Draft decision

TransGrid transmission determination

2015–16 to 2017–18

Attachment 2: Regulatory asset base

November 2014

AUSTRALIAN ENERGY REGULATOR

Inquiries about this document should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001
Tel: (03) 9290 1444
Fax: (03) 9290 1457
Email: AERInquiry@aer.gov.au

AER reference: 53444

Note

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

The draft decision includes the following documents:

Overview

Attachment 1 – maximum allowed revenue

Attachment 2 – regulatory asset base

Attachment 3 – rate of return

Attachment 4 – value of imputation credits

Attachment 5 – regulatory depreciation

Attachment 6 – capital expenditure

Attachment 7 – operating expenditure

Attachment 8 – corporate income tax

Attachment 9 – efficiency benefit sharing scheme

Attachment 10 – capital expenditure sharing scheme

Attachment 11 – service target performance incentive scheme

Attachment 12 – pricing methodology

Attachment 13 – pass through events

Attachment 14 – negotiated services

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
ASRR	aggregate service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
DRP	debt risk premium
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
MAR	maximum allowed revenue
MRP	market risk premium
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
NTSC	negotiated transmission service criteria

Shortened form	Extended form
opex	operating expenditure
PPI	partial performance indicators
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue 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

2 Regulatory asset base

The regulatory asset base (RAB) is the value of the assets used by TransGrid to provide prescribed transmission services.[1] The AER's revenue determination is to specify the RAB as at the commencement of the regulatory control period and the appropriate method for the indexation of the RAB.[2] The indexation of the RAB is one of the building blocks that form the annual building block revenue requirement for each year of the 2014–18 period.[3] We set the RAB as the foundation for determining a TNSP's revenue requirements, and use the opening RAB for each regulatory year to determine the return on capital and return of capital (regulatory depreciation) building block allowances.[4]

This attachment presents our draft decision on the opening RAB value as at 1 July 2014 for TransGrid. It also presents our forecast RAB values for TransGrid over the 2014–18 period.

2.1 Draft decision

We accept TransGrid's proposed opening RAB of $6146.7 million as at 1 July 2014.[5] We have reviewed the key inputs to TransGrid's proposed roll forward model (RFM) and found that these reconciled with relevant data sources such as ABS data, regulatory accounts and the 2009 decision models.

We determine a forecast closing RAB value at 30 June 2018 of $6696.8 million ($ nominal). This is $529.8 million (or 7.3 per cent) lower than the amount of $7226.6 million ($ nominal) proposed by TransGrid. Our draft decision on the forecast closing RAB reflects our draft decision on forecast capex (attachment 6) and forecast regulatory depreciation (attachment 5).

We determine that the forecast depreciation approach is to be used to establish the RAB at the commencement of the regulatory control period from 1 July 2018 for TransGrid.[6] This will apply to both the transitional (2014–15) and subsequent (2015–18) regulatory control periods. We consider this approach will provide sufficient incentives for TransGrid to achieve capex efficiency gains over those periods. TransGrid is not currently subject to a capital expenditure sharing scheme (CESS) but we will apply the CESS to TransGrid's subsequent regulatory control period.

---

1 NER, cl. 6A.6.1.
2 NER, cl. 6A.4.2(3A) and (4).
3 NER, cl. 6A.5.4(a)(1) and (b)(1).
4 NER, cl. 6A.5.4(a)(2) and (3).
5 This RAB value is based on as-incurred capex. We note that TransGrid has revised its 2008–09 and 2010–11 actual capex (increased by $1.8 million and $1.0 million respectively) due to refinement of the asset classifications once projects are commissioned. These revisions are reflected in the proposed RFM. TransGrid stated that these revisions will be shown in its 2013–14 regulatory accounts to be submitted to the AER later this year.
6 NER, clause S6A.2.2B(a).

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

Table 2-1 AER's draft decision on TransGrid's RAB for the 2009–14 regulatory control period ($ million, nominal)

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

Source: AER analysis.
(a) Based on estimated capex. We will update the RAB roll forward for actual capex in the final decision.
(b) As incurred, net of disposals, and adjusted for actual CPI.
(c) Adjusted for actual CPI. Based on as-commissioned capex.

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

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

Source: AER analysis.
(a) As incurred, and net of 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.

