Draft Decision

Ausgrid distribution determination

2015–16 to 2018–19

Attachment 5: Regulatory depreciation

November 2014

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's draft decision on Ausgrid's 2015–19 distribution determination. It should be read with other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – Annual revenue requirement

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

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Attachment 11 – Service target performance incentive scheme

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Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	aggregate service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
CPI-X	consumer price index minus X
DRP	debt risk premium
DMIA	demand management innovation allowance
DMIS	demand management incentive scheme
distributor	distribution network service provider
DUoS	distribution use of system
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
expenditure assessment guideline	expenditure forecast assessment guideline for electricity distribution
F&A	framework and approach
MRP	market risk premium

Shortened form	Extended form
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
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
SAIDI	system average interruption duration index
SAIFI	system average interruption frequency index
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
WACC	weighted average cost of capital

5 Regulatory depreciation

Depreciation is the allowance provided so that capital investors recover their investment over the economic life of the asset (return of capital). We are required to decide on whether to approve the depreciation schedules submitted by Ausgrid.[1] In doing so, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for Ausgrid's 2014–19 period.[2] The regulatory depreciation allowance is the net total of straight-line depreciation (negative) less the indexation of the RAB (positive).

This attachment sets out our draft decision on Ausgrid's regulatory depreciation allowance. It also presents our draft decision on the proposed depreciation schedules, including an assessment of the proposed standard and remaining asset lives to be used for forecasting the depreciation allowance.

5.1 Draft decision

We do not accept Ausgrid's proposed regulatory depreciation allowances of $746.9 million and $81.9 million ($ nominal) for the 2014–19 period for its distribution and transmission networks respectively. Instead, we determine regulatory depreciation allowances of $748.2 million and $76.5 million ($ nominal) for its distribution and transmission networks respectively. In relation to Ausgrid's distribution network this represents an increase of 0.2 per cent. In relation to Ausgrid's transmission network this represents a reduction of 6.6 per cent. In coming to these decisions, we:

- accept Ausgrid's proposed asset classes, straight-line method, and standard asset lives used to calculate the regulatory depreciation allowance. We consider that Ausgrid's proposed asset classes and standard asset lives are consistent with those approved at the 2009–14 distribution determination and reflect the economic lives of the assets.[3]
- accept Ausgrid's proposed weighted average method to calculate the remaining asset lives as at 1 July 2014. However, we have updated these remaining asset lives to reflect our adjustments to the RAB in the roll forward model (RFM), as discussed in attachment 2.
- removed the assets classes of 'Emergency spares (major plant, excludes inventory)' and 'Transmission & zone emergency spares' from Ausgrid's PTRMs for its distribution and transmission networks respectively. We understand these to be unused asset classes going forward.
- made determinations on other components of Ausgrid's proposal which also affect the forecast regulatory depreciation allowance—for example, the forecast capital expenditure (capex) (attachment 6) and the opening RAB value (attachment 2).[4]

1 NER, cl. 6.12.1(8).
2 NER, cll. 6.43(a)(1) and (3).
3 NER, cl. 6.5.5(b)(1).
4 NER, cl. 6.5.5(a)(1).

Table 5-1 and Table 5-2 set out our draft decision on the annual regulatory depreciation allowances over the 2014–19 period for Ausgrid's distribution and transmission networks respectively.

Table 5-1 AER's draft decision on Ausgrid's depreciation allowance for the 2014–19 period – distribution ($ million, nominal)

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
Straight-line depreciation	438.8	468.5	497.6	474.2	483.8	2363.0
Less: inflation indexation on opening RAB	306.3	315.3	323.7	330.7	338.8	1614.8
Regulatory depreciation	**132.6**	**153.2**	**173.9**	**143.6**	**145.0**	**748.2**

Source: AER analysis.

Table 5-2 AER's draft decision on Ausgrid's depreciation allowance for the 2014–19 period – transmission ($ million, nominal)

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
Straight-line depreciation	63.0	68.1	73.2	71.5	72.5	348.4
Less: inflation indexation on opening RAB	50.9	53.0	54.9	55.9	57.2	271.9
Regulatory depreciation	**12.2**	**15.1**	**18.3**	**15.6**	**15.3**	**76.5**

Source: AER analysis.

