FINAL DECISION
TransGrid transmission determination
2018 to 2023

Overview

May 2018

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585 165
Email: AERInquiry@aer.gov.au

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Contents

Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ARORO	allowed rate of return objective
ASRR	annual service revenue requirement
Augex	augmentation expenditure
Capex	capital expenditure
CCP	Consumer Challenge Panel
CCP 9	Consumer Challenge Panel, sub panel 9
CESS	capital expenditure sharing scheme
CPI	consumer price index
DRP	debt risk premium
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
MAR	maximum allowed revenue
MRP	market risk premium
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSCAS	network support and control ancillary services
NSP	network service provider
NTSC	negotiated transmission service criteria
Opex	operating expenditure

PADR	project assessment draft report
PTRM	post-tax revenue model
PSCR	project specification consultation report
PSF	powering Sydney's future project
RAB	regulatory asset base
RBA	Reserve Bank of Australia
Repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RIT –T	regulatory investment test for transmission
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
TNSP	transmission network service provider
TUoS	transmission use of system
WACC	weighted average cost of capital

Note

This overview forms part of the AER's final decision on TransGrid's transmission determination for 2018–23. This overview, together with its attachments, constitutes our final decision on TransGrid's revenue proposal. It should be read together with all other parts of the final decision. These include:

AER – TransGrid transmission determination 2018–2023

Attachment 1 – Maximum allowed revenue

Attachment 2 – Regulatory asset base

Attachment 5 – Regulatory depreciation

Attachment 6 – Capital expenditure

Attachment 8 – Corporate income tax

Attachment 9 – Efficiency benefit sharing scheme

Attachment 10 – Capital expenditure sharing scheme

Attachment A – Pricing methodology

Attachment B – Negotiating framework

As many issues were settled at the draft decision stage or required only minor updates we have not prepared other attachments. In these and other elements of our decision, our draft decision reasons form part of this final decision.

1 Our final decision

The Australian Energy Regulator (AER) works to make all Australian energy consumers better off, now and in the future. We regulate energy networks in all jurisdictions except Western Australia. Our work is guided by the National Electricity Objective (NEO) which promotes efficient investment in, and operation and use of, electricity services in the long term interests of consumers.[1] We set network revenues so that they reflect efficient costs. By only allowing efficient costs we regulate network prices so that energy consumers pay no more than necessary for the safe and reliable delivery of electricity services.

TransGrid owns and operates the electricity transmission network in New South Wales and the ACT. This final decision concerns the maximum allowed revenue (MAR) that TransGrid can earn from its regulated services for the regulatory control period from 1 July 2018 to 30 June 2023. Our final decision is to allow TransGrid to recover $4015.1 million ($nominal, smoothed) from its customers over the 2018–23 regulatory control period.[2]

Our final decision MAR is 2.8 per cent lower, in real terms than the MAR that we approved in our decision for 2014–18.[3] The main reason for this decrease is the return on debt. The return on debt reflects the interest rate TransGrid pays when it borrows money to invest. We set a benchmark efficient return on debt allowance based on the prevailing cost of debt observed in capital markets.[4] Since our last determination the observed yields on the bonds that we use to determine the return on debt have fallen.

Our final decision MAR is 1.5 per cent lower than TransGrid's revised proposal of $4074.9 million ($nominal, smoothed). The difference in revenue between TransGrid's revised proposal and our final decision is mostly driven by our forecast of capital expenditure (capex). We have rigorously tested TransGrid's forecast costs to check that they are efficient. Our capex forecast of $1249.2 million is 20 per cent less than TransGrid's revised proposal of $1559.7 million ($2017–18). However, our capex

1 NEL, s. 7.

2 The final decision maximum allowed revenue (MAR) for the 2018–23 regulatory control period is stated in nominal dollar terms as these are the total revenues that TransGrid is expected to recover from customers after taking into account forecast inflation over the period. In real 2017–18 dollar terms, the final decision MAR is $3728.1 million which is 1.4 per cent lower than the revised proposal MAR of $3781.0 million.

3 The comparison of the average annual revenues between the 2014–18 and 2018–23 regulatory control periods is based on real, smoothed revenues. The impact of inflation—which changes over time—makes it difficult to compare revenue from one period to the next on a like-for-like basis. To do this we use 'real' values based on a common year (in this case 2017–18), which have been adjusted to remove the impact of inflation. The 2.8 per cent reduction in revenues equates to $21.7 million in $2017–18 dollars. In nominal dollar terms, our final decision average annual revenues for the 2018–23 regulatory control period is about $48.3 million (or 6.4 per cent) higher than the average annual revenues approved for the 2014–18 regulatory control period.

4 This is for an investment with a similar degree of risk as that which applies to TransGrid in respect of the provision of regulated services.

forecast is a 12 per cent increase compared to expected capex for the 2014–18 period.[5]

In assessing TransGrid's capex we are required to consider whether the capex forecast reasonably reflects the efficient costs of meeting demand, maintaining supply reliability and safety of the network. In performing this task, we have undertaken a comprehensive assessment of the capex forecast, which has taken into account TransGrid's revised proposal, stakeholder submissions and where relevant independent expert advice.

TransGrid's capital expenditure, and more specifically its proposed Powering Sydney's Future (PSF) project, attracted significant stakeholder attention. TransGrid proposed PSF to maintain supply reliability and manage future demand in Sydney's CBD and inner suburbs. In our draft decision, we did not accept that this project needed to commence in the next regulatory control period. In its revised proposal, TransGrid reduced the proposed scope and cost of PSF. TransGrid initially proposed installing two new 330kv underground circuits from Rookwood Road bulk supply point (BSP) to Beaconsfield West BSP at a cost of $332 million[6] ($2017–18). In its revised proposal TransGrid proposed to install a single 330kv circuit at a cost of $252 million ($2017–18).[7]

Most submissions that we received considered PSF. Stakeholders were generally supportive of TransGrid's revised PSF but a number questioned its scale and timing.[8] A few raised concerns over TransGrid's demand projections, and questioned whether TransGrid had adequately explored the scope for demand management and other non-network measures to improve reliability.[9]

Following an in-depth stakeholder workshop and further review we have accommodated PSF in our capex forecast, with some amendments. We have reduced the cost of the project by $17 million ($2017–18) to $236 million. This represents a reduction of $95.8 million from TransGrid's initial revenue proposal. We have also allowed for $19 million of non-network solutions to manage the risk of supply outages before the cable is operational in 2022–23. Also, TransGrid has agreed to the

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5 On an average annual basis. Actual capex for 2017-18 is not currently known. This figure is based on TransGrid's expectation of what capex will be for this year.

6 TransGrid, *Regulatory proposal*, *2018/19-2022/23,* 31 January 2017, p. 31.

7 TransGrid, *Revised regulatory proposal*, *2018/19-2022/23,* December 2017, p. 60.

8 Ausgrid, Ausgrid submission to the TransGrid 2018-23 determination, January 2018 Energy Users Association of Australia, *TransGrid 2018 – 2023 Revenue Proposal and Powering Sydney's Future*, January 2018, p. 2. City of Sydney, *TransGrid – Regulatory Determination – Revenue Allowance - 2018-2023*, January 2018, p. 2. Sydney Business Chamber, AER TransGrid revised proposal, January 2018. Energy Consumers Australia, *Submission to AER Draft Determination and TransGrid Revised Proposal for the 2018-23 regulatory period*, January 2018. Public Interest Advocacy Centre, *PIAC submission to the AER Draft Determination and TransGrid revised 2018-23 regulatory proposal*, January 2018.

9 City of Sydney, *TransGrid – Regulatory Determination – Revenue Allowance - 2018-2023*, January 2018, p. 2. Public Interest Advocacy Centre, *PIAC submission to the AER Draft Determination and TransGrid revised 2018-23 regulatory proposal*, January 2018, p. 5.

establishment of a stakeholder monitoring committee. The committee will meet with TransGrid to regularly review project costs and timing. Where it is agreed that the project can be deferred or substantially reduced in scope the financial benefits would be passed through to consumers in full.

We consider that the in-depth stakeholder workshop, arranged by our consumer challenge panel (CCP9), was a very constructive consultation. The stakeholder monitoring committee, which was an outcome of the in-depth workshop, is a unique and collaborative approach to stakeholder engagement. It aligns with our strategic objective to help consumers play a growing role as participants, not just recipients, in the energy system and our commitment to consider innovative solutions that are in the long term consumer interest.

While the end result is positive, it could have been achieved much more effectively and efficiently had TransGrid been more thorough in its engagement both prior to submitting its initial proposal and following its lodgement. That being said, the stakeholder workshop would not have been a success without TransGrid's genuine cooperation.

Though important, PSF makes up only 16 per cent of TransGrid's revised capex forecast. We have also reviewed the efficiency of the remainder of TransGrid's capex forecast in detail.[10]

We have not accepted TransGrid's forecast capex as we do not consider that it reflects efficient costs. TransGrid's revised forecast represents a level of expenditure that is 39 per cent higher than its expected capex over the 2014–18 regulatory period. We consider that the framework TransGrid used to forecast capex aligns with good industry practice. However, the evidence indicates that TransGrid's application of its framework overstates prudent and efficient costs. Our alternative forecast aligns with our consultant, EMCa's, advice.

In addition to our ex-ante forecast of capex, we have allowed for a number of contingent projects. These are projects identified in TransGrid's proposal whose need, cost and scope are not yet sufficiently certain such that they can be included in the MAR. The proposed projects predominately reflect the uncertainty regarding the need for network upgrades associated with the connection of large scale renewable generation to the transmission network, including major projects such as Snowy 2.0 and an interconnector between New South Wales and South Australia. In future, we may increase TransGrid's MAR to allow it to recover the cost of these projects should certain trigger events occur and the forecast costs are found to be efficient.