2.2 TransGrid's proposal

TransGrid used the AER's RFM to establish a proposed opening RAB value of $6146.7 million ($ nominal) as at 1 July 2014.[7] It proposed a closing RAB of $7226.6 million ($ nominal) at 30 June 2018, which reflects its proposed forecast capex, inflation and depreciation over the 2014–18 period.[8] Table 2-3 and Table 2-4 present TransGrid's proposed roll forward of the RAB during the 2009–14 regulatory control period and the 2014–18 period, respectively. The RAB roll forward for the 2009–14 regulatory control period uses depreciation based on actual capex. The projected RAB roll forward for the 2014–18 period uses depreciation based on forecast capex.

Table 2-3 TransGrid's proposed RAB for the 2009–14 regulatory control period ($ million, nominal)

	2009–10	2010–11	2011–12	2012–13	2013–14
Opening RAB	4217.5	4578.8	4926.0	5174.6	5607.2
Capital expenditure[a]	418.5	376.2	354.8	502.2	556.5
CPI indexation on opening RAB	121.8	152.6	78.1	129.5	164.3
Straight-line depreciation[b]	–179.0	–181.7	–184.2	–199.1	–222.3
Closing RAB	4578.8	4926.0	5174.6	5607.2	6105.7
Difference between estimated and actual capex (1 July 2008 to 30 June 2009)					25.2
Return on difference for 2008–09 capex					15.8
Opening RAB as at 1 July 2014					**6146.7**

Source: TransGrid, *Roll forward model*, May 2014.
(a) As incurred, net of disposals, and adjusted for actual CPI.
(b) Adjusted for actual CPI. Based on as-commissioned capex.

Table 2-4 TransGrid's proposed RAB for the 2014–18 period ($ million, nominal)

	2014–15	2015–16	2016–17	2017–18
Opening RAB	6146.7	6425.3	6749.8	6970.6
Capital expenditure[a]	370.3	431.2	342.4	363.6
Inflation indexation on opening RAB	155.2	162.2	170.4	176.0
Straight-line depreciation[b]	–246.9	–268.9	–292.0	–283.6
Closing RAB	6425.3	6749.8	6970.6	7226.6

7 This RAB value is based on as-incurred capex.
8 TransGrid, *Revenue proposal*, pp.171–173.

Source: TransGrid, *Post-tax revenue model*, May 2014.
(a) As incurred, and net of disposals.
(b) Based on as-commissioned capex.

2.3 AER's assessment approach

In order to determine the RAB value for a regulatory control period, the opening value of the RAB in the previous period is adjusted by various amounts to calculate the opening RAB for the following period.[9] The RAB value must be adjusted for any differences in the forecast and actual capex and disposals.[10] It may be adjusted to also reflect any changes in the use of the assets, because the RAB must include only assets used to provide prescribed transmission services.[11]

To determine the opening RAB for a transmission determination, we developed an asset base RFM in accordance with the requirements of the National Electricity Rules (NER).[12] A TNSP must use our RFM in preparing its revenue proposal. The RFM rolls forward the TNSP's RAB from the beginning of the final year of the previous regulatory control period, through the current regulatory control period, to the beginning of the next regulatory control period. The four regulatory years between 2014–18 are split over two regulatory control periods (a transitional regulatory control period of 2014–15 and then a subsequent regulatory control period of 2015–18). However, the NER expressly provides that when we determine the opening value of the RAB for this four year period we should do so as if the two periods were combined.[13] The roll forward occurs for each regulatory year by:

- Adding an inflation (indexation) adjustment for the relevant year. This adjustment must be consistent with the inflation factor used in the annual indexation of the maximum allowed revenue (MAR).[14]
- Adding actual or estimated capex for the relevant year.[15] The NER allows us to review a TNSP's past capex and exclude inefficient past capex from being rolled into the RAB.[16] We note that under the transitional rules, the review of past capex does not apply to TransGrid's current and transitional regulatory control periods.[17] Therefore, for the purposes of this draft decision, we will add TransGrid's actual or estimated capex in the current regulatory control period to the RAB. We check actual capex amounts against the TNSP's audited regulatory accounts data. We will update any estimated capex with actual capex at the time of the next reset (in the case of TransGrid this is not required for the final year of the current regulatory control period because of the timing of this determination due to the transitional rules).
- Subtracting depreciation for the relevant year, calculated in accordance with the rates and methodologies allowed (if any) in the transmission determination for the TNSP's current regulatory control period.[18] Depreciation based on forecast or actual capex can be used to roll forward the RAB.[19] By default the RFM applies the depreciation approach based on actual capex, although this can be modified to apply a depreciation approach based on forecast if necessary. For this

