

The efficiency benefit sharing scheme provides incentives for transmission network service providers to make ongoing efficiency improvements in operating expenditure.

TransGrid has responded to the commercial drivers for cost control and the incentives provided by the efficiency benefit sharing scheme (EBSS). In the 2009/10 to 2013/14 regulatory control period TransGrid has pursued efficiencies throughout its business, and as such has outperformed the operating expenditure allowance set in the revenue determination.

This section estimates TransGrid's historical EBSS performance and a final year adjustment to the carryover from the previous efficiency carry forward mechanism (ECFM) that applied in the 2004/05 to 2008/09 regulatory control period.

11.1 Historical EBSS Performance

TransGrid's performance against the EBSS targets in the 2009/10 to 2013/14 revenue determination are shown in Table 11.1. The savings under the Efficiency Benefit Sharing Scheme have been reduced by $2 million in 2012/13, to take account of an underspend in the base year for easement maintenance costs and ensure that TransGrid is not rewarded under the EBSS for this abnormal underspend. The events leading to the adjustment are summarised in Section 5.3.

TransGrid has adjusted its EBSS targets for the difference between forecast demand at the time of the last revenue determination and actual demand over the period, to ensure that the EBSS provides a sharing of genuine efficiencies and excludes windfall benefits from the reduction in demand. This adjustment benefits consumers in the next regulatory control period.

The carryover amounts are shown in Table 11.2.

Table 11.1
Historical EBSS Performance ($m nominal)

	2009/10	2010/11	2011/12	2012/13	2013/14
EBSS Target	121	135	142	154	159
EBSS Target Adjusted for Change in Demand	121	135	141	152	157
Actual/Expected EBSS Expenditure	108	123	137	132	137

Source: TransGrid.

Table 11.2
EBSS Carryover ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19
EBSS Carryover	21	6	9	18	0

Source: TransGrid.

11.2 Historical ECFM Carryover

In the 2004/05 to 2008/09 regulatory control period a predecessor to the EBSS, the efficiency carry forward mechanism (ECFM) applied to TransGrid. At the time of the 2009/10 to 2013/14 revenue determination, the 2008/09 year had not yet been completed and therefore the actual expenditure in this year was unknown.

In TransGrid's 2009/10 to 2013/14 revenue determination the AER applied TransGrid's budgeted expenditure for 2008/09 and provided for an adjustment to be made for actual expenditure in this revenue determination. Two options were available with respect to the timing of the adjustment: to make the adjustment entirely in 2014/15 or throughout all years of the subsequent regulatory control period.

TransGrid proposes to make the adjustment throughout several years, as the option that would create the least price volatility. Over the five year forecast period in this transitional revenue proposal, this leads to the indicative adjustments shown in Table 11.3.

Table 11.3
Indicative ECFM Adjustment ($m nominal)

	2014/15	2015/16	2016/17	2017/18	2018/19
ECFM Adjustment	3.5	3.5	3.5	3.5	3.5

Source: TransGrid.

11.3 Proposed Application in Transitional Year

The transitional rules provide that the AER may specify how the EBSS will apply to TransGrid in the 2014/15 transitional year, in its framework and approach paper for the

upcoming revenue determination.[37] This is required because, under the transitional arrangements, the EBSS targets will not be set until near the end of the first year of the regulatory control period.

The AER published its framework and approach paper for TransGrid in January 2014.[38] In the framework and approach paper the AER proposes to apply the EBSS in the transitional year. TransGrid agrees that it is preferable for the EBSS to apply to TransGrid in the transitional year, as the EBSS is a continuous scheme that provides incentives for sustained efficiencies.

A complication of applying the scheme to the transitional year is that the operating expenditure allowance, from which the EBSS targets are derived, will not be published until the end of April 2015. This is ten months through the transitional year, which leaves TransGrid only two months to respond to the EBSS target set by the AER.

