PRELIMINARY DECISION SA Power Networks determination 2015−16 to 2019−20

Attachment 5 − Regulatory depreciation

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AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's preliminary decision on SA Power Networks' 2015–20 distribution determination. It should be read with all other parts of the preliminary decision.

The preliminary 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 17 – Negotiated services framework and criteria

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Shortened forms

Shortened form	Extended form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
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
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

Shortened form	Extended form
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 and 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 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 SA Power Networks.[1] In doing so, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for SA Power Networks' 2015–20 regulatory control period.[2] The regulatory depreciation allowance is the net total of the straight-line depreciation (negative) and the indexation (positive) of the RAB.

This attachment sets out our preliminary decision on SA Power Networks' regulatory depreciation allowance. It also presents our preliminary 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 Preliminary decision

We do not accept SA Power Networks' proposed regulatory depreciation allowance of $936.0 million ($ nominal) for the 2015–20 regulatory control period.[3] Instead, we determine a regulatory depreciation allowance of $533.7 million ($ nominal) for SA Power Networks. This amount represents a decrease of $402.3 million (or 43.0 per cent) on the proposed amount. In coming to this decision:

- We accept SA Power Networks' proposed asset classes, its straight-line depreciation method, and the majority of standard asset lives used to calculate the regulatory depreciation allowance. We consider SA Power Networks' proposed asset classes and standard asset lives are generally consistent with those approved at the 2010–15 distribution determination, and reflect the nature and economic lives of the assets.[4]
- We do not accept the proposed standard asset life of the 'Light vehicles' asset class. We consider the standard asset life for this asset class should be five years consistent with that life approved for the 2010–15 regulatory control period.
- We do not accept SA Power Networks' proposed average depreciation approach to calculate the remaining asset lives at 1 July 2015. We instead substitute remaining asset lives calculated using a weighted average approach.
- We made a determination changing another component of SA Power Networks' proposal that also affects the forecast regulatory depreciation allowance—the forecast capital expenditure (capex) (attachment 6).[5]

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1 NER, cl 6.12.1(8).

2 NER, cls 6.43(a)(1) and (3).

3 SA Power Networks, *Regulatory proposal*, October 2014, p. 345, Table 27.3.

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

5 NER, cl 6.5.5(a)(1).

Table 5.1 sets out our preliminary decision on the annual regulatory depreciation allowance for SA Power Networks' 2015–20 regulatory control period.

Table 5.1 AER's preliminary decision on SA Power Networks' depreciation allowance for the 2015–20 regulatory control period ($ million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Straight-line depreciation	176.4	199.7	223.7	246.1	242.0	1087.9
Less: inflation indexation on opening RAB	97.6	104.0	110.8	117.6	124.1	554.2
Regulatory depreciation	**78.8**	**95.6**	**112.8**	**128.5**	**117.9**	**533.7**

Source: AER analysis.

5.2 SA Power Networks' proposal

For the 2015–20 regulatory control period, SA Power Networks proposed a total forecast regulatory depreciation allowance of $936.0 million ($ nominal). To calculate the depreciation allowance, SA Power Networks proposed to use:[6]

- the straight-line depreciation method employed in our post-tax revenue model (PTRM)
- the closing RAB value at 30 June 2015, derived from the our roll forward model (RFM)
- proposed forecast capex for the 2015–20 regulatory control period
- remaining asset lives for existing assets at 30 June 2015 derived from the RFM using an 'average depreciation' approach[7]
- standard asset lives for depreciating new assets associated with forecast capex for the 2015–20 regulatory control period consistent with those approved in the 2010–15 distribution determination, except for the 'Heavy vehicles' and 'Light vehicles' asset classes.[8]

6 SA Power Networks, *Regulatory proposal*, October 2014, p. 343.

7 This approach projects the depreciation of the existing assets at the start of the previous regulatory control period and the new assets acquired during that period beyond the end of that same period for a number of years (SA Power Networks' proposal used 5 years). The value of the assets at the end of the period is then divided by the average projected depreciation to determine the remaining asset life

8 SA Power Networks proposed to re-categorise the 'Heavy vehicles' asset class (which is assigned a 20 years standard asset life in the 2010–15 regulatory control period), into two asset classes; 'Heavy vehicles - 15 years' and 'Heavy vehicles - 10 years'. SA Power Networks proposed to assign a 15 years standard asset life to the former and 10 years standard asset life to the latter. It also proposed to reduce the standard asset life for the 'Light vehicles' asset class to four years, from five years in the 2010–15 regulatory control period.