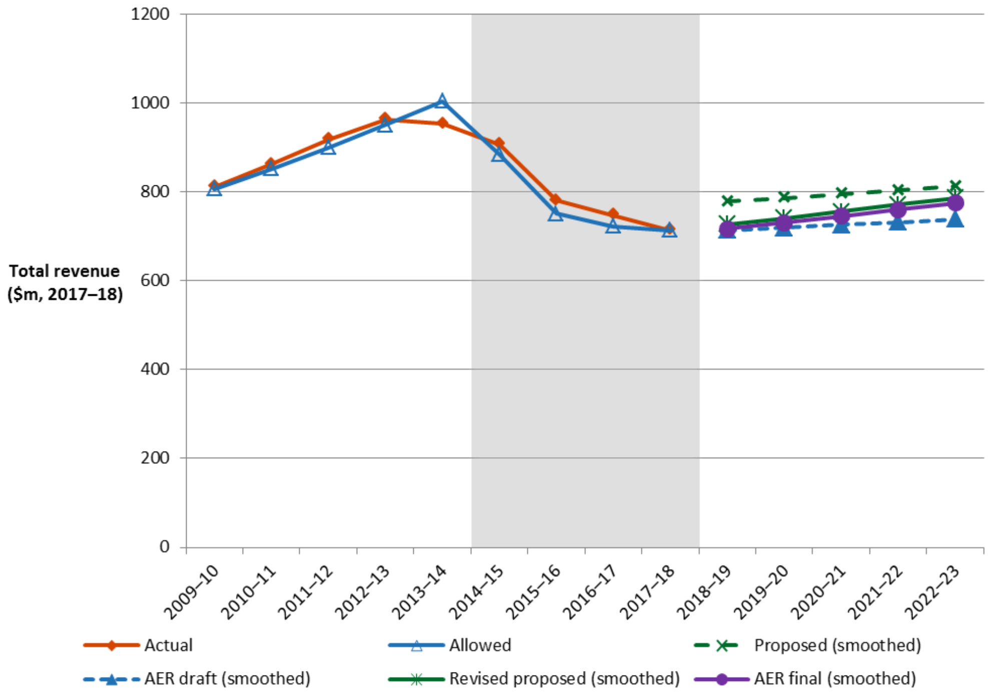
In sections below, we discuss the forecast revenue and expected impact on residential bills. Section 2 outlines some of the key drivers of TransGrid's revenue over the next five years, including what has changed since our draft decision in September 2017.

10 This includes augmentation, replacement and non-network expenditure.

1.1 What is driving revenue

Figure 1.1 compares our final decision on TransGrid's revenue for 2018–23 to its proposed revenue and to the revenue allowed and recovered during the two previous regulatory control periods (2009–14 and 2014–18) in real terms. This provides an indication of how TransGrid's transmission revenues have been changing over time and what the outcome of our decision is. Our final decision approves average annual revenues for the 2018–23 regulatory control period that are $21.7 million ($2017–18)—or 2.8 per cent—lower than approved in our decision for 2014–18 in real dollar terms.[11] Figure 1.1 shows that our final decision is very close to TransGrid's revised proposal.

Figure 1.1 TransGrid's past total revenue, proposed total revenue and AER final decision total revenue allowance ($million, 2017–18)

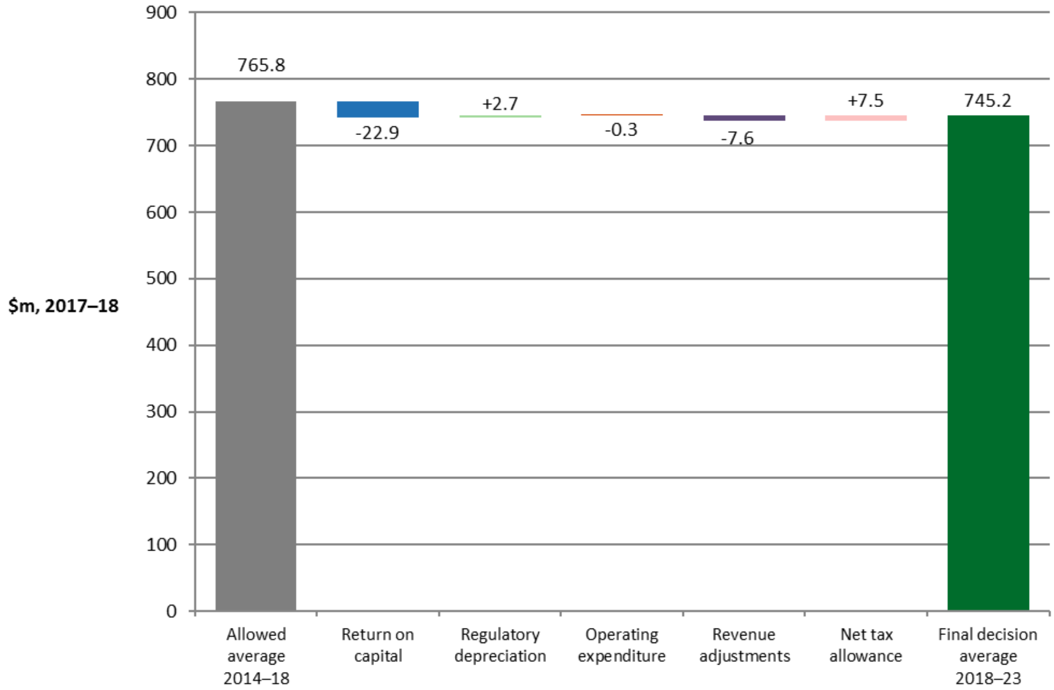


Source: AER analysis.

Figure 1.2 compares our final decision for the 2018–23 regulatory control period with TransGrid's allowed revenue for the 2014–18 regulatory control period, broken down by the various building block components that make up the forecast revenue allowance. These are annual amounts based on an average of unsmoothed revenues over the two five-year regulatory control periods.

[11] The comparison of the average annual revenues between the 2014–18 and 2018–23 regulatory control periods is based on smoothed revenues. In nominal dollar terms, our final decision average annual revenues for the 2018–23 regulatory control period is about $48.3 million (or 6.4 per cent) higher than the average annual revenues approved for the 2014–18 regulatory control period.

Figure 1.2 AER's final decision for 2018–23 and TransGrid's 2014–18 allowed average annual building block costs ($million, 2017–18)

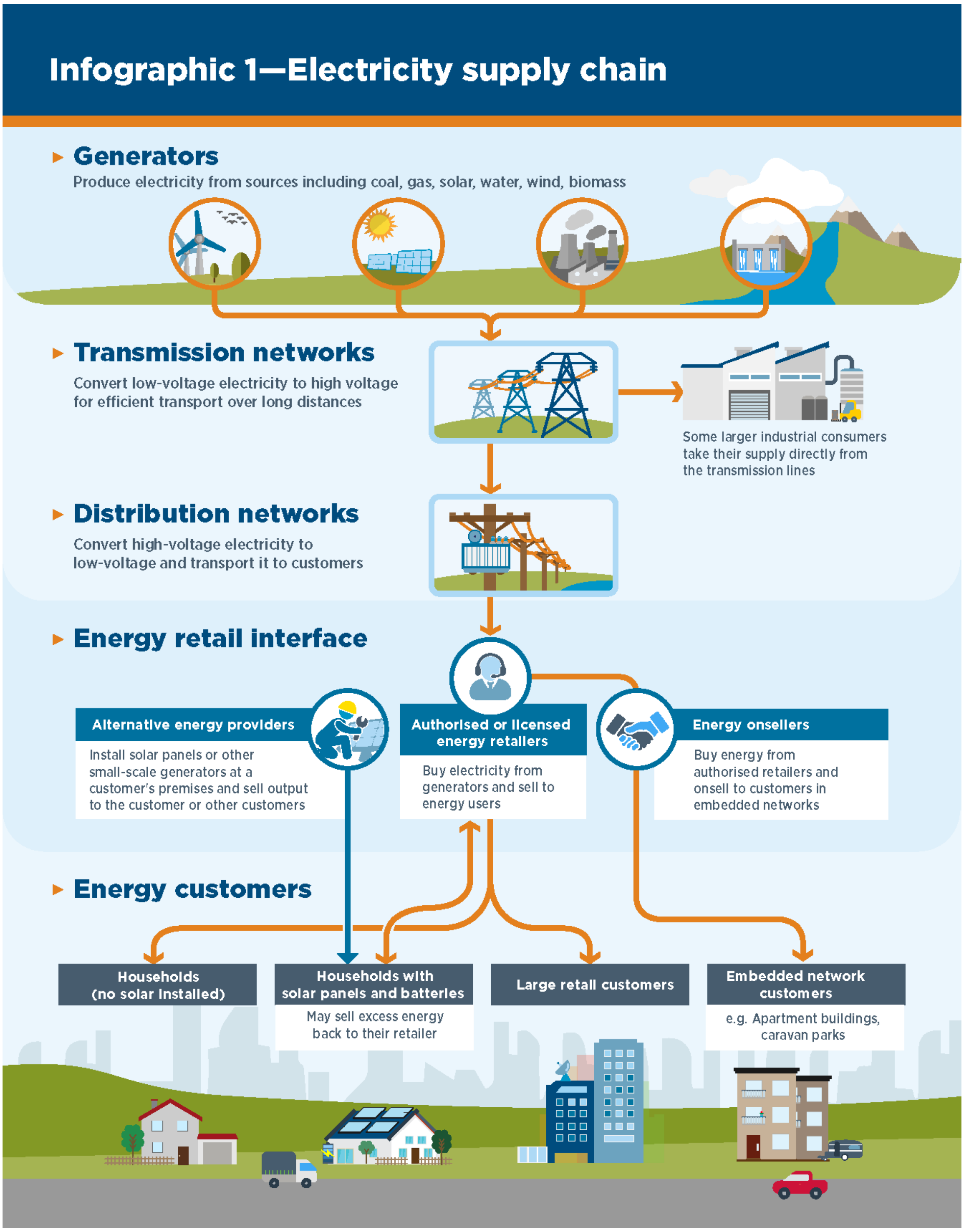


Source: AER analysis.

Figure 1.2 shows that the reduction in the return on capital building block is the most significant change. Other changes are relatively minor and largely offset each other. The return on capital building block has fallen due to a reduction in the cost of debt component of our rate or return. In our previous determination for 2014–18 we set a rate of return of 6.84 per cent. In this determination we set a rate of return of 6.54 per cent. We discuss the rate of return further in section 2.2.

1.2 Expected impact of our final decision on residential electricity bills

Annual electricity bills for customers in NSW and the ACT reflect the combined cost of all the electricity supply chain components. Infographic 1 below illustrates the different components of the electricity supply chain.



Each of the components in the electricity supply chain can affect the electricity charges that customers receive in their bills. Electricity retailers charge end users for the costs of the whole electricity supply chain. Electricity retailers purchase electricity from generators through the electricity market. The costs of electricity transmission are passed on to electricity distributors and then, in turn, passed onto electricity retailers.

TransGrid is the transmission network service provider in NSW and the ACT. Therefore, our final decision on TransGrid will ultimately affect the transmission network charges component of the electricity bill in these two regions. Transmission charges represent approximately 10 per cent of an average customer's annual electricity bill in NSW and 4 per cent in the ACT.[12] These percentages largely explain the relatively moderate impact this final decision is likely to have on average annual electricity bills.

