DRAFT DECISION

SA Power Networks Distribution Determination 2020 to 2025

Attachment 4 Regulatory depreciation

October 2019

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's draft decision on the distribution determination that will apply to SA Power Networks for the 2020–2025 regulatory control period. It should be read with all other parts of the draft decision.

The draft decision includes the following attachments:

Overview

Attachment 1 – Annual revenue requirement

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 6 – Operating expenditure

Attachment 7 – Corporate income tax

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Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
capex	capital expenditure
CPI	consumer price index
distributor	distribution network service provider
NER or the rules	national electricity rules
opex	operating expenditure
PTRM	post-tax revenue model
RAB	regulatory asset base
RFM	roll forward model
SACOSS	South Australian Council of Social Service
WACC	weighted average cost of capital

4 Regulatory depreciation

Depreciation is the allowance provided so capital investors recover their investment over the economic life of the asset (return of capital). In deciding whether to approve the depreciation schedules submitted by SA Power Networks, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for SA Power Networks' 2020–25 regulatory control period.[1] The regulatory depreciation allowance is the net total of the straight-line depreciation less the indexation of the RAB.

This attachment sets out our draft decision on SA Power Networks' regulatory depreciation allowance. It also presents our draft decision on the proposed depreciation schedules, including an assessment of the proposed asset lives used for forecasting depreciation.

4.1 Draft decision

We determine a regulatory depreciation allowance of $1187.7 million ($ nominal) for SA Power Networks for the 2020–25 regulatory control period. SA Power Networks proposed a regulatory depreciation allowance of $1233.3 million ($ nominal).[2] Our decision represents a decrease of $45.5 million or 3.7 per cent on the proposed amount.

For our draft decision on SA Power Networks' regulatory depreciation:

- We accept SA Power Networks' proposed existing asset classes, its straight-line depreciation method, and the standard asset lives (with the exception of the 'Equity raising costs' asset class) used to calculate the regulatory depreciation allowance subject to some changes arising from our review of the regulatory tax approach.
- We accept SA Power Networks' proposal for introducing three new asset classes and their standard asset lives for allocating forecast capex from 1 July 2020. However, we do not accept certain types of assets associated with SA Power Networks' forecast capex being allocated to these asset classes.
- We accept the continuation of SA Power Networks' year-by-year tracking approach to calculate straight-line depreciation of existing assets. However, we identified and corrected a few minor errors in SA Power Networks' application of the year-by-year tracking approach in its depreciation model.
- We made determinations on other components of SA Power Networks' proposal which affect the forecast regulatory depreciation allowance—for example, the opening RAB at 1 July 2020 (attachment 2), expected inflation (attachment 3), and

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1 NER, cll. 6.12.1, 6.4.3.

2 SA Power Networks, *2020–25 Regulatory proposal – Supporting document 1.1 - PTRM Model,* 31 January 2019.

forecast capex (attachment 5) including its effect on the projected RAB over the 2020–25 regulatory control period.[3]

Table 4.1 sets out our draft decision on the annual regulatory depreciation allowance for SA Power Networks' 2020–25 regulatory control period.

Table 4.1 AER's draft decision on SA Power Networks' depreciation allowance for the 2020–25 regulatory control period ($ million, nominal)

	2020–21	2021–22	2022–23	2023–24	2024–25	Total
Straight-line depreciation	327.9	341.1	354.0	360.6	353.3	1736.9
Less: inflation indexation on opening RAB	107.6	109.0	110.3	110.9	111.3	549.1
Regulatory depreciation	**220.3**	**232.2**	**243.7**	**249.6**	**242.0**	**1187.7**

Source: AER analysis.

4.2 SA Power Networks' proposal

For the 2020–25 regulatory control period, SA Power Networks proposed a total forecast regulatory depreciation allowance of $1233.3 million ($ nominal). To calculate the depreciation allowance, SA Power Networks proposed to use:[4]

- the straight-line depreciation method employed in the AER's post-tax revenue model (PTRM)
- the closing RAB value at 30 June 2020 derived from the AER's roll forward model (RFM)
- proposed forecast capex for the 2020–25 regulatory control period
- an expected inflation rate of 2.47 per cent per annum for the 2020–25 regulatory control period
- the year-by-year tracking depreciation model, which implements the straight-line method to calculate the forecast depreciation (over the 2020–25 regulatory control period) of the opening RAB at 1 July 2020
- the asset classes and standard asset lives for depreciating new assets associated with forecast capex for the 2020–25 regulatory control period, which are consistent with those approved in the 2015–20 distribution determination. In addition, SA Power Networks proposed three new asset classes—'Sub-transmission and distribution lines - short life', 'Substations and transformers - short life' and

[3] Capex enters the RAB net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Our draft decision on the RAB (attachment 2) also reflects our updates to the WACC for the 2020–25 regulatory control period.