TransGrid understands that the AER has considered alternative approaches to the application of the EBSS in the transitional year. TransGrid's preference is that for EBSS purposes, the target in 2014/15 be set to the actual expenditure for the year. This avoids the timing issue of the target expenditure for that year being set towards the end of the year, and provides a reference from which changes in savings can be measured from 2015/16 onwards. It also provides more balanced incentives between capital and operating expenditure than the AER's proposed application, as the new Capital Expenditure Sharing Scheme (CESS) will also not apply in the transitional year under the transitional arrangements in the Rules.

TransGrid therefore proposes that the AER set the EBSS target for the transitional year to the actual expenditure for the year.

[37] National Electricity Rules Clause 11.58.3(a)(3).
[38] AER, *Framework and Approach Paper: TransGrid*, January 2014.

12 Service Target Performance Incentive Scheme

The service target performance incentive scheme provides incentives for transmission network service providers to improve and maintain the performance of the network.

In the 2009/10 to 2013/14 regulatory control period TransGrid is subject to version 2 of the service target performance incentive scheme (STPIS). In the 2014/15 transitional year TransGrid will be subject to transitional arrangements under the decision on the early application of version 4 of the electricity transmission service target performance incentive scheme. The transitional arrangements will be as follows.

12.1 Service Component

The service component provides an incentive of ±1% of MAR for network reliability and availability outcomes. The service component in version 2 of the STPIS, which applies in the 2009/10 to 2013/14 regulatory control period, will also apply in 2014/15. The existing parameters, weightings, target, caps and collars will apply. These are shown in Table 12.1.

Table 12.1
Service Component Parameters and Values for 2014/15

Parameter	Collar	Target	Cap	Weighting
Transmission line availability	99.05	99.26	99.36	0.20%
Transformer availability	97.33	98.61	98.89	0.15%
Reactive plant availability	98.65	99.12	99.33	0.10%
Loss of supply >0.05 system minutes	7	4	2	0.25%
Loss of supply >0.25 system minutes	2	1	0	0.10%
Average outage duration	999	824	649	0.20%

Source: TransGrid.

The service component in version 4 of the STPIS will apply from 2015/16.

12.2 Market Impact Component

The market impact component provides an incentive of up to 2% of MAR for outcomes that minimise the impact of network outages on the wholesale electricity market. For this component, version 4 of the STPIS will apply from 2014/15.

As the targets for this component will apply on a rolling three year basis, TransGrid understands that the targets will not be set in the revenue determination but under the annual STPIS performance review process.

12.3 Network Capability Component

TransGrid proposes that the network capability component apply from 2014/15. This component requires the submission of a network capability incentive parameter action plan (NCIPAP), which is attached to this transitional proposal as Appendix A.

13 Self-Insurance and Pass Through Events

This chapter presents TransGrid's identified risks to be covered by self-insurance and proposed cost pass through events for the forthcoming regulatory control period.

Self-insurance can in some cases be a more prudent management of business risks than covering the risk in the general insurance market.

Cost pass through arrangements provide for adjustments to the allowed revenue if a non-controllable predefined event occurs that leads to a material change in TransGrid's costs.

13.1 Rule Requirements

Clause 6A.7.3 of the Rules gives TNSPs the ability to nominate specific pass through events as part of their revenue proposals. The glossary in Chapter 10 of the Rules sets out the nominated pass through event considerations.

Self insurance is not specifically addressed in the Rules, accordingly these costs are typically assessed against the operating expenditure objectives and criteria in the Rules.

13.2 Self-Insurance

TransGrid has sought advice from Marsh on the risks TransGrid faces and the feasibility and cost of addressing these material risks via general insurance. Marsh's actuaries have assessed the possibility of addressing non-insurable risks via self-insurance, or pass through where it is not possible to calculate the self-insurance premiums.