Table 5.2 sets out SA Power Networks' proposed depreciation allowance for the 2015–20 regulatory control period.[9]

Table 5.2 SA Power Networks' proposed depreciation allowance for the 2015–20 regulatory control period ($ million, nominal)

	2014–15	2015–16	2016–17	2017–18	2018–19	Total
Straight-line depreciation	229.9	267.8	304.9	341.3	373.5	1517.6
Less: inflation indexation on opening RAB	97.6	106.5	116.3	125.8	135.2	581.5
Regulatory depreciation	**132.3**	**161.3**	**188.6**	**215.5**	**238.3**	**936.0**

Source: SA Power Networks, *Regulatory proposal*, 31 October 2014, table 27.3, p. 345.

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.[10] We make that calculation in the PTRM, relying 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 by the depreciation schedules.[11]

Our standard approach to calculating depreciation is to employ the straight-line method set out in the PTRM. We consider the straight-line method 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.[12] Regulatory practice has been to assign a standard asset life to each category of assets that represents the economic or technical life of that asset or asset class. We must consider whether the proposed depreciation schedules conform to the following key 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[13]
- the sum of the real value of the depreciation that is attributable to any asset or 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.[14]

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.[15]

9 SA Power Networks, *Regulatory proposal*, October 2014, p. 345, Table 27.3.
10 NER, cls 6.4.3(a)(1) and (b)(3).
11 NER, cl 6.5.5(a)
12 NER, cl 6.5.5(b)(1).
13 NER, cl 6.5.5(b)(1).
14 NER, cl 6.5.5(b)(2).
15 NER, cl 6.5.5(a)(ii).

The regulatory depreciation allowance is an output of the PTRM. So, we assessed the service provider's proposed regulatory depreciation allowance by analysing the proposed inputs to the PTRM for calculating that allowance. The key inputs include:

- the opening RAB at 1 July 2015
- the forecast net capex in the 2015–20 regulatory control period
- the forecast inflation rate for that period
- the standard asset life for each asset class—used for calculating the depreciation of new assets associated with forecast net capex in the regulatory control period
- the remaining asset life for each asset class—used for calculating the depreciation of existing assets included in the opening RAB at 1 July 2015.

Our preliminary decision on a service provider's regulatory depreciation allowance reflects our determinations on the forecast capex, forecast inflation and opening RAB at 1 July 2015 (the first three building block components 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 assess SA Power Networks' proposed standard asset lives against:

- the approved standard asset lives in the distribution determination for the 2010–15 regulatory control period
- the standard asset lives of comparable asset classes approved in our recent distribution determinations for other service providers.

We use our standard approach to depreciate 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 roll forward approach. This method rolls forward the remaining asset life for an asset class from the beginning of the 2010–15 regulatory control period. As explained in this attachment, we consider this method is preferable to the method proposed by SA Power Networks. This is because it better reflects the mix of assets within an 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. In this attachment we also assess the outcomes the average depreciation approach proposed by SA Power Networks against the outcomes of our preferred method.

5.3.1 Interrelationships

The regulatory depreciation allowance is a building block component of the annual revenue requirement.[16] 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 outcome reduces the return on capital allowance, although this impact is usually secondary to the increased depreciation allowance.

Ultimately, however, a service provider can recover only once the capex that it incurred on assets. The depreciation allowance reflects how quickly the RAB is being recovered, and it is based on the remaining and standard asset lives used in the depreciation calculation. It also 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 the RAB, the regulatory depreciation allowance also has an offsetting reduction for indexation of the RAB.[17] Factors that affect forecast inflation and/or the size of the RAB will 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 10 per cent increase in the straight-line depreciation causes revenues to increase by about 3.8 per cent.

