



DRAFT DECISION
TasNetworks distribution
determination
2017–18 to 2018–19

Attachment 5 – Regulatory
depreciation

September 2016

© Commonwealth of Australia 2016

This work is copyright. In addition to any use permitted under the Copyright Act 1968, all material contained within this work is provided under a Creative Commons Attributions 3.0 Australia licence, with the exception of:

- the Commonwealth Coat of Arms
- the ACCC and AER logos
- any illustration, diagram, photograph or graphic over which the Australian Competition and Consumer Commission does not hold copyright, but which may be part of or contained within this publication. The details of the relevant licence conditions are available on the Creative Commons website, as is the full legal code for the CC BY 3.0 AU licence.

Requests and inquiries concerning reproduction and rights should be addressed to the:

Director, Corporate Communications
Australian Competition and Consumer Commission
GPO Box 4141, Canberra ACT 2601

or publishing.unit@acc.gov.au.

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585 165

Email: AERInquiry@aer.gov.au

Note

This attachment forms part of the AER's draft decision on TasNetworks' distribution determination for 2017–19. It should be read with all 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 mechanisms

Attachment 15 – Pass through events

Attachment 16 – Alternative control services

Attachment 17 – Negotiated services framework and criteria

Attachment 18 – Connection policy

Attachment 19 – Tariff structure statement

Contents

Note	5-2
Contents	5-3
Shortened forms	5-4
5 Regulatory depreciation	5-6
5.1 Draft decision	5-6
5.2 TasNetworks' proposal	5-7
5.3 Assessment approach	5-8
5.3.1 Interrelationships.....	5-10
5.4 Reasons for draft decision	5-12
5.4.1 Standard asset lives	5-12
5.4.2 Remaining asset lives	5-17

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
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure

Shortened form	Extended form
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 can recover their investment over the economic life of the asset (return of capital). In deciding whether to approve the depreciation schedules submitted by TasNetworks, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for TasNetworks' 2017–19 regulatory control period.¹ The regulatory depreciation allowance is the net total of the straight-line depreciation (negative) and the indexation of the RAB (positive).

This attachment sets out our draft decision on TasNetworks' 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.

5.1 Draft decision

We do not accept TasNetworks' proposed regulatory depreciation allowance of \$107.2 million (\$ nominal) for the 2017–19 regulatory control period.² Instead, we determine a regulatory depreciation allowance of \$98.6 million (\$ nominal). This amount represents a reduction of \$8.6 million or 8.0 per cent on the proposed amount. In coming to this decision:

- We accept TasNetworks' proposed asset classes, its straight-line depreciation method, and the standard asset lives used to calculate the regulatory depreciation allowance. We consider TasNetworks' proposed standard asset lives for its existing asset classes are consistent with those approved at the 2012–17 distribution determination and largely comparable to the standard asset lives used for other distributors.
- We accept TasNetworks' proposal to create a new 'Business management systems' asset class with a standard asset life of 10 years. This asset class will contain asset management IT systems capex incurred from 1 July 2017. We consider the proposed standard asset life of 10 years reflects the nature of the assets in this asset class and is comparable with the standard asset life used by other distributors for a similar asset class. We are satisfied that TasNetworks' proposed standard asset lives would lead to a depreciation schedule that reflects the nature of the assets over their economic lives³ (section 5.4.1).
- We accept TasNetworks' proposal to use the year-by-year tracking method for depreciating its existing assets consistent with the approach we approved in our

¹ NER, cl. 6.12.1, 6.4.3.

² TasNetworks, *Regulatory proposal 2017–19*, January 2016, p. 113.

³ NER, cl. 6.5.5(b)(1).

recent decisions for the Victorian distributors.⁴ However, we do not accept TasNetworks' implementation of the approach in its proposed RFM, which is based on the average depreciation method to calculate remaining asset lives at 1 July 2017. We have therefore implemented the year-by-year tracking method to calculate the depreciation for TasNetworks' existing assets in this draft decision.⁵ These calculations are made in a separate depreciation model, and the depreciation amounts are substituted directly into the post-tax revenue model (PTRM) (section 5.4.2).

- We made determinations on other components of TasNetworks' proposal that also affect the forecast regulatory depreciation allowance—the opening RAB at 1 July 2017 (attachment 2) and the expected inflation rate (attachment 3).⁶

Table 5.1 sets out our draft decision on the annual regulatory depreciation allowance for TasNetworks' 2017–19 regulatory control period.