1.2.1 Transmission charges

Figure 1.3 shows the indicative average transmission charges over the period 2009–10 to 2022–23 in real dollar terms. These amounts are an approximation of transmission charges as they are simply TransGrid's forecast revenue divided by TransGrid's forecast energy delivered (measured in MWh). The indicative transmission charges will drop from an average of $11.7 per MWh[13] over 2014–18 to an average of $11.3 per MWh over 2018–23. This is a 3.8 per cent decline.

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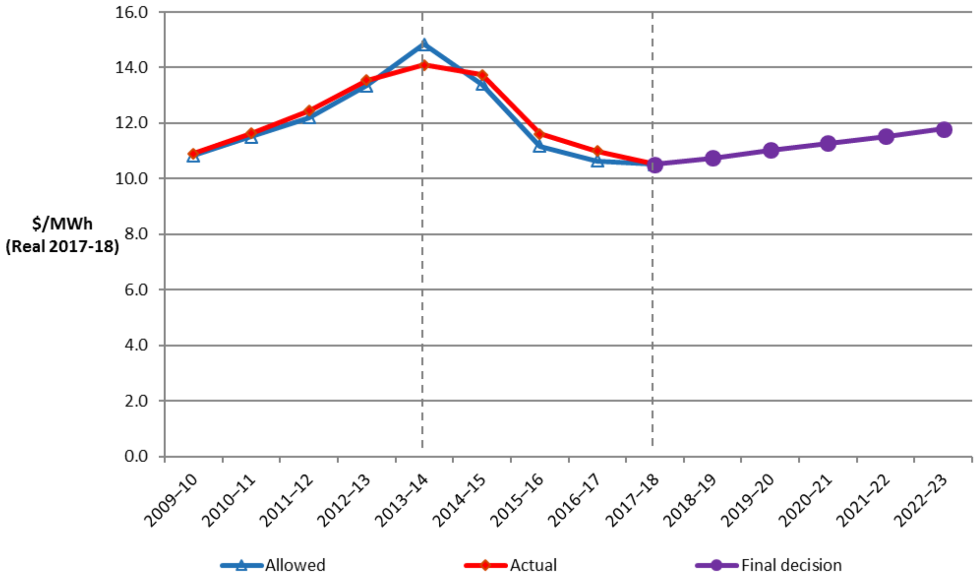
[12] AEMC, *Final Report: 2017 Residential electricity price trends*, December 2017, pp. 100 and 111.

[13] Transmission charges for 2014–18 are based on actual revenue.

Figure 1.3 Indicative transmission charge path for NSW/ACT ($/MWh, 2017–18)



Source: AER analysis

The change in revenues illustrated in Figure 1.1 is driving the change in indicative charges shown in Figure 1.3. Demand is only a minor influence as energy delivered is forecast to slightly decline over 2018–23. From 2017–18, transmission charges are increasing despite average annual revenues decreasing due to the impact of our transitional decision for 2014–15. Under our transitional decision revenues were 16 per cent higher than our final decision for 2014–15. We subsequently adjusted the allowed revenue over 2015–18 to allow for the 2014–15 over recovery. Transmission revenues will, however, return to the unadjusted level in the 2018–23 regulatory control period.

1.2.2 Potential bill impact

We calculate the expected potential bill impact by varying the transmission charges in accordance with our final decision, while holding other components of the bill constant.[14] Based on this approach, we expect that our final decision will result in the transmission component of the average annual electricity bills for residential customers in NSW and the ACT slightly increasing over the 2018–23 regulatory control period. We would expect that the transmission component of the average annual residential electricity bill will increase, on average, by $9 (or 0.5 per cent) per annum in NSW and $5 (or 0.2 per cent) per annum in the ACT over the next 5 years. This estimate is indicative only and used to demonstrate the potential impact of our decision. The

[14] It also assumes that actual energy demand will equal the forecast in our final decision. The effects of any inter-regional settlement residues are also not included in our bill analysis. Since TransGrid operates under a revenue cap, changes in demand will also affect annual electricity bills across the 2018–23 regulatory control period. While our approach isolates the effect of our decision on electricity prices, it does not imply that other components will remain unchanged across the regulatory control period.

impact on individual customers' bills will depend on their usage patterns and the structure of their chosen retail tariff offering. For example, electricity customers on time-of-use tariffs may pay more or less depending on their tariffs and when they use electricity.

Further detail on our final decision impact on overall bills is set out in attachment 1.

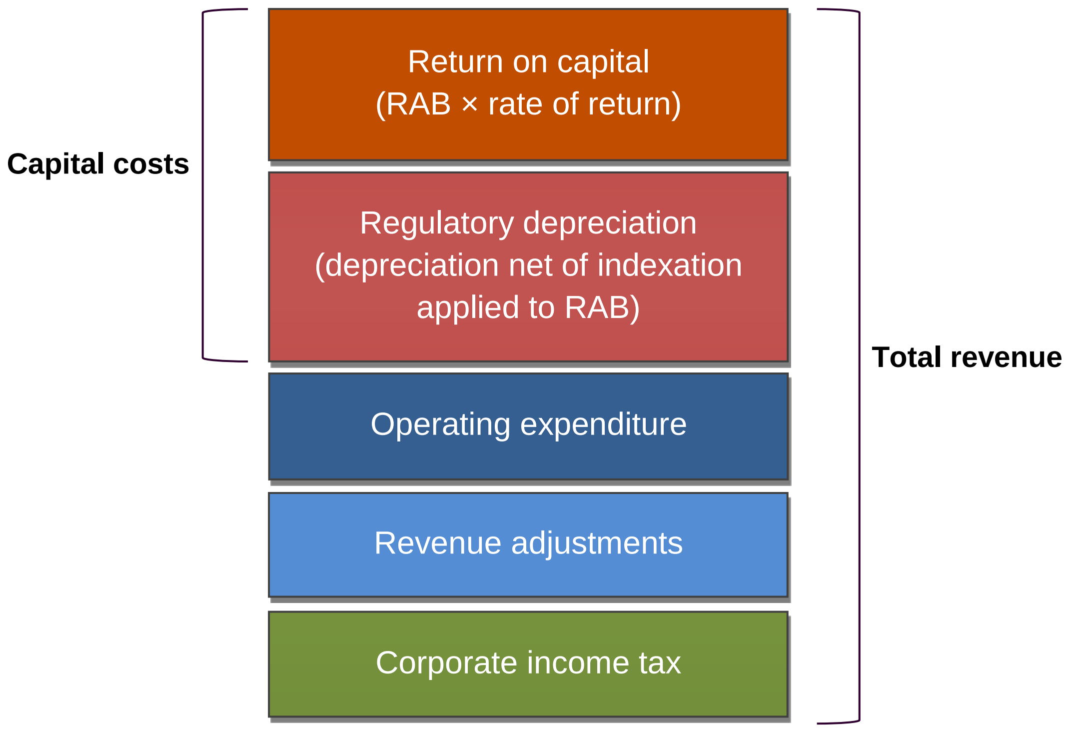
2 Key elements of our decision on revenue

In this section, we step through the components of our decision that affect our revenue forecast and examine the drivers of the difference between our draft decision, TransGrid's revised proposal and revenues in the previous period. To understand what is driving forecast revenues it is necessary to understand the components of our forecast revenue. We use a building block approach to determine TransGrid's MAR. The building block approach consists of five costs that a business is allowed to recover through its revenue allowance. We set forecast revenues based on our forecast of efficient costs for TransGrid's services. TransGrid's returns are determined by its actual costs of providing services. This means that TransGrid has an incentive under our framework to provide safe and reliable services at lower than our forecast of efficient costs.

The building block costs are illustrated in Figure 2.1 and include:

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

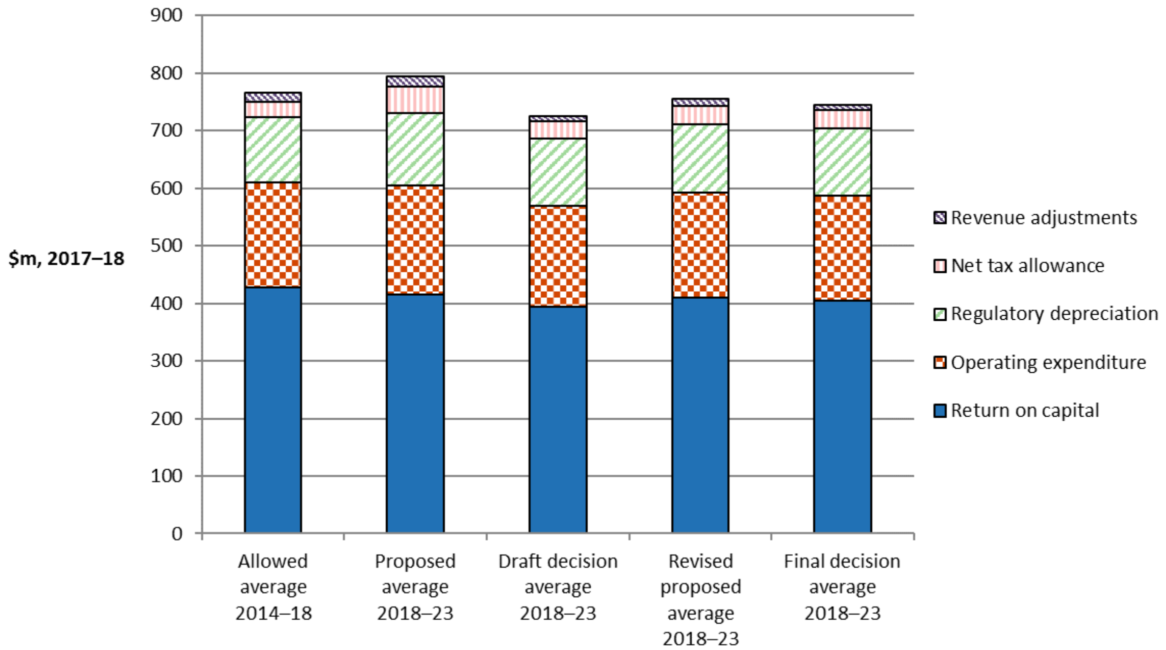
Figure 2.1 The building block approach for determining total revenue



The building block costs are calculated using key elements of this decision. One key element is TransGrid's RAB – which is the value of the assets used by TransGrid to provide prescribed transmission services. We use the opening RAB for each regulatory year to determine the return on capital and return of capital (regulatory depreciation) building block allowances.