5.4 Reasons for preliminary decision

We accept SA Power Networks' proposed straight-line depreciation method for calculating the regulatory depreciation allowance as set out in the PTRM and the majority of the proposed standard asset lives. However, we do not accept the proposed average depreciation method to calculate the remaining asset lives at 1 July 2015.

Overall, we reduced SA Power Networks' proposed forecast regulatory depreciation allowance by $402.3 million (or 43.0 per cent) to $533.7 million. This is mainly due to our amendment to the proposed remaining asset lives (section 5.4.2).[18] It also reflects our determination on changing another component of SA Power Networks' regulatory proposal—the forecast capex (attachment 6) that affects the forecast regulatory depreciation allowance.

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16 The PTRM distinguishes between straight-line depreciation and regulatory depreciation. The difference being that regulatory depreciation is the straight-line depreciation minus the indexation adjustment.

17 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. In this case the indexation adjustment is greater than the straight-line depreciation.

18 This also includes a small correction to the allocation of the work in progress assets to relevant asset classes. See response from SA Power Networks to AER information request, *AER SAPN 041 - Modelling - Response*, 27 March 2015.

5.4.1 Standard asset lives

We accept the majority of SA Power Networks' proposed standard asset lives for its existing asset classes, except for the 'Light vehicles' asset class. We consider they are consistent with our approved standard asset lives for the 2010–15 regulatory control period and are comparable with the standard asset lives approved in our recent determinations for other electricity distribution service providers.[19] We are satisfied these proposed standard asset lives reflect the nature of the assets over the economic lives of the asset classes.[20]

We do not accept SA Power Networks' proposal to reduce the standard asset life for the 'Light vehicles' asset class to four years, from five years. This is because we consider:[21]

- the shorter standard asset life means that, in NPV terms it will cost more to replace each vehicle at four years compared to the current rate of five years
- SA Power Networks' justification that these additional costs would be more than offset by gains in technological and safety advances in the motor industry and the improvement in the flexibility in operational changes have not been substantiated
- the comparison of light vehicle replacement criteria between SA Power Networks and other Australian electricity service providers shows that SA Power Networks' existing replacement criteria approved in the 2010–15 regulatory control period remains appropriate.

We therefore require the standard asset life for the 'Light vehicles' asset class be maintained at five years. Table 5.4 sets out our preliminary decision on SA Power Networks' standard asset lives for the 2015–20 regulatory control period.

5.4.2 Remaining asset lives

We do not accept SA Power Networks' proposed remaining asset lives calculated by an average depreciation approach. We consider that SA Power Networks' proposed approach consistently underestimates the remaining asset lives. We instead substitute remaining asset lives calculated by a weighted average remaining life approach as set out in Table 5.4. We are satisfied the remaining asset lives determined by our approach better meet the requirements of the NEL and NER.[22]

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19 AER, *Draft decision: Ausgrid distribution determination 2015–16 to 2018–19, attachment 5,* November 2014, pp. 20–21; AER, *Draft decision: Endeavour distribution determination 2015–16 to 2018–19, attachment 5,* November 2014, p. 19; p. 134; AER, *Draft decision: Essential Energy distribution determination 2015–16 to 2018–19, attachment 5,* November 2014, p. 20;

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

21 Refer to pp. 113–116 of attachment 6 for more details.

22 NEL, s. 16; NER, cl. 6.5.5(b)(1).

Approaches to estimating remaining asset lives

As explained in section 5.3, the remaining asset lives are a key input for estimating forecast depreciation allowance for existing assets in the opening RAB at the start of the regulatory control period. The most accurate way of estimating remaining asset lives is to track every asset individually. That is, record each asset added to the RAB and track its value over time. But, given the large number of assets to be added to the RAB over time, this approach places significant administrative costs on the business and to regulators charged with approving revenues.[23] To reduce the administrative costs, similar assets are typically grouped into asset classes. We then assign each asset class a combined average remaining asset life, even though the individual assets may have varying remaining asset lives. The combined average remaining asset life for each asset class is recalculated at each reset.

