Draft decision

Essential Energy 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 Essential Energy'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

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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 Essential Energy.[1] In doing so, we make determinations on the indexation of the regulatory asset based (RAB) and depreciation building blocks for Essential Energy's 2014–19 period.[2] The regulatory depreciation allowance 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 Essential Energy'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 depreciation allowances.

5.1 Draft decision

We do not accept Essential Energy's proposed regulatory depreciation allowance of $612.1 million ($ nominal) for the 2014–19 period. Instead, we determine a regulatory depreciation allowance of $613.2 million ($ nominal) for Essential Energy. This represents an increase of $1.1 million (or 0.2 per cent) from that proposed. In coming to this decision, we:

- Accept Essential Energy's proposed straight-line method, and standard asset lives used to calculate the regulatory depreciation allowance. We consider that Essential Energy's proposed standard asset lives are consistent with those approved at the 2009–14 distribution determination and reflect the nature and economic lives of the assets.[3] However, we have removed the 'Emergency spares (major plant, excludes inventory)' asset class and reallocated its remaining value as it is understood to be an unused asset class going forward.
- Accept Essential Energy'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.
- Made determinations on other components of Essential Energy'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]

Table 5-1 sets out our draft decision on the annual regulatory depreciation allowance for Essential Energy's 2014–19 period.

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 AER's draft decision on Essential Energy's depreciation allowance for the 2014–19 period ($ million, nominal)

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
Straight-line depreciation	265.7	292.2	314.9	326.0	326.5	1525.3
Less: inflation indexation on opening RAB	167.1	175.6	182.8	189.9	196.7	912.1
Regulatory depreciation	**98.6**	**116.6**	**132.0**	**136.1**	**129.8**	**613.2**

Source: AER analysis.

5.2 Essential Energy's proposal

For the 2014–19 period, Essential Energy proposed a total forecast regulatory depreciation allowance of $612.1 million ($ nominal). To calculate the depreciation allowance, Essential Energy proposed to use :

- the straight-line depreciation method employed in the AER's post-tax revenue model (PTRM)
- the closing RAB value as at 30 June 2014 derived from the AER's RFM, adjusted for the removal of metering assets
- proposed forecast capex for the 2014–19 period
- weighted average remaining asset lives of assets 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 5-2 sets out Essential Energy's proposed depreciation allowance for the 2014–19 period.

Table 5-2 Essential Energy's proposed depreciation allowance for the 2014–19 period ($ million, nominal)

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
Straight-line depreciation	267.6	297.4	323.7	339.0	343.8	1571.6
Less: inflation indexation on opening RAB	169.3	181.1	192.0	203.1	214.1	959.5
Regulatory depreciation	**98.4**	**116.3**	**131.7**	**135.9**	**129.8**	**612.1**

Source: Essential Energy, *Regulatory proposal*, May 2014, Attachment 4.1.

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

[5] NER, cll. 6.4.3(a)(1) and (b)(3).

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]

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 forecast inflation rate for the above 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 the 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 Essential Energy's proposed standard asset lives against:

- the approved standard asset lives in the distribution determination for the 2009–14 regulatory control period

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

- 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.

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 (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 Essential Energy'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 Essential Energy's proposed forecast regulatory depreciation allowance by $1.1 million (or 0.2 per cent) to $613.2 million. Our amendment is mainly driven by our determination on other components of Essential Energy'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.

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[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.

[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.

5.4.1 Depreciation approach

Essential Energy'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, Essential Energy 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 service provider 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 the depreciation building block 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 Essential Energy.

In relation to remaining asset lives, Essential Energy stated the WARL approach leads to asset lives that are too long.[16] It suggested that accounting lives may be more appropriate.[17] Beside administrative simplicity, there is no reason regulatory asset lives should necessarily match accounting asset lives or tax assets lives.[18] 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 Essential Energy's proposal, it stated its accounting average remaining asset life is on average 21.9 years, while the WARL is 33.3 years on average.[19] To adopt the accounting based remaining asset life (rather than the WARLs) would result in a 52 per cent increase in Essential Energy's straight-line depreciation allowance on its proposed opening RAB. Although no proposal has been made to adopt the accounting remaining, 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.[20] 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

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13 Essential Energy, *Regulatory proposal*, May 2014, p. 29.
14 Essential Energy, *Regulatory proposal*, May 2014, p. 29.
15 NER, cll 6.4.3(b)(1)(ii) and (b)(2); 6.5.2(d)(2).
16 The figures presented by Endeavour Energy suggested the opposite, that WARLs are shorter than accounting lives.
17 Essential Energy, *Regulatory proposal*, May 2014, p. 29.
18 Even accounting asset lives do not necessary match tax asset lives.
19 Essential Energy, *Regulatory proposal*, May 2014, p. 29.
20 AGL, *Submission to the AER – NSW Electricity Distribution Networks Regulatory Proposals 2014-19*, 8 August 2014, p. 10.

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 Essential Energy's proposed asset classes for the 2014–19 period. However we have removed three 'legacy' asset classes that are no longer being used by Essential Energy.

We accept Essential Energy's approach to reallocate the opening value of the 'RAB adjustment' and 'Deferred depreciation' asset classes to other asset classes as at 1 July 2014. We are satisfied that the proposed approach does not significantly impact the depreciation schedule of the assets when compared to the scenario of no such reallocation. As a result of the reallocation, these asset classes have no RAB value as at 1 July 2014 and no forecast capex. We have therefore removed these asset classes in the PTRM.

We also consider that the RAB value as at 1 July 2014 for the 'Emergency spares (major plant, excludes inventory)' asset class should be reallocated to another asset class. After consultation with Essential Energy we understand that this asset class and its allocated amount arose from a previous IPART determination.[21] Essential Energy also stated that it does not plan to allocate any future capex to this asset class.[22] Having considered Essential Energy's comments, we are satisfied that the remaining value should be reallocated to the 'Furniture, fittings, plant and equipment' asset class as at 1 July 2014 and the 'Emergency spares (major plant, excludes inventory)' asset class be removed from the PTRM.

In the process of removing this asset class from the PTRM, we note that Essential Energy did propose forecast capex for this asset class for the 2014–19 period. However, Essential Energy informed us that this was an error in its forecast capex allocation because the capex was unrelated to emergency spares. Our draft decision is to also reallocate this forecast capex to the 'Furniture, fittings, plant and equipment' asset class as for the opening value as at 1 July 2014 discussed above.[23] Essential Energy has stated that it will correct this allocation error in its revised proposal.[24]

5.4.3 Standard asset lives

We accept Essential Energy'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.[25] As discussed in section 5.4.2, we have removed the 'Emergency spares (major plant, excludes inventory)' asset class from the PTRM. Therefore, there is no need to assign a standard asset life for this asset class.

Table 5-3 sets out our draft decision on Essential Energy's standard asset lives for the 2014–19 period.

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21 Response to Information request AER ESSENTIAL 017, 9 September 2014.
22 Phone meeting with Jason Cooke following up on Information request AER ESSENTIAL 017, 10 September 2014.
23 Essential Energy proposed $18 million ($ nominal) in capex for 'Emergency spares (major plant, excludes inventory)' over the 2014–19 period.
24 Response to Information request AER ESSENTIAL 017, 9 September 2014.
25 NER, cl. 6.5.5(b)(1).

5.4.4 Remaining asset lives

We accept Essential Energy'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 Essential Energy's remaining asset lives to reflect our adjustments to the actual capex in the RAB roll forward in the RFM, as discussed in attachment 2.[26] This is because the actual capex values are inputs for calculating the weighted average remaining asset lives in the RFM.

As discussed in section 5.4.2, we have removed the 'Emergency spares (major plant, excludes inventory)' asset class from the PTRM. Therefore, there is no need to assign a remaining asset life for this asset class.

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.[27] We note that Essential Energy employs asset condition based regime for its asset replacement and we employ repex modelling as part of our assessment of the proposed capex replacement. This is discussed further in attachment 6.

Table 5-3 sets out our draft decision on Essential Energy's remaining asset lives for the 2014–19 period.

Table 5-3 AER's draft decision on Essential Energy's standard and remaining asset lives as at 1 July 2014 (years)

Asset class	Standard asset life	Remaining asset life as at 1 July 2014
Sub-transmission lines and cables	54.9	36.4
Distribution lines and cables	53.8	42.3
Substations	40.2	25.2
Transformers	45.8	26.7
Low voltage lines and cables	51.5	28.9
Customer metering and load control	25.9	19.9
Communications	7.0	5.6
Land	n/a	n/a
Easements	n/a	n/a
IT systems	5.0	3.6
Furniture, fittings, plant and equipment	13.0	8.4

[26] At the time of this draft decision, the roll forward of Essential Energy's RAB includes estimated capex values for 2013–14. We will update the 2013–14 estimated capex values with the actual values for the final decision. The 2013–14 capex values are used to calculate the weighted average remaining asset lives in the RFM. Therefore, for the final decision we will recalculate Essential Energy's remaining asset lives as at 1 July 2014 using the method approved in this draft decision.

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

Asset class	Standard asset life	Remaining asset life as at 1 July 2014
Motor vehicles	8.0	5.1
Buildings	50.0	47.6
Other non-system assets	15.0	13.4
Equity raising costs	46.3	44.7

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