Table 5.1 AER's draft decision on TasNetworks' depreciation allowance for the 2017–19 regulatory control period (\$ million, nominal)

	2017–18	2018–19	Total
Straight-line depreciation	79.5	100.8	180.4
Less: inflation indexation on opening RAB	39.9	41.8	81.7
Regulatory depreciation	39.6	59.0	98.6

Source: AER analysis.

5.2 TasNetworks' proposal

For the 2017–19 regulatory control period, TasNetworks proposed a total forecast regulatory depreciation allowance of \$107.2 million (\$ nominal). To calculate the depreciation allowance, TasNetworks proposed to use:⁷

- the straight-line depreciation method employed in our PTRM
- the closing RAB value at 30 June 2017 derived from our roll forward model (RFM)
- proposed forecast capex for the 2017–19 regulatory control period
- an approach to calculate depreciation on the opening RAB by reference to a new method the AER adopted in recent determinations for other distributors. TasNetworks submitted that this new method, which we labelled as year-by-year

⁶ NER, cl. 6.5.5(a)(1).

⁷ TasNetworks, *Regulatory proposal 2017–19*, January 2016, pp. 110–113.

tracking, provides a more accurate depreciation approach because it recognises the specific timing of new capex. However, TasNetworks' proposed calculations for depreciating its opening RAB are based on the average depreciation method

- standard asset lives for depreciating new assets associated with forecast capex for the 2017–19 regulatory control period consistent with those approved in the 2012–17 distribution determination
- a new 'Business management systems' asset class with a standard asset life of 10 years to depreciate asset management IT systems capex incurred from 1 July 2017.

Table 5.2 sets out TasNetworks' proposed depreciation allowance for the 2017–19 regulatory control period.

Table 5.2 TasNetworks' proposed depreciation allowance for the 2017–19 regulatory control period (\$ million, nominal)

	2017–18	2018–19	Total
Straight-line depreciation	90.8	100.4	191.2
Less: inflation indexation on opening RAB	41.2	42.8	84.0
Regulatory depreciation	49.6	57.6	107.2

Source: TasNetworks, *Proposed PTRM*, January 2016.

5.3 Assessment approach

We determine the regulatory depreciation allowance using the PTRM as a part of a service provider's annual revenue requirement.⁸ 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.⁹

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.¹⁰ Regulatory practice has been to assign a standard asset life to each category of assets that represents the economic or technical life of the asset or asset class. We must consider whether the proposed depreciation schedules conform to the following key requirements:

- the schedules depreciate using a profile that reflects the nature of the assets of category of assets over the economic life of that asset or category of assets¹¹

⁸ NER, cl. 6.4.3(a)(3) and (b)(3).

⁹ NER, cl. 6.5.5(a).

¹⁰ NER, cl. 6.5.5(b)(1).

¹¹ NER, cl. 6.5.5(b)(1).

- 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.¹²

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.¹³

The regulatory depreciation allowance is an output of the PTRM. We therefore 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 2017
- the forecast net capex in the 2017–19 regulatory control period
- the expected 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.

We usually depreciate a service provider's existing assets in the PTRM by using 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 remaining life approach.¹⁴ However, TasNetworks has submitted an alternative approach, as discussed in section 5.4.2.

Our draft decision on a service provider's regulatory depreciation allowance reflects our determinations on the forecast capex, forecast inflation and opening RAB at 1 July 2017 (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 TasNetworks' proposed standard asset lives against:

- the approved standard asset lives in the distribution determination for the 2012–17 regulatory control period
- the standard asset lives of comparable asset classes approved in our recent distribution determinations for other service providers.

¹² NER, cl. 6.5.5(b)(2).

¹³ NER, cl. 6.5.5(a)(ii).

¹⁴ This method rolls forward the remaining asset life for an asset class from the beginning of the 2012–17 regulatory control period. We consider this method reflects the mix of assets within an asset class. It reflects when the assets were acquired over that period and the remaining asset lives of existing assets at the end of that period. The remaining value of all assets are used as weights at the end of the period.

5.3.1 Interrelationships

The regulatory depreciation allowance is a building block component of the annual revenue requirement.¹⁵ 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 smaller than the increased depreciation allowance in the short to medium term.¹⁶

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. Any increase in these factors also increases the depreciation allowance.