Two approaches are often proposed in regulatory processes for determining the remaining asset lives for asset classes:

1. A weighted average remaining life (WARL) approach. This approach involves rolling forward from the approved remaining lives of existing assets at the start of the regulatory control period to the end of the regulatory control period. The remaining asset lives at the end of the regulatory control period for new assets acquired during the regulatory control period are also determined. The remaining lives of the existing assets and new assets at the end of the regulatory control period are then weighted based on their asset values, to come up with an average remaining life for the entire class. The remaining asset lives at the end of this period become the remaining asset lives at the start of the next regulatory control period. We prefer this approach for reasons we discuss below. This approach has been proposed by the majority of businesses that we regulate.
2. An average depreciation approach. SA Power Networks proposed this approach. This approach involves projecting the depreciation of existing assets at the start of the previous regulatory control period and new assets acquired during that period beyond the end of the period for a number of years (SA Power Networks proposed five years). It then divides the value at the end of the period by the average projected depreciation, to determine the remaining asset life.

The remaining asset lives calculated by both the WARL and average depreciation approaches are not perfect compared with the approach of tracking assets individually. Some information is lost when assets are combined into a single asset class, and when new assets are added to that asset class. For this reason, we focus on the materiality of calculation distortions relative to the 'true' remaining asset lives (that is,

[23] There are also benefits in terms of having smoother depreciation in the long run by not tracking assets individually. That is, revenues may be more volatile if lumpy assets are depreciated individually.

remaining asset lives if assets were not aggregated into asset classes and they were not recalculated at each reset). [24]

We prefer the WARL approach to the average depreciation approach because we consider it results in remaining asset lives that better reflect the economic life of the combined assets. It also results in depreciation schedules for the asset classes that reflect the nature of the assets over their economic lives.[25] These conclusions reflect our assessment and analysis discussed below. Further, the WARL approach forms part of the RFM for transmission network businesses, and most of the regulated network service providers have adopted it.

Assessment of SA Power Networks' proposed remaining lives

Although the WARL is our preferred approach, we would consider other approaches if they better meet the NER requirements. While we have approved depreciation proposals in the past that used the average depreciation approach for remaining asset lives, our experience over a number of our decisions has highlighted the flaws in that approach. We illustrate below these flaws with examples from SA Power Networks' asset classes.

We consider the average depreciation approach consistently underestimates the remaining asset lives of an asset class as a whole. The shorter remaining asset lives misrepresent the age of the assets and the resulting depreciation schedules do not reflect the nature of the assets over their economic lives. Shorter remaining asset lives means that the asset value is recovered over a shorter time frame.[26] This in turn increases the revenue allowance for depreciation over the short term. The remaining asset lives do not impact on the total value (in net present value terms) recovered from an asset over its life.[27]

The average depreciation approach does not recognise accurately when assets are to expire. It often determines the average depreciation over such a short period that does not pick up information on when an existing asset will expire.[28] This means the older

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24 An asset’s actual life can vary from its expected economic life. For example, an individual asset may break unexpectedly. We determine remaining asset lives on the assumption that expected economic lives will be realised on average by the assets in their asset class. A business may undertake engineering assessments if they consider the remaining asset lives have developed a systematic bias. For example, if subsequent testing of a piece of equipment reveals it will not last as long as initially expected.

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

26 This raises intergenerational equity issues with today's customers paying a greater proportion of the asset's cost than future generations. In the long run, future customers will end up using assets that have been fully depreciated but still providing a service and therefore they pay only maintenance on these assets.

27 The total depreciation of an asset in net present value terms is equal under the two approaches. However, the asset life over which it is recovered differs. This difference affects both price profiles and the incentive for a business to replace the asset. As an example, recovering $100 million capex over one year or a hundred years can be done in NPV equivalent terms. But the choice of years will lead to very different price profiles and influence when the asset is replaced.