Marsh's report covers the likely range of events that TransGrid faces which would not be cost-effectively insurable in the commercial market. TransGrid has not included the costs estimated by Marsh for items that are currently covered under TMF. This approach is discussed in more detail in Section 5.3.

TransGrid proposes the gradual environmental contamination event of $0.02 million per year should be covered by self-insurance and has included Marsh's assessment of the relevant self-insurance premium in the operating expenditure forecasts. This cost is forecast using a zero-based approach.

13.3 Pass Through Events

Clause 6A.7.3 of the Rules has provided the following list of prescribed pass through events:

- regulatory change event;
- service standard event;
- tax change event;
- insurance event; and
- any other event specified in a transmission determination as a pass through event for the determination.

The Rules also gave TNSPs the ability to nominate additional pass through events as part of their revenue proposals.

TransGrid proposes that the events set out in Table 13.1 should be treated as pass through events providing their cost exceeds the materiality threshold defined in the Rules.

Clause 11.58.3(4) of the Rules has specified that the "terrorism event" is to apply for the transitional regulatory control period. For the remaining years of the regulatory control period, TransGrid has included it as one of the nominated pass through events.

Table 13.1
Pass Through Events

Pass Through Event	Definition
Insurance cap event	1. TransGrid makes a claim or claims and receives a payment or payments under a relevant insurance policy, 2. TransGrid incurs costs beyond the relevant policy limit, and 3. The costs beyond the relevant policy limit materially increases the costs to TransGrid of providing prescribed transmission services.
Terrorism event	An act (including, but not limited to, the use of force or violence or the threat of force or violence) of any person or group of persons (whether acting alone or on behalf of in connection with any organisation or government), which from its nature or context is done for, or in connection with, political, religious, ideological, ethnic or similar purposes or reasons (including the intention to influence or intimidate any government and/or put the public, or any section of the public, in fear) and which materially increases the costs to TransGrid of providing prescribed transmission services or the costs to a Transmission Network Service Provider of providing direct control services.
Insurer default	Default of an insurer to which TransGrid is unable to recover its outstanding insurance claims.
Cyber-related external attack	Cyber-related external attack resulting in direct or third party losses to TransGrid.
Gradual environmental contamination event	TransGrid is exposed to a number of environmental risks, each of which could lead to a range of legal and financial consequences for TransGrid. This may include settlement of claims by an individual or group of individuals who have suffered health effects or financial losses, legal costs associated with negotiating that settlement, and the cost of remediation of any contaminated site.

Glossary

Acronym	Definition
ACT	Australian Capital Territory
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CAPM	Capital Asset Pricing Model
CBD	Central Business District
CGS	Commonwealth Government Securities
CPI	Consumer Price Index
DNSP	Distribution Network Service Provider
EBSS	Efficiency Benefit Sharing Scheme
ECFM	Efficiency Carry Forward Mechanism
EGWWS	Electricity, Gas, Water & Waste Services
ENA	Energy Network Association
EUAA	Energy Users Association of Australia
MAR	Maximum Allowed Revenue
MEU	Major Energy Users
MOPS	Major Operating Projects
MRP	Market Risk Premium
NCIPAP	Network Capability Incentive Parameter Action Plan
NERA	NERA Economic Consulting
PAS 55	Publicly Available Specification 55 (Asset Management)
PB	Parsons Brinkerhoff
PoE	Probability of Exceedence

Acronym	Definition
PSCR	Project Specification Consultation Report
PTRM	Post Tax Revenue Model
QNI	Queensland to New South Wales Interconnector
RAB	Regulatory Asset Base
RBA	Reserve Bank of Australia
RIT-T	Regulatory Investment Test for Transmission
Rules	National Electricity Rules
SiCorp	Self Insurance Corporation
SKM	Sinclair Knight Merz
STPIS	Service Target Performance Incentive Scheme
TMF	Treasury Managed Fund
TNSP	Transmission Network Service Provider
WACC	Weighted Average Cost of Capital
WPI	Wage Price Index