9 NER, cl. S6A.2.1(f).
10 NER, cl. S6A(2.1(f)(3) and (6).
11 NER, cl. S6A.2.1(f)(8) and S6A.2.3.
12 NER, cl. 6A.6.1(b) and (e).
13 NER, cl. 11.58.4(c)(4)–(6) and (f).
14 NER, cl. 6A.6.1(e)(3).
15 NER, cl. S6A.2.1(f)(4).
16 NER, cl. S6A.2.2A.
17 NER, cl. 11.58.5 and 11.63.
18 NER, cl. S6A.2.1(f)(5).
19 NER, cl. 6A 4.2(a1).

determination, we use depreciation based on actual capex for rolling forward the RAB for TransGrid's current regulatory control period.[20]

- Subtracting any disposals for the relevant year, by way of netting from capex to be added to the RAB.[21] We check these amounts against audited regulatory accounts data.

These annual adjustments give the closing RAB for a particular regulatory year, which then becomes the opening RAB for the subsequent regulatory year. Through this process, the RFM rolls forward the RAB to the end of the current regulatory control period. The post-tax revenue model (PTRM) for the next regulatory control period generally adopts the same roll forward approach for establishing the forecast RAB, although the adjustments to the RAB are based on forecasts rather than actual amounts.

We are also required to decide whether depreciation for establishing the TNSP's RAB as at the commencement of the following regulatory control period is to be based on actual or forecast capex.[22] Our decision on whether to use actual or forecast depreciation must be consistent with the capex incentive objective.[23] We must have regard to:[24]

- any other incentives the TNSP has to undertake efficient capex
- substitution possibilities between assets with different lives
- the extent of overspending and inefficient overspending relative to the allowed forecast
- the capex incentive guideline
- the capital expenditure factors.

2.3.1 Interrelationships

The RAB is an input into the determination of the return on capital and depreciation (return of capital) allowances.[25] Factors that influence the RAB will therefore flow through to these building block components and the annual building block revenue requirement. Other things being equal, a higher RAB increases both the return on capital and depreciation allowances.

The RAB is determined by various factors, including;

- the opening RAB (meaning the value of existing assets at the beginning of the regulatory control period)
- net capex[26]
- depreciation

---

[20] The use of actual depreciation is consistent with the depreciation approach established in the 2009 transmission determinations for TransGrid, which reflected the rules at the time.
[21] NER, cl. S6A.2.1(f)(6).
[22] NER, cl. S6A.2.2B(a).
[23] NER, cl. S6A.2.2B(b).
[24] NER, cl. S6A.2.2B(c).
[25] 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.
[26] Net capex is gross capex less disposals. The rate of return or WACC also influences the size of the capex. This is because capex is not depreciated in the year it is first incurred, but added to the RAB at the end of the year. Instead, the capex amount is escalated by half a WACC to arrive at an end of year value. It then begins depreciating the following year.

- indexation adjustment – so the RAB is presented in nominal terms, consistent with the rate of return.

The opening RAB depends on the value of existing assets and will depend on actual net capex, actual inflation outcomes and depreciation in the past.

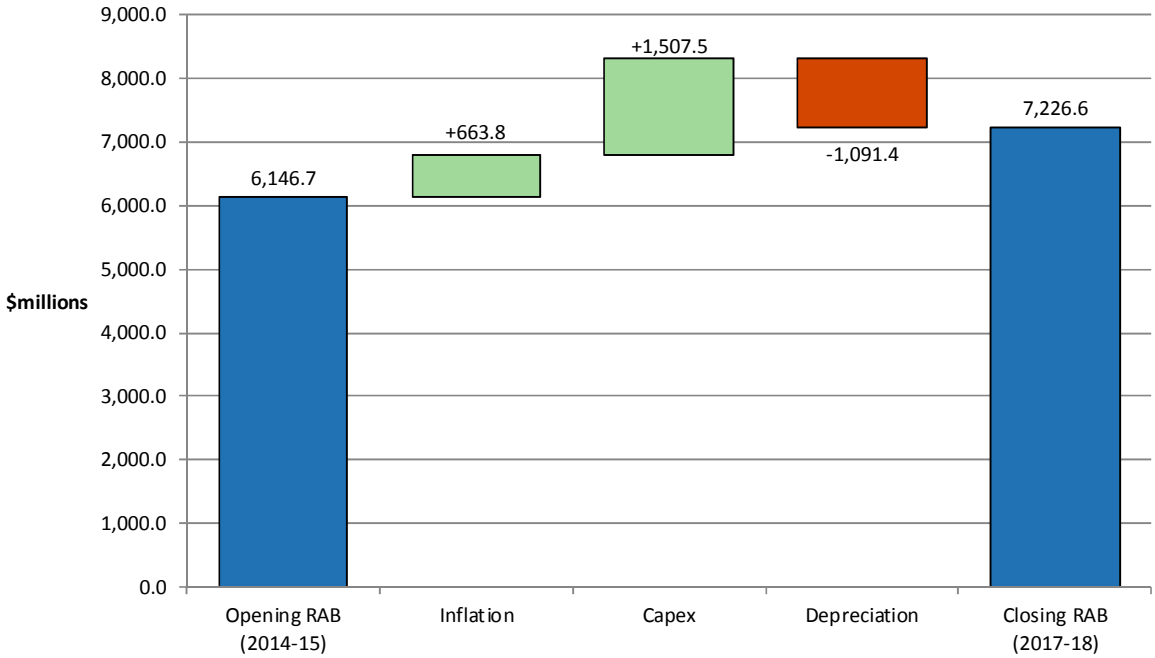
The RAB when projected to the end of the regulatory control period increases due to both forecast new capex and the indexation adjustment. The size of the indexation adjustment depends on expected inflation (which also affects the nominal rate of return or WACC) and the size of the RAB at the start of each year.

Depreciation reduces the RAB. The depreciation allowance depends on the size of the opening RAB and the forecast net capex. By convention, the indexation adjustment is also offset against depreciation to prevent double counting of inflation in the RAB and WACC, which are both presented in nominal terms. This reduces the depreciation building block that feeds into the annual building block revenue requirement.

Figure 2-1 shows the key drivers of the change in the RAB over the 2014–18 period as proposed by TransGrid. Overall, the closing RAB at the end of the 2014–18 period would be 18 per cent higher than the opening RAB at the start of that period based on the proposal, in nominal terms. The proposed forecast capex increases the RAB by about 25 per cent, while forecast inflation increases it by about 11 per cent. Forecast depreciation, on the other hand, reduces the RAB by about 18 per cent.

The RAB would rise in real terms over the 2014–18 period based on TransGrid's proposal. We consider the depreciation amount to be generally reasonable and satisfy the requirements of the NER in terms of the assigned asset lives, as discussed in attachment 5. The depreciation amount also largely depends on the opening RAB (which in turn depends on capex in the past). However, we do have concerns with the size of the forecast capex. Figure 2-1 shows forecast net capex is the largest driver of the increase in the RAB and we have considered whether it is appropriate that the forecast capex exceeds depreciation as TransGrid has proposed. Refer to attachment 6 for the discussion on forecast capex.

Figure 2-1 Key drivers of changes in the RAB ($ million, nominal)



A ten per cent increase in the opening causes revenues to increase by about 7.5 per cent. However, the impact on revenues of the annual change in RAB depends on the source of the RAB change, as some drivers affect more than one building block cost.[27]

2.4 Reasons for draft decision

We accept TransGrid's proposed opening RAB value of $6146.7 million as at 1 July 2014.

However, we do not accept TransGrid's projected closing RAB at the end of the 2014–18 period and have reduced it by $529.8 million (or 7.3 per cent). The reasons for the reduction are our adjustments to its forecast capex (attachment 6) and forecast depreciation (attachment 5).

2.4.1 Opening RAB at 1 July 2014

We accept TransGrid's proposed opening RAB value as at 1 July 2014 of $6146.7 million. We have reviewed the key inputs to TransGrid's proposed RFM, such as CPI, rate of return, asset lives, and disposal values. We found these were correct and they reconcile with relevant data sources such as ABS data, regulatory accounts and the 2009 decision models.

In reviewing the actual capex values from 2008–09 to 2012–13, we note that TransGrid has revised its 2008–09 and 2010–11 actual capex (increased by $1.8 million and $1.0 million respectively) due to refinement of the asset classifications once projects are commissioned. These revisions are reflected

[27] If capex causes the RAB increase, return on capital, depreciation, and debt raising costs all increase too. If a reduction in depreciation causes the RAB increase, revenue could increase or decrease. In this case, the higher return on capital is offset (perhaps more than offset) by the reduction in depreciation allowance. Inflation naturally increases the RAB in nominal terms. However, the real impact from changing the inflation forecast is inconsequential as revenues are updated annually by actual inflation and the X factor, which is generally unaffected by the assumed forecast inflation rate.

in the proposed RFM. TransGrid stated that these revisions will be shown in its 2013–14 regulatory accounts to be submitted to the AER later this year.[28]

We note TransGrid's proposal adjusted its actual capex values for movements in capitalised provisions.[29] We accept this approach because the NER requires a TNSP's opening RAB value to be increased by the amount of all capex incurred during its current regulatory control period.[30] We consider that a TNSP should not treat capitalised provisions as capex incurred when rolling forward its RAB, because a TNSP has not yet paid out (incurred) the expenses to which the provisions relate.

Further, we accept TransGrid's proposal to remove the value of assets associated with Eraring power station and Visy pulp and paper mill from its RAB. These assets are removed from TransGrid's opening RAB because they are no longer providing prescribed transmission services from 1 July 2014.[31]

2.4.2 Forecast closing RAB at 30 June 2018

We forecast a closing RAB value of $6696.8 million by 30 June 2018 for TransGrid, which represents a reduction of $529.8 million (or 7.3 per cent) to TransGrid's proposal. This reduction reflects our draft decision on the inputs for determining the forecast RAB in the PTRM. To determine the forecast RAB value for TransGrid, we amended the following PTRM inputs:

- We accept TransGrid's proposed opening RAB as at 1 July 2014 of $6146.7 million (section 2.4.1).
- We reduced TransGrid's proposed forecast capex for the 2014–18 period by $516.6 million ($ nominal) or 34.3 per cent (attachment 6).
- We increased TransGrid's proposed forecast regulatory depreciation allowance by $13.3 million or 3.1 per cent (attachment 5).

2.4.3 Application of depreciation approach in RAB roll forward for next reset

Consistent with our Framework and approach paper,[32] we determine that the forecast depreciation approach is to be used to establish the RAB at the commencement of TransGrid's regulatory control period from 1 July 2018. This approach will apply to both the transitional and subsequent regulatory control periods for TransGrid.[33] We consider this approach will provide sufficient incentives for TransGrid to achieve capex efficiency gains over the relevant regulatory control periods.

We had regard to the relevant factors in the NER in developing the approach to choosing the depreciation approach set out in our capex incentives guideline.[34] Our approach is to apply forecast depreciation except where:

---

28 TransGrid, *Email response to information request AER TransGrid—Depreciation 01*, 3 July 2014, p. 7; TransGrid, *Email response to AER staff re prepopulated RFM*, 29 October 2013. At the time of this draft decision, the roll forward of TransGrid's RAB includes estimated capex values for 2013–14. The 2013–14 actual capex values are expected to be submitted after the draft decision and will be used for the RAB roll forward for the final decision.

29 As part of the final decision, similar adjustments to the 2013–14 actual capex (to be submitted after the draft decision) for movements in capitalised provisions may be required.

30 NER, cl. S6A.2.1(f)(1).

31 NER, cl. S6A.2.3.

32 AER, *Framework and approach paper TransGrid—Transitional regulatory control period 1 July 2014 to 30 June 2015; Subsequent regulatory control period commencing 1 July 2015*, January 2014, pp. 28–29.

33 The transitional regulatory control period for TransGrid is 2014–15. TransGrid's subsequent regulatory control period is from 2015–16 to 2017–18.

34 AER, *Capital expenditure incentive guideline for electricity network service providers*, November 2013. pp. 12–13.

- there is no CESS in place and therefore the power of the capex incentive may need to be strengthened, or
- a TNSP's past capex performance demonstrates evidence of persistent overspending or inefficiency, thus requiring a higher powered incentive.

In making our decision on whether to use actual depreciation in either of these circumstances we have considered:

- the substitutability between capex and opex and the balance of incentives between these
- the balance of incentives with service outcomes
- the substitutability of assets of different asset lives.

We have chosen forecast depreciation because, in combination with the CESS, it will provide a 30 per cent reward for capex underspends and 30 per cent penalty for capex overspends, which is consistent for all asset classes. In developing our capex incentives guideline, we considered this to be a sufficient incentive for a TNSP to achieve efficiency gains over the regulatory control period in most circumstances.

As discussed in attachment 10, TransGrid is not currently subject to a CESS but we will apply the CESS to TransGrid's subsequent (2015–18) regulatory control period. The CESS does not apply to TransGrid for the 2014–15 transitional regulatory control period.[35] We consider the incentive provided by the application of the CESS in combination with the use of forecast depreciation and our other ex post capex measures are sufficient to achieve the capex incentive objective.[36]

[35] NER, cl. 11.58.3(a)(2).

[36] Our ex post capex measures are set out in the capex incentives guideline: AER, *Capex incentives guideline*, November 2013, pp. 13–19, 20–21. The guideline also sets out how all our capex incentive measures are consistent with the capex incentive objective.