DRAFT DECISION
TransGrid transmission determination 2018 to 2023

Overview

September 2017

AUSTRALIAN ENERGY REGULATOR

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Note

This overview forms part of the AER's draft decision on TransGrid's revenue proposal for the 2018–23 regulatory control period. It should be read with other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – maximum allowed revenue

Attachment 2 – regulatory asset base

Attachment 3 – rate of return

Attachment 4 – value of imputation credits

Attachment 5 – regulatory depreciation

Attachment 6 – capital expenditure

Attachment 7 – operating expenditure

Attachment 8 – corporate income tax

Attachment 9 – efficiency benefit sharing scheme

Attachment 10 – capital expenditure sharing scheme

Attachment 11 – service target performance incentive scheme

Attachment 12 – pricing methodology

Attachment 13 – pass through events

Attachment 14 – negotiated services

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Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
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

Shortened form	Extended form
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
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

1 Our draft decision

We, the Australian Energy Regulator (AER), regulate energy markets and networks under national energy market legislation and rules.[1] This includes setting the amount of revenue that monopoly network businesses can recover from customers for using networks (electricity poles and wires and gas pipelines) that transport energy.

The National Electricity Law (NEL) and National Electricity Rules (NER) provide the regulatory framework governing electricity networks. Our work under this framework is guided by the National Electricity Objective (NEO):[2]

> to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system.

This draft decision concerns the revenue that TransGrid can earn from its regulated activities. TransGrid owns and operates the electricity transmission network in New South Wales and the Australian Capital Territory.

TransGrid submitted a revenue proposal for its electricity transmission network on 31 January 2017. The proposal sets out the revenue TransGrid proposes to recover from electricity consumers through transmission charges for the period 2018–23. This overview, together with its attachments, constitutes our draft decision on TransGrid's revenue proposal.

This draft decision is one of the key steps in reaching our final decision. Our final decision will be released no later than 30 April 2018. Before that, TransGrid will have the opportunity to submit a revised proposal in response to this draft decision. Stakeholders will also have the opportunity to make submissions to us on our draft decision and TransGrid's revised proposal.

Following receipt of the revised proposal and submissions, we will then make our final decision taking everything we have heard into account. Table 1.1 lists the key dates and consultation deadlines for the process.

Stakeholders will have until 12 January 2017 to provide us with submissions on our draft decision and TransGrid's revised revenue proposal. TransGrid has flagged that it will make a number of changes in its revised revenue proposal. We will consider these changes and they may significantly alter our final decision. These changes concern the 'Snowy 2.0' project, the triggers for contingent projects and TransGrid's proposed

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1 Our network regulatory functions relate to energy networks in all Australian states and territories, except Western Australia.

2 NEL, s. 7. The NEL also includes the revenue and pricing principles (RPP), which support the NEO. As the NEL requires, we have taken the RPPs into account throughout our analysis.

capital expenditure.[3] We have allowed stakeholders additional time to prepare submissions on TransGrid's revised revenue proposal in order to consider the changes.

Table 1.1 Key dates and consultation

Task	Date
Revenue proposal submitted to the AER	31 January 2017
AER released Issues paper	28 March 2017
AER held public forum	11 April 2017
Submissions on revenue proposal close	12 May 2017
AER draft decision published	29 September 2017
AER public forum to explain draft decision	10 October 2017
Revised revenue proposal due to AER	1 December 2017
Submissions on the draft decision and revised proposal	12 January 2018
AER release of final decision	No later than 30 April 2018

1.1 Draft decision

Our draft decision is that TransGrid can recover $3910.0 million ($nominal, smoothed) from consumers over the 2018–23 regulatory control period. Our draft decision allows TransGrid to recover, on average, 5.9 per cent less revenue than its revenue allowance for 2014–18 ($2017–18). This is an 8.4 per cent reduction from TransGrid's proposed revenue allowance of $4269.8 million ($nominal).

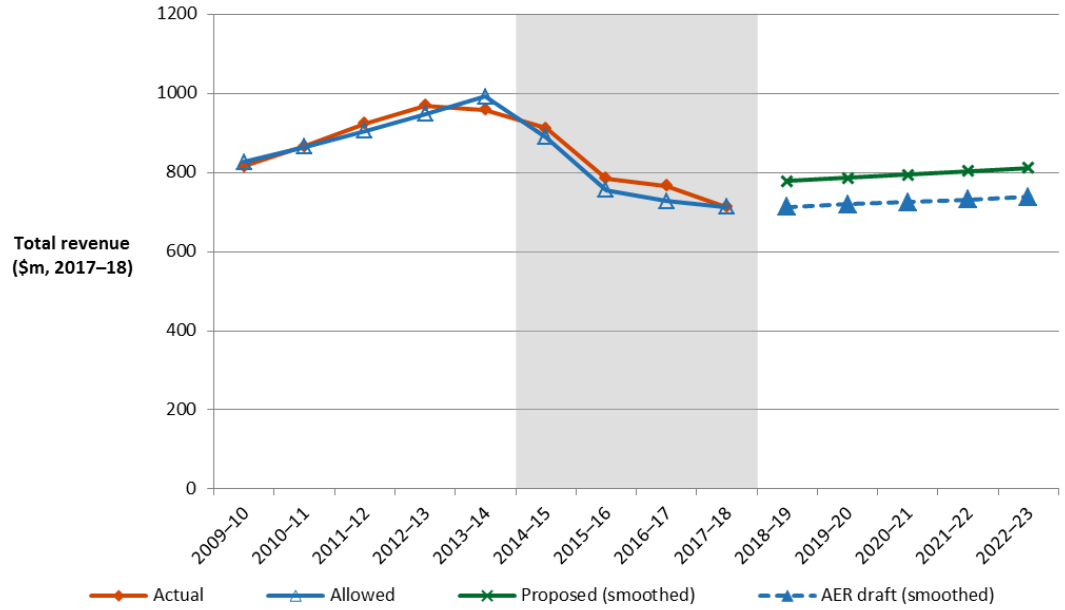
Our draft decision is to allow small increases to TransGrid's revenues. To achieve this, we have made reductions to TransGrid's proposed rate of return on investments and operating expenditure. This will reduce the upward price pressure that would have otherwise resulted from TransGrid's proposal. We have also made reductions to TransGrid's proposed capital expenditure – this delivers a reduction in the size of TransGrid's asset base, which will affect prices many years into the future. As noted above, TransGrid has flagged that it will make changes in its revised proposal. These could lead to significant differences between our draft and final decision.

Our concerns with TransGrid's revenue proposal align with concerns raised by consumers. TransGrid has made a number of improvements in its approach to consumer engagement. However, we consider that TransGrid could have improved its proposal by taking into account consumer concerns.

[3] TransGrid has provided us with a letter dated 17 August 2017, outlining its proposed amendments to the contingent projects and trigger events that will be further addressed in its revised proposal to be submitted on 1 December 2017. We have published this letter on our website to enable earlier consideration by stakeholders. See Late Submissions: https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/transgrid-determination-2018-23/proposal.

Figure 1.1 compares our draft 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 of 2009–14 and 2014–18. TransGrid's annual revenue decreased each year from 2014 to 2018 in real 2017–18 dollar terms. Our draft decision results in a slight increase in annual revenue each year from 2018 to 2023 in the same real dollar terms.

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

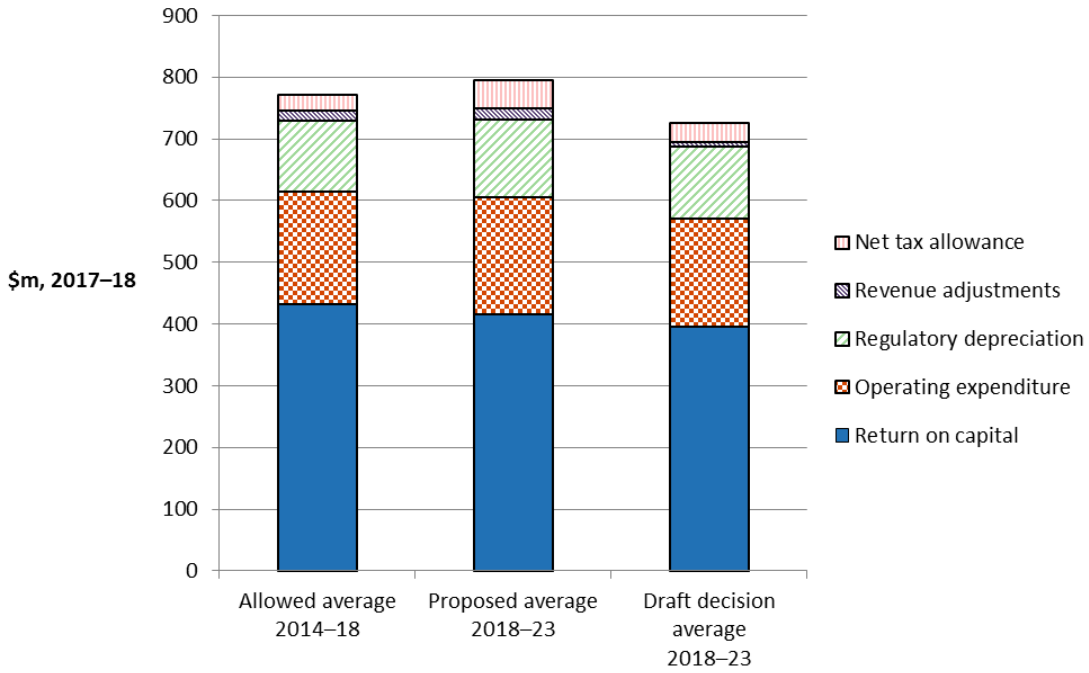


Source: AER analysis.

1.2 What is driving allowed revenue?

Figure 1.2 compares the average annual building block revenue from our draft 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 1.2 AER's draft decision on constituent components of average annual revenue ($million, 2017–18)

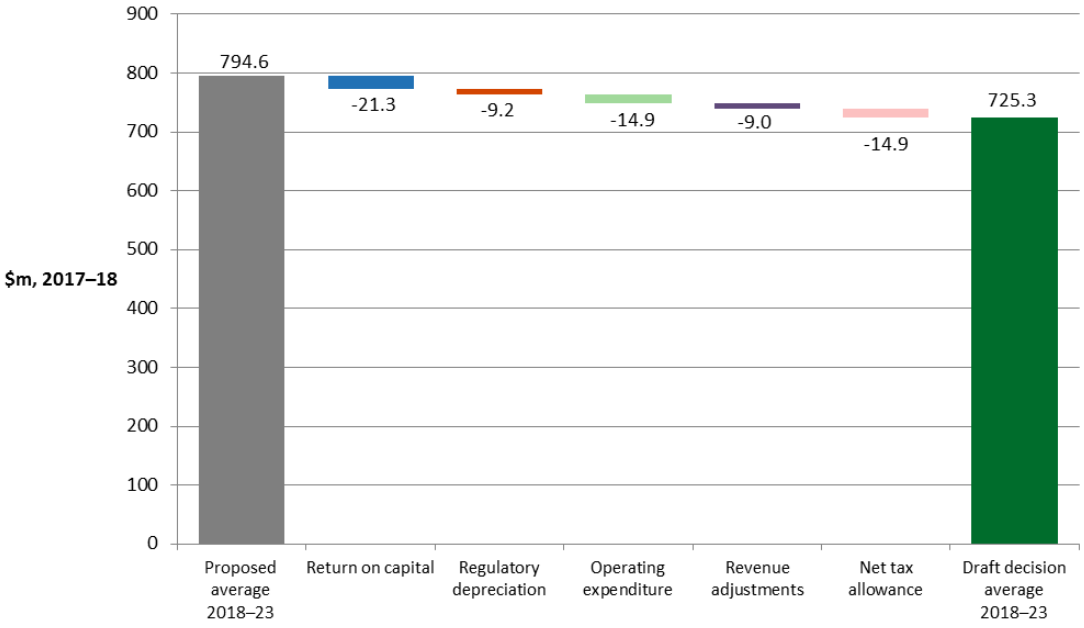


Source: AER analysis.

Figure 1.2 shows that each building block component is slightly lower under our draft decision than that proposed by TransGrid for the upcoming period and that allowed for the current period. Of the larger building blocks, our approved regulatory depreciation is 7.3 per cent lower and opex is 7.9 per cent lower. We have also slightly reduced TransGrid's proposed return on capital by 0.1 per cent. Although the reduction is modest in size, it is nonetheless important as it is applied to the entire RAB and as such can have a material impact on the revenue that can be recovered in the future.

Figure 1.3 compares our draft decision with TransGrid's proposal, broken down by the various building block components that make up the forecast revenue allowance.

Figure 1.3 AER's draft decision and TransGrid's proposed average annual building block costs ($million, 2017–18)



Source: AER analysis.

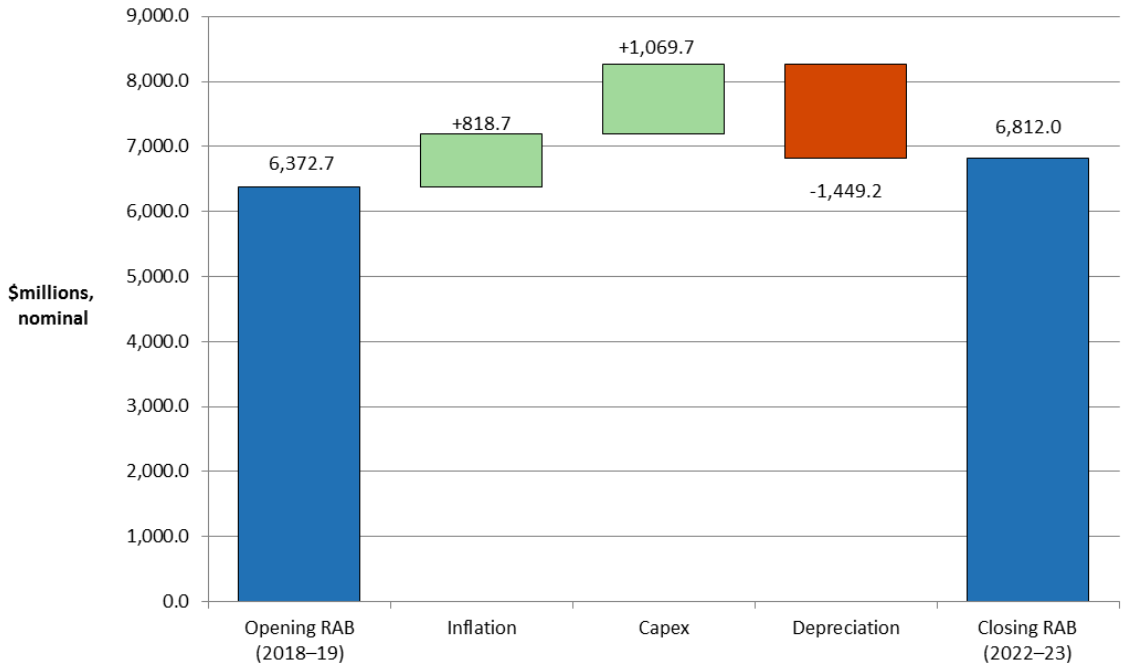
Figure 1.2 and Figure 1.3 show that we are not in substantial disagreement with TransGrid on any particular building block. Rather we have made a number of adjustments that all factor into a lower revenue requirement than TransGrid's proposal. We consider these individual adjustments in section 2.

1.2.1 Regulatory asset base

Figure 1.2 shows that two significant constituent components of TransGrid's revenues are the return on capital and regulatory depreciation. These components of the revenue allow TransGrid to recover its investments in its regulatory asset base (RAB). The size of TransGrid's regulatory asset base will affect these components of its revenues in future regulatory periods.

Overall, the closing RAB at the end of the 2018–23 regulatory control period is forecast to be 6.9 per cent higher than the opening RAB at the start of that period, in nominal terms. The approved forecast net capex increases the RAB by 16.8 per cent, while expected inflation increases it by 12.8 per cent. Forecast depreciation, on the other hand, reduces the RAB by 22.7 per cent. Figure 1.4 shows the key drivers of the change in TransGrid's RAB over the 2018–23 regulatory control period for this draft decision.

Figure 1.4 AER's draft decision on key drivers of changes in the RAB ($million, nominal)



Source: AER analysis.

1.2.2 Capital expenditure

As can be seen from Figure 1.4, capital expenditure (capex) is a driver of the change in TransGrid's RAB. TransGrid proposed a substantial 42 per cent increase from its average annual capex in the 2014-18 regulatory period for a total of $1 638 ($million, 2017–18). TransGrid argues this increase is required to manage the increasing risk of asset failures (repex), address capacity reductions and decreasing reliability in inner Sydney and to meet local pockets of higher than average peak load growth. Our draft decision capex forecast is a 39 per cent, or $645.8 ($million, 2017–18), reduction on TransGrid's proposal to $992.2 ($million, 2017–18).

We have accepted the need for much of TransGrid's proposed capex. However, for our draft decision, we are not satisfied that all of TransGrid's proposed increase in capex has been sufficiently supported by its capex proposal.

In forming this view, we have considered the information we have received from TransGrid, and input from stakeholders (including the Consumer Challenge Panel). Our analysis was informed by advice from Energy Market Consulting associates (EMCa). Importantly, based on all of the information provided, we are satisfied that our substitute estimate of total capital expenditure is consistent with prudent and efficient costs. We expect that EMCa's report (available on our website) will inform TransGrid when preparing its revised proposal and by any interested stakeholders when drafting further submissions. Further detail of our assessment of TransGrid's capex is set out in section 2.5.

TransGrid also notes that the rapid change in the Australian energy sector is contributing to significant change and uncertainty such that our regulatory determinations need to provide flexibility for the business to respond to the key objectives of security and affordability. In this context, TransGrid has proposed five contingent projects for the 2018–23 regulatory control period, which total between $543 million and $2.3 billion.[4] Contingent projects are significant network augmentation projects that may arise during the regulatory period but either the cost or the timing of the expenditure is uncertain. While the expenditures for such projects do not form a part of our assessment of the total forecast capital expenditure that we approve in this determination, the cost of the projects may ultimately be recovered from customers in the future if certain conditions (trigger events) are met. Our draft determination allows for these contingent projects, subject to some minor changes to the proposed project trigger events.

TransGrid recently advised that it has identified additional contingent projects that have not been included in its revenue proposal. These additional projects are also driven by uncertainty around the connection of renewable generation, including the 'Snowy 2.0' project. We expect TransGrid to provide further information to support its additional contingent projects in its revised proposal.

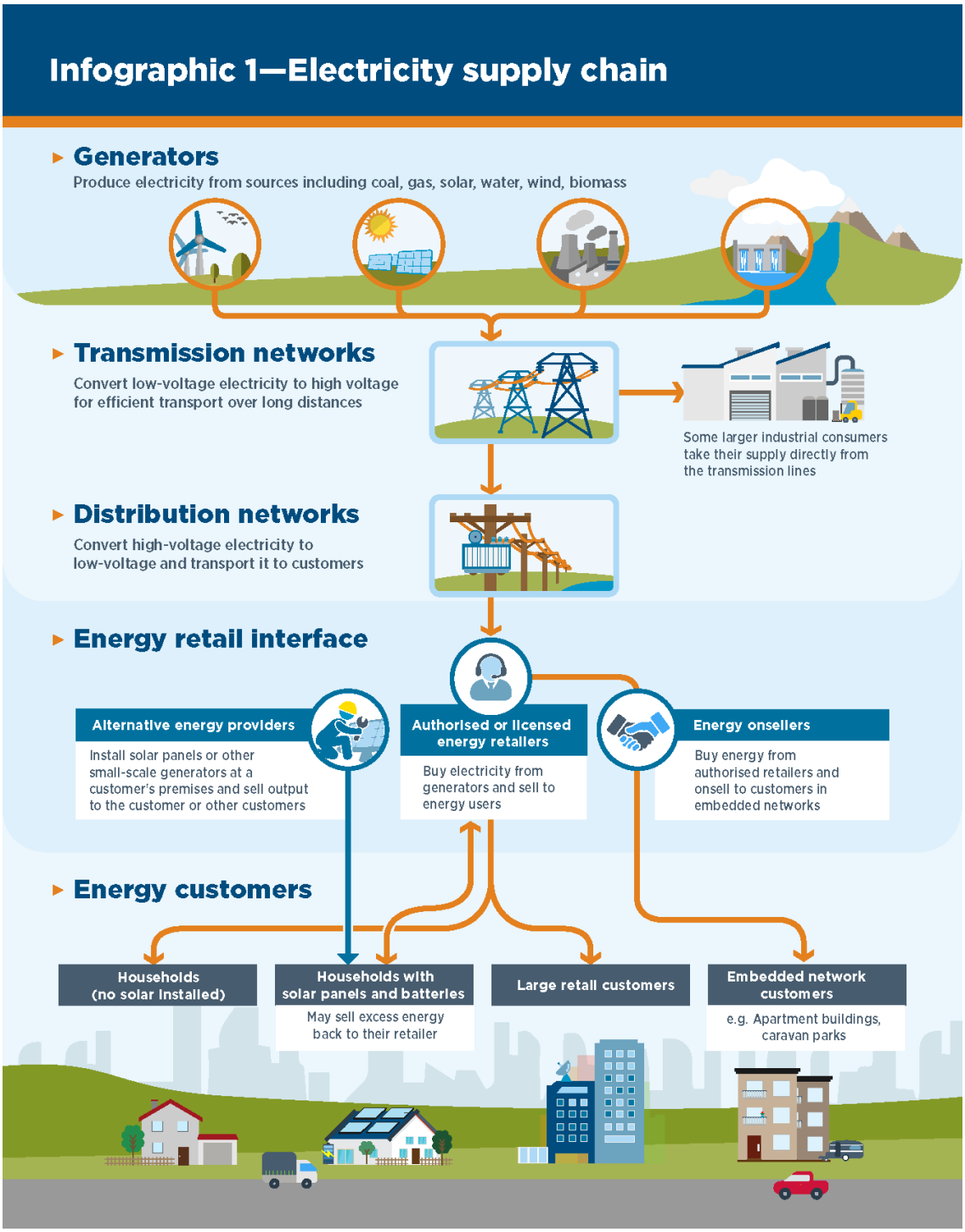
1.3 Expected impact of decision on residential electricity bills

The annual electricity bill for customers in NSW and the ACT will reflect the combined cost of all the electricity supply chain components. These components include:

- the cost of purchasing electricity (the wholesale energy generation cost);
- the cost of the poles/towers and wires used to transport the electricity .This is split into two components:
    - electricity transmission networks which operate high voltage poles/towers and wires to efficiently transport electricity over long distances
    - electricity distribution networks which take electricity from the transmission networks and distribute it to end users
- the cost of environmental policies, including subsidies for renewable energy, such as solar feed-in-tariffs; and
- the retailer's costs and profit margin.

Infographic 1 below illustrates the different components of the electricity supply chain.

[4] Generally, contingent projects are significant network augmentation projects that are reasonably required to be undertaken in order to achieve the capex objectives. However, unlike other proposed capex projects, the need for the project within the regulatory period and the associated costs are not sufficiently certain. Consequently, expenditure for such projects does not form a part of the total forecast capex that we approve in this determination.



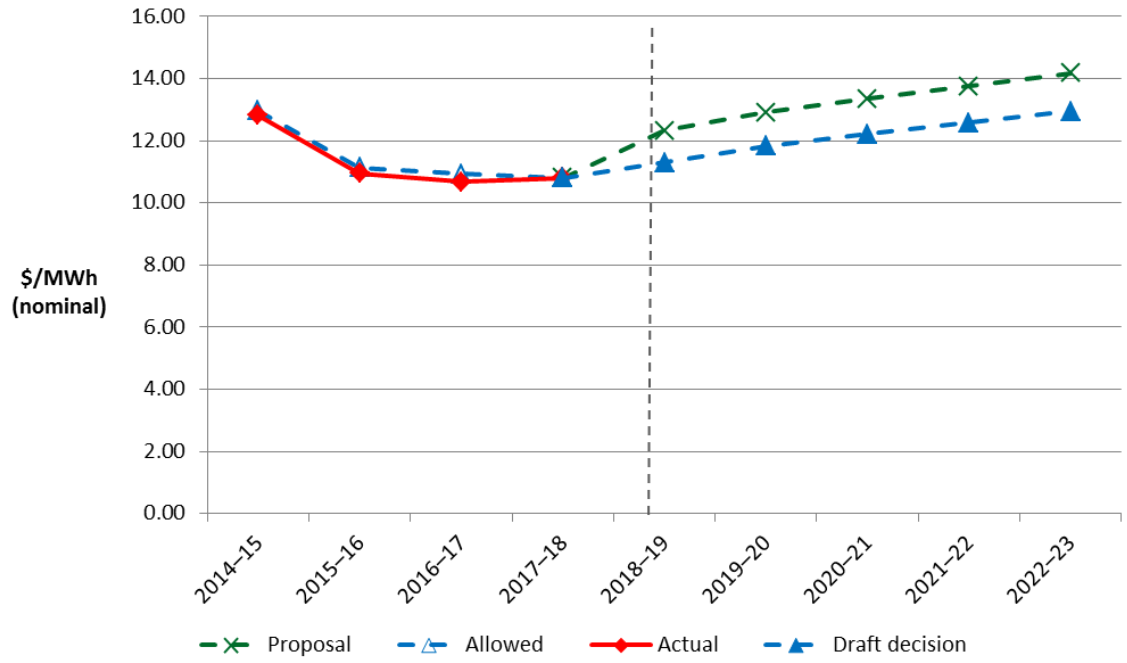
Each of the components in the electricity supply chain can affect the electricity charges that customers receive in their bills. Our draft decision on TransGrid affects the transmission network charges component of the electricity bill for NSW and the ACT, which represent approximately 11 per cent of an average customer's annual electricity

bill.[5] This small percentage largely explains the relatively modest impact this draft decision is likely to have on average annual electricity bills.

We expect that, holding other components of bills constant, our draft decision will result in a 2.2 per cent increase in the average annual electricity bills for residential customers in NSW and the ACT. We estimate that, the transmission component of the average annual residential electricity bill in 2022–23 will increase by about $42 ($nominal) from the current, 2017–18 level. For the ACT, we estimate that the transmission component of a residential customer's annual electricity bill in 2022–23 will increase by about $43 ($nominal).[6] This estimate is indicative only, and the effect on individual customers' bills will depend on their usage patterns and the structure of their chosen retail tariff offering.

Figure 1.5 shows the indicative average transmission charges over the period 2014–15 to 2022–23 in nominal dollar terms. The average transmission charges are expected to increase from around $10.8 per MWh in 2017–18 to $12.95 per MWh in 2022–23.

Figure 1.5 Indicative transmission price path for NSW/ACT ($/MWh, nominal)



Source: AER analysis.

[5] AEMC, *Final Report: 2016 Residential electricity price trends*, December 2016, p. 108.

[6] This estimate isolates the effect of our decision on electricity prices, but does not imply that other components will remain unchanged across the regulatory control period. It also assumes that actual annual energy delivered will equal to the forecast in our draft decision as published by AEMO. Since TransGrid operates under a revenue cap, changes in energy delivered will also affect annual electricity bills across the 2018–23 regulatory control period.

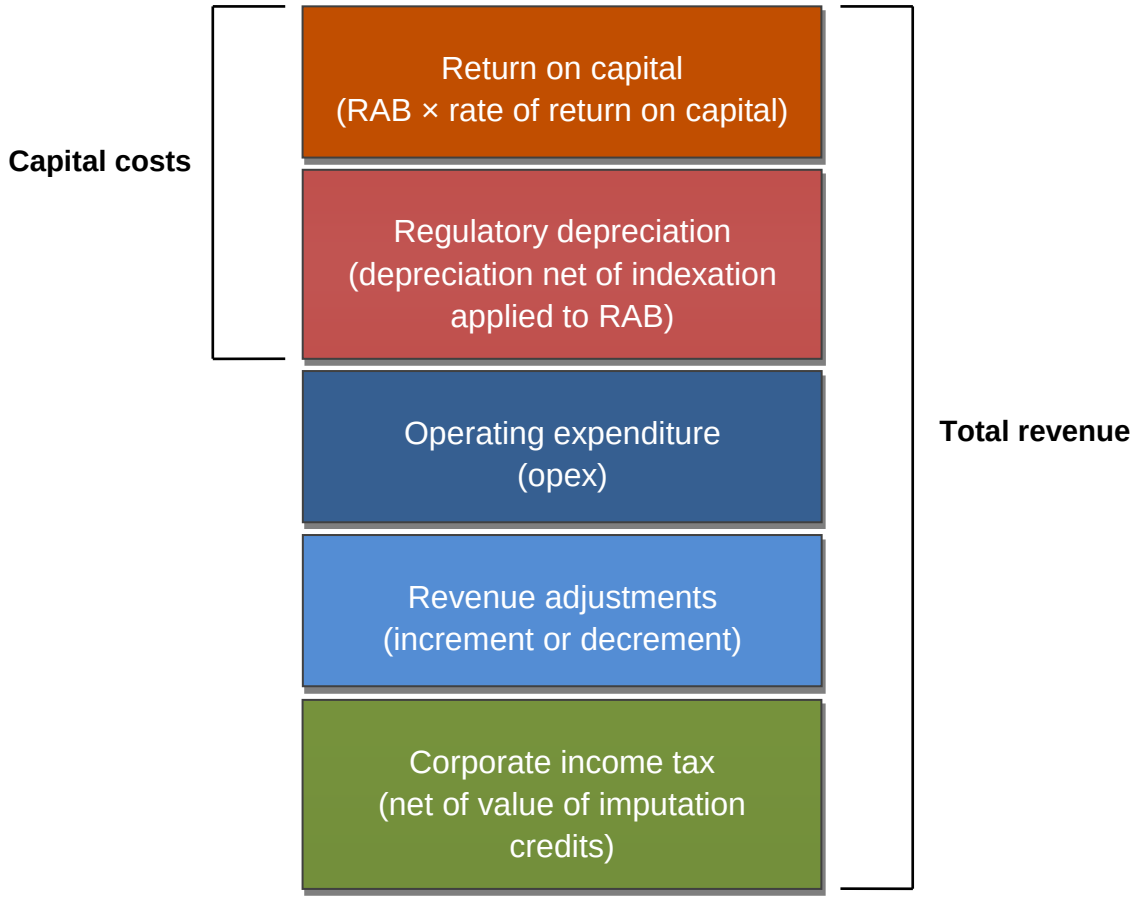
2 Key elements of our draft decision

We use the building block approach to determine TransGrid's maximum allowed revenue (MAR). The building block approach consists of five costs that a business is allowed to recover through its revenue allowance.

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 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 comprised of key elements that we determine through our assessment process. For example, the size of the RAB—and therefore the revenue generated from the return on capital and return of capital building blocks—is directly affected by our assessment of capex.

This section summarises our draft decision on key elements of the building blocks including:

- RAB (section 2.1)
- Rate of return (section 2.2)
- Imputation credits (section 2.3)
- Depreciation allowance (section 2.4)
- Efficient level of capex (section 2.5)
- Efficient level of opex (section 2.6)
- Forecast level of corporate income tax (section 2.7).

Incentive schemes including the EBSS and CESS are covered in section 3. Table 2.1 shows our draft decision on TransGrid's revenues including the building block components.

Table 2.1 AER's draft decision on TransGrid's revenues ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Return on capital	413.4	417.2	424.8	432.2	436.6	2124.2
Regulatory depreciation[a]	101.0	117.4	129.6	134.7	147.8	630.5
Operating expenditure[b]	177.2	182.7	188.0	193.6	199.4	940.9
Revenue adjustments[c]	4.5	18.4	5.2	12.5	4.1	44.7
Net tax allowance	30.2	32.1	33.6	35.5	37.2	168.5
Annual building block revenue requirement (unsmoothed)	726.2	767.8	781.1	808.6	825.0	3908.8
Annual expected MAR (smoothed)	**730.9**	**755.6**	**781.1**	**807.6**	**834.9**	**3910.0**[d]
X factor (%)[e]	n/a[f]	–0.86%	–0.86%	–0.86%	–0.86%	n/a

Source: AER analysis.

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

(b) 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 the same as the approved MAR for 2017–18 in real terms, or 2.5 per cent higher in nominal terms.

2.1 Regulatory asset base

We make a decision on TransGrid's opening regulatory asset base (RAB) at 1 July 2018 as part of our revenue determination. We also make a decision on TransGrid's projected RAB for the 2018–23 regulatory control period.[7]

The RAB roll forward accounts for the value of TransGrid's regulated assets over the regulatory control period. The size of the RAB impacts TransGrid's revenue and the price consumers ultimately pay. It is an input into the determination of the return on capital and depreciation (return of capital) building blocks.[8] Other things being equal, a higher RAB increases both the return on capital and depreciation allowances. In turn, these increase TransGrid's revenue, and prices for services.

We determine an opening RAB for TransGrid of $6372.7 million ($nominal) as at 1 July 2018. This is $32.9 million (or 0.5 per cent) lower than TransGrid's proposed value of $6405.6 million. This is because we have amended TransGrid's proposed roll forward model (RFM) to correct minor input issues. We have also updated the RFM for actual 2016–17 CPI and the WACC input for 2017–18 as they have become available since TransGrid submitted its proposal. [9]

To determine the opening RAB as at 1 July 2018 we have rolled forward the RAB over the 2014–18 regulatory control period to determine a closing RAB value as at 30 June 2018. Table 2.2 summarises our draft decision on the roll forward of TransGrid's RAB over the 2014–18 regulatory control period.

Table 2.2 AER's draft decision on TransGrid's RAB for the 2014–18 regulatory control period ($million, nominal)

	2014–15	2015–16	2016–17[a]	2017–18[b]
Opening RAB	6075.8	6190.6	6284.9	6301.9
Capital expenditure[c]	254.6	251.7	203.9	209.9
Inflation indexation on opening RAB[d]	104.4	104.5	92.8	126.0
Less: straight-line depreciation[e]	244.2	261.9	279.7	265.0
Closing RAB	6190.6	6284.9	6301.9	6372.7
Other final year asset adjustment[f]				0.0
Opening RAB as at 1 July 2018				**6372.7**[g]

Source: AER analysis.

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

7 NER, cl. 6A.6.1.

8 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.

9 In our final decision we will update the estimate for 2017–18 expected inflation with actual CPI. The December quarter CPI is used as a proxy for the June financial year in TransGrid's 2014–18 regulatory control period.

(b) Based on estimated capex provided by TransGrid. We expect to update the RAB roll forward with a revised capex estimate in the final decision, and true-up the RAB for actual capex at the next reset.

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

(d) We will update the RAB roll forward for actual CPI for 2017–18 in the final decision.

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

(f) This adjustment reflects the transfer of residual work in progress assets at the end of the 2009–14 regulatory control period into the new asset classes in the 2014–18 regulatory control period, where they will be commissioned. This adjustment has a net effect of zero to the opening RAB at 1 July 2018.

(g) There is no true-up required for 2013–14 capex as the approved opening RAB value of $6075.8 million at 1 July 2014 does not include any estimated capex. This is because 2013–14 was a transitional year for TransGrid and we were able to include the actual capex values for 2013–14 in our final decision for the 2014–18 regulatory control period.

We determine a forecast closing RAB value at 30 June 2023 of $6812.0 million ($nominal). This is $700.1 million (or 9.3 per cent) lower than the amount of $7512.1 million ($nominal) proposed by TransGrid. Our draft decision on the forecast closing RAB reflects the amended opening RAB as at 1 July 2018, and our draft decisions on the expected inflation rate (attachment 3), forecast capex (attachment 6) and forecast depreciation (attachment 5). We also do not accept TransGrid's proposal to roll in $25.7 million ($2017–18) to its RAB in 2018–19 for assets relating to the provision of network support and control ancillary services (NSCAS)—this is discussed further in attachment 6.

Table 2.3 sets out our forecast RAB for TransGrid in 2018–23.

Table 2.3 AER's draft decision on TransGrid's RAB for the 2018–23 regulatory control period ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Opening RAB	6372.7	6431.9	6549.3	6663.9	6730.9
Capital expenditure[a]	160.1	234.8	244.2	201.7	228.9
Inflation indexation on opening RAB	159.3	160.8	163.7	166.6	168.3
Less: straight-line depreciation[b]	260.3	278.2	293.3	301.3	316.0
Closing RAB	**6431.9**	**6549.3**	**6663.9**	**6730.9**	**6812.0**

Source: AER analysis.

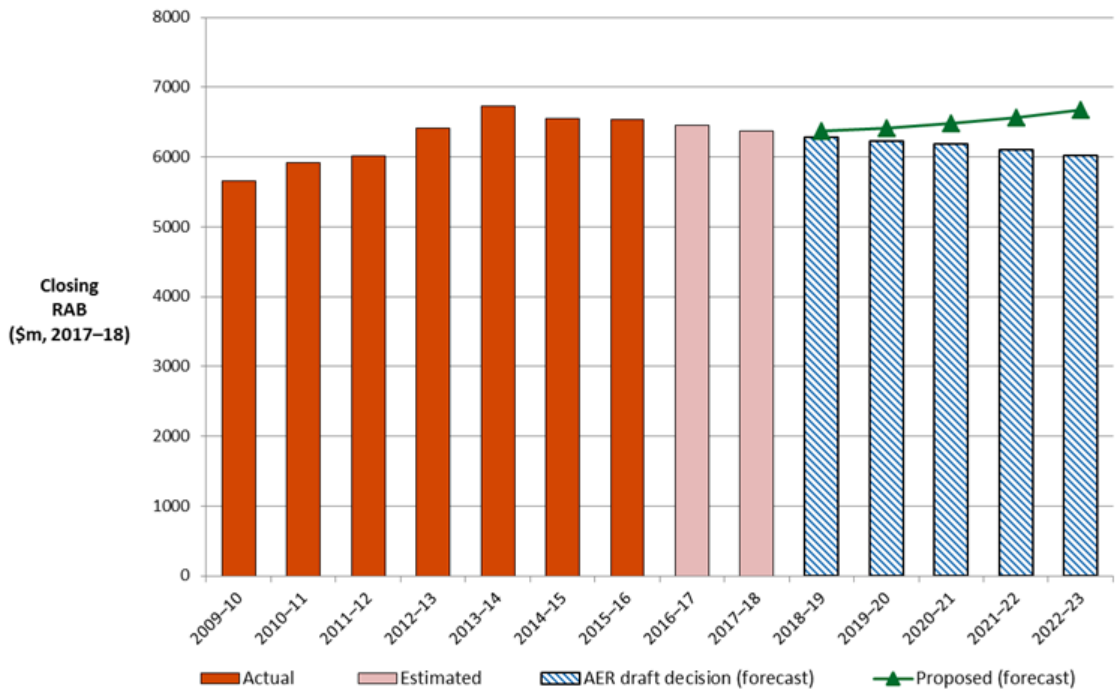
(a) As-incurred, and net of forecast disposals. In accordance with the timing assumptions of the post-tax revenue model (PTRM), the capex includes a half-WACC allowance to compensate for the six month period before capex is added to the RAB for revenue modelling.

(b) Based on as-commissioned capex.

We must determine whether actual or forecast depreciation is used to roll forward the RAB at the commencement of the 2023–28 regulatory control period for TransGrid.[10] We determine that forecast depreciation is to be used to establish the opening RAB. In isolation, the use of actual depreciation leads to higher powered incentives to achieve capex efficiency gains than forecast depreciation. Though this creates a lesser incentive to reduce capex, we consider this approach, in conjunction with the application of our capital expenditure sharing scheme (CESS), will provide sufficient incentives for TransGrid to achieve capex efficiency gains over the 2018–23 regulatory control period.

Figure 2.2 compares our draft decision on TransGrid's forecast RAB to TransGrid's proposal and actual RAB in real dollar terms ($2017–18). The RAB is expected to decline over the 2018–23 regulatory control period due to our lower capex forecast. All other things being equal, a lower RAB will lead to lower prices for consumers in the short and long term. However, it should be noted that there is the potential for TransGrid's RAB to increase in the next period. This may happen if one or more of TransGrid's contingent projects proceed.

Figure 2.2 TransGrid's actual RAB, proposed forecast RAB and AER draft decision forecast RAB ($million, 2017–18)



Source: TransGrid-*Post Tax Revenue Model*-0117-PUBLIC; AER analysis.

[10] NER, cl. S6A.2.2B(a).

Further detail on our draft decision in regards to TransGrid's RAB is set out in attachment 2.

2.2 Rate of return (return on capital)

The allowed rate of return provides a TNSP a return on capital to service the interest on its loans and give a return on equity to investors. The return on capital building block is calculated as a product of the rate of return and the value of the RAB.

We determine an allowed rate of return of 6.5 per cent (nominal vanilla, indicative) for the first year of the 2018-23 regulatory control period (updated annually in accordance with this determination). We are satisfied this contributes to the achievement of the NEO, and achieves the allowed rate of return objective (ARORO) set out in the NER.[11] That is, we are satisfied that this allowed rate of return is commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to TransGrid in providing prescribed transmission services.[12]

This is slightly lower than TransGrid's proposed (indicative) 6.6 per cent rate of return for the first year of the 2018–23 regulatory control period.[13] In addition to considering TransGrid's proposal and submissions in reaching our draft decision position, we also took account of information provided in a submission from the CCP9 and reports from our consultants. CCP9 supports our approach and the relatively greater weight it has given to the historical realised MRP in framing investor expectations for the future.[14]

Table 2.4 sets out our rate of return and TransGrid's proposed rate of return.

Table 2.4 AER draft decision on TransGrid's rate of return (per cent, nominal)

	AER previous decision (2014–15)	TransGrid proposal (2018–23)	AER draft decision (2018–23)	Allowed return over 2018–23 regulatory control period
Return on equity (nominal post–tax)	7.1	7.5	7.2*	Constant (7.2%)
Return on debt (nominal pre–tax)	6.67	6.01	6.01**	Updated annually
Gearing	60	60	60	Constant (60%)
Nominal vanilla WACC	6.84	6.6	6.5	Updated annually for return on debt
Forecast inflation	2.38	2.39	2.5	Constant (2.5%)

11 NER, cl. 6A.6.2(b).

12 NER, cl. 6A.6.2(c).

13 TransGrid, *Revenue proposal 2018/19–2022/23*, January 2017, p. 159.

14 Consumer Challenge Panel Sub-Panel 9, *Submission to the AER; Response to proposals from TransGrid for a revenue reset for 2018-19 to 2022-23*, 12 May 2017, p. 68.

Source: AER analysis; TransGrid, *Revenue proposal 2018/19–2022/23*, January 2017, p. 159.

* Number to be updated for the final agreed equity averaging period for the 2018-23 regulatory period.

** Number to be updated for the final agreed debt averaging period for the 2018-19 regulatory year.

Our return on equity estimate for this draft decision is 7.2 per cent. We derived this estimate by applying the same approach we applied to determine the allowed return on equity in our most recent decisions.[15] The Australian Competition Tribunal (Tribunal) has upheld this approach, referred to in the Guideline as the foundation model approach.[16] This is a six step process, where we have regard to a considerable amount of relevant information, including various equity models.

Our return on equity point estimate and the parameter inputs are set out in Table 2.5. As can be seen from Table 2.5, TransGrid proposed a higher market risk premium than that of our draft decision. This proposal appears to be based on a mischaracterised (and mechanistic) application of our WACC Guideline. We consider the appropriate value for the market risk premium is 6.5 per cent. Our decision aligns with the position of CCP 9 which submitted that we should not accept TransGrid's proposed market risk premium.[17]

Table 2.5 AER draft decision on TransGrid's return on equity (nominal)

	AER previous decision (2014–18)	TransGrid proposal (2018-23)[a)]	AER draft decision (2018–23)
Nominal risk free rate (return on equity only)	2.55%	2.24%[a]	2.68%[b]
Equity risk premium	4.55%	5.25%	4.55%
Market risk premium	6.5%	7.50%	6.50%
Equity beta	0.7	0.7	0.7
Nominal post–tax return on equity	7.1%	7.5%	7.2%

Source: AER analysis; TransGrid, *Revenue proposal 2018/19–2022/23*, January 2017, p. 159.

[a] Based on TransGrid's indicative averaging period adopted for its proposal of 20 business days to 31 October 2016

[b] Calculated with a placeholder averaging period of 20 business days up to 31 July 2017.

Our draft decision on the return on debt methodology is to accept TransGrid's proposed approach to continue moving to a trailing average debt estimation

15 For example, see AER, *Final decision: AusNet Services transmission determination 2017–2022, Attachment 3—Rate of return*, April 2017; AER, *Draft decision: Australian Gas Networks Victoria and Albury gas access arrangement 2018 to 2022, Attachment 3–Rate of return*, July 2017.

16 For example, see Australian Competition Tribunal, *Applications by Public Interest Advocacy Centre Ltd and Ausgrid [2016] ACompT 1*, 26 February 2016, para 813; AER, *Better regulation: Rate of Return Guideline,* December 2013.

17 Consumer Challenge Panel Sub-Panel 9, *Submission to the AER; Response to proposals from TransGrid for a revenue reset for 2018-19 to 2022-23*, 12 May 2017, p. 83.

methodology following the transition path set out in our final decision for TransGrid's 2014-18 regulatory control period.[18]

In our decision for the 2014-18 regulatory control period there were two parts to transitioning our debt estimation methodology:

- We estimated the return on debt using an on-the-day methodology (that is, based on prevailing market conditions near the commencement of the regulatory control period) in 2014 which applied for the 2014–15 regulatory year, and
- We gradually transitioned the on the day methodology into a trailing average methodology (that is, a moving historical average) over 10 years.[19] This gradual transition occurred through updating 10 per cent of the entire return on debt each year to reflect prevailing market conditions in that year (a full transition).[20]

As we are continuing to move to a trailing average debt estimate methodology using our transition path set out above in 2015, at the start of the 2018-23 regulatory period TransGrid will be 4 years into its transition to the trailing average debt estimation methodology. Therefore, in estimating the allowed return on debt for the 2018-19 regulatory year, the estimated prevailing return on debt for the 2014-15 regulatory year will be given a 60% weight while the estimated prevailing returns on debt for the 2015-16, 2016-17, 2017-18, and 2018-19 regulatory years, will each be given a 10% weight.

Our approach for estimating inflation aligns with TransGrid's proposal and is consistent with the approach we have applied since 2008. We estimate inflation using the RBA's short term inflation forecasts and the mid-point of the RBA's inflation targeting band.

Further detail on our draft decision in regards to TransGrid's allowed rate of return is set out in attachment 3.

2.3 Value of imputation credits

Under the Australian tax system investors can receive imputation credits for tax paid at the company level. We make an adjustment to our taxation building block to account for the value of imputation credits. Our draft decision does not accept TransGrid's proposed value of imputation credits of 0.25. Instead, we adopt a value of imputation credits of 0.4. We consider that the use of a value for imputation credits of 0.4 will result in equity investors in the benchmark efficient entity receiving an ex ante total return (inclusive of the value of imputation credits) commensurate with the efficient equity financing costs of a benchmark efficient entity. This approach is consistent with

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

19 This draft decision determines the return on debt methodology for the 2017-22 regulatory control period. This period covers the first five years of the 10 year transition period. This decision also sets out our intended return on debt methodology for the remaining five years. However, we do not have the power to determine in this decision the return on debt methodology for those years. Under the NER, the return on debt methodology must be determined in future decisions that relate to that period.

20 By entire return on debt, we mean 100% of the base rate and debt risk premium (DRP) components of the allowed return on debt.

the approach we have adopted in our recent decisions, which has been upheld by the Federal Court of Australia.[21]

In coming to a value of imputation credits of 0.4:

- we adopt a conceptual approach consistent with the Officer framework, which we consider best promotes the objectives and requirements of the NER/NGR. This approach considers the value of imputation credits is a post-company tax value before the impact of personal taxes (and personal costs). As such, we view the value of imputation credits as the proportion of company tax returned to investors through the utilisation of imputation credits.[22]
- we consider our conceptual approach allows for the value of imputation credits to be estimated on a consistent basis with the allowed rate of return and allowed revenues under the post-tax framework in the NER/NGR.[23]
- we use the widely accepted approach of estimating the value of imputation credits as the product of two sub-parameters: the 'distribution rate' and the 'utilisation rate'.

Overall, the evidence suggests a range of estimates for the value of imputation credits might be reasonable. With regard to the merits of the evidence before us, we choose a value of imputation credits of 0.4 from within a range of 0.3 to 0.5.

In considering the evidence on the distribution and utilisation rates, we have broadly maintained the approach set out in the Rate of Return Guideline (the Guideline), but have re-examined the relevant evidence and estimates. This re-examination, and new evidence and advice considered since the Guideline, led us to depart from the 0.5 value of imputation credits we proposed in the Guideline.

Further detail on our draft decision in regards to the value of TransGrid's imputation credits is set out in attachment 4.

2.4 Regulatory depreciation (return of capital)

In our draft decision, we include an allowance for the depreciation of TransGrid's asset base (otherwise referred to as return of capital). Regulated service providers invest in large sunk assets to provide electricity transmission services to customers. While some of the cost of such assets may be recovered from customers upfront, a greater proportion is recovered over time. The depreciation allowance is used for this purpose.

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21 Federal Court of Australia, *Australian Energy Regulator v Australian Competition Tribunal (No 2) [2017] FCAFC 79*, May 2017, p. 216.

22 This means one dollar of claimed imputation credits has a post (company) tax value of one dollar to investors before personal taxes and personal transaction costs.

23 In finance, the consistency principle requires that the definition of the cash flows in the numerator of a net present value (NPV) calculation must match the definition of the discount rate (or rate of return / cost of capital) in the denominator of the calculation (see Peirson, Brown, Easton, Howard, Pinder, *Business Finance*, McGraw-Hill, Ed. 10, 2009, p. 427). By maintaining this consistency principle, we provide a benchmark efficient entity with an ex ante total return (inclusive of the value of imputation credits) commensurate with the efficient financing costs of a benchmark efficient entity.

In deciding whether to approve the depreciation allowance proposed by TransGrid, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for TransGrid's 2018–23 regulatory control period.[24] The regulatory depreciation allowance is the net total of the RAB depreciation less the inflation indexation adjustment of the RAB.

Our draft decision approves a regulatory depreciation allowance of $630.5 million ($nominal) for the 2018–23 regulatory control period. This is $47.6 million (7.0 per cent) lower than TransGrid's proposed value of $678.1 million ($nominal). In coming to this decision:

- We accept TransGrid's proposed straight-line method used to calculate the regulatory depreciation allowance.
- We largely accept TransGrid's proposed asset classes and standard asset lives, with the following exceptions:
    - We did not retain the standard asset life of 36 year associated with the proposed new asset class for 'NSCAS assets' in the PTRM. While we accept TransGrid's proposal to roll-in the assets relating to the provision of network support and control ancillary services (NSCAS) to the RAB, we do not accept the proposed roll-in amount of $25.7 million ($2017–18). We have instead determined a roll-in amount of zero (see attachment 6). Therefore, we are not required to make a decision on the proposed standard asset life for the 'NSCAS assets' asset class.
    - We do not accept the proposed standard asset life of 25 years for the ‘Transmission line life extension (2018–23)’ asset class. This is because we consider this standard asset life does not reflect the economic life of the assets in this asset class.[25] We determine a standard asset life of 35 years, which reflects the weighted average of the technical lives of the assets used for the forecast transmission line life extension works for the 2018–23 regulatory control period.

  We consider our decision on TransGrid's standard asset lives would lead to a depreciation schedule that reflects the nature of the assets over their economic lives.[26]
- We accept TransGrid's proposed weighted average method to calculate the remaining asset lives as at 1 July 2018. This because the proposed method applies the approach set out in the AER's RFM. In accepting the weighted average method, we have updated TransGrid's remaining asset lives as at 1 July 2018 to reflect our updates to the RAB roll forward inputs for the 2014–18 regulatory control period (attachment 2).

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[24] NER, cll. 6A.5.4(a)(1) and (3).
[25] NER, cl. 6A.6.3(b)(1).
[26] NER, cl. 6A.6.3(b)(1).

- We made determinations on other components of TransGrid's proposal that also affect the forecast regulatory depreciation allowance—the opening RAB as at 1 July 2018 (attachment 2), expected inflation rate (attachment 3) and forecast capital expenditure (attachment 6).

Table 2.8 shows our draft decision on TransGrid's depreciation allowance for the 2018–23 regulatory control period.

Table 2.6 AER's draft 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	260.3	278.2	293.3	301.3	316.0	1449.2
Less: inflation indexation on opening RAB	159.3	160.8	163.7	166.6	168.3	818.7
Regulatory depreciation	**101.0**	**117.4**	**129.6**	**134.7**	**147.8**	**630.5**

Source: AER analysis.

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

2.5 Capital expenditure

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

TransGrid proposed a substantial 42 per cent increase from its average annual capex in the 2014-18 regulatory period to $1638 ($million, 2017–18). Our draft decision approves $992 million ($million 2017–18) total forecast capex for the 2018–23 regulatory control period. This is $646 million (or 39 per cent) lower than TransGrid's proposed value of $1638 million. Table 2.7 shows our decision compared to TransGrid's forecast.

Table 2.7 AER draft decision on total net capex ($million, 2017–18)

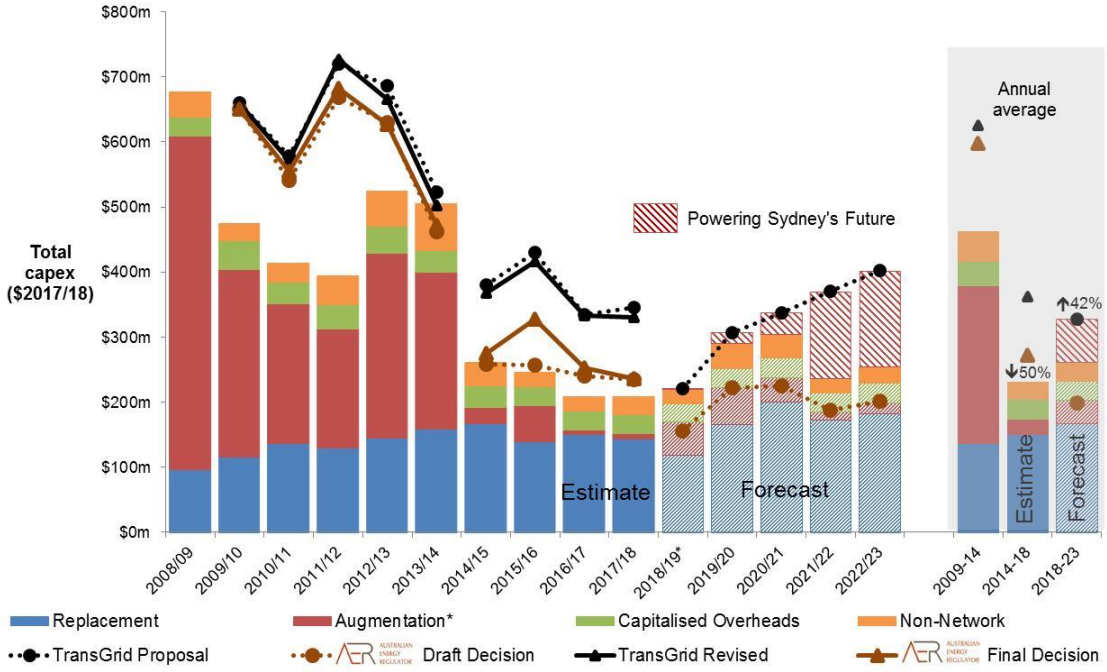
	2018–19	2019–20	2020–21	2021–22	2022–23	Total
TransGrid's proposal	221.0	306.8	337.9	370.1	402.2	1638.0
AER draft decision	156.0	222.0	225.2	187.8	201.1	992.2
Difference	-65.0	-84.8	-112.7	-182.3	-201.1	-645.8
Percentage difference (%)	-29	-28	-33	-49	-50	-39

Source: TransGrid, *Revenue Proposal 2018/19–2022/23*, January 2017, p. 70; excludes the value of disposals.

Note: Numbers may not total due to rounding.

Figure 2.3 shows our capex draft decision compared to TransGrid's proposal, its past allowances and past actual expenditure.

Figure 2.3 TransGrid total actual and forecast capex



Source: Source: AER analysis

The key aspects of our draft decision are highlighted below.

Asset risk management framework

We recognise that TransGrid has recently enhanced its asset management and risk management processes to better understand the condition and performance of its asset and to improve the targeting of expenditure to address critical asset risks. We consider that the methodology adopted by TransGrid's in regard to its asset risk management framework is consistent with good industry practice. However, this new framework was only introduced in 2015-16 and evidence indicates that this new framework is currently a work in progress.

Based on our analysis, and the outcomes of EMCa's review we have identified that the application of TransGrid's new asset risk framework, used to develop its capex forecast, is overly risk averse, such that prudent and efficient capital expenditure is likely to be overstated. In many instances, TransGrid has assessed the risks associated with asset failure based on worst case events and worst case consequences. As a result the forecast capex to achieve the capex objectives is overstated. We consider this issue is systemic across the proposed capex program as TransGrid's new asset risk framework has been applied to its non-load driven capital expenditure forecast and to elements of its load driven and non-network capital expenditure forecast. These elements of the load drive capex and the non-network

capex forecast relevant to this new asset risk framework that we consider are materially overstated include capex related to:

- improved power quality, load restoration times, network resilience and responsiveness to grid emergencies associated with managing the risks of high cost low probability events; and
- information and communications technology capex.

We are also concerned that TransGrid does not appear to have adequate information to assess risks and investment requirements at the portfolio level. In particular, TransGrid has derived its capex forecast as a 'bottom-up' aggregation of projects and programs. We acknowledge that TransGrid has applied a form of 'top down' assessment in relation to its proposed non-load driven capex as a cross check on the reasonableness of its capex forecast. However, we are not reasonably satisfied that TransGrid's 'top down' assessment provides a validation that the bottom up capex forecast is likely to reflect prudent and efficient costs.

'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'). This project is currently subject to a joint RIT-T process.

Our review of the economic analysis indicates that the identified reliability risks are likely to be overstated such that the scope and optimal timing of the expenditure in the 2018-23 regulatory period has not been established. On this basis we have not included proposed capex for this project in our substitute estimate of total capex. We recognise however that the scope and timing for this project is affected by the significant uncertainty in regard to future demand in inner Sydney and CBD as indicated by the range of different demand forecasts. Furthermore, given that this demand uncertainty may influence the scope and timing of this project we consider that this project could be considered as a contingent project to manage this uncertainty while ensuring that customers do not fund the project before it is necessary.

We expect TransGrid will address the key issues we have identified and provide further information to support its proposed 'Powering Sydney's Future' project as part of its revised proposal.

Contingent projects

TransGrid also notes that the rapid change in the Australian energy sector is contributing to significant change and uncertainty such that our regulatory determinations need to provide flexibility for the business to respond to the key objectives of security and affordability. In this context, TransGrid has proposed five contingent projects for the 2018–23 regulatory control period, which total between

$543 million and $2.3 billion.[27] Contingent projects are significant network augmentation projects that may arise during the regulatory period but either the cost or the timing of the expenditure is uncertain. While the expenditures for such projects do not form a part of our assessment of the total forecast capex that we approve in this determination, the cost of the projects may ultimately be recovered from customers in the future if certain conditions (trigger events) are met.

TransGrid also recently advised that it has identified additional contingent projects that have not been included in its revenue proposal. These additional projects are also driven by uncertainty around the connection of renewable generation, including the 'Snowy 2.0' project. We expect TransGrid to provide further information to support its additional contingent projects in its revised proposal.

2.6 Operating expenditure

Operating expenditure (opex) is the forecast of operating, maintenance and other non–capital costs incurred in the provision of prescribed transmission services.

Our draft decision approves $873.0 million ($2017–2018) total forecast opex for the 2018–23 regulatory control period. This is $74.7 million (7.9 per cent) lower than TransGrid's proposed total opex forecast of $947.7 million ($2017–2018). Table 2.8 shows our decision compared to TransGrid's forecast.

Table 2.8 AER draft decision on total opex ($million, 2017–18)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
TransGrid' proposal	185.1	186.7	189.2	192.0	194.6	947.7
AER draft decision	172.9	173.9	174.6	175.4	176.3	873.0
Difference	**–12.2**	**–12.8**	**–14.7**	**–16.7**	**–18.3**	**–74.7**

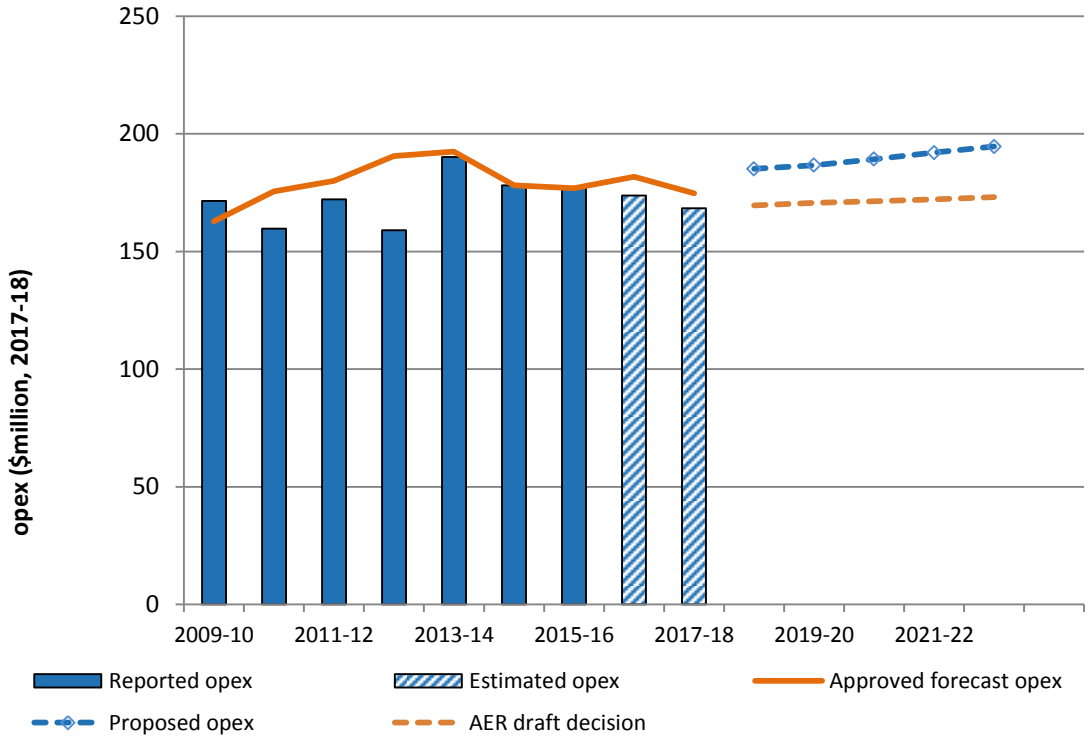
Source: AER analysis.

Note: Includes debt raising costs.

Figure 2.4 shows our opex decision compared to TransGrid's proposal, its past allowances and past actual expenditure.

[27] Generally, contingent projects are significant network augmentation projects that are reasonably required to be undertaken in order to achieve the capex objectives. However, unlike other proposed capex projects, the need for the project within the regulatory period and the associated costs are not sufficiently certain. Consequently, expenditure for such projects does not form a part of the total forecast capex that we approve in this determination.

Figure 2.4 AER draft decision on total forecast opex ($million, 2017–2018)



Source: TransGrid, *Regulatory accounts 2009–10 to 2015–16; TransGrid, Economic benchmarking RIN response 2006 to 2015;* AER, *TransGrid 2009–14, PTRM, Tribunal varied*; AER, *TransGrid 2014–18 Final decision PTRM*, TransGrid, *Proposed reset RIN*, 31 January 2017; AER analysis.

Note: Includes debt raising costs and movements in provisions.

The 7.9 per cent difference between our forecast and TransGrid's reflects our view of the efficient level of opex required by a prudent operator. A number of factors drive the difference:

- We have not included the $37.3 million ($2017–2018) step change proposed by TransGrid to manage trees outside of its easements. We have not included the increase because there isn't a new obligation imposed on TransGrid that warrants an increase in funding. We are not satisfied the proposed cost increase is required to arrive at a forecast of total opex that reflects the efficient costs of a prudent operator.
- We have included a step change of $7.8 million ($2017–18) for TransGrid to comply with its new licence conditions. These conditions require TransGrid to ensure that its transmission system can only be operated and controlled from within Australia and that data and other personal information remains solely in Australia. These conditions acknowledge that the assets that TransGrid operates may constitute 'critical infrastructure'. TransGrid did not include this step change in its revenue proposal but later submitted that the introduction of a new operator's licence would increase its opex. However, we are not satisfied that the full amount

proposed by TransGrid is required for it to comply with its licence conditions. We consider that TransGrid can meet its obligations with a smaller increase than it has proposed.

- For the rate of change, TransGrid used separate techniques to forecast output growth (based on its augmentation capex), input cost changes (using its input ratios) and productivity change (no forecast change). We have forecast a rate of change based on the same specifications of price, output and productivity as we have used to measure opex productivity growth. We consider that our approach is internally consistent, unlike TransGrid's, and will produce a more accurate economic forecast. Using our approach to forecast the rate of change, rather than TransGrid's, reduces our opex forecast by $15.5 million ($2017–2018) compared to TransGrid's forecast.

In reaching our draft decision we considered a submission from the CCP9 in response to TransGrid's proposal. CCP9 submitted that we should consider past trends in real opex and opex/MWh which support forecasting positive productivity growth.[28] We note the CCP9's submission, however, consider that our opex productivity growth forecast is a more robust economic technique that accounts for more variables.

CCP9 also submitted that we must maintain a stringent test for accepting and quantifying step changes due to the likely asymmetric operation of step changes. It considered step changes are likely asymmetric as the utility is more likely to identify changes that increase costs than the regulator or other stakeholders are likely to identify changes that reduce costs.[29] We agree there is a risk that including step changes can upwardly bias the total opex forecast. We have carefully considered the step changes proposed by TransGrid and are satisfied that the step change we have included in forecast opex is required.

We have set out the reasons for our draft decision on opex in greater detail in attachment 7.

2.7 Corporate income tax

Our draft decision includes a decision on the estimated cost of corporate income tax for TransGrid's 2018–23 regulatory control period as part of our revenue determination.[30] It enables TransGrid to recover the costs associated with the estimated corporate income tax payable during the regulatory control period.

Our draft decision includes an estimated cost of corporate income tax of $168.5 million ($nominal) for TransGrid over the 2018–23 regulatory control period. This is $79.4 million (or 32.0 per cent) lower than TransGrid's proposed value of $247.9 million. The

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[28] Consumer Challenge Panel Sub-Panel 9, *Submission to the AER; Response to proposals from TransGrid for a revenue reset for 2018–19 to 2022–23*, 12 May 2017, p. 6.

[29] Consumer Challenge Panel Sub-Panel 9, *Submission to the AER; Response to proposals from TransGrid for a revenue reset for 2018–19 to 2022–23*, 12 May 2017, p. 66.

[30] NER, cl. 6A.6.4.

reduction reflects our amendments to TransGrid's proposed inputs for forecasting the cost of corporate income tax including the standard tax asset lives and the value of imputation credits—gamma (attachment 4). Our adjustments to the return on capital (attachments 2, 3 and 6)[31] and the return of capital (attachment 5) building blocks affect revenues, which in turn impact the tax calculation. The changes affecting revenues are discussed in attachment 1.

Table 2.9 shows our draft decision on TransGrid's corporate income tax allowance for the 2018–23 regulatory control period.

Table 2.9 AER's draft decision on corporate income tax allowance for TransGrid ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Tax payable	50.3	53.5	56.0	59.2	61.9	280.8
Less: value of imputation credits	20.1	21.4	22.4	23.7	24.8	112.3
Net corporate income tax allowance	**30.2**	**32.1**	**33.6**	**35.5**	**37.2**	**168.5**

Source: AER analysis.

Further detail on our draft decision regarding corporate income tax is set out in attachment 8.

[31] The forecast capex amount is a key input for calculating the return of and return on capital building blocks. Attachment 6 sets out our draft decision on TransGrid's forecast capex.

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).

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. 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 Efficiency benefit sharing scheme (EBSS)

The EBSS provides an additional incentive for service providers to pursue efficiency improvements in opex.

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.[32] 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.

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

[32] Step changes provide for increases/decreases where this is not the case.

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.[33]

Our draft decision is to approve EBSS carryover amounts totalling $15.3 million ($2017–18) from the application of the EBSS in the 2014–18 regulatory control period. This is $47.1 million ($2017–18) less than the carryover amounts TransGrid proposed, which totalled $62.4 million ($2017–18). There are five reasons for the difference:

1. TransGrid proposed a carryover period of five years rather than the four years we determined for the 2014–18 regulatory control period. Due to the current period being only four years, TransGrid's proposal would reward it for the higher opex it incurred in 2013–14. So that we do not reward TransGrid for an efficiency loss, we have carried forward the incremental efficiency loss it made in 2013–14 for an additional year. This reduces its proposed carryover by $13.1 million ($2017–18).
2. We identified and corrected an error in the EBSS template we sent TransGrid. The template incorrectly used inflation lagged by 12 months to calculate TransGrid's proposed EBSS carryovers. Correcting this error reduced TransGrid's carryover amounts by $10.8 million ($2017–18).
3. We corrected the forecast opex amounts to match the determined opex amounts in the 2009–14 and 2014–18 regulatory control periods. We also used further information TransGrid provided to adjust its reported movements in provisions and defined benefits superannuation contributions. The combined impact of these changes was to reduce TransGrid's carryover amounts by $9.0 million ($2017–18).
4. We have used consistent estimates of 2017–18 opex in both our EBSS carryover calculation and our alternative opex estimate. This reduced the carryover by $8.4 million ($2017–18).TransGrid used a lower estimate of 2017–18 opex to calculate its EBSS carryover than it used to forecast opex. This rewarded it for efficiency gains that it did not pass on to networks users through its opex.
5. When calculating the incremental efficiency gain for 2014–15, TransGrid removed opex in 2012–13 and 2013–14 relating to categories of opex we did not exclude from the operation of the EBSS in the current period. We did not remove this expenditure from TransGrid's total opex for 2012–12 and 2013–14 when we calculated the incremental efficiency gain for 2014–15. This reduced the carryover by $5.9 million ($2017–18).

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

[33] 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.

Table 3.1 AER's draft decision on TransGrid EBSS carryover amounts ($million, 2017–2018)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
TransGrid's 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

Source: TransGrid, *Revenue proposal*, October 2015, p. 169; AER analysis.

Our draft 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[34] and TransGrid's proposal.[35]

We have set out further detail on our draft decision regarding the application of the EBSS, including the expenditure items we will exclude, in attachment 9.

3.2 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.[36] The guideline 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.[37]

We applied the CESS to TransGrid in the 2014-18 regulatory control period. Our draft decision on the revenue impact of the application of the CESS in 2015-18 regulatory control period compared to TransGrid's proposal is summarised in Table 3.2. The difference between our calculations and TransGrid's proposal is due to a different CPI

[34] AER, *Final framework and approach for TransGrid transmission determination 2018–23,* April 2015, p. 16.
[35] TransGrid, *Revenue proposal 2018/19–2022/23*, January 2017, p. 205.
[36] AER, *Capex incentive guideline*, November 2013, pp. 5–9.
[37] AER, *Final framework and approach for TransGrid transmission determination 2018–23,* April 2015, p. 23.

adjustment, determination of the relevant discount rate and different calculation methodology.

Table 3.2 AER's draft decision on TransGrid's CESS revenue increment ($million, 2017–2018)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
TransGrid's proposal	4.9	4.9	4.9	4.9	4.9	24.3
AER draft decision	5.3	5.3	5.3	5.3	5.3	26.5

Source: TransGrid, *Post Tax Revenue Model*, January 2017; AER analysis.

Note: Numbers may not add up due to rounding.

3.3 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. 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.

Our draft 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 draft decision are set out in attachment 11.

4 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.[38] 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.[39] This is not delivered by any one of the NEO's factors in isolation, but rather by balancing them in reaching a regulatory decision.[40]

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.[41] 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. [42]

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.[43] 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. [44] 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.[45] 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.[46] This could create longer term problems in the network, and could have adverse consequences for safety, security and reliability of the network.

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38 NEL, section 16(1)

39 This is also the view of the Australian Energy Markets Commission (the AEMC). See, for example, the AEMC, *'Applying the Energy Objectives: A guide for stakeholders'*, 1 December 2016, p. 5.

40 Hansard, *SA House of Assembly,* 26 September 2013, p. 7173. See also the AEMC, *'Applying the Energy Objectives: A guide for stakeholders'*, 1 December 2016, p. 7–8.

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

42 See, for example, the AEMC, *'Applying the Energy Objectives: A guide for stakeholders'*, 1 December 2016, p. 6–7.

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

44 See, for example, the AEMC, *'Applying the Energy Objectives: A guide for stakeholders'*, 1 December 2016, p. 5.

45 NEL, s. 7A(7).

46 NEL, s. 7A(6).

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

4.1 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, [47] 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.[48]

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.

4.2 Interrelationships between 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 draft 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 (see attachment 6 and 7).
- 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

[47] AEMC, *Rule Determination: National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006,* (16 November 2006), p. 52.

[48] NEL, s. 16(1)(d).

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 (see attachments 3, 4 and 8).

- trade-offs between different components of revenue. For example, undertaking a particular capex project may affect the need for opex or vice versa (see attachments 6 and 7).

5 Consumer engagement

The NEO requires TransGrid to operate its network in the long term interests of consumers. An important part of this is ensuring that revenue proposals TransGrid puts to us for approval reflects the NEO, and that TransGrid has engaged with its consumers to determine how best to provide services that align with their long term interests.

Consumer engagement in this context is about TransGrid working openly and collaboratively with consumers and providing opportunities for their views and preferences to be heard and to influence TransGrid's decisions. In the regulatory process, stronger consumer engagement can help us test service providers' expenditure proposals, and can raise alternative views on matters such as service priorities, capital expenditure proposals and price structures.

In 2013 we published a guideline setting out what we consider to be the key components of good consumer engagement for network businesses.[49] The NER also requires us to consider the extent to which the proposed expenditure addresses consumers' relevant concerns identified during the network service provider's engagement with consumers.[50]

5.1 Our review of TransGrid's consumer engagement

This is the second revenue proposal submitted by TransGrid since the guideline was released. We tasked the AER Consumer Challenge Panel (CCP9) specifically with advising the us on the effectiveness of TransGrid's engagement activities with consumers and how this was reflected in the development of its proposal. CCP9 attended a number of TransGrid's workshops and met on several occasions with TransGrid executives and staff. CCP9 also talked to a number of stakeholders who are represented on TransGrid's formal Consumer Advisory Council and Revenue Proposal Working Group.

We think—and CCP9 agrees—that TransGrid has made significant improvements in its consumer engagement processes over the last four years. This is reflected in positive feedback participants in TransGrid's engagement process provided to CCP9.

We were particularly happy to see CCP9 confirm that:

- TransGrid made an earlier start to the process enabling the building of trust and knowledge, and has established a sound framework for consumer engagement at the start of the process, including more structured process to select participants, locations, topics and priorities, and communication channels;

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[49] AER, *Better Regulation: Consumer engagement guideline for network service providers*, November 2013.

[50] NER, cl. 6A.10.1(g)(2).

- This structure is one that appears to be sustainable and can continue to be effective beyond submission of TransGrid's initial proposal. It has the support of TransGrid's Board, CEO and senior management, who are committed to facilitating culture change across the organisation;
- TransGrid's process included clear and continuous provision of information to stakeholders, with a focus on plain English, transparency and readily accessible communication material. This included information on key stages in the process, and also how stakeholders have influenced TransGrid's decisions.

There are a number of areas in which we think further improvements could be achieved. In recent years we have seen a number of businesses raise the bar on consumer engagement in developing regulatory proposals.

Australian Gas Networks has continued the genuine stakeholder engagement it began with its South Australian access arrangement in the context of its Victorian access arrangement.[51] This is an approach we have encouraged more businesses to adopt. While our decision on AGN's access arrangement is still at the draft stage, AGN fulfilled its objective of submitting a proposal that delivered for the consumer, was underpinned by effective engagement and on the whole was accepted in our draft decision.

ElectraNet has also undertaken significant consumer engagement in the development of its revenue proposal.[52] This included the publication of a Preliminary Revenue Proposal and a series of meetings considering aspects of its proposal and hosted by an independent facilitator. ElectraNet's engagement has been supported by consumer representatives, the government and business.

Similarly, TasNetworks is undertaking significant consumer engagement in the development of its revenue proposal and has been consulting since May 2016, about one and a half years before the proposal is due (January 2018). Its consultation has included surveys, workshops on aspects of the proposal and consultation on a preliminary revenue proposal in August 2017.[53]

In a recent news article written by Irina Umback, the ENA stated that:

> There is widespread recognition that genuine consumer and stakeholder engagement goes beyond simply providing an opportunity to stakeholders to express their views. Customers must have clarity about what decisions they can influence, trust that their views are heard and understood, and be able to see how those views have been taken into consideration.[54]

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51 Australian Gas Networks, *Draft Plan, Five year plan for our Victorian and Albury natural gas distribution networks*, July 2016.

52 ElectraNet, *Preliminary Revenue Proposal 2019–2023*, September 2016.

53 TasNetworks, *Direction and Priorities Consultation Paper, Transmission and Distribution Determination 2019–24*, August 2017.

54 Irina Umback, *'Green shoots' emerge in networks customer engagement*, ENA news release, 20 July 2017.

The following feedback is provided in that context, with a view to guiding TransGrid's consumer engagement going forward, and building on the sound base of knowledge and trust that TransGrid has successfully developed over the past year.

TransGrid should consider ways in which it can more consistently move from informing and sharing information with consumers to involving consumers in its decision making, or even collaborating on approaches to priority issues. As CCP9 suggests, TransGrid's proposal could have benefited from opening the proposal to challenge from stakeholders to the assumptions that underpin a number of their forecasts. Some stakeholders expressed concern to CCP9 that they were not sufficiently engaged in the more strategic areas or in critiquing the assumptions in the modelling presented to them.

This feedback appears to come through most clearly in relation to the Powering Sydney Future project. At an estimated cost of $331 million, this project made up around 20 per cent of TransGrid's capex proposal. TransGrid has gone further than most to engage consumers and industry in its RIT-T consultation on this project.[55] However, CCP9's submission highlights areas in which they would like to see this process further developed, with more public examination of the assumptions and non-network options.[56] For example, CCP9 would like to have seen additional evidence of consultation around the 'strategic' aspects such as a more critical evaluation of Ausgrid's peak demand forecast and the risks around this forecast. This is reflected in our own assessment, based on the information available, that the optimal timing of the project to address the reliability of supply and anticipated demand in the inner Sydney area is beyond the 2018-23 regulatory control period

A further example is evident in comments participants passed on to CCP9 that TransGrid could have done more to respond to consumers' concerns around operational and capital investment efficiency and productivity in order to drive and sustain lower prices. Again, this is reflected in our own assessment that in key areas the assumptions underpinning TransGrid's forecast capex appear either not justified or overly risk averse and the optimal scope and timing of some investment does not appear to be adequately supported.

While generally complementary about TransGrid's communication with customers, CCP9 received a mixed response on from stakeholders on TransGrid's meetings. While some found the information "clear" and "sufficient", others felt the meetings covered "too much information" and that they "couldn't follow all of it". This highlights the constant challenge in targeting information to stakeholders with different interests and knowledge of the industry, and another area in which improvement is possible.[57]

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55 Consumer Challenge Panel Sub-Panel 9, *Submission to the AER; Response to proposals from TransGrid for a revenue reset for 2018-19 to 2022-23*, 12 May 2017, p. 26.

56 Consumer Challenge Panel Sub-Panel 9, *Submission to the AER; Response to proposals from TransGrid for a revenue reset for 2018-19 to 2022-23*, 12 May 2017, p. 26.

57 Consumer Challenge Panel Sub-Panel 9, *Submission to the AER; Response to proposals from TransGrid for a revenue reset for 2018-19 to 2022-23*, 12 May 2017, p. 21.

Recognising that TransGrid is already collecting and responding to feedback, this process could be improved by building even more structured review and measurement mechanisms into the framework.

The comments above do not negate what CCP9 has described as ‘a very significant advance both conceptually and in practice from TransGrid's previous consumer engagement activity, notwithstanding the very real challenges facing a transmission company in engaging the broader community in its revenue proposal’. This is, however, an area in which we expect TransGrid to continue to improve and to learn from the experience of its peers.

A Constituent components

Our draft decision on TransGrid's transmission determination includes the following constituent components:[58]

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 draft decision on TransGrid's total revenue cap is $3910.0 million ($nominal) for the 2018–23 regulatory control period. This decision is discussed in Attachment 1 of this draft 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 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 draft 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 Attachment 11 of this draft decision.
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 of this draft decision.
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 total forecast capital expenditure of $1638 million ($2017–18). Our substitute estimate of TransGrid's total forecast capex for the 2018–23 regulatory control period is $992.2 million ($2017–18). This is discussed in Attachment 6 of this draft decision.
In accordance with clause 6A.14.1(3) and acting in accordance with clause 6A.6.6(d) of the NER, the AER has not accepted TransGrid's total forecast operating expenditure inclusive of debt raising costs of $947.7 million ($2017–18). Our substitute estimate of TransGrid's total forecast opex for the 2018–23 regulatory control period is $873.0 million ($2017–18) including debt raising costs. This is discussed in Attachment 7 of this draft 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 draft 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 6.5 per cent (nominal vanilla), as set out in Attachment 3 of this draft decision. The rate of return for the remaining regulatory years 2018–22 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 Attachment 3 of this draft decision.
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. This is set out in Attachment 4 of this draft decision.
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 $6372.7 million ($nominal). This is set out in Attachment 2 of this draft decision.

[58] NEL, s. 16(1)(c).

Constituent component
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 at1 July 2023. This is discussed in Attachment 2 of this draft 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 14 of this draft 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 Attachment 14 of this draft decision.
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 12 of this draft 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 These events have the definitions set out in Attachment 13 of this draft decision.

B List of submissions

We received seven submissions in response to TransGrid's revenue proposal. These are listed below.

Submission from	Date received
City of Sydney	11 May 2017
TransGrid	12 May 2017
TransGrid	10 August 2017
TransGrid	22 August 2017
Consumer Challenge Panel (CCP 9)	12 May 2017
Origin Energy	12 May 2017
Snowy Hydro	12 May 2017