Our decision provides 1.4 per cent less revenue, in real terms, than TransGrid sought to recover through its revised revenue proposal. Figure 2.2 compares the average annual building block revenue from our final decision to that proposed by TransGrid for the 2018–23 regulatory control period, and to the approved average amount for the 2014–18 regulatory control period.

Figure 2.2 AER's final decision on constituent components of TransGrid's average annual revenue ($million, 2017–18)



Source: AER analysis.

Table 2.1 shows our final decision on TransGrid's revenues including the building block components.

Table 2.1 AER's final decision on TransGrid's revenues for the 2018–23 period ($million, nominal)[15]

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Return on capital	416.8	424.8	435.2	445.4	458.2	2180.4
Regulatory depreciation[a]	101.2	118.9	131.7	134.1	144.6	630.5
Operating expenditure[b]	179.9	187.6	196.5	208.3	204.6	976.7
Revenue adjustments[c]	4.7	18.5	5.4	12.7	5.1	46.5
Net tax allowance	31.7	33.7	35.3	37.3	39.1	177.1
Annual building block revenue requirement (unsmoothed)	734.3	783.5	804.1	837.8	851.6	4011.3
Annual expected MAR (smoothed)	**734.3**	**767.1**	**801.5**	**837.4**	**874.8**	**4015.1**[d]
X factor (%)[e]	n/a[f]	–1.98%	–1.98%	–1.98%	–1.98%	n/a

Source: AER analysis.

(a) Regulatory depreciation is straight-line depreciation net of the inflation indexation on the opening RAB.

(b) Operating expenditure includes debt raising costs.

(c) Includes revenue adjustments from the efficiency benefit sharing scheme (EBSS) and capital efficiency sharing scheme (CESS).

(d) The estimated total revenue cap is equal to the total annual expected MAR.

(e) The X factors will be revised to reflect the annual return on debt update. Under the CPI–X framework, the X factor measures the real rate of change in annual expected revenue from one year to the next. A negative X factor represents a real increase in revenue. Conversely, a positive X factor represents a real decrease in revenue.

(f) TransGrid is not required to apply an X factor for 2018–19 because we set the 2018–19 MAR in this decision. The MAR for 2018–19 is around 0.5 per cent higher than the approved MAR for 2017–18 in real terms, or 3.0 per cent higher in nominal terms.

The following sections summarise our final decision on key elements of the building blocks, including:

- RAB (section 2.1)
- Rate of return, the value of imputation credits and inflation (section 2.2)
- Depreciation allowance (section 2.3)
- Efficient level of capex (section 2.4)
- Efficient level of opex (section 2.5)
- Forecast level of corporate income tax (section 2.6)

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15 We have presented these figures in nominal dollar terms, which takes into account forecast inflation over the period, as they sum up to the total revenues that TransGrid is expected to recover from customers.

Incentive schemes including the EBSS and CESS are covered in section 3. The other components of our determination including the pricing methodology, cost pass throughs and negotiated framework are covered in section 4.

2.1 Regulatory asset base

The RAB is the value of the assets used by TransGrid to provide prescribed transmission services. The value of the RAB substantially impacts TransGrid's revenue requirement, and the price consumers ultimately pay. Other things being equal, a higher RAB would increase both the return on capital and depreciation (return of capital) components of the revenue determination.[16]

Our final decision is to determine an opening RAB value of $6371.2 million ($nominal) as at 1 July 2018 for TransGrid.

Using the opening RAB as at 1 July 2018, we roll forward that RAB over the 2018–23 regulatory control period with forecast capex, inflation and depreciation to arrive at a forecast closing value for the RAB at the end of the 2018–23 regulatory control period.

Table 2.2 sets out our final decision on the forecast RAB values for TransGrid over the 2018–23 regulatory control period.

Table 2.2 AER's final decision on TransGrid's RAB for the 2018–23 period ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Opening RAB	6371.2	6494.2	6652.7	6809.1	7004.4
Capital expenditure[a]	224.2	277.3	288.2	329.5	237.5
Inflation indexation on opening RAB	156.1	159.1	163.0	166.8	171.6
Less: straight-line depreciation[b]	257.3	278.0	294.7	300.9	316.2
Closing RAB	**6494.2**	**6652.7**	**6809.1**	**7004.4**	**7097.3**

Source: AER analysis.

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

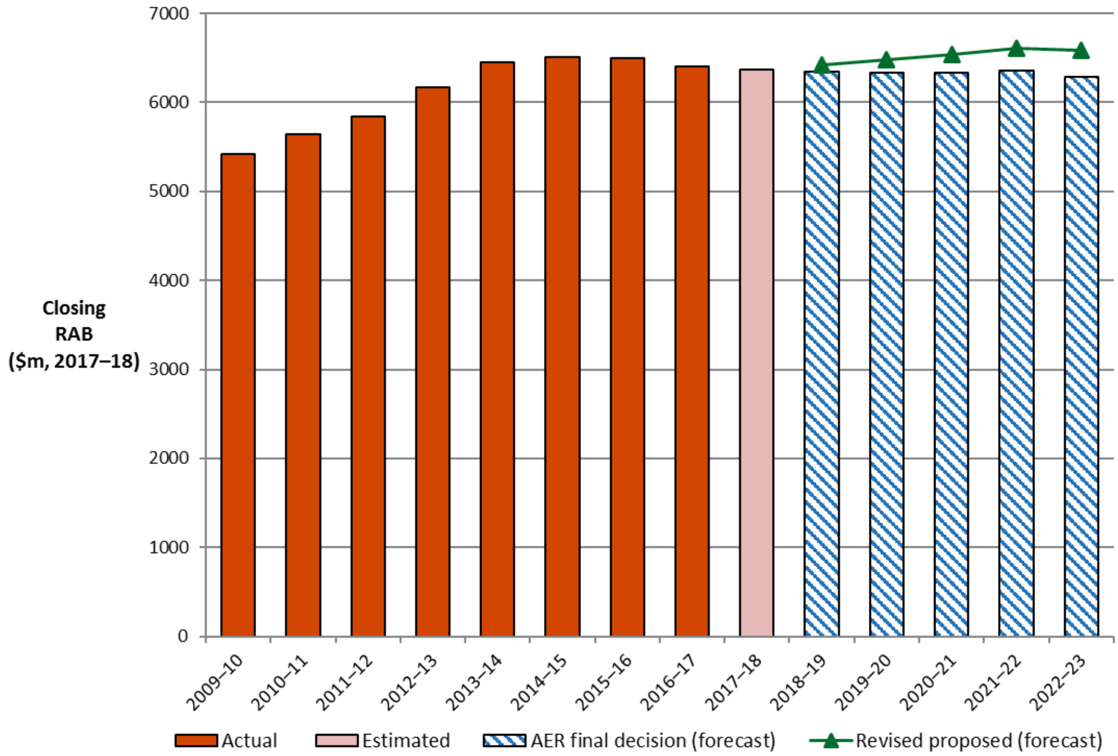
(b) Based on as-commissioned capex.

Figure 2.3 compares our final decision on TransGrid's forecast RAB to TransGrid's revised proposal and actual RAB in real dollar terms ($2017–18). The RAB is expected to decline very slightly over the 2018–23 regulatory control period in real terms. The

16 The size of the RAB also impacts the benchmark debt raising cost allowance. However, this amount is usually relatively small and therefore not a significant determinant of revenues overall.

reason why TransGrid's RAB is decreasing in real terms is because forecast capital expenditure is less than forecast depreciation on the RAB. However, the RAB will likely increase if any of TransGrid's proposed contingent projects proceed in the 2018–23 regulatory control period. We consider TransGrid's proposed contingent projects further in section 2.4.

Figure 2.3 TransGrid's actual RAB, revised proposal forecast RAB and AER final decision forecast RAB ($million, 2017–18)



Source: AER analysis.

Further detail on our final decision regarding TransGrid's RAB is set out in attachment 2.

2.2 Rate of return, the value of imputation credits and inflation

This section considers key financial components of our final decision. The allowed rate of return provides the business with a return on capital to service the interest on its loans and give a return on equity to investors.[17] The return on capital building block is calculated as a product of the rate of return and the value of the RAB.

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[17] We are currently reviewing the rate of return guideline, and the AER has issued several discussion papers in this process. A draft decision is due in June 2018.

The rate of return (return on capital) is the key difference between our final decision for the 2018–23 regulatory control period and TransGrid's allowed revenue for the 2014–18 regulatory control period. TransGrid accepted our draft decision position on the rate of return. In making our final decision we have updated our draft decision rate of return using more recent data.[18]

A key component of the rate of return is the return on debt. The return on debt reflects the interest rate TransGrid pays when it borrows money to invest. Our final decision on the return on debt is 5.97 per cent. This is much lower than the return on debt of 6.67 per cent set for the first year of the 2014–18 regulatory control period. The reason for this is that since our last determination the observed yields on the bonds that we use to determine the benchmark return on debt have fallen.

Our decision continues the transition path set out in our final decision for TransGrid's 2014–18 regulatory control period moving TransGrid to a trailing average debt estimation methodology by annually updating 10 per cent of the return on debt to reflect benchmark prevailing market conditions in that year.[19] After the 10 year transition period is completed, the return on debt is a simple average of the prevailing interest rates during TransGrid's averaging periods over the previous ten years. We will continue to update the return on debt annually, incorporating new data, in the 2018–23 regulatory control period.

The return on debt in our determinations for ElectraNet and Murraylink is 4.55 per cent. The reason why these returns are lower is because we have initiated the transition to the trailing average debt estimation methodology for these businesses. The return on debt at the initiation of the transition period reflects the prevailing return, which is lower than the return on debt at the start of our transition for TransGrid.

Imputation credits are valuable to investors and are therefore a benefit in addition to any cash dividend or capital gains they receive from owning shares. Under the Australian imputation tax system, investors can receive an imputation credit for income tax paid at the company level.[20] For eligible investors, this credit offsets their Australian income tax liabilities. We make an adjustment for the value of imputation credits because a service provider's allowed revenue does not need to include the value of imputation credits.

In parallel to our consultation in making this final decision for TransGrid we conducted a review of our approach to forecasting inflation. TransGrid has adopted our updated approach to forecasting inflation.[21] TransGrid also accepted our draft decision on the value of imputation credits.

Table 2.3 shows our final decision on TransGrid's rate of return, the value of imputation credits and inflation.