5.2 Ausgrid's proposal

For the 2014–19 period, Ausgrid proposed total forecast regulatory depreciation allowances of $746.9 million and $81.9 million ($ nominal) for its distribution and transmission networks respectively. To calculate the depreciation allowance, Ausgrid proposed to use:

- the straight-line depreciation method employed in the AER's post-tax revenue model (PTRM)
- the closing RAB as at 30 June 2014 derived from the AER's RFM. The distribution closing RAB has been adjusted for the removal of metering assets
- proposed forecast capex for the 2014–19 period
- weighted average remaining asset lives in existence as at 30 June 2014 derived from the RFM
- standard asset lives for depreciating new assets associated with forecast capex for the 2014–19 period consistent with those approved at the 2009–14 distribution determination.

Table 5-3 and Table 5-4 set out Ausgrid's proposed depreciation allowances for the 2014–19 period for its distribution and transmission networks respectively.

Table 5-3 Ausgrid's proposed depreciation allowance for the period 2014–19 ($ million, nominal) – distribution

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
Straight-line depreciation	430.3	470.0	510.1	512.0	542.5	2 464.8
Less: inflation indexation on opening RAB	307.0	325.9	344.9	361.7	378.5	1 718.0
Regulatory depreciation	**123.3**	**144.1**	**165.1**	**150.3**	**164.0**	**746.9**

Source: Ausgrid, *Regulatory proposal*, May 2014, Attachment 4.01.

Table 5-4 Ausgrid's proposed depreciation allowance for the 2014–19 period ($ million, nominal) - transmission

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
Straight-line depreciation	64.7	71.6	78.8	77.6	81.8	374.6
Less: inflation indexation on opening RAB	52.3	55.9	59.5	61.4	63.6	292.7
Regulatory depreciation	**12.4**	**15.7**	**19.3**	**16.1**	**18.2**	**81.9**

Source: Ausgrid, *Regulatory proposal*, May 2014, Attachment 4.02.

5.3 AER's assessment approach

We are required to determine the regulatory depreciation allowance as a part of a service provider's annual revenue requirement.[5] Our calculation of a service provider's regulatory depreciation building block is made in the PTRM and depends on several components. The calculation of depreciation in each year is governed by the value of assets included in the RAB at the beginning of the regulatory year and the depreciation schedules.[6]

Our standard approach to calculating depreciation is to employ the straight-line method as set out in the PTRM. We consider that the straight-line method of depreciation satisfies the NER requirements in clause 6.5.5(b). It provides an expenditure profile that reflects the nature of the assets over their economic life.[7] Regulatory practice has been to assign a standard asset life to each category of assets that represents the economic or technical life of the asset or asset class. We must consider whether the proposed depreciation schedules conform to the following requirements:

- the schedules depreciate using a profile that reflects the nature of the assets or category of assets over the economic life of that asset or category of assets.[8]
- the sum of the real value of the depreciation that is attributable to any asset of category of assets must be equivalent to the value at which that asset of category of assets was first included in the RAB for the relevant distribution system.[9]

5 NER, cll. 6.4.3(a)(1) and (b)(3).
6 NER, cl. 6.5.5(a).
7 NER, cl. 6.5.5(b)(1).
8 NER, cl. 6.5.5(b)(1).
9 NER, cl. 6.5.5(b)(2).

If a service provider's building block proposal does not comply with the above requirements, then we must determine the depreciation schedules for the purposes of calculating the depreciation for each regulatory year.[10]

The regulatory depreciation allowance is an output of the PTRM. We therefore have assessed the service provider's proposed regulatory depreciation allowance by analysing the proposed inputs to the PTRM for calculating the regulatory depreciation allowance. These inputs include:

- the opening RAB as at 1 July 2014
- the forecast net capex in the 2014–19 period
- the standard asset life for each asset class—used for calculating the deprecation of new assets associated with forecast net capex in the above period
- the remaining asset life for each asset class—used for calculating the deprecation of existing assets associated with opening RAB as at 1 July 2014.

Our draft decision on a service provider's regulatory depreciation allowance reflects our determinations on the forecast capex, forecast inflation and opening RAB as at 1 July 2014 building block components (the first three inputs in the above list). Our determinations on these components of the service provider's proposal are discussed in attachments 6, 3 and 2, respectively.

In this attachment, we assessed Ausgrid's proposed standard asset lives against:

- the approved standard asset lives in the distribution determination for the 2009–14 regulatory control period
- the standard asset lives of comparable asset classes approved in our recent distribution determinations for other service providers.

We employ our standard approach for depreciating a service provider's existing assets in the PTRM by using the remaining asset lives at the start of a regulatory control period. Our preferred method to establish a remaining asset life for each asset class is the weighted average method. This method rolls forward the remaining asset life for an asset class from the beginning of the 2009–14 regulatory control period. We consider this method better reflects the mix of assets within that asset class, when they were acquired over that period (or if they were existing assets), and the remaining value of those assets (used as a weight) at the end of the period. We will assess the outcomes of other approaches against the outcomes of this preferred method.