[4] SA Power Networks, *2020–25 Regulatory proposal – Supporting document 1.1 - PTRM Model,* 31 January 2019, SA Power Networks, *2020–25 Regulatory proposal – Supporting document 2.1 - Roll Forward Model,* 31 January 2019.

'Electronic network assets' with standard asset lives of 25 years, 20 year and 15 years respectively.

Table 4.2 sets out SA Power Networks' proposed depreciation allowance for the 2020–25 regulatory control period.

Table 4.2 SA Power Networks' proposed depreciation allowance for the 2020–25 regulatory control period ($ million, nominal)

	2020–21	2021–22	2022–23	2023–24	2024–25	Total
Straight-line depreciation	326.4	346.7	368.9	384.3	387.9	1814.2
Less: inflation indexation on opening RAB	109.1	112.9	116.9	119.7	122.3	580.9
Regulatory depreciation	**217.3**	**233.8**	**252.1**	**264.6**	**265.6**	**1233.3**

Source: SA Power Networks, *2020–25 Regulatory proposal – Supporting document 1.1 - PTRM Model,* 31 January 2019.

4.3 Assessment approach

We determine the regulatory depreciation allowance using the PTRM as a part of a service provider's annual revenue requirement.[5] Where the year-by-year tracking approach has been adopted, a separate depreciation model is also used for existing assets and feeds into the PTRM. 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.[6]

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) as it provides an expenditure profile that reflects the nature of assets over their economic life.[7]

Once the method is set, 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 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[8]
- 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 or category of assets was first included in the RAB for the relevant distribution system.[9]

5 NER, cll. 6.4.3(a)(3),(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).

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

The regulatory depreciation allowance is an output of the PTRM. We therefore assessed SA Power Networks' 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 2020
- the forecast net capex in the 2020–25 regulatory control period[11]
- the expected 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 depreciation associated with the opening RAB as at 1 July 2020—calculated in a separate year-by-year tracking depreciation model.

Our draft decision on SA Power Networks' regulatory depreciation allowance reflects our determinations on the opening RAB at 1 July 2020, expected inflation and forecast capex (the first three building block components in the above list).[12] Our determinations on these components of the service provider's proposal are discussed in attachments 2, 3 and 5 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 2015–20 regulatory control period
- the standard asset lives of comparable asset classes approved in our recent distribution determinations for other service providers.

Our standard approach for depreciating a service provider's existing assets in the PTRM uses remaining asset lives at the start of a regulatory control period as determined in the RFM. However, for the 2015–20 regulatory control period, SA Power Networks adopted an approach where (in addition to grouping assets by type via asset classes) it tracks the asset classes on a year-by-year basis to implement straight-line depreciation. In our distribution determination for SA Power Networks' 2015–20 regulatory control period, we approved the year-by-year tracking approach and

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9 NER, cl. 6.5.5(b)(2).

10 NER, cl. 6.5.5(a)(2)(ii).

11 Capex enters the RAB net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Our draft decision on the RAB (attachment 2) also reflects our updates to the WACC for the 2020–25 regulatory control period.

12 Our final decision will update the opening RAB as at 1 July 2020 for revised estimates of actual capex and inflation.

determined that it meets the depreciation provisions of the NER. We reaffirm this decision for the 2020–25 regulatory control period, as discussed in section 4.4.1.

4.3.1 Interrelationships

The regulatory depreciation allowance is a building block component of the annual revenue requirement.[13] Higher (or quicker) depreciation leads to higher revenues over the regulatory control period. It also causes the RAB to reduce more quickly (excluding the impact of further capex). This reduces the return on capital allowance, although this impact is usually smaller than the increased depreciation allowance in the short to medium term.[14]

Ultimately, however, a service provider can only recover the capex that it incurred on assets once. 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, with any increase in these factors also increasing the depreciation allowance.

The RAB has to be maintained in real terms, meaning the RAB must be indexed for expected inflation.[15] The return on capital building block has to be calculated using a nominal rate of return (WACC) applied to the opening RAB.[16] As noted in attachment 1, the total annual revenue requirement is calculated by adding up the return on capital, depreciation, opex, tax and revenue adjustments building blocks. Because inflation on the RAB is accounted for in both the return on capital—based on a nominal rate—and the depreciation calculations—based on an indexed RAB—an adjustment must be made to the revenue requirement to prevent compensating twice for inflation.