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[18] The risk free rate and cost of debt was updated with the approved averaging period data.

[19] AER, *Attachment 3 – Rate of return | Final decision TransGrid transmission determination 2015–18*, April 2015.

[20] *Income Tax Assessment Act 1997*, parts 3–6.

[21] TransGrid, *Revised regulatory proposal*, *2018/19-2022/23,* December 2016, pp. 146–147.

Table 2.3 Final decision on TransGrid's rate of return (per cent, nominal)

	Previous allowed return (2014–18)	AER draft decision (2017–18)	TransGrid's revised proposal	AER final decision (2017–18)	Allowed return over 2018–23 regulatory control period
Return on equity (nominal post–tax)	7.1	7.2	7.2	7.4	Constant (7.4%)
Return on debt (nominal pre–tax)	6.67	6.01	6.01	5.97	Updated annually
Gearing	60	60	60	60	Constant (60%)
Nominal vanilla WACC	6.84	6.5	6.49	6.54	Updated annually for return on debt
Forecast inflation	2.55	2.5	2.47	2.45	Constant (2.45%)
Value of imputation credits	0.4	0.4	0.4	0.4	Constant

2.3 Regulatory depreciation (return of capital)

Depreciation is the allowance provided so capital investors recover their investment over the economic life of the asset (return of capital). The depreciation schedules submitted by TransGrid affect two areas of their MAR: indexation of the RAB and depreciation building blocks.[22] The regulatory depreciation allowance is the net total of the straight-line depreciation less the inflation indexation adjustment of the RAB.

Our final decision is to determine a regulatory depreciation allowance of $630.5 million ($nominal) for TransGrid over the 2018–23 regulatory control period. This amount represents a reduction of $4.5 million (or 0.7 per cent) from the $635.1 million ($nominal) in TransGrid's revised proposal.[23]

Table 2.4 shows our final decision on TransGrid's depreciation allowance for the 2018–23 regulatory control period.

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22 NER, cl. 6.12.1(8).

23 TransGrid, *Revised regulatory proposal*, *PTRM,* December 2016.

Table 2.4 AER's final decision on TransGrid's depreciation allowance for the 2018–23 period ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Straight-line depreciation	257.3	278.0	294.7	300.9	316.2	1447.1
Less: inflation indexation on opening RAB	156.1	159.1	163.0	166.8	171.6	816.6
Regulatory depreciation	**101.2**	**118.9**	**131.7**	**134.1**	**144.6**	**630.5**

Source: AER analysis.

Further detail on our final decision in regards to depreciation is set out in attachment 5.

2.4 Capital expenditure

Capex is added to TransGrid's RAB which is used to determine the return on capital and return of capital (regulatory depreciation) building block allowances. All else being equal, higher forecast capex will lead to a higher RAB and higher return on capital and regulatory depreciation allowances.

We are not satisfied that TransGrid's proposed total forecast capex of $1559.7 million ($2017−18) for the 2018–23 regulatory control period reasonably reflects the efficient costs that a prudent operator would incur. We have therefore substituted a lower estimate of $1258 million.

Table 2.5 compares our decision to TransGrid's forecast.

Table 2.5 AER final decision on TransGrid's total forecast capex for the 2018–23 period ($million, 2017–18)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
TransGrid's revised proposal	286.5[a]	331.5	333.4	349.3	258.8	1559.7
AER final decision	**217.2**	**261.7**	**265.3**	**296.2**	**208.9**	**1249.2**
Total adjustment	-69.3	-69.9	-68.1	-53.2	-49.9	-310.4
Total adjustment (%)	-24%	-21%	-20%	-15%	-19%	-20%

Source: TransGrid, *Revised regulatory proposal*; December 2017, p. 41; and AER analysis.

Note: Numbers may not add up due to rounding.

a: Includes $25.7 million that TransGrid proposed to transfer from an unregulated service to a prescribed transmission service for Network Support and Control Ancillary Services.

The key aspects of our final decision are highlighted below. Further detail on our final decision on TransGrid's total forecast capex is set out in attachment 6.

TransGrid initially proposed $1638 million but reduced its capex forecast to $1559.7 million in its revised proposal ($2017–18). With the exception of TransGrid's proposed

PSF project which we consider below, we have largely maintained our draft position on TransGrid's proposed capex.

Excluding PSF, our alternative estimate is 9 per cent lower than TransGrid's average annual expenditure expected over the 2014–18 period. However, including PSF our forecast is 12 per cent higher than TransGrid's expected capex over the 2014–18 period. TransGrid's revised forecast represents a level of expenditure that is 39 per cent higher than its expected capex over the 2014–18 regulatory period (or 17 per cent higher when excluding its proposed capex for the PSF project).

TransGrid recently enhanced its asset and risk management processes, underpinning its replacement capex forecast, in order to better understand the condition and performance of its assets and to more effectively target expenditure to address asset risks.

We consider the methodology adopted by TransGrid's in regard to its asset risk management framework is consistent with good industry practice. However, we are not satisfied that TransGrid's application of this methodology to forecast capex is reasonably likely to reflect prudent and efficient costs. In particular, the evidence indicates that application of its methodology is likely to overstate asset risk costs and therefore prudent and efficient costs are overstated. In particular, we consider that:

- There is insufficient evidence of capex portfolio optimisation.
- The application of the risk assessment methodology overstates project risk costs and therefore the expected benefits of proposed capex.
- There is insufficient consideration of the optimal timing of capex.

Our alternative forecast aligns with our consultant, EMCa's, view of what an efficient forecast would be.

'Powering Sydney's Future' project

TransGrid has proposed a joint project with Ausgrid to address supply reliability and future demand in inner Sydney and CBD (referred to as 'Powering Sydney's Future' or PSF). In our draft decision, we did not consider that the project scope and optimal timing for this project in the 2018–23 regulatory period had been established. TransGrid reduced its capex for PSF by 78.6 million ($2017–18) to $252 million in its revised proposal.

For this final decision we are satisfied the timing and scope of the project are likely to be prudent and efficient. A number of submissions from interested parties supported the proposal[24], while others expressed reservations.[25] Based on further information provided by TransGrid after the draft decision, our further analysis and independent

24 Ausgrid, Snowy Hydro, City of Sydney, Australian Industry Group, Energy Users Association of Australia, Sydney Business Chamber.

25 Energy Consumers Australia, Public Interest Advocacy Group, Consumer Challenge Panel.

advice, we are satisfied the timing and scope are likely to be prudent and efficient. However, we are not satisfied that the proposed capex is reasonably likely to reflect prudent and efficient costs. In particular, we had regard to EMCa's advice which considered TransGrid has overestimated the proposed costs of the project. We have reduced the cost of the project by 17.2 million ($2017–18) to $235.1 million ($2017–18) in our alternative estimate for this project. This represents a reduction of $95.8 million ($2017–18) from the initial revenue proposal. We have also allowed for $19 million ($2017–18) of non-network solutions to manage the risk of supply outages before the cable is operational in 2022–23.

Contingent projects

Contingent projects are generally significant network augmentation projects that may be reasonably required to be undertaken in order to achieve the capex objectives. However, unlike other proposed capex projects, the need for the project and the associated costs are not sufficiently certain. Consequently, expenditure for such projects does not form a part of our assessment of the total forecast capex that we approve in this determination.

If, during the regulatory control period, TransGrid considers that the trigger event for an approved contingent project has occurred, then it may apply to us to increase its MAR to recover the costs of the project. At that time, we will assess whether the trigger event has occurred and whether the project meets the defined materiality threshold.[26] When a contingent project is triggered, we then determine the efficient amount of expenditure that meets the capex criteria.

In its initial proposal TransGrid proposed five contingent projects, which we considered were reasonably likely to need to proceed in the 2018–23 regulatory control period. In its revised proposal TransGrid included an additional four contingent projects in response to rapidly changing circumstances. The nine contingent projects are as follows:

- New South Wales to South Australia Interconnector ($276m to $1074m)
- Reinforcement of Southern Network ($60m to $393m)
- Reinforcement of Northern Network (QNI upgrade) ($63m to $141m)
- Support South Western NSW for Renewables ($89m to $477m)
- Supply to Broken Hill ($52m to $177m)
- Reinforcement of Southern Network in response to Snowy 2.0 ($831m to $1,228m)
- Support Central Western NSW for Renewables ($120m to $455m)
- Support North Western NSW for Renewables ($500m to $945m)
- Renewables development in the Mt Piper to Wellington area ($36.8m).

[26] NER, cl. 6A.8.1(b)(2)(iii).

We are satisfied that TransGrid's proposed nine contingent projects may be reasonably required within the 2018–23 period.

2.5 Operating expenditure

Our final decision is to accept TransGrid's updated opex forecast of $907.3 million ($2017–18), including debt raising costs and network support costs.[27] We are satisfied that TransGrid's forecast reasonably reflects the criteria set out under the NER for accepting forecast opex and is efficient.[28] Table 2.6 sets out our final decision.

Table 2.6 Our final decision on total forecast opex ($million, 2017–18)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Total opex (excl. debt raising costs and network support costs)	171.6	172.9	173.6	175.7	177.9	**871.7**
Debt raising costs	3.2	3.3	3.3	3.3	3.4	**16.5**
Network support costs	0.7	2.6	5.8	10.0	–	**19.1**
Total opex	**175.6**	**178.7**	**182.7**	**189.0**	**181.3**	**907.3**

Source: TransGrid, opex model and updated PTRM, 20 February 2018.

Note: Numbers may not add up to totals due to rounding.

TransGrid's revised opex forecast largely adopted the approach we used in our draft decision.[29] The key differences between TransGrid's revised opex forecast and our draft decision are:

- TransGrid did not accept our draft decision on its step change for compliance with licence requirements. It proposed $8.0 million ($2017–18) to reflect its revised licence conditions, which have changed since we published our draft decision.[30] This is less than its initial proposal of $14.4 million ($2017–18).
- TransGrid's revised proposal also included network support costs of $19.1 million ($2017–18) related to the proposed PSF project.[31] These costs were not included in its initial proposal.

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27 On 20 February 2018 TransGrid updated its revised proposal from $913.2 million ($2017–18) to $907.3 million ($2017–18). This change reflected the fact that the NSW government revised TransGrid's licence conditions. For more details, please see: TransGrid, *Letter to AER – Update on step change requirement resulting from approved NSW licence conditions*, 20 February 2017; TransGrid, *Revised revenue proposal – PTRM updated*, February 2018; TransGrid, *Revised revenue proposal: Attachment – NSW Minister's instrument of variation-TransGrid licence conditions*, February 2018.

