



Draft Decision

ActewAGL distribution determination

2015–16 to 2018–19

Attachment 5: Regulatory depreciation

November 2014

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Note

This attachment forms part of the AER's draft decision on ActewAGL'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

Attachment 9 – Efficiency benefit sharing scheme

Attachment 10 – Capital expenditure sharing scheme

Attachment 11 – Service target performance incentive scheme

Attachment 12 – Demand management incentive scheme

Attachment 13 – Classification of services

Attachment 14 – Control mechanism

Attachment 15 – Pass through events

Attachment 16 – Alternative control services

Attachment 17 – Negotiated services framework and criteria

Attachment 18 – Connection methodology

Attachment 19 – Pricing methodology

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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 or not to approve the depreciation schedules submitted by ActewAGL.¹ In doing so, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for ActewAGL's 2014–19 period. The regulatory depreciation is the net total of the straight-line depreciation (negative) less the indexation of the RAB (positive).

This attachment sets out our draft decisions on the ActewAGL'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 ActewAGL's proposed regulatory depreciation allowances of \$154.1 million and \$25.9 million (\$ nominal) for the 2014–19 period for its distribution and transmission networks respectively. Instead, we determine regulatory depreciation allowances of \$151.8 million (\$ nominal) and \$25.2 million (\$ nominal) for its distribution and transmission networks respectively. This represents reductions of 1.5 per cent and 2.4 per cent for ActewAGL's distribution and transmission networks respectively. In coming to these decisions, we:

- Accept ActewAGL's proposed asset classes, straight-line method, and the standard asset lives used to calculate the regulatory depreciation allowance. We consider that ActewAGL's proposed asset classes and standard asset lives are consistent with those approved at the 2009–14 distribution determination and reflect the nature and economic lives of the assets.²
- Accept ActewAGL's proposed remaining assets lives as at 1 July 2014, subject to some consequential updates to reflect our adjustments to ActewAGL's opening RABs in the roll forward models (RFMs), as discussed in attachment 2.
- Made determinations on other components of ActewAGL'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).³

¹ NER, cl 6.12.1(8).

² NER, cl 6.5.5(b)(1).

³ 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 ActewAGL's distribution and transmission networks respectively.

Table 5.1 AER's draft decision on ActewAGL'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	44.4	48.3	48.9	50.4	50.5	242.5
Less: inflation indexation on opening RAB	17.4	18.0	18.2	18.5	18.6	90.7
Regulatory depreciation	27.0	30.3	30.6	32.0	31.9	151.8

Source: AER analysis.

Table 5.2 AER's draft decision on ActewAGL'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	8.1	8.9	9.2	9.9	10.2	46.2
Less: inflation indexation on opening RAB	3.9	4.0	4.1	4.4	4.6	21.0
Regulatory depreciation	4.2	4.9	5.1	5.4	5.6	25.2

Source: AER analysis.

5.2 ActewAGL's proposal

For the 2014–19 period, ActewAGL proposed total forecast regulatory depreciation allowances of \$154.1 million (\$ nominal) and \$25.9 million (\$ nominal) for its distribution and transmission networks respectively. To calculate the depreciation allowance, ActewAGL proposed to use:

- the straight-line depreciation method employed in the AER's post-tax revenue model (PTRM)⁴
- the closing RAB as at 30 June 2014 derived from the AER's RFM
- proposed forecast capex for the 2014–19 period
- proposed remaining asset lives in existence as at 30 June 2014 based on the real depreciation approach^{5,6}
- standard asset lives for depreciating new assets associated with forecast capex for the period 2014–19 consistent with those approved at the 2009–14 distribution determination.⁷

Table 5.3 and Table 5.4 set out ActewAGL's proposed depreciation allowances for the 2014–19 period for its distribution and transmission networks respectively.

⁴ ActewAGL, *Subsequent regulatory proposal 2015–19 (resubmitted)*, p. 248.

⁵ ActewAGL, *Subsequent regulatory proposal 2015–19 (resubmitted)*, pp. 248–249.

⁶ ActewAGL's real depreciation approach to derive the remaining asset lives divides the real opening RAB by the real depreciation in 2013–14, the final year of the 2009–14 regulatory control period.

⁷ ActewAGL, *Subsequent regulatory proposal 2015–19 (resubmitted)*, p. 248.

Table 5.3 ActewAGL's proposed depreciation allowance for the 2014–19 period (\$ million, nominal) – distribution

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
Straight-line depreciation	44.6	49.2	50.5	52.6	53.4	250.3
Less: inflation indexation on opening RAB	17.6	18.6	19.3	20.0	20.7	96.2
Regulatory depreciation	27.0	30.6	31.2	32.6	32.7	154.1

Source: ActewAGL, *Subsequent regulatory proposal*, 10 July 2014, Attachment B2.

Table 5.4 ActewAGL'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	8.1	9.1	9.6	10.8	11.5	49.2
Less: inflation indexation on opening RAB	3.9	4.1	4.4	5.2	5.7	23.3
Regulatory depreciation	4.2	5.0	5.2	5.6	5.8	25.9

Source: ActewAGL, *Subsequent regulatory proposal*, 10 July 2014, Attachment B5.

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.⁸ 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.⁹

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) because it provides an expenditure profile that reflects the nature of the assets over their economic life.¹⁰ 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 if 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 assets¹¹
- 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 system¹²

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.¹³

⁸ NER, cl 6.4.3(a)(1) and (b)(3).

⁹ NER, cl 6.5.5(a).

¹⁰ NER, cl 6.5.5(b)(1).

¹¹ NER, cl 6.5.5(b)(1).

¹² NER, cl 6.5.5(b)(2).

The allowance for regulatory depreciation 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 depreciation of new assets associated with forecast net capex in the above period
- the remaining asset life for each asset class—used for calculating the depreciation 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 ActewAGL'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.¹⁴ 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.

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.

¹³ NER, cl 6.5.5(a)(ii).

¹⁴ 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.

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.¹⁵ 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 2.9 per cent.

5.4 Reasons for draft decision

We accept ActewAGL's proposed straight-line depreciation method for calculating the regulatory depreciation allowance as set out in the PTRM. We also accept the proposed standard asset lives, and the proposed remaining asset lives as at 1 July 2014 updated to reflect our adjustments to ActewAGL's opening RABs in the proposed RFMs (attachment 2). However, we reduced ActewAGL's proposed distribution and transmission forecast regulatory depreciation allowances by \$2.3 million (or 1.5 per cent) and \$0.6 million (or 2.4 per cent), respectively. Our amendments are mainly driven by our determination on other components of the ActewAGL's regulatory proposal—for example, the forecast capex (attachment 6) and the opening RAB as at 1 July 2014 (attachment 2)—affecting the forecast regulatory depreciation allowance.

5.4.1 Standard asset lives

We accept ActewAGL'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.¹⁶

Table 5.5 and Table 5.6 set out our draft decision on ActewAGL's standard asset lives for the 2014–19 period, for its distribution and transmission networks respectively.

5.4.2 Remaining asset lives

We accept ActewAGL's proposed remaining asset lives as at 1 July 2014 subject to some consequential updates to reflect our adjustments to ActewAGL's opening RABs in its proposed RFM. ActewAGL's proposed approach to calculate the remaining asset lives differs from the AER's preferred weighted average remaining life (WARL) approach. ActewAGL's approach uses depreciation from the final year of the 2009–14 regulatory control period to determine the remaining asset lives. The remaining asset value as at 30 June 2014 is divided by the depreciation for 2013–14.¹⁷ This has been referred to as the real depreciation approach.

We have some concerns with this real depreciation approach.¹⁸ Broadly speaking, if there is both existing assets and new capex in an asset class during the regulatory control period, the real

¹⁵ 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.

¹⁶ NER, cl 6.5.5(b)(1).

¹⁷ ActewAGL, *Subsequent regulatory proposal 2015–19 (resubmitted)*, pp. 248–249.

¹⁸ These concerns mirror our concerns with Jemena Gas Network's 'accounting approximation' approach to estimating remaining lives, which shares the same key method as ActewAGL's real depreciation approach. See AER, *Draft decision, JGN access arrangement 2015–20*, November 2014, Attachment 5.

depreciation approach will systematically underestimate the remaining asset life.¹⁹ To understand the cause of this underestimation, note that the final year depreciation (used to divide the asset value) will include depreciation arising from both the older asset and the newer asset. At some point in the future, the older asset will be completely depreciated; but the newer asset will not. If the remaining asset lives for the individual assets were preserved, at this point yearly depreciation would decrease to reflect only the depreciation arising from the newer asset. However, the real depreciation approach assumes that depreciation continues at the same level as the final year until all assets are completely depreciated. Hence, the overall remaining asset life will be underestimated—that is, it will be closer to the remaining life of the older asset than would be reasonable based on their relative asset values.²⁰

The underestimation of remaining asset lives leads to a larger depreciation allowance and so higher revenue during the forecast regulatory control period. However, there is an opposite effect on revenue in the following regulatory control period. The larger depreciation allowance will result in a lower closing RAB, and so revenue in the subsequent regulatory control period will be lower, all else equal. It can also have a cumulative impact on remaining asset lives in the long run across multiple regulatory control periods, such that assets may be fully depreciated even though they are still useful. However, in ActewAGL's case the biased effect of the proposed approach is immaterial because most assets are concentrated in a single historical asset class ('Opening distribution assets') that does not have any capex added to it.²¹ This asset class includes all assets prior to 1 July 2009, which will expire in about 15 years for regulatory depreciation purposes. Given this starting point the difference in depreciation from applying ActewAGL's approach relative to our WARL approach is immaterial (increases to the proposed revenue allowance of 1.1 per cent for distribution and 0.8 per cent for transmission).²²

Accordingly, we accept ActewAGL's proposed remaining asset lives for the purposes of this draft decision. However, we have adjusted the proposed remaining asset lives to reflect our adjustments to ActewAGL's opening RABs in its proposed RFMs, as discussed in attachment 2.²³ Further, given our concerns with ActewAGL's approach we will review this matter at the next determination.

Table 5.5 and Table 5.6 set out our draft decision on ActewAGL's remaining asset lives for the 2014–19 period, for its distribution and transmission networks respectively.

Table 5.5 AER's draft decision on ActewAGL'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
Opening distribution assets*	n/a	14.7
Zone substation	40.0	37.6

¹⁹ Here, 'underestimate' is relative to the remaining lives that would have applied if the assets been tracked separately and not aggregated into one asset class using the real depreciation approach.

²⁰ That is, the real depreciation approach is effectively a weighted average of the older asset remaining life and the newer asset remaining life, where the weights reflect the depreciation amounts in the final year. In contrast, under our standard approach, the weights reflect the closing values of the newer and older assets.

²¹ In the 2009 determination new disaggregated asset classes were introduced from 1 July 2009. All capex incurred over the 2009–14 regulatory control period were allocated to the new disaggregated asset classes.

²² In assessing materiality, we note that the ActewAGL approach increases revenue in the 2014–19 period but decreases revenue in the following regulatory control period (all else equal), as explained above.

²³ At the time of this draft decision, the roll forward of ActewAGL's RAB includes estimated capex values for 2013–14. We will update the 2013–14 estimated capex value for the final decision with the actual value. The 2013–14 capex value is used to calculate the closing RAB value as at 30 June 2014 and therefore the remaining asset lives in the RFM. Accordingly, for the final decision we will recalculate ActewAGL's remaining asset lives as at 1 July 2014 based on this draft decision.

Distribution substations	40.0	37.9
Distribution overhead lines	50.0	47.9
Distribution underground lines	60.0	57.8
IT & communication systems (networks)	10.0	9.4
Motor vehicles	7.0	6.2
Other non-system assets (networks)	5.0	2.8
IT systems (corporate)	5.0	4.1
Telecommunications (corporate)	5.0	1.7
Other non-system assets (corporate)	5.0	2.2
Land	n/a	n/a
Buildings	60.0	57.1
Equity raising costs	44.5	40.5

Source: AER analysis.

n/a: not applicable.

* We have changed the standard asset life to 'n/a' for this asset class because it does not need to have a standard asset life assigned as a result of forecast capex not being allocated to it from 1 July 2009.

Table 5.6 AER's draft decision on ActewAGL'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
Opening distribution assets*	n/a	14.7
Sub-transmission overhead	40.0	37.5
Sub-transmission underground	60.0	n/a
Zone substation	40.0	38.6
IT & communication systems (networks)	10.0	9.4
Motor vehicles	7.0	6.2
Other non-system assets (networks)	5.0	2.8
IT systems (corporate)	5.0	4.1
Telecommunications (corporate)	5.0	1.7
Other non-system assets (corporate)	5.0	2.2
Land	n/a	n/a
Buildings	60.0	57.1
Equity raising costs	44.5	40.5

Source: AER analysis.

n/a: not applicable.

* We have changed the standard asset life to 'n/a' for this asset class because it does not need to have a standard asset life assigned as a result of forecast capex not being allocated to it from 1 July 2009.