To avoid this double compensation, we make an adjustment by subtracting the annual indexation gain on the RAB from the calculation of total revenue.[17] Our standard approach is to subtract the indexation of the opening RAB—the opening RAB multiplied by the expected inflation for the year—from the RAB depreciation. The net result of this calculation is referred to as regulatory depreciation.[18] Regulatory depreciation is the amount used in the building block calculation of total revenue to ensure that the revenue equation is consistent with the use of a RAB, which is indexed for inflation annually.

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13 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.

14 This is generally the case because the reduction in the RAB amount feeds into the higher depreciation building block, whereas the reduced return on capital building block is proportionate to the lower RAB multiplied by the WACC.

15 NER, cl. 6.5.1(e)(3).

16 AER, *Rate of return instrument*, cl. 1, cl. 3(a), cl. 36(c), December 2018.

17 NER, cl. 6.4.3(b)(1)(ii).

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

This approach produces the same total revenue requirement and RAB as if a real rate of return had been used in combination with an indexed RAB. Under an alternative approach where a nominal rate of return was used in combination with an un-indexed (historical cost) RAB, no adjustment to the depreciation calculation of total revenue would be required. This alternative approach produces a different time path of total revenue compared to our standard approach. In particular, overall revenues would be higher early in the asset's life (as a result of more depreciation being returned to the service provider) and lower in the future—producing a steeper downward sloping profile of total revenue.[19] Under both approaches, the total revenues being recovered are in present value neutral terms—that is, returning the initial cost of the RAB.

Figure 4.1 shows the recovery of revenue under both approaches using a simplified example.[20] Indexation of the RAB and the offsetting adjustment made to depreciation results in smoother revenue recovery profile over the life of an asset than if the RAB was un-indexed.

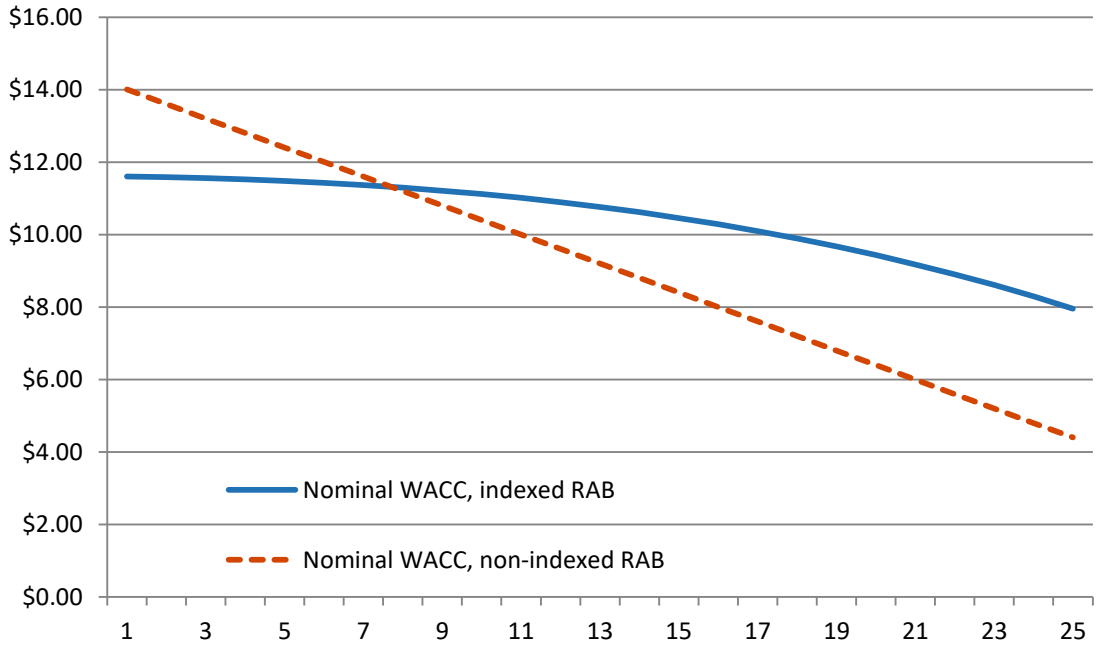
Figure 2.1 (in attachment 2) shows the relative size of the inflation and straight-line depreciation and their impact on the RAB based on SA Power Networks' proposal. A 10 per cent increase in the straight-line depreciation causes revenues to increase by about 4.3 per cent.[21]

[19] A change of approach from an indexed RAB to an un-indexed RAB would result in an initial step change increase in revenues to preserve NPV neutrality.