28 For example, an asset may expire in six years, but the average depreciation may be calculated over five years. If we extend the assessment period to six years, the average depreciation falls and the remaining asset lives

assets are effectively more heavily weighted in the asset class, resulting in a shorter combined remaining asset life. Further, the weighting under the average depreciation approach depends on an arbitrary period of assessment (discussed in the context of the examples below). In contrast, under the WARL approach, asset weighting depend on the values of those assets at the end of the regulatory control period.

Under the average depreciation approach, the extent of the underestimation of remaining lives depends on a combination of factors. These factors include: the length of the assessment period relative to the standard life of an asset, the size of the asset, and the timing of when a new asset has been added. In some cases, or over a short assessment period, the flaws of the average depreciation approach may not appear significant.

Despite our general concern with this approach, as noted, we have previously accepted the remaining asset lives calculated using the average depreciation approach. In certain circumstances, we accepted for example, ActewAGL's and Jemena Gas Networks' remaining asset lives calculated from their proposed averaging depreciation approach, in part because the revenue difference was relatively minor.[29]

However, our assessment for SA Power Networks found the revenue difference is substantial. If applied to SA Power Networks, the average depreciation approach would result in approximately $320 million more revenue (from an increase to the regulatory depreciation allowance) compared with the revenue resulting from our preferred WARL approach over the 2015–20 regulatory control period. This amount is equivalent to approximately seven per cent of the total revenue requirement.

Our further assessment also illustrated additional long-term problems with the average depreciation approach. It also found the divergence in remaining asset lives between the WARL and average depreciation approaches is even more significant for certain asset classes, as shown in Table 5.3.

Given the large differences, we extended our analysis from a single regulatory control period to a longer timeframe, to better understand how the two approaches differ. Based on that analysis, we have further concerns with the long term implications of adopting an average depreciation approach. That approach ratchets down the resulting remaining asset lives at the end of each regulatory control period. Compared with the WARL approach, it consistently underestimates the remaining asset lives and thus increases the annual depreciation allowance by returning the asset value quicker.[30]

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increase. If we extend the assessment period to seven years, the remaining asset lives increase further by the same dynamic.

[29] AER, *Draft decision Jemena Gas Networks (NSW) Ltd Access arrangement 2015–20*, Attachment 5, November 2014, pp.15–18.
AER, *Draft Decision ActewAGL distribution determination 2015–16 to 2018–19*, Attachment 5, November 2014, pp. 11–13

[30] It tends to weight older assets much more in the asset class because it effectively ignores when these assets leave the RAB and assumes they stay in it indefinitely. This weighting was also explained in our draft decision for Jemena Gas Networks. See AER, *Draft decision*, *Jemena Gas Networks (NSW) Ltd Access arrangement 2015–20*, Attachment 5, November 2014, section 5.4.2.

The impact may or may not be noticeable over the regulatory control period under assessment, and the long term impact may go unnoticed if only the regulatory control period is considered. We consider it is important to take a long term view of the approach to assess whether it contributes to the achievement of the NEO.[31] This requires us to consider whether the approach promotes efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers. An approach that underestimates the remaining life of assets results in customers paying for assets too quickly (such that the asset is fully depreciated before the end of its useful life). This may encourage inefficient use and early replacement of assets inconsistent with the NEL.[32]

Table 5.3 Difference in remaining asset lives at 1 July 2015 for key asset classes—WARL versus average depreciation

	Remaining asset lives under WARL approach (years)	Remaining asset lives under average depreciation approach (years)	Difference in remaining asset lives between average depreciation and WARL approaches (per cent)
Sub-transmission lines	50.1	50.5	0.8%
Distribution lines	26.2	21.1	–19.5%
Substations	29.0	22.6	–21.9%
Distribution transformers	23.9	17.5	–26.6%
Low voltage systems (LVS)	33.9	18.7	–44.7%
Communications	9.7	7.6	–21.5%
Buildings	28.0	24.8	–11.3%
Heavy vehicles	14.6	11.8	–19.4%
IT assets	3.9	5.0	27.6%
Plant & tools/Office furniture	7.4	7.6	1.6%

Source: AER analysis of key asset classes.

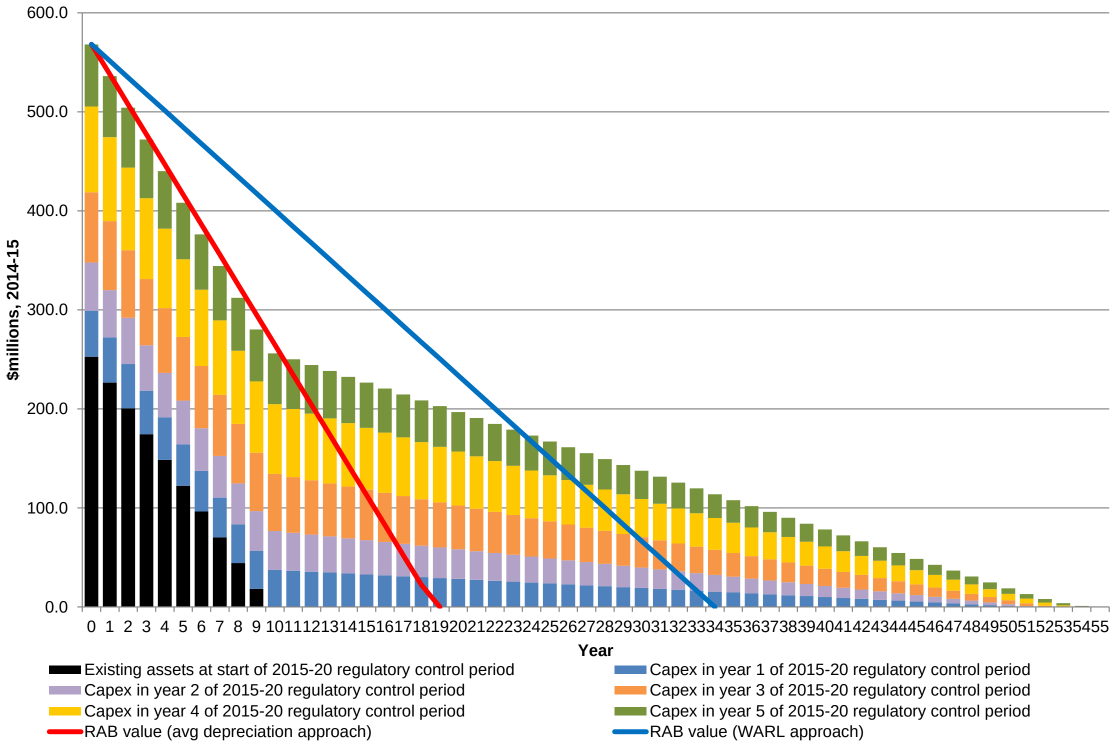
To illustrate the long-term impacts we consider the outcomes of both approaches for a particular asset class—'Low voltage systems'—of SA Power Networks. We have chosen this asset classes because the differences between the approaches are significant and yet we consider it to be representative of typical compositions of asset values in the RAB as shown in Table 5.3. The ‘Low voltage systems' asset class has an opening asset value at 1 July 2015 of $568.1 million ($2014–15). This value includes existing assets at 1 July 2010 of $252.6 million ($2014–15) and new assets of

31 NEL, s. 16(1)(a).

32 NEL, s. 16.

$315.4 million ($2014–15) added to the asset class over the 2010–15 regulatory control period. Figure 5.1 shows the total asset value estimated by the WARL approach (blue line), SA Power Networks' average depreciation approach (red line), and the approach of tracking assets individually based on when they were introduced to the asset class (stacked columns, with each bar representing a different asset that will expire at a different time). This example assumes the asset class incur no further capex.

Figure 5.1 Projection of the value of assets for 'Low voltage system' asset class over time ($ millions, 2014–15)



Source: AER analysis.

As shown in Figure 5.1, under individual asset tracking, the asset value calculated will fully depreciate in 54 years. Under the WARL approach, the asset value starts above the value when the assets are tracked individually, but drops below it in later years. And the assets will fully depreciate in 34 years, even though some assets (that is, capex incurred during the 2010–15 regulatory control period) will still be in service for a further number of years. Combining old and new assets naturally implies the older assets will take longer to be recovered than individual asset tracking suggests, and the newer assets will be recovered sooner. We consider the WARL approach best deals with this issue, producing a more balanced outcome in the long run. In the example, the period when the asset value is higher than if assets where tracked individually (years 1–23) is matched by the period when the asset value is lower than if the assets were tracked individually (years 24–54).

On the other hand, the asset value calculated under the average depreciation approach appears to track the value if the assets are tracked individually for 10 years. It then dips significantly below it and results in all assets being fully depreciated within 19 years. The average depreciation approach does not involve any balancing of the kind that occurs under the WARL approach, and it leads to an inappropriate outcome. It does not recognise that existing assets (the black columns) expire after 9.7 years (noted by the kink in the columns of the individually tracked assets). So, it continues to depreciate this asset class as if the old assets still existed, and it results in accelerated depreciation of all assets.

If assets are combined in this way at every reset, then information on asset expiry is continually lost to a more significant degree than under the WARL approach.[33] Only if the existing assets had a remaining life of less than the depreciation assessment period of five years would the average depreciation calculation pick up on some information on expiry. Alternatively, we can extend the assessment period to obtain information on when an existing asset will expire. But that extension would also change the remaining asset life implied by the average depreciation approach. In other words, the average depreciation approach has an arbitrary nature, which can lead to a range of remaining asset lives just by changing the assessment period.

The approach may appear reasonable in certain circumstances and for particular asset classes (that is, those with short asset lives, although most regulated assets have long expected economic lives). However, as a general approach across a variety of asset classes with different standard asset lives we do not consider it is appropriate. In contrast, the WARL approach uses objective weightings to combine the individual asset lives based on (1) the value of the assets and (2) when those assets are introduced to the RAB. These features allow us to apply the WARL approach consistently to different asset classes without unreasonable results.

Conclusion

Based on the above analysis, we do not accept SA Power Networks' proposed remaining asset lives calculated using its average depreciation approach. We instead determine that remaining asset lives will be calculated using a WARL approach. We are satisfied the remaining asset lives determined by our WARL approach better reflect the nature of the assets over their economic lives.[34] We are also satisfied that they promote more efficient long term investment in, and efficient operation and use of, electricity assets, and therefore contribute to the achievement of the NEO to the greatest degree.[35]

At the time of this preliminary decision, the roll forward of SA Power Networks' RAB includes estimated capex values for 2014–15. We expect to update the 2014–15

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[33] The assets in the six asset classes shown in the figures are combined every 5 years. Once these assets are combined, information on when particular assets expire is lost.

[34] NER, cl. 6.5.5(b)(1).

[35] NEL, s. 16(d).

estimated capex values for the substitute decision. Those capex values are used to calculate remaining asset lives under the WARL approach. Therefore, for the substitute decision, we will recalculate SA Power Networks' remaining asset lives at 1 July 2015 using the method approved in this preliminary decision.

Table 5.4 sets out our preliminary decision on SA Power Networks' remaining asset lives for the 2015–20 regulatory control period.

Table 5.4 AER's preliminary decision on SA Power Networks' standard and remaining asset lives at 1 July 2015 (years)

Asset class	Standard asset life	Remaining asset life as at 1 July 2015
Sub-transmission lines	55.0	50.1
Distribution lines	55.0	26.2
Substations	45.0	29.0
Distribution transformers	45.0	23.9
LVS	55.0	33.9
Communications	15.0	9.7
Contributions	40.2	34.0
Land	n/a	n/a
Substation land	n/a	n/a
Easements	n/a	n/a
Buildings	40.0	28.0
Vehicles - 15 years	15.0	14.6
Vehicles - 10 years	10.0	n/a
Light vehicles	5.0	3.9
IT assets	5.0	3.9
Plant & tools/Office furniture	10.0	7.4
Equity raising costs	52.3	48.3

Source: AER analysis.

n/a: not applicable.