The RAB has to be maintained in real terms, meaning the RAB must be indexed for expected inflation.¹⁷ The return on capital building block has to be calculated using a nominal rate of return (WACC) applied to the opening RAB.¹⁸ 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.¹⁹ 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.²⁰ 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.

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

¹⁵ 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.

¹⁶ 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.

¹⁷ NER, cl. 6.5.1(e)(3).

¹⁸ NER, cl. 6.5.2(d)(2).

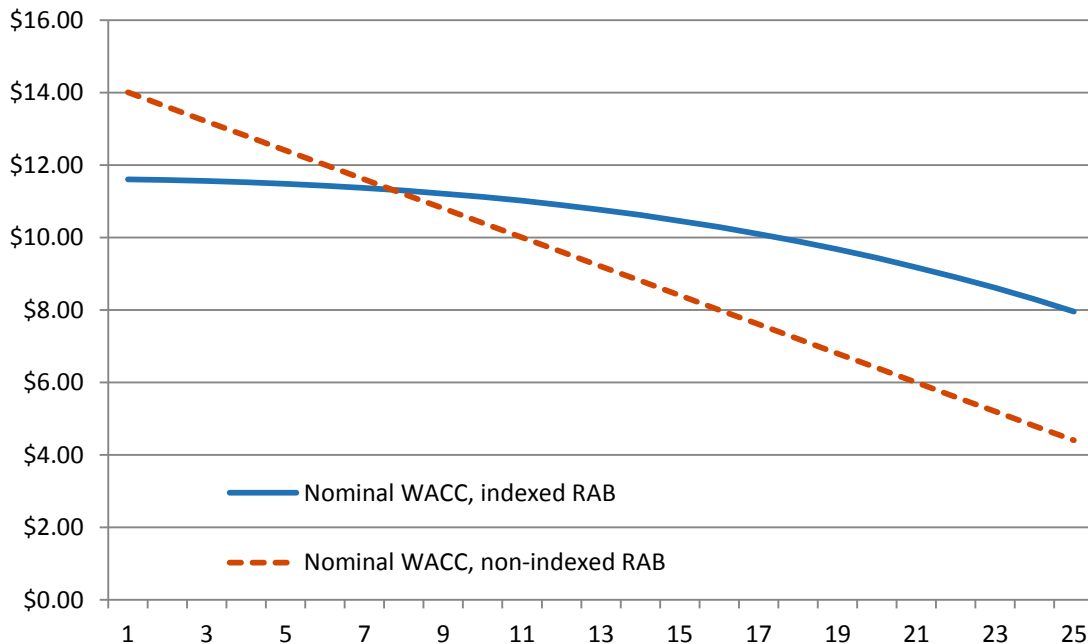
¹⁹ NER, cl. 6.4.3(b)(1)(ii).

²⁰ 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

(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.²¹ Under both approaches, the total revenues being recovered are in present value neutral terms—that is, returning the initial cost of the RAB.

Figure 5.1 shows the recovery of revenue under both approaches using a simplified example.²² 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 5.1 Revenue path example – indexed vs un-indexed RAB (\$ nominal)



Source: AER analysis.

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 TasNetworks' proposal. A 10 per cent increase in the straight-line depreciation causes revenues to increase by about 5 per cent.

²¹ 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.

²² 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.

5.4 Reasons for draft decision

We accept TasNetworks' proposed straight-line depreciation method for calculating the regulatory depreciation allowance as set out in the PTRM. We also accept the proposed asset classes and proposed standard asset lives. However, we do not accept TasNetworks' proposed implementation to depreciate its existing assets, which is based on the average depreciation method to calculate remaining asset lives at 1 July 2017. We have instead applied the year-by-year tracking method.

Overall, we reduced TasNetworks' proposed forecast regulatory depreciation allowance by \$8.6 million (or 8.0 per cent) to \$98.6 million (\$ nominal). This amendment also reflects our determinations regarding other components of TasNetworks' regulatory proposal—the opening RAB as at 1 July 2017 (attachment 2) and the expected inflation rate (attachment 3)—which affect the forecast regulatory depreciation allowance.

5.4.1 Standard asset lives

We accept TasNetworks' proposed standard asset lives for its existing asset classes. These asset lives are consistent with the approved standard asset lives for the 2012–17 regulatory control period and comparable with the standard asset lives approved in our recent determinations for other distributors.²³ We also accept TasNetworks' proposed standard asset life of 10 years for the new 'Business management systems' asset class.