28 NER, cl. 6A.6.6(c).

29 TransGrid, *Revised revenue proposal*, 1 December 2017, p. 114.

30 TransGrid, *Letter to AER – Update on approved licence conditions*, 20 February 2018. We note that TransGrid foreshadowed changes to its licence in its revised proposal. For more details, refer to: TransGrid, *Revised revenue proposal, Appendix B (Public): IT step change compliance with NSW license conditions*, December 2017, p. 4.

31 TransGrid, *Revised revenue proposal – PTRM updated*, February 2018.

We updated our alternative estimate of total opex forecast to assess TransGrid's updated forecast. We used the same approach we used for our draft decision and updated the forecast to reflect the latest available information. This includes the new information TransGrid provided in its revised proposal and information from our *2017 Economic benchmarking report*.[32] This includes:

- updating our step change for compliance with licence conditions to reflect the revised licence conditions.[33] We have only included the updated costs for the two actions that we considered were required in our draft decision.[34] We have not considered, and did not need to consider, whether the costs for the other actions proposed by TransGrid are required. Even if we do not include the costs of these additional actions in our alternative estimate we are satisfied that TransGrid's total opex forecast is reasonable.
- adding the network support costs proposed by TransGrid for the PSF project (see attachment 6 for our assessment of the PSF project).

We note that the difference between our alternative opex forecast and TransGrid's revised forecast is primarily due to our use of updated labour price growth forecasts. The updated Deloitte Access Economics forecasts we used were not available to TransGrid at the time it submitted its updated forecast.

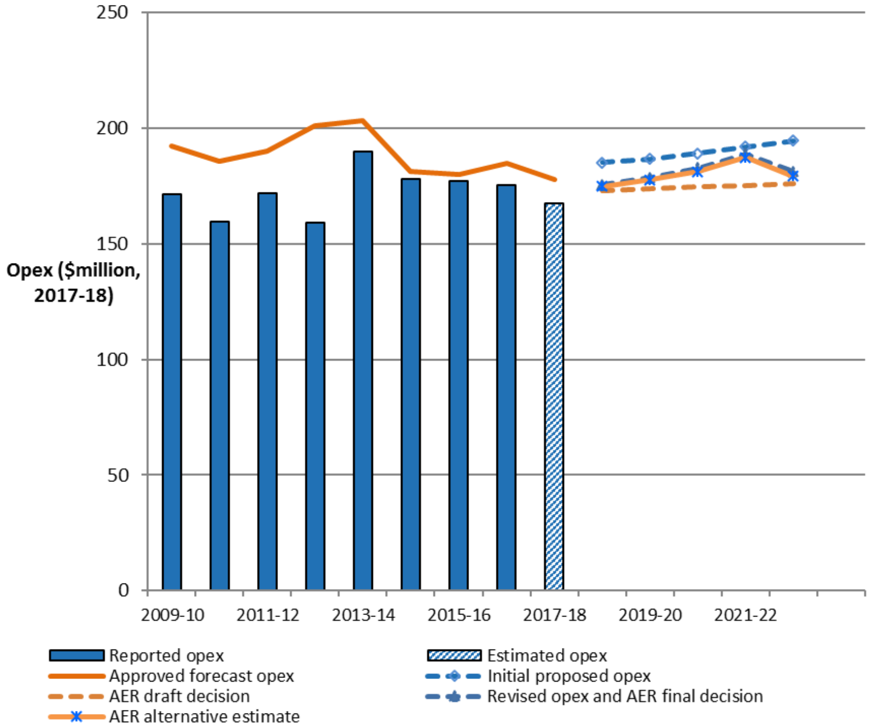
We have compared TransGrid's initial and revised opex forecasts with its historical opex, our draft decision and our alternative total opex forecast in figure 2.4.

[32] We updated our alternative estimate to reflect actual base year (2016–17) opex, the rate of change parameters set out in the 2017 Economic Benchmarking report, the inflation forecast for 2017–18 as set out in the Reserve Bank of Australia’s August 2018 *Statement of Monetary Policy*. For more detail on our draft decision approach, please see: AER, *Draft decision TransGrid transmission determination– Attachment 7–Operating expenditure*, September 2017, pp. 7–21 to 7–27.

[33] In our draft decision we indicated that we would consider new information regarding IPART's annual audit review when making our final decision on this matter. This audit review is no longer directly relevant because TransGrid's licence has changed since we published our draft decision. For more details, please refer to: AER, *Draft decision TransGrid transmission determination– Attachment 7–Operating expenditure*, September 2017, pp. 7–47 to 7–48.

[34] TransGrid, *Revised revenue proposal – Appendix B (Public): IT step change compliance with NSW licence conditions*, 1 December 2017, p.4; AER, *Draft decision TransGrid transmission determination– Attachment 7–Operating expenditure*, September 2017, pp. 7–47 to 7–48.

Figure 2.4 TransGrid's actual and forecast opex ($million, 2017–18)



Source: TransGrid, *Regulatory accounts 2009–10 to 2016–17*; AER, *TransGrid 2009–14, PTRM, Tribunal varied*; AER, *TransGrid 2014–18 Final decision PTRM*, TransGrid, *Proposed PTRM, 31 January 2017*; TransGrid, *Revised PTRM, December 2017;* AER analysis.

Note: Includes debt raising costs and network support costs.

We received one submission on opex from the CCP9. The CCP9 supported our draft decision with the amendments proposed by TransGrid.[35] As stated earlier, we have updated our alternative estimate to reflect TransGrid's amendments. Having considered the matters raised by CCP9, we are satisfied that TransGrid's proposed total opex reasonably reflects the opex criteria.[36]

Our opex model, which calculates our alternative estimate of opex, is available on our website.

2.6 Corporate income tax

Our revenue determination includes the estimated cost of corporate income tax for TransGrid's 2018–23 regulatory control period.[37] This allows TransGrid to recover the costs associated with the estimated corporate income tax payable during the

35 Consumer challenge Panel Subpanel 9 (CCP), *Response to Draft Decision and Revised Proposal for Revenue Reset for TransGrid for 2018-2023*, February 2018, pp. 6–7.

36 NER, cl 6A.6.6(c).

37 NER, cl. 6A.6.4.

regulatory control period.[38] TransGrid accepted our approach to calculating the corporate income tax allowance.

Our final decision on the estimated cost of corporate income tax is $177.1 million ($nominal) for TransGrid over the 2018–23 regulatory control period. This amount represents an increase of $6.0 million (or 3.5 per cent) from the $171.1 million ($nominal) in TransGrid's revised proposal. The estimated corporate income tax is impacted by our decision on various building block components. The higher corporate income tax is mainly driven by a lower tax depreciation which resulted from the reduction we made to the forecast capex. The lower tax depreciation offsets revenues which gives rise to a higher estimated taxable income, all things being equal, and therefore also to a higher corporate income tax allowance for TransGrid in the 2018–23 regulatory control period. In addition, we have increased the forecast return on equity which also contributed to the increase in the estimated corporate tax allowance.

Table 2.7 shows our final decision on the estimated cost of corporate income tax allowance for TransGrid over the 2018–23 regulatory control period.

Table 2.7 AER's final decision on TransGrid's corporate income tax allowance for the 2018–23 period ($nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Tax payable	52.8	56.2	58.8	62.2	65.2	295.2
Less: value of imputation credits	21.1	22.5	23.5	24.9	26.1	118.1
Net corporate income tax allowance	**31.7**	**33.7**	**35.3**	**37.3**	**39.1**	**177.1**

Source: AER analysis.

For this final decision, we accept TransGrid's revised opening tax asset base (TAB) value of $4055.1 million ($nominal) as at 1 July 2018. This is $30.1 million (or 0.7 per cent) higher than the value determined in our draft decision.

Further detail on our final decision regarding TransGrid’s corporate income tax allowance is set out in attachment 8.

38 The NER requires us to estimate the cost of corporate income tax of a network in accordance with a formula that sets out: the estimate of the taxable income that would be earned by a benchmark efficient entity as a result of the provision of prescribed transmission services; the expected statutory income tax rate; and the value of imputation credits to be netted from the tax payable. The post-tax revenue model implements this approach and uses the 30 per cent statutory income tax rate.

3 Incentive schemes

Incentive schemes are a component of incentive–based regulation and complement our approach to assessing efficient costs. The incentive schemes that will apply to TransGrid are:

- the efficiency benefit sharing scheme (EBSS)
- the capital expenditure sharing scheme (CESS)
- the service target performance incentive scheme (STPIS).

Once we determine how network revenues will be calculated networks have an incentive to provide services at the lowest possible cost because its returns are determined by their actual costs of providing services. If networks reduce their costs to below our forecast of efficient costs, the savings are shared with consumers in future regulatory periods through the EBSS and CESS incentive schemes. The STPIS ensures that the network is not simply cutting costs at the expense of service quality.

Our incentive schemes encourage network businesses to make efficient decisions. They give network businesses an incentive to pursue efficiency improvements in opex and capex, and to share them with consumers. Incentives for opex and capex are balanced with the incentives under our STPIS to maintain or improve service quality. The incentive schemes encourage businesses to make efficient decisions on when and what type of expenditure to incur, and meet service reliability targets.

3.1.1 Efficiency benefit sharing scheme (EBSS)

The EBSS provides a constant incentive for service providers to pursue efficiency improvements in opex. Without the EBSS, a network may have a greater incentive to reduce costs in a particular year in a regulatory control period.

Typically, opex is largely recurrent and predictable, and as such opex in one period is often a good indicator of opex in the next period.[39] Where a service provider is relatively efficient, we use the actual opex it incurred in a chosen base year of the regulatory control period to forecast opex for the next regulatory control period. We call this the 'revealed cost approach'.

However, using a network business' past information to set future targets can reduce the incentives of the business to reduce its costs—since the business knows that any reduction in its expenditure will decrease its revenue allowance in the future. It also provides an incentive to increase opex in any year expected to be used as the base year.

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39 Step changes provide for increases/decreases where this is not the case.

To encourage a business to become more efficient it is allowed to keep any difference between its approved forecast and its actual opex during a regulatory control period. Additional to this, the EBSS allows the business to retain efficiency savings, and is required to carry efficiency losses, for a longer period of time. In this way, the EBSS can provide businesses with an additional reward for reductions in opex and additional penalties for increases in opex.