[20] The example is based on the initial cost of an asset of $100, a standard economic life of 25 years, a real WACC of 7.32%, expected inflation of 2.5% and nominal WACC of 10%. Other building block components such as opex, tax and capex are ignored for simplicity as they would affect both approaches equally.

[21] We have analysed the sensitivity of straight-line depreciation relative to total revenue based on input data provided in SA Power Networks' proposal PTRM.

Figure 4.1 Revenue path example – indexed vs un-indexed RAB ($ nominal)



Source: AER analysis.

4.4 Reasons for draft 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 year-by-year tracking approach to implement this method. We also accept the proposed asset classes and standard asset lives (with the exception of the 'Equity raising costs' asset class) subject to some changes arising from the tax review (attachment 7).

However, we reduced SA Power Networks' proposed forecast regulatory depreciation allowance by $45.5 million (or 3.7 per cent) to $1187.7 million ($ nominal). This amendment reflects our corrections to the depreciation tracking model proposed by SA Power Networks (section 4.4.1). It also reflects our decision to reallocate some forecast capex from the new 'Sub-transmission and distribution lines - short life', 'Substations and transformers - short life' and 'Electronic network assets' asset classes to other existing assets classes with longer standard asset lives.

Our determinations regarding other components of SA Power Networks' regulatory proposal also affect the forecast regulatory depreciation allowance—the opening RAB at 1 July 2020 (attachment 2), expected inflation (attachment 3) and forecast capital

expenditure (attachment 5) including its effect on the projected RAB over the 2020–25 regulatory control period.[22]

Our assessment of SA Power Networks' continuation of the year-by-year tracking depreciation approach and its proposed standard asset lives are discussed in turn in the following subsections.

4.4.1 Year-by-year tracking approach

From the beginning of the 2015–20 regulatory control period, SA Power Networks has implemented the straight-line method for the calculation of its forecast regulatory depreciation allowance using the year-by-year tracking approach. We accepted this approach in our 2015–20 distribution determination. SA Power Networks' proposal is to continue using the year-by-year tracking approach for calculating depreciation of its existing assets.

We accept that SA Power Networks' proposed year-by-year tracking approach meets the requirements of the NER in that it will result in depreciation schedules that:

- reflect the nature of the assets and their economic life[23]
- ensure that total depreciation (in real terms) equals the initial value of the assets[24]
- allows the economic lives of existing assets to be consistent with those determined on a prospective basis in our 2015–2020 distribution determination.[25]

SA Power Networks prepared a separate depreciation model to implement year-by-year tracking.[26] It builds on the depreciation model used for the 2015–20 distribution determination. We have reviewed SA Power Networks' year-by-year tracking depreciation model and updated it with the latest CPI value for 2018–19 and WACC value for 2019–20 in the depreciation model, which were not available at the time of the proposal. Further, we have updated the CPI estimate for 2019–20.[27]

We also corrected some minor errors in the depreciation model, which SA Power Networks agreed with.[28] In particular, we have made the following adjustments:

- 2014–15 CPI – we replaced a rounded value used by SA Power Networks with an unrounded value

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22 Capex enters the RAB net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Our draft decision on the RAB (attachment 2) also reflects our updates to the WACC for the 2020–25 regulatory control period.

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

24 NER, cl. 6.5.5(b)(2).

25 NER, cl. 6.5.5(b)(3).

26 SA Power Networks, *2020–25 Regulatory proposal – Supporting document 1.1 - PTRM Model*, 31 January 2019.

27 Our final decision will update for actual 2019–20 CPI, which will be available at that time.

28 SA Power Networks, *Information request 029 – RFM and depreciation model input issues*, 15 May 2019.

- 2014–15 return on difference calculation – SA Power Networks used the nominal WACC and forecast capex to calculate the return on difference for this year. We have changed this to use the actual capex and real WACC instead, as this approach achieves an NPV neutral outcome over the lives of the assets.

These errors were not material.

4.4.2 Standard asset lives

We accept SA Power Networks' proposed standard asset lives, with the exception of the standard asset life for the 'Equity raising costs' asset class. We have calculated the standard asset life of equity raising costs by taking the weighted average of the standard asset lives of total forecast capex for each asset class over the 2020–25 regulatory control period. SA Power Networks' proposal did not forecast any benchmark equity raising costs for the 2020–25 regulatory control period, based on the method employed in the PTRM. Consistent with this, for the draft decision PTRM we estimate zero equity raising costs, although this will need to be reviewed for our final decision.

We also made some changes to asset classes arising from the tax review (attachment 7). Our assessment of both the existing and new asset classes proposed by SA Power Networks is set out below.

Existing asset classes

SA Power Networks proposed the same standard asset lives for its existing asset classes in respect of the forecast capex to be incurred in the 2020–25 regulatory control period. These asset lives are consistent with those approved for the 2015–20 regulatory control period and are largely comparable with the standard asset lives approved in our recent determinations for other distributors.[29] Accordingly, we accept these proposed standard asset lives.

The standard asset life for the 'Equity raising costs' asset class needs to be reviewed each regulatory control period. We consider the standard asset life for this asset class should reflect the lives of the mix of assets making up the approved forecast net capex, because the equity raising cost benchmark is associated with that forecast.[30] However, no equity raising cost have been determined in our draft decision modelling. This is because SA Power Networks does not satisfy the requirements to incur benchmark equity raising costs associated with the approved forecast capex. There is no impact

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[29] AER, *Final decision: TasNetworks distribution determination 2019 to 2024*, *attachment 4*, April 2019, pp. 9–10; AER, *Final decision: Evoenergy distribution determination 2019 to 2024*, *attachment 4*, April 2019, p. 9; AER, *Final decision: Essential Energy distribution determination 2019 to 2024*, *attachment 4*, April 2019, p. 8; AER, *Final decision: Ausgrid distribution determination 2019 to 2024*, *attachment 4*, April 2019, p. 9; AER, *Final decision: Endeavour Energy distribution determination 2019 to 2024*, *attachment 4*, April 2019, p. 10; AER, *Final decision: Power and Water Corporation distribution determination 2019 to 2024*, *attachment 4*, April 2019, pp. 8–9.

[30] For this reason, we used forecast net capex as the weights to establish the weighted average standard asset life for amortising equity raising costs.

from this draft decision, since SA Power Networks' proposal also did not forecast any equity raising costs.

New asset classes

SA Power Networks proposed three new asset classes and associated standard asset lives for use as part of allocating its forecast capex for the 2020–25 regulatory control period. They are labelled:

- 'Sub-transmission and distribution lines - short life'
- 'Substations and transformers - short life'
- 'Electronic network assets'.

Two submissions—Origin Energy and South Australian Council of Social Service (SACOSS)—raised concerns that the new shorter life asset classes would potentially lead to unnecessary acceleration of depreciation and therefore higher prices for customers.[31] We examined SA Power Networks' proposed activities to evaluate whether assets included in the new shorter life asset classes reflect the technical lives of the assets.

The first two asset classes listed above relate to refurbishment activities. SA Power Networks stated that these proposed asset classes reflect that refurbishment activities often only extend the life of an asset for a given number of years, rather than creating the equivalent of a new asset. These assets are typically attached to an underlying asset and may have no use after the underlying asset expires. This issue has been discussed in some of our previous decisions.[32] However, where we have accepted refurbishment asset classes, we have reviewed the mix of the assets included in those asset classes to determine an appropriate standard asset life. We also noted in our previous decisions that this mix of assets would have to be reviewed at each reset.[33]

The third asset class relates to network electronic assets, which include low voltage monitors, protection relays and DC auxiliary supplies. SA Power Networks noted the weighted average economic life of these assets is much lower than the lives of other assets in the lines, cables and substations classes in which they were previously included. This issue has been discussed in some of our previous decisions.[34] In these

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31 Origin Energy, *RE: SAPN Regulatory Proposal 2020-25*, 19 May 2019, p. 1; SACOSS, *SACOSS submission in response to AER Issues Paper on the SAPN electricity determination 2020-2025*, 16 May 2019, p. 22.

32 AER, *Draft decision: TransGrid transmission determination 2018–23 — Attachment 5 - Regulatory Depreciation*, September 2017, pp. 15–18; AER, *Draft decision: ElectraNet transmission determination 2018 to 2023 — Attachment 5 - Regulatory Depreciation*, October 2017, pp. 15–18; AER, *Final decision: ElectraNet transmission determination 2013–18*, April 2013, pp. 146–147; AER, *Final decision: Powerlink transmission determination 2012–17*, April 2012, pp. 203–206.

33 AER, *Draft decision: ElectraNet transmission determination 2018 to 2023 — Attachment 5 - Regulatory Depreciation*, October 2017, p. 18

34 AER, *draft decision, ElectraNet transmission determination 2008–09 to 2012–13*, pp. 208–212; AER, *New South Wales draft distribution determination 2009-10 to 2013-14*, pp. 214–215.

decisions, we have reviewed the mix of the assets included in those asset classes to determine an appropriate standard asset life.

SA Power Networks proposed to allocate $224 million ($2019–20) of forecast capex to the three new asset classes in the 2020–25 regulatory control period. Table 4.3 sets out the refurbishment activities associated with the forecast capex and their allocation to the three asset classes, and a summary of our decision.

Table 4.3 List of activities associated with the forecast capex to be allocated to the three new asset classes

Activities for shorter asset lives	Proposed asset class allocation	AER decision
Existing network protection - planned	Sub-transmission and distribution lines - short life	Accept
Line regulation (including regulators, capacitors)	Sub-transmission and distribution lines - short life	Accept
Poles - planned plating	Sub-transmission and distribution lines - short life	Accept
Distribution earthing	Sub-transmission and distribution lines - short life	Accept
Air conditioning relay rooms	Electronic network assets	Accept
Auxiliary DC supplies excel AC - battery banks & chargers	Electronic network assets	Accept
Protection replacement	Electronic network assets	Accept
Circuit breakers planned refurbishment	Substations and transformers - short life	Accept
Transformer refurbishment	Substations and transformers - short life	Accept
AC panel and auxiliary supply	Substations and transformers - short life	Accept
Unplanned substation asset replacement - minor	Substations and transformers - short life	Accept
Cable replacement	Sub-transmission and distribution lines - short life	Reallocate to existing asset class
Conductor replacement	Sub-transmission and distribution lines - short life	Reallocate to existing asset class
Line ancillary equipment - planned	Sub-transmission and distribution lines - short life	Reallocate to existing asset class
Recloser refurbishment/replacement	Sub-transmission and distribution lines - short life	Reallocate the replacement component to existing asset class
CBD ducts & manholes	Sub-transmission and distribution lines - short life	Reallocate to existing asset class
Line clearance rectification - distribution	Sub-transmission and distribution lines - short life	Reallocate to existing asset class
Low voltage two way network	Electronic network assets	Not included in the substitute capex

Activities for shorter asset lives	Proposed asset class allocation	AER decision
		forecast
Voltage regulation	Substations and transformers - short life	Reallocate to existing asset class
Protection compliance	Substations and transformers - short life	Not included in the substitute capex forecast

Source: SA Power Networks, *Information request 040*, 3 June 2019.

Note: As discussed in attachment 5, our substitute capex forecast for all of these activities are lower than the proposed amount.

The result of our assessment is that we have approved the new asset classes and the proposed standard asset lives. For many of the proposed refurbishment activities, we agree that the forecast capex should be allocated to the relevant new asset classes. This is because the expenditures reflect the shorter economic lives associated with the proposed activities and assets. However, we do not accept certain activities proposed by SA Power Networks that were included in its forecast capex. Further, while some activities are included in our substitute capex forecast, we have reallocated the associated expenditures to the existing asset classes with longer lives. For the reasons discussed below, we consider these expenditures reflect the longer economic lives associated with the activities and assets.

We made inquiries with SA Power Networks to better understand what assets it was proposing would make up these new refurbishment and electronic asset classes. There were assets allocated to asset classes that are either not capable of refurbishment and/or were assets that could be redeployed to other parts of the network once the underlying assets expired.

For example, cable replacements were included in the new asset class of 'Sub-transmission and distribution lines - short life'. We consider that it is reasonable to expect the newly installed distribution line components during the 2020–25 regulatory control period to be used until the end of their respective technical lives. SA Power Networks is expected to continue to refurbish or replace the remaining distribution line components as they reach the end of their technical lives, resulting in further extensions to the life of the underlying distribution lines. Under this asset renewal approach, components that comprise SA Power Networks' distribution lines effectively have a perpetual remaining life because the need for a distribution line does not have an end date. This is consistent with some of our previous determinations.[35]

[35] AER, *Draft decision: TransGrid transmission determination 2018–23 — Attachment 5 - Regulatory Depreciation*, September 2017, pp. 15–18; AER, *Draft decision: ElectraNet transmission determination 2018 to 2023 — Attachment 5 - Regulatory Depreciation*, October 2017, pp. 15–18; AER, *Final decision: ElectraNet transmission determination 2013–18*, April 2013, pp. 146–147; AER, *Final decision: Powerlink transmission determination 2012–17*, April 2012, pp. 203–206.

We would similarly reallocate other forecast capex to existing asset classes where we consider the capex is not consistent with the standard asset life proposed for the refurbishment asset class. For example, 'Line ancillary equipment' were also included in the new asset class 'Sub-transmission and distribution lines - short life'. If SA Power Networks was required to remove an entire distribution line at the end of its 25 year life extension period, it could still reuse the new distribution line components installed in the 2020–25 regulatory control period for other distribution lines. This is because these components are likely to still have many years of remaining useful life beyond 25 years reflecting its technical lives. This is consistent with some of our previous determinations.[36]

Accordingly, we have removed the portion of forecast capex associated with cable replacements and line ancillary equipment from the 'Sub-transmission and distribution lines - short life' asset class and reallocated it to the existing 'Distribution lines' asset class with an assigned standard asset life of 55 years.

Origin Energy submitted that we must consider any change in the engineering life of the underlying asset from refurbishments.[37] This matter was considered as part of our Powerlink 2012–17 transmission determination.[38] While significant refurbishments could extend the remaining asset life of the underlying assets, we do not consider the impact to be material given that assets requiring refurbishment would be largely depreciated. Further, a number of assets may already be operating beyond their expected useful life. There are also issues of practicality in terms of identifying the underlying assets, and their depreciated value from the relevant asset classes.

We have not approved certain activities or have reallocated other activities to appropriate existing asset classes (consistent with our 2015–20 decision). A summary of our reasoning for each activity follows:

- Cable replacement – as noted above, we consider the components that comprise SA Power Networks' distribution line to effectively have a perpetual remaining life, and the replaced cables could be expected to be used until the end of their technical lives. In an information request, SA Power Networks agreed and noted that this will be rectified in their revised regulatory proposal.[39]
- Conductor replacement – similarly to the cable replacement, we expect the replaced conductors could be expected to be used until the end of their technical lives. In an information request, SA Power Networks agreed and noted that this will be rectified in their revised regulatory proposal.[40]

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36 AER, *Final decision: TransGrid transmission determination 2018–23 — Attachment 5 -Regulatory Depreciation*, May 2018, pp. 16–17; AER, *Final decision: Powerlink transmission determination 2012–17*, April 2012, p. 205

37 Origin Energy, *RE: SAPN Regulatory Proposal 2020-25*, 19 May 2019, p. 1.

38 AER, *Final decision: Powerlink transmission determination 2012–13 to 2016–17*, April 2012, pp. 205–206.

39 SA Power Networks, *Information request 040B*, 23 July 2019.

40 SA Power Networks, *Information request 040B*, 23 July 2019.

- Line ancillary equipment – as noted above, we consider the new distribution line components could still be reused until the end of their technical lives after being removed from the distribution lines.
- Recloser refurbishment/replacement – we accept the recloser refurbishment activities would have a shorter life. However, we consider that the replacement and the installation of assets would have a life consistent with the technical life of the replaced assets.
- CBD ducts & manholes – SA Power Networks has not provided sufficient information to demonstrate the need for one of the projects included in this asset class. This is discussed further in attachment 5.[41] We also consider that it is not clear how these assets may be refurbished. If the nature of the activities associated with these assets are closer to replacement, the assets should have a life consistent to the underlying feeder assets that effectively have a perpetual remaining life.
- Line clearance rectification - distribution – SA Power Networks has not provided sufficient information to demonstrate the efficient cost of the proposed capex. We have included a lower estimate for this program in our substitute capex forecast. This is discussed further in attachment 5.[42] Similar to cable replacements, we expect the assets used in line clearance rectification activities could be expected to be used until the end of their technical lives.
- Low voltage two way network – SA Power Networks' supporting information does not demonstrate the need for the program. We have not included the program in our substitute capex forecast. This is discussed further in attachment 5.[43]
- Voltage regulation – SA Power Networks has not provided sufficient information to demonstrate the efficient cost of the proposed capex. We have included a lower estimate for this program in our substitute capex forecast. This is discussed further in attachment 5.[44] Further, as SA Power Networks has proposed transformer replacement as its preferred option to remediate voltage issues, SA Power Networks has not demonstrated that its proposed program uses assets of shorter standard lives.
- Protection compliance – SA Power Networks has not provided sufficient evidence demonstrating the need for the program. We have not included the program in our substitute capex forecast. This is discussed further in attachment 5.[45]

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41 AER, *Draft decision: SA Power Networks distribution determination 2020 to 2025*, *attachment 5*, October 2019, pp. 54–56.

42 AER, *Draft decision: SA Power Networks distribution determination 2020 to 2025*, *attachment 5*, October 2019, pp. 49–51.

43 AER, *Draft decision: SA Power Networks distribution determination 2020 to 2025*, *attachment 5*, October 2019, pp. 22–24, 27–28.

44 AER, *Draft decision: SA Power Networks distribution determination 2020 to 2025*, *attachment 5*, October 2019, pp. 22–24, 29.

45 AER, *Draft decision: SA Power Networks distribution determination 2020 to 2025*, *attachment 5*, October 2019, pp. 38–39.

Besides the reallocation issues and uncertainty regarding the need for specific activities, we have also approved a lower capex amount for all of the proposed activities. These reductions are discussed in attachment 5.[46]

Our draft decision is to approve $151.6 million ($2019–20) in forecast capex (compared to $224.0 million proposed by SA Power Networks) for these activities for the 2020–25 regulatory control period. Of this amount, $73.6 million ($2019–20) is to be allocated to the three newly created shorter life asset classes. The remaining $78.0 million is reallocated to appropriate existing asset classes.

In order to implement the changes arising from the tax review, we have reallocated SA Power Networks' forecast capex related to buildings and IT assets for the 2020–25 regulatory control period. All the forecast capex initially allocated to the 'Buildings' asset class was removed, with 90 per cent of it reallocated to a new asset class and the remaining 10 per cent reallocated to the existing 'Plant & tools/Office furniture' asset class. Some capex initially allocated to the 'IT assets' asset class was reallocated to a new asset class. Discussed further in attachment 7, the tax review acknowledged different methods of calculation of tax depreciation for different asset classes, which resulted in the addition of these asset classes to the PTRM and a reallocation of forecast capex to these asset classes.

These changes result in a small increase in the regulatory depreciation allowance as some forecast capex is now allocated to an asset class with a lower standard life, all else being equal. This reallocation results from a reassessment of the 'Buildings' asset class and that some expenditure better reflects the mix of assets in the 'Plant & tools/Office furniture' asset class. Further, the impact of this is not material.

The two new asset classes are:

- 'Buildings - capital works' – where the forecast capex was originally allocated to the 'Buildings' asset class
- 'In-house software' – where the forecast capex was originally allocated to the 'IT assets' asset class.

For each asset class we have assigned a standard asset life that is consistent with the asset class from which the forecast capex were reallocated. Therefore, for the 'Buildings - capital works' asset class we have assigned a standard asset life of 40 years that is consistent with the 'Buildings' asset class. However, SA Power Networks noted that 10 per cent of forecast capex initially allocated to the 'Buildings' asset class is more appropriately classified as furniture and fittings, and has been reclassified into the 'Plant & tools/Office furniture' asset class with a standard life of 10 years. Therefore, only 90 per cent of the forecast capex initially allocated to the 'Buildings' asset class is moved to the new 'Buildings - capital works' asset class. We have assigned a standard asset life of 5 years to the 'In-house software' asset class that is

[46] AER, *Draft decision: SA Power Networks distribution determination 2020 to 2025*, *attachment 5*, October 2019.

consistent with the 'IT assets' asset class. SA Power Networks did not raise any concerns with this approach.[47]

Table 4.4 sets out our draft decision on SA Power Networks' standard asset lives for the 2020–25 regulatory control period. We are satisfied the approved standard asset lives would lead to a depreciation schedule that reflects the nature of the assets over the economic lives of the asset classes. Further, the sum of the real value of the depreciation attributable to the assets is equivalent to the value at which the assets were first included in the RAB for SA Power Networks.[48]

Table 4.4 AER's draft decision on SA Power Networks' standard asset lives for the 2020–25 regulatory control period (years)

Asset class	Standard asset life
Sub-transmission lines	55.0
Distribution lines	55.0
Substations	45.0
Distribution transformers	45.0
LVS	55.0
Communications	15.0
Land	n/a
Substation land	n/a
Easements	n/a
Buildings	40.0
Heavy vehicles - 15 year	15.0
Heavy vehicles - 10 year	10.0
Light vehicles	5.0
IT assets	5.0
Plant & tools/Office furniture	10.0
Sub-transmission and distribution lines - short life	25.0
Substations and transformers - short life	20.0
Electronic network assets	15.0
Buildings - capital works[a]	40.0
In-house software[a]	5.0

47 SA Power Networks, *Information request 007 - Corporate income tax*, 21 March 2019.

48 NER, cll. 6.5.5(b)(1)–(2).

Asset class	Standard asset life
Equity raising costs[b]	n/a

Source: AER analysis.

(a) New asset classes were created for the PTRM version 4 in order to separate components of buildings and IT related assets that must be depreciated using the straight-line method for tax purposes. Refer to attachment 7 (corporate income tax) for more detail.

(b) For this draft decision, the forecast capex determined for SA Power Networks does not meet a level to trigger any benchmark equity raising costs.

n/a: not applicable. We have not assigned a standard asset life to some asset classes because the assets allocated to those asset classes are not subject to depreciation.