5.3.1 Interrelationships

The regulatory depreciation allowance is a building block component of the annual revenue requirement.[11] Higher (or quicker) depreciation leads to higher revenues over the regulatory control period. It also causes the RAB to reduce more quickly (assuming no further capex). This reduces the return on capital allowance, although this impact is usually secondary to the increased depreciation allowance.

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[10] NER, cl. 6.5.5(a)(ii).

[11] In the PTRM, the distinction is made between straight-line depreciation and regulatory depreciation. The difference being that regulatory depreciation is the straight-line depreciation minus the indexation adjustment.

Ultimately, however, a service provider can only recover the capex it has incurred on assets once. The depreciation allowance therefore reflects how quickly the RAB is being recovered and is based on the remaining and standard asset lives used in the depreciation calculation.

The depreciation allowance depends on the level of the opening RAB and the forecast capex. Any increase in these factors also increases the depreciation allowance.

To prevent double counting of inflation through the WACC and RAB, the regulatory depreciation allowance also has an offsetting reduction for indexation of the RAB.[12] Factors that affect forecast inflation and/or the size of the RAB will therefore affect the size of this indexation adjustment.

Figure 2.1 and figure 2.2 (in attachment 2) shows the relative size of the inflation and straight-line depreciation and their impact on the RAB. A ten per cent increase in the straight-line depreciation causes revenues to increase by about 2.3 per cent.

5.4 Reasons for draft decision

We accept Ausgrid's proposed straight-line depreciation method for calculating the regulatory depreciation allowance as set out in the PTRM. We also accept the majority of the standard asset lives proposed, and the weighted average method to calculate the remaining asset lives as at 1 July 2014. However, we increased Ausgrid's proposed distribution forecast regulatory depreciation allowance by $1.4 million (or 0.2 per cent), and reduced Ausgrid's proposed transmission forecast regulatory depreciation allowance by $5.4 million (or 6.6 per cent), respectively. Our amendments are mainly driven by our determination on other components of the service providers' revenue proposals—for example, the forecast capex (attachment 6) and the opening RAB as at 1 July 2014 (attachment 2)—affect the forecast regulatory depreciation allowances.

5.4.1 Depreciation approach

Ausgrid's proposed regulatory depreciation was based on the AER's approach in the PTRM as required under the NER, and adopted our preferred weighted average approach to determining the remaining asset lives. However, it also stated that the PTRM approach and the weighted average remaining lives (WARL) approach under compensated them in terms of depreciation. We disagree with both these statements.[13]

In relation to the PTRM approach, Ausgrid submitted that having the indexation of the RAB subtracted from the straight-line depreciation undercompensates them in depreciation.[14] This is not correct. The PTRM approach uses both a nominal WACC and an indexed RAB and is consistent with the requirements of the NER.[15] Because inflation is applied to both these components, the business would be compensated for inflation twice unless an offsetting adjustment is made for the indexation of the RAB. This revaluation gain could be subtracted as a separate building block, in which case the depreciation allowance would appear larger. In terms of total revenue, however, there is no difference if this indexation is subtracted as a separate building block or subtracted from depreciation as is done in the PTRM. The PTRM approach has been used in all of our electricity and gas decisions to date, including the previous determination for Ausgrid.

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12 If the asset lives are extremely long, such that the straight-line depreciation rate is lower than the inflation rate, then negative regulatory depreciation can emerge. The indexation adjustment is greater than the straight-line depreciation in such circumstances.

13 Ausgrid, *Regulatory proposal*, May 2014, p. 23.

14 Ausgrid, *Regulatory proposal*, May 2014, p .23

15 NER, cll. 6.4.3(b)(1)(ii) and (b)(2); 6.5.2(d)(2).

In relation to remaining asset lives, Ausgrid stated the WARL approach leads to asset lives that are too long. It suggested that accounting lives may be more appropriate.[16] Beside administrative simplicity, there is no reason regulatory asset lives should necessarily match accounting asset lives or tax assets lives.[17] Regulatory depreciation takes the objectives of the regulatory regime into account. These objectives have a strong underlying economic rationale. From an economic perspective, there could be situations were accelerated depreciation is desirable and other situations where back loading of depreciation is most economic. A regulator may therefore have to make decisions that are at odds with accounting conventions developed for corporate reporting or other purposes. To minimise administration costs, a regulator will apply existing accounting approaches where they are likely to produce outcomes consistent with the regulatory regime's objectives.

In Ausgrid's proposal, it stated its accounting remaining life is on average 25.7 years, while the WARL is 36.6 years on average.[18] To adopt its accounting remaining life (rather than the WARL) would result in a 43 per cent increase in Ausgrid's straight-line depreciation allowance on its opening distribution RAB. Although no proposal has been made to adopt the accounting remaining life, it does show how simply relying on accounting approaches can lead to very different pricing outcomes for customers.

In its submission to the NSW service provider's regulatory proposals, AGL stated that the RAB depreciation should outweigh any new capex incurred during the 2014–19 period.[19] This would ensure a declining RAB over the period, which AGL stated would be consistent with the conditions of the NSW energy market, in particular declining demand. We consider this to be an issue related to the forecast capex allowance rather than a problem with the depreciation approach. Forecast capex is discussed in attachment 6.

5.4.2 Asset class reallocations

We accept the majority of Ausgrid's proposed asset classes for its distribution and transmission networks for the 2014–19 period. However, we have removed the 'Emergency spares (major plant, excludes inventory)' and 'Transmission & zone emergency spares' asset classes that are no longer being used by Ausgrid.[20]

We consider that the RAB value as at 1 July 2014 for the 'Emergency spares (major plant, excludes inventory)' asset class and 'Transmission and zone emergency spares' asset class should be reallocated to other suitable asset classes. After consultation with Ausgrid we understand that these asset classes and the allocated amounts arose from previous IPART and ACCC determinations for earlier regulatory control periods. Ausgrid stated that it has not allocated capex to these asset classes for the 2009–14 regulatory control period, and it has not proposed any capex for allocation to these asset classes for its distribution and transmission networks for the 2014–19 period.[21] Capex incurred for such 'spares' are allocated to other relevant asset classes, reflecting the as-incurred approach to recognising capex as approved in the 2009 determination. Having considered Ausgrid's response, we are satisfied that for Ausgrid's distribution network the remaining value in the 'Emergency spares (major plant, excludes inventory)' asset class should be reallocated to the 'Substations' asset class as at 1 July 2014. This reasonably provides the remaining number of years (34.8 years) to depreciate the residual value of the assets in the 'Emergency spares (major plant, excludes inventory)' asset class. For Ausgrid's transmission network and for the same reason discussed above, the remaining value in

16 Ausgrid, *Regulatory proposal*, May 2014, p. 23.
17 Even accounting asset lives don't necessary match tax asset lives.
18 Ausgrid, *Regulatory proposal*, May 2014, p. 23.
19 AGL, *Submission to the AER – NSW Electricity Distribution Networks Regulatory Proposals 2014–19*, 8 August 2014, p. 10.
20 Ausgrid, *Email response to AER information request, AER AUSGRID 035,* 12 September 2014.
21 Ausgrid, *Email response to AER information request, AER AUSGRID 035*, 12 September 2014.

the 'Transmission & zone emergency spares' should be allocated between the 'Transmission substation equipment 132/66kV' asset class and 'Zone substation equipment 132/66kV' asset class as at 1 July 2014.[22] Therefore, we have removed the 'Emergency spares (major plant, excludes inventory)' and 'Transmission and zone emergency spares' asset classes from Ausgrid's PTRMs.

5.4.3 Standard asset lives

We accept the majority of Ausgrid's proposed standard asset lives for its existing asset classes, because they are consistent with our approved standard asset lives for the 2009–14 regulatory control period. We are satisfied these proposed standard asset lives reflect the nature of the assets over the economic lives of the asset classes.[23] As discussed in section 5.4.2 we have removed the 'Emergency spares (major plant, excludes inventory)' and 'Transmission & zone emergency spares' asset classes from Ausgrid's PTRMs for its distribution and transmission networks respectively. Therefore, we have not assigned standard asset lives to these asset classes.

Table 5-5 and Table 5-6 set out our draft decision on Ausgrid's standard asset lives for the 2014–19 period, for its distribution and transmission networks respectively.

5.4.4 Remaining asset lives

We accept Ausgrid's proposed weighted average method to calculate the remaining asset lives as at 1 July 2014. The proposed method is consistent with our preferred approach.

In accepting the weighted average method, we have updated Ausgrid's remaining asset lives to reflect our adjustments to the actual net capex in the RAB roll forward in the RFM, as discussed in attachment 2.[24] This is because the actual net capex values are inputs for calculating the weighted average remaining asset lives in the RFM. This adjustment to the remaining assets lives applies to both Ausgrid's distribution and transmission networks.

As discussed in section 5.4.2 we have removed the 'Emergency spares (major plant, excludes inventory)' and 'Transmission & zone emergency spares' asset classes from Ausgrid's PTRMs for its distribution and transmission networks respectively. Therefore, we have not assigned remaining asset lives to these asset classes.

We note the Energy Markets Reform Forum's (EMRF) submission raised concern with the possible early retirement of assets due to the assumed asset lives. The EMRF submitted that because of reduced loading, many of the assets can operate effectively past when they are said to be fully depreciated and due to be replaced.[25] We note that Ausgrid's proposal stated that it develops capital replacement plans based on technology types for their major assets and not standard asset lives[26] and we employ repex modelling as part of our assessment of the proposed capex replacement. This is discussed further in attachment 6.

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22 For Ausgrid's transmission network the reallocation of the amount in the 'Transmission & zone substation emergency spares' asset class to the 'Transmission substation equipment 132/66kV' and 'Zone substation equipment 132/66kV' asset classes is calculated using the relative proportions of the applicable asset classes as at 1 July 2014.

23 NER, cl. 6.5.5(b)(1).

24 At the time of this draft decision, the roll forward of Ausgrid's RABs includes estimated actual capex values for 2013–14. For the final decision we will check the 2013–14 estimated actual capex values with the audited actual data to be received later this year. The 2013–14 capex values are used to calculate the weighted average remaining asset lives in the RFM. Therefore, for the final decision we may recalculate Ausgrid's remaining asset lives as at 1 July 2014 using the method approved in this draft decision.

25 Energy Markets Reform Forum, *Submission to the AER – NSW Electricity Distribution Networks Regulatory Proposals 2014–19*, July 2014, pp. 41–43.

26 Ausgrid, *Regulatory proposal*, Attachment 5.24, pp. 7–9.

Table 5-5 and Table 5-6 set out our draft decision on Ausgrid's remaining asset lives for the 2014–19 period, for its distribution and transmission networks respectively.

Table 5-5 AER's draft decision on Ausgrid's standard and remaining asset lives as at 1 July 2014 (years) – distribution

Asset class	Standard asset life	Remaining asset life as at 1 July 2014
Sub-transmission lines and cables	46.3	32.9
Cable tunnel (dx)	70.0	67.4
Distribution lines and cables	58.0	46.8
Substations	46.8	34.8
Transformers	45.9	30.5
Low voltage lines and cables	52.1	40.0
Customer metering and load control	25.00	14.5
Communications (digital) - dx	10.0	5.6
Total communications	10.2	3.1
Systems IT (dx)	7.0	4.9
Ancillary substation equipment (dx)	15.0	12.4
Land and easements	n/a	n/a
Furniture, fittings, plant and equipment	17.4	12.5
Land (non-system)	n/a	n/a
Other non-system assets	29.4	7.7
IT systems	5.0	3.3
Motor vehicles	10.2	6.3
Buildings	35.9	30.0
Equity raising costs	47.4	43.4

Source: AER analysis.
n/a: not applicable.

Table 5-6 AER's draft decision on Ausgrid's standard and remaining asset lives as at 1 July 2014 (years) – transmission

Asset class	Standard asset life	Remaining asset life as at 1 July 2014
Transmission & zone land and easements	n/a	n/a
Transmission buildings 132/66kV	60.0	45.9
Zone buildings 132/66kV	60.0	50.0
Transmission transformers 132/66kV	50.0	36.9

Zone transformers 132/66kV	50.0	34.0
Transmission substation equipment 132/66kV	45.0	34.0
Zone substation equipment 132/66kV	45.0	37.7
Ancillary substation equipment (tx)	15.0	13.9
132kV tower lines	60.0	42.5
132kV concrete & steel pole lines	55.0	46.8
132kV wood pole lines	45.0	30.2
132kV feeders underground	45.0	36.6
Cable tunnel (tx)	70.0	60.1
Network control & com systems	37.2	17.5
Communications (digital) - tx	10.0	7.9
Systems IT - (tx)	7.0	4.8
IT systems	5.0	3.3
Furniture, fittings, plant & equipment	17.4	12.5
Motor vehicles	10.2	6.3
Buildings	35.9	30.0
Land (non-system)	n/a	n/a
Other non-system assets	29.4	7.6
Equity raising costs	45.7	41.7

Source: AER analysis.
n/a: not applicable