Under the EBSS, a business gets to keep the benefits of any efficiency gains for an additional five years after the year in which it achieved the gain. After that all the gains are passed on to consumers in the form of lower network charges. In this way, a business benefits from efficiency gains made at the start of the regulatory period the same as those it makes at the end. This ensures the business faces a continuous incentive. The EBSS also discourages a service provider from inflating its base year opex in order to receive a higher opex allowance in the following regulatory control period.[40]

Our final decision is to approve EBSS carryover amounts totalling $9.7 million ($2017–18) from the application of the EBSS in the 2014–18 regulatory control period. This is $24.0 million ($2017–18) less than TransGrid's revised proposal of $33.7 million ($2017–18).

The difference is due to TransGrid not adopting two of the five EBSS adjustments we made to TransGrid's proposal in our draft decision. We have maintained these adjustments in our final decision. Specifically:

1. We adopted TransGrid's proposed five year carryover period rather than the four years we previously determined for the 2014–18 regulatory control period.[41] However, changing to a five year carryover distorts how TransGrid's incremental efficiency gain in 2014–15 fairly shares gains and losses. This rewards TransGrid for an efficiency loss in 2013–14. For this reason, we have also carried forward TransGrid's incremental efficiency loss in 2013–14 for five years, until 2018–19. This is in accordance with our 2009–14 regulatory decision, which determined that gains (losses) made in each year of 2009–14 should be retained for five additional years.[42] This reduced its proposed carryover amounts by $13.1 million ($2017–18).
2. We used consistent final year opex estimates in both our EBSS carryover calculation and TransGrid's opex forecast. This is required by both the EBSS and the *Expenditure forecast assessment guideline* (EFA guideline).[43] This reduced TransGrid's proposed carryover amount by $10.9 million ($2017–18).

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[40] These concepts are explained more fully in the explanatory statement to the EBSS; AER, *Efficiency benefit sharing scheme for electricity network service providers – explanatory statement,* November 2013.

[41] AER, Final decision, *TransGrid transmission determination 2014–15 to 2017–18,* Attachment 9, April 2015, p.10.

[42] AER, Electricity transmission network service providers, *Efficiency benefit sharing scheme*, September 2007, p. 8; AER, Draft decision, *TransGrid transmission determination 2009–10 to 2013–14*, 31 October 2008, pp. 148–158; AER, Final decision, *TransGrid transmission determination 2009–10 to 2013–14*, 28 April 2009, pp. 101–106.

[43] AER, *Efficiency benefit sharing scheme for electricity network service providers*, November 2013, p. 6; AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, pp. 22–23.

We have also updated inflation to reflect the most recent CPI values reported by the Australian Bureau of Statistics and the most recent forecasts from the Reserve Bank of Australia.

We have outlined our final decision for the carryover amounts from the application of the EBSS in the 2014–18 regulatory period in table 3.1.

Table 3.1 AER's final decision on TransGrid EBSS carryover amounts for the 2018–23 period ($million, 2017–18)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
TransGrid's initial proposal	25.4	25.4	3.4	8.3	–	**62.4**
AER draft decision	–0.9	12.2	–0.5	6.1	–1.7	**15.3**
TransGrid's revised proposal	13.1	13.1	0.4	7.0	–	**33.7**
AER final decision	**–2.1**	**10.9**	**–1.7**	**4.8**	**–2.2**	**9.7**

Source: TransGrid, *Revised revenue proposal*, Post tax revenue model (PTRM), 1 December 2017; TransGrid, *Revenue proposal*, PTRM, 31 January 2017; AER, Draft decision PTRM; AER analysis.

Our final decision is to apply version two of the EBSS to TransGrid in the 2018–23 regulatory control period. This is consistent with our final framework and approach paper[44] and TransGrid's proposal.[45]

Further detail on our final decision in regards to the application of the EBSS, including proposed expenditure items to be excluded, is set out in attachment 9.

3.1.2 Capital expenditure sharing scheme (CESS)

The CESS provides an incentive for service providers to pursue efficiency improvements in capex. Similar to the EBSS, the CESS provides a network service provider with the same reward for an efficiency saving and the same penalty for an efficiency loss regardless of which year they make the saving or loss.

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

We will apply the CESS as set out in version 1 of the capital expenditure incentives guideline to TransGrid in the 2018–23 regulatory control period.[46] The guideline

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[44] AER, *Final framework and approach for TransGrid transmission determination 2018–23,* April 2015, p. 16.

[45] TransGrid, *Revenue proposal 2018/19–2022/23*, January 2017, p. 205.

[46] AER, *Capex incentive guideline*, November 2013, pp. 5–9.

provides for the exclusion from the CESS of capex the service provider incurs in delivering a priority project approved under the network capability component of the STPIS for transmission network service providers. This is consistent with the proposed approach we set out in our framework and approach paper.[47]

We applied the CESS to TransGrid in the 2014–18 regulatory control period. Our final decision on the revenue impact of the application of the CESS compared to TransGrid's revised proposal is summarised in Table 3.2.

Table 3.2 AER's final decision on TransGrid's CESS revenue increment for the 2018–23 regulatory control period ($million, 2017–2018)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
TransGrid's revised proposal	6.7	6.7	6.7	6.7	6.7	33.7
AER final decision	6.7	6.7	6.7	6.7	6.7	33.6

Source: TransGrid, *Revised Revenue Proposal*, December 2017, p. 124; AER analysis.

Note: Numbers may not add up due to rounding.

TransGrid's revised proposal adopted the amendments made in our draft decision, but further modified the CESS calculations to better align with the underlying calculations in the PTRM and RFM. Our final decision is to broadly accept these modifications to the CESS calculation. We have made minor additional refinements, which are set out in attachment 10.

3.1.3 Service target performance incentive scheme (STPIS)

The STPIS is intended to balance a business' incentive to reduce expenditure with the need to maintain or improve service quality. In simple terms, it ensures that networks do not simply cut costs at the expense of the reliability of their network. It achieves this by providing financial incentives to businesses to maintain and improve service performance where customers are willing to pay for these improvements.

Businesses can only retain their rewards for sustained and continuous improvements to the reliability of supply for customers. Once improvements are made, the benchmark performance targets will be tightened in future years.

TransGrid accepted our draft decision on the application of STPIS. Our final decision is to apply all components of version 5 of the STPIS to TransGrid for the 2018–23 regulatory control period. The STPIS parameters applied in our final decision are set out in our TransGrid transmission determination 2018–2023.

[47] AER, *Final framework and approach for TransGrid transmission determination 2018–23,* April 2015, p. 23.

4 Pricing terms and conditions

In this section, we consider the other aspects of our determination that affect prices. These may be described as the terms and conditions of our determination that cover how TransGrid must set its prices, the framework for TransGrid's negotiated services and the conditions under which we may grant TransGrid additional revenues to cover unforeseen circumstances.

4.1 Pricing methodology

TransGrid's pricing methodology:

- allocates the aggregate annual revenue requirement to the categories of prescribed transmission services that a transmission business provides[48]
- provides for the manner and sequence of adjustments to the annual service revenue requirement[49] and allocates that revenue requirement to transmission connection points[50]
- determines the structure and recovery of prices that a transmission business may charge for each category of prescribed transmission services.[51]

Our final decision is to maintain our draft decision to accept TransGrid's proposed pricing methodology.

The pricing methodology relates to prescribed transmission services only. For negotiated services, TransGrid must comply with other requirements, which we discuss in the next section.

4.2 Negotiating framework

In our draft decision, we approved TransGrid's proposed negotiating framework for the 2018–23 regulatory control period. TransGrid's revised proposal accepted our draft decision. Our final decision is to approve TransGrid's negotiating framework, subject to the new rules (as explained below).

Under the NER, a transmission determination includes a determination in relation to the TNSP's negotiating framework.[52] The negotiating framework determination must also specify the negotiated transmission service criteria (NTSC) that form part of a transmission determination.[53]

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48 NER, cl. 6A.24.1(b)(1) and (b)(3).

49 NER, cl. 6A.24.1(b)(2).

50 NER, cl. 6A.24.1(b)(3).

51 NER, cl. 6A.24.1(b)(4).

52 NER, cl. 6A.2.2(3).

53 NER, cl. 6A.9.4.

In May 2017, the AEMC made a rule change to amend those aspects of the NER relating to the arrangements for transmission connections.[54] The rule change removes the requirement, on and from 1 July 2018, for TNSPs to develop individual negotiating frameworks for approval by the AER, and for the AER to specify NTSC that apply to TNSPs. Instead, the rule change elevates what is in the existing approved negotiating frameworks and NTSC into the NER, and expands the existing negotiating principles in the NER.[55]

The transmission connection aspects of the AEMC's final rule commence on 1 July 2018. This means that all negotiating framework determinations the AER has made prior to 1 July 2018, will cease to apply from 1 July 2018. After this date, any parties seeking connection to the transmission network will do so under the new rules.

Given that we made this final transmission determination for TransGrid before 1 July 2018 we still need to comply with our obligations under the NER and include a negotiating framework determination in TransGrid's final transmission determination. However, this negotiating framework determination will cease to apply from 1 July 2018.

Attachment A of our final decision sets out our approved negotiating framework for TransGrid.

4.3 Pass throughs

In our draft decision, we approved TransGrid's nominated pass through events.[56] TransGrid's revised proposal accepted our draft decision. [57]

Our final decision is to approve TransGrid's nominated pass through events and associated definitions. These will apply to TransGrid throughout the regulatory control period in addition to the pass through events which are prescribed by the NER, including the events dealing with regulatory change, service standards, tax change and insurance,[58] and the newly prescribed 'fault level shortfall event' and the 'inertia shortfall event'.[59]

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54 AEMC, *National Electricity Amendment (Transmission Connection and Planning Arrangements) Rule 2017 No. 4*, 23 May 2017. In addition to transmission connections, the rule change also relates to transmission planning.

55 AEMC, *Rule Determination, National Electricity Amendment (Transmission Connection and Planning Arrangements) Rule 2017,* p. 66.

56 AER, *Draft Decision ElectraNet transmission determination 2018 to 2023, October 2017, Attachment 13*, p. 13–6.

57 ElectraNet, *Revised Revenue Proposal 2018-19 to 2022-23, 22 December 2017*, p. 11.

58 NER, cl. 6A.7.3(a1)(1)–(4). Each of these prescribed events is defined in Chapter 10 (Glossary).

59 National Electricity Amendment (Managing the rate of change of power system frequency) Rule 2017 No.9; National Electricity Amendment (Managing power system fault levels) Rule 2017 No.10.

5 The National Electricity Objective

The NEL requires us to make our decision in a manner that contributes, or is likely to contribute, to achieving the NEO. The focus of the NEO is on promoting efficient investment in, and operation and use of, electricity services (rather than assets) in the long term interests of consumers. This is not delivered by any one of the NEO's factors in isolation, but rather by balancing them in reaching a regulatory decision.

In general, we consider that the long-term interests of consumers are best served where consumers receive a reasonable level of safe and reliable service that they value at least cost in the long run. A decision that places too much emphasis on short term considerations may not lead to the best overall outcomes for consumers once the longer term implications of that decision are taken into account.

There may be a range of economically efficient decisions that we could make in a revenue determination, each with different implications for the long term interests of consumers. A particular economically efficient outcome may nevertheless not be in the long term interests of consumers, depending on how prices are structured and risks allocated within the market. There are also a range of outcomes that are unlikely to advance the NEO, or advance the NEO to the degree that others would. For example, we consider that:

- the long term interests of consumers would not be advanced if we encourage overinvestment which results in prices so high that consumers are unwilling or unable to efficiently use the network. This could have significant longer term pricing implications for those consumers who continue to use network services.
- equally, the long-term interests of consumers would not be advanced if allowed revenues result in prices so low that investors do not invest to sufficiently maintain the appropriate quality and level of service, and where customers are making more use of the network than is sustainable. This could create longer term problems in the network, and could have adverse consequences for safety, security and reliability of the network.

The legislative framework recognises the complexity of this task by providing us with significant discretion in many aspects of the decision-making process to make judgements on these matters.

5.1 Achieving the NEO to the greatest degree

Electricity transmission determinations are complex decisions. In most cases, the provisions of the NER do not point to a single answer, either for our decision as a whole or in respect of particular components. They require us to exercise our regulatory judgement. For example, chapter 6A of the NER requires us to prepare forecasts, which are predictions about unknown future circumstances. Very often, there will be more than one plausible forecast, and much debate amongst stakeholders about relevant costs. For certain components of our decision there may therefore be several plausible answers or several plausible point estimates.

When the constituent components of our decision are considered together, this means there will almost always be several potential, overall decisions. More than one of these may contribute to the achievement of the NEO. In these cases, our role is to make an overall decision that we are satisfied contributes to the achievement of the NEO to the greatest degree.

We approach this from a practical perspective, accepting that it is not possible to consider every permutation specifically. Where there are choices to be made among several plausible alternatives, we have selected what we are satisfied would result in an overall decision that contributes to the achievement of the NEO to the greatest degree.

5.2 Interrelationships between the different components of our final decision constituent components

Examining constituent components in isolation ignores the importance of the interrelationships between components of the overall decision, and would not contribute to the achievement of the NEO. We have considered these interrelationships in our analysis of the constituent components of our final decision in the relevant attachments. Examples include:

- underlying drivers and context which are likely to affect many constituent components of our decision. For example, forecast demand affects the efficient levels of capex and opex in the regulatory control period.
- direct mathematical links between different components of a decision. For example, the level of gamma has an impact on the appropriate tax allowance; the benchmark efficient entity's debt to equity ratio has a direct effect on the cost of equity, the cost of debt, and the overall vanilla rate of return.
- trade-offs between different components of revenue. For example, undertaking a particular capex project may affect the need for opex or vice versa.

A Constituent components

Our final decision on TransGrid's transmission determination includes the following constituent components:[60]

Constituent component
In accordance with clause 6A.14.1(1)(i) of the NER, the AER does not approve the total revenue cap set out in TransGrid's revised building block proposal. Our final decision on TransGrid's total revenue cap is $ 4015.1 million ($nominal) for the 2018–23 regulatory control period. This decision is discussed in Attachment 1 of this final decision.
In accordance with clause 6A.14.1(1)(ii) of the NER, the AER does not approve the maximum allowed revenue (MAR) for each regulatory year of the regulatory control period set out in TransGrid's revised building block proposal. Our decision on TransGrid's MAR for each year of the 2018–23 regulatory control period is set out in Attachment 1 of this final decision.
In accordance with clause 6A.14.1(1)(iii) of the NER, the AER has decided to apply the service component, network capability component and market impact component of Version 5 of the service target performance incentive scheme (STPIS) to TransGrid for the 2018–23 regulatory control period. The values and parameters of the STPIS are set out in our TransGrid transmission determination 2018–2023.
In accordance with clause 6A.14.1(1)(iv) of the NER, the AER's decision on the values that are to be attributed to the parameters for the efficiency benefit sharing scheme (EBSS) that will apply to TransGrid in respect of the 2018–23 regulatory control period are set out in Attachment 9.
In accordance with clause 6A.14.1(1)(v) of the NER, the AER has approved the commencement and length of the regulatory control period as TransGrid proposed in its revenue proposal. The regulatory control period will commence on 1 July 2018 and the length of this period is five years, expiring on 30 June 2023.
In accordance with clause 6A.14.1(2) and acting in accordance with clause 6A.6.7(d) of the NER, the AER has not accepted TransGrid's revised total forecast capital expenditure of $1559.7 million ($2017–18). Our substitute estimate of TransGrid's total forecast capex for the 2018–23 regulatory control period is $1249.2 million ($2017–18). This is discussed in Attachment 6 of this final decision.
In accordance with clause 6A.14.1(3) and acting in accordance with clause 6A.6.6(d) of the NER, the AER has accepted TransGrid's revised total forecast operating expenditure inclusive of debt raising costs of $907.3 million ($2017–18).
In accordance with clause 6A.14.1(4)(i), the AER has determined that the following proposed projects are contingent projects for the purpose of the revenue determination: New South Wales to South Australia Interconnector ($276m to $1074m) Reinforcement of Southern Network ($60m to $393m) Reinforcement of Northern Network (QNI upgrade) ($63m to $141m) Support South Western NSW for Renewables ($89m to $477m) Supply to Broken Hill ($52m to $177m) Reinforcement of Southern Network in response to Snowy 2.0 ($831m to $1,228m) Support Central Western NSW for Renewables ($120m to $455m) Support North Western NSW for Renewables ($500m to $945m) Renewables development in the Mt Piper to Wellington area ($36.8m) This is discussed in Attachment 6 of this final decision.
In accordance with clause 6A.14.1(4)(ii), the AER is satisfied that the indicative capital expenditure for the nine contingent projects reasonably reflects the capital expenditure criteria, taking into account the capital expenditure factors. This is

60 NER, cl. 6A.14.

Constituent component
discussed in Attachment 6 of this final decision.
In accordance with clause 6A.14.1(4)(iii), the AER has determined that the triggers proposed by TransGrid for the following nine contingent projects are inconsistent with the NER: New South Wales to South Australia Interconnector ($276m to $1074m) Reinforcement of Southern Network ($60m to $393m) Reinforcement of Northern Network (QNI upgrade) ($63m to $141m) Support South Western NSW for Renewables ($89m to $477m) Supply to Broken Hill ($52m to $177m) Reinforcement of Southern Network in response to Snowy 2.0 ($831m to $1,228m) Support Central Western NSW for Renewables ($120m to $455m) Support North Western NSW for Renewables ($500m to $945m) Renewables development in the Mt Piper to Wellington area ($36.8m) Our final decision includes revised triggers to provide greater certainty as to our approach should TransGrid seek to act on these contingent projects. This is discussed in Attachment 6 of this final decision.
In accordance with clause 6A.14.1(5A) of the NER, the AER has determined that version 1 of the capital expenditure sharing scheme (CESS) as set out the Capital Expenditure Incentives Guideline will apply to TransGrid in the 2018–23 regulatory control period. This is discussed in Attachment 10 of this final decision.
In accordance with clause 6A.14.1(5B) and 6A.6.2 of the NER, the AER has decided that the allowed rate or return for the 2017–18 regulatory year is 6.54 per cent (nominal vanilla), as set out in this final decision. The rate of return for the remaining regulatory years 2018–23 will be updated annually because our decision is to apply a trailing average portfolio approach to estimating debt which incorporates annual updating of the allowed return on debt.
In accordance with clause 6A.14.1(5C) of the NER the AER has decided that the return on debt is to be estimated using a methodology referred to in clause 6A.6.2(i)(2), and using the formula to be applied in accordance with clause 6A.6.2(l). The methodology and formula are set out in the TransGrid transmission determination 2018–2023.
In accordance with clause 6A.14.1(5D) of the NER the AER has decided that the value of imputation credits as referred to in clause 6A.6.4 is 0.4.
In accordance with clause 6A.14.1(5E) of the NER the AER has decided, in accordance with clause 6A.6.1 and schedule 6A.2, that the opening regulatory asset base (RAB) as at the commencement of the 2018–23 regulatory control period, being 1 July 2018, is $6371.2 million ($nominal). This is set out in Attachment 2 of this final decision.
In accordance with clause 6A.14.1(5F) of the NER the AER has decided that the depreciation approach based on forecast capex (forecast depreciation) is to be used to establish the RAB at the commencement of TransGrid's regulatory control period as at 1 July 2023. This is discussed in Attachment 5 of this final decision.
In accordance with clause 6A.14.1(6) of the NER the AER has approved TransGrid's proposed negotiating framework. This is set out in Attachment B of this final decision.
In accordance with clause 6A.14.1(7) of the NER the AER has specified the negotiated transmission services criteria for TransGrid. This is set out in the TransGrid transmission determination 2018–2023.
In accordance with clause 6A.14.1(8) of the NER the AER has approved TransGrid's proposed pricing methodology. This is set out in Attachment A of this final decision.
In accordance with clause 6A.14.1(9) of the NER the AER has approved the following nominated pass through events to apply to TransGrid for the 2018–23 regulatory control period in accordance with clause 6A.6.9: • insurance cap event • insurer's credit risk event • natural disaster event • terrorism event

Constituent component
• inertia shortfall event • fault level shortfall event These events have the definitions set out in our TransGrid transmission determination 2018–2023.

B List of submissions

We received 14 submissions in response to our draft decision and TransGrid's revised revenue proposal. These are listed below.

Submission from	Date received
AEMO	5 January 2018
AEMO	18 January 2018
Ai Group	5 February
Ausgrid	12 January 2018
City of Sydney	11 January 2018
Consumer Challenge Panel (CCP 9)	1 February 2018
Consumer Challenge Panel (CCP 9)	27 March 2018
Energy Consumers Australia	11 January 2018
Energy Networks Association	12 January 2018
EUAA	8 January 2018
NSW Government	11 January 2018
PIAC	12 January 2018
Snowy Hydro	12 January 2018
Sydney Business Chamber	7 December 2018