Existing asset classes

CCP member David Headberry submitted that TasNetworks' standard asset lives are generally shorter than other distributors and that there needs to be consistency across all distributors for the rate of depreciation of their assets.²⁴ He also suggested that the standard asset lives for the purposes of depreciating the RAB should reflect the actual age of asset on replacement rather than the notional expected life of the assets used in providing the service.

²³ AER, *Final decision: Jemena distribution determination 2016–20*, attachment 5, May 2016, p. 10; AER, *Final decision: Powercor distribution determination 2016–20*, May 2016, attachment 5, p. 12; AER, *Final decision: United Energy distribution determination 2016–20*, May 2016, attachment 5, p. 10; AER, *Final decision: CitiPower distribution determination 2016–20*, attachment 5, May 2016, p. 12; AER, *Final decision: AusNet Services distribution determination 2016–20*, May 2016, attachment 5, p. 10; AER, *Final decision: Ausgrid distribution determination 2014–19*, attachment 5, April 2015, p. 10; AER, *Final decision: Endeavour distribution determination 2014–19*, attachment 5, April 2015, p. 9; AER, *Final decision: Essential Energy distribution determination 2014–19*, attachment 5, April 2015, p. 9; AER, *Final decision: ActewAGL distribution determination 2014–19*, attachment 5, April 2015, p. 10; AER, *Final decision, Energex distribution determination 2015–20*, attachment 5, October 2015, p. 10; AER, *Final decision, Ergon Energy distribution determination 2015–20*, attachment 5, October 2015, p. 10; and AER, *Final decision, SA Power Networks distribution determination 2015–20*, attachment 5, October 2015, p. 9.

²⁴ CCP (David Headberry), *Submission to the AER, Response to the proposal from Tasmania's electricity distribution network service provider (TasNetworks - TND) for a revenue reset for the 2017–19 regulatory period*, 4 May 2016, p. 46.

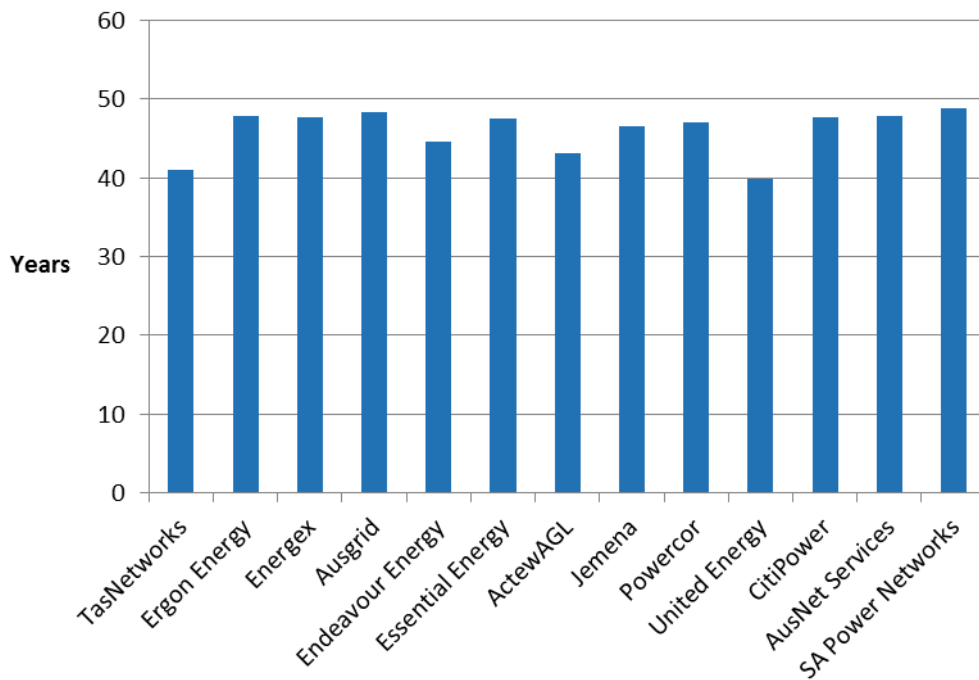
We agree that the same asset types should have the same standard asset life applied across the distributors, taking into account any environmental or operational factors that may impact on the expected useful life of the asset. However, each asset class used in the PTRM is not for a single asset type, but covers a group of similar assets. As the overall make-up of assets entering a certain asset class may differ by business, we consider it reasonable for there to be variation in the average standard asset life for an asset class applied across businesses. For example, TasNetworks separate its distribution line assets into eight asset classes, ranging with a standard asset life of 60 years for underground lines and 35 years for overhead lines. On the other hand, SA Power Networks has only one asset class for its distribution lines with a standard asset life of 55 years. Due to this reason, a strict like-for-like comparison of the standard asset lives used by the distributors may not be possible for all asset classes.

We are also cautious of the potential for a selective review of asset lives that may distort the overall depreciation outcomes. CCP member David Headberry compared the asset lives provided in the Economic benchmarking RIN and highlighted particular TasNetworks' asset classes that have shorter asset lives compared to other distributors.²⁵ However, we note that while TasNetworks has the shortest asset life for 'overhead network assets', its asset life for 'Underground network assets' is longer than that provided by other distributors in the Economic benchmarking RIN. Also, we note that the asset lives in TasNetworks' Economic benchmarking RIN are prepared at a much broader level of asset categories compared to the PTRM asset categories it employs. Although the Economic benchmarking RIN provides a high level comparison of asset lives between the distributors, we consider it more appropriate to focus on the standard asset lives as provided in the PTRMs. By calculating the weighted average of the standard asset lives in the PTRM, we consider this will provide a more accurate comparison of the standard asset lives used by the distributors for depreciation purposes.

Table 5.1 shows the weighted average standard asset lives of all distributors in the NEM. It shows that TasNetworks' weighted average standard asset life is broadly comparable with that of the other distributors, although towards the bottom of the range. However, we do not consider the difference is material, particularly in terms of their impact on overall depreciation. Therefore, our draft decision is not to make any changes to the proposed standard asset lives for TasNetworks' existing asset classes.

²⁵ CCP (David Headberry), *Submission to the AER, Response to the proposal from Tasmania's electricity distribution network service provider (TasNetworks - TND) for a revenue reset for the 2017–19 regulatory period*, 4 May 2016, p. 45–46.

Figure 5.2 TasNetworks' weighted average standard asset lives compared to other distribution service providers' weighted average standard asset lives (years)



Source: AER analysis.

Note: The opening RAB values for each asset class as set out in the approved PTRMs are used as the weights. Non-depreciable assets such as 'Land' and 'Easements' are excluded from the calculation.

Further, we note that the NER requires that the depreciation schedules must reflect the nature of the assets or category of assets over the economic life of that asset or category of assets.²⁶ While we agree with CCP member David Headberry that the standard asset lives for depreciation purposes should be generally close to the actual asset life at replacement, it does not necessarily mean that any discrepancy between the two would require changes. This is because the depreciation schedule is a forward looking assumption necessary for new investment. For example, a distributor's cost benefit assessment for capital investment may include the depreciation cost. For this reason, the distributor may adopt the manufacturer's design life or the expected economic life of the assets for depreciation purposes to determine the optimal timing and form of investment. The design life or the expected economic life of the asset may reflect the minimum life that most of the assets are expected to last and may therefore differ from the actual asset lives at replacement.

We note that the Category analysis RIN provides the mean economic life for each asset type. The asset lives in TasNetworks' Category analysis RIN are not directly

²⁶ NER, cl. 6.5.5(b)(1).

aligned with the standard asset lives in its PTRM due to different asset classifications between the two. Nevertheless, we have attempted to map the asset age profile in the Category analysis RIN with the standard asset lives in the PTRM. We found that TasNetworks' standard asset lives in the PTRM broadly align with the average economic lives provided in its Category analysis RIN for similar asset types. Therefore, we accept TasNetworks' proposed standard asset lives for its existing asset classes because they reflect the nature of the assets or category of assets over the economic life of that asset or category of assets.²⁷ Appendix B of attachment 6 discusses TasNetworks' replacement capex and the role of asset lives in our assessment of its proposal in more detail.

New 'Business management systems' asset class

TasNetworks' proposed new 'Business management systems' asset class relates to allocating capex associated with its proposed asset management and IT solution (Ajilis) project. The assets to be included are for asset management, financial, human resources and IT systems. CCP member David Headberry submitted that the proposed standard asset life of 10 years for the 'Business management system' asset class is too short for regulatory depreciation purposes.²⁸ Tasmanian Small Business Council noted that the proposed 10 years for Ajilis asset management and IT solution is much longer than normal for IT assets.²⁹

We note that the standard asset life for IT systems assets approved for other distributors for regulatory depreciation purposes is between 5 to 7 years. We are satisfied with TasNetworks' proposal that the nature of the Ajilis solution and its associated costs means that the assets will continue to be used by TasNetworks for a longer life than would normally be associated with such type of assets. However, we consider that a standard asset life of more than 10 years may not be justified given the short-lived nature of IT assets. Therefore, we consider TasNetworks' proposed standard asset life of 10 years for this asset class is reasonable because it reflects the nature of the assets in this asset class.³⁰

Table 5.3 sets out our draft decision on TasNetworks' standard asset lives for the 2017–22 regulatory control period. We are satisfied the proposed standard asset lives would lead to a depreciation schedule that reflects the nature of the assets over the economic lives of the asset classes, and that the sum of the real value of the

²⁷ NER, cl. 6.5.5(b)(1).

²⁸ CCP (David Headberry), *Submission to the AER, Response to the proposal from Tasmania's electricity distribution network service provider (TasNetworks - TND) for a revenue reset for the 2017–19 regulatory period*, 4 May 2016, p. 45; Tasmanian Small Business Council, *TasNetworks' electricity distribution regulatory proposal 2017–19 and tariff structure proposal submission*, May 2016,

²⁹ Tasmanian Small Business Council, *TasNetworks' electricity distribution regulatory proposal 2017–19 and tariff structure proposal submission*, May 2016, p. 8.

³⁰ NER, cl. 6.5.5(b)(1).

depreciation attributable to the assets is equivalent to the value at which the assets was first included in the RAB for TasNetworks.³¹

Table 5.3 AER's draft decision on TasNetworks' standard asset lives at 1 July 2017 (years)

Asset class	Standard asset life
Overhead subtransmission lines (urban)	50.0
Underground subtransmission lines (urban)	60.0
Urban zone substations	40.0
Rural zone substations	40.0
SCADA	10.0
Distribution switching stations (ground)	40.0
Overhead high voltage lines urban	35.0
Overhead high voltage lines rural	35.0
Voltage regulators on distribution feeders	40.0
Underground high voltage lines	60.0
Underground high voltage lines SWER	60.0
Distribution substations HV (pole)	40.0
Distribution substations HV (ground)	40.0
Distribution substations LV (pole)	40.0
Distribution substations LV (ground)	40.0
Overhead low voltage lines underbuilt urban	35.0
Overhead low voltage lines underbuilt rural	35.0
Overhead low voltage lines urban	35.0
Overhead low voltage lines rural	35.0
Underground low voltage lines	60.0
Underground low voltage common trench	60.0
HVST service connections	40.0
HV service connections	40.0
HV metering CA service connections	40.0
HV/LV service connections	40.0

³¹ NER, cl. 6.5.5(b)(1)–(2).

Business LV service connections	35.0
Business LV metering CA service connections	25.0
Domestic LV service connections	35.0
Domestic LV metering CA service connections	20.0
Emergency network spares	n/a
Motor vehicles	6.0
Minor assets	5.0
Non-system property	40.0
Spare parts	n/a
NEM assets	5.0
Business management systems	10.0
Land	n/a
Easements	n/a
Equity raising costs	41.0

Source: AER analysis.

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.

5.4.2 Remaining asset lives

We accept TasNetworks' proposal to use the 'year-by-year tracking' method for depreciating its existing assets consistent with the approach we approved in our recent decisions for the Victorian distributors. However, we do not accept TasNetworks' implementation of the approach in its proposed RFM, which is based on the 'average depreciation' method to calculate remaining asset lives at 1 July 2017. We have therefore established a separate depreciation model for TasNetworks to correctly implement the year-by-year tracking method to calculate the depreciation of its existing assets in this draft decision.

We consider that the year-by-year tracking method meets the requirements of the NER in that it:

- produces depreciation schedules that reflect the nature of the assets and their economic life³²
- ensures that total depreciation (in real terms) equals the initial value of the assets³³

³² NER, cl. 6.5.5(b)(1).

³³ NER, cl. 6.5.5(b)(2).

- allows the economic lives of existing assets to be consistent with those determined in previous decisions.³⁴

Depreciation methods for existing assets

In its regulatory proposal, TasNetworks proposed to adopt an alternative depreciation approach to the 'weighted average remaining life' method for calculating its regulatory (and tax) depreciation for its existing assets at 1 July 2017.³⁵ TasNetworks noted that in recent distribution determinations, the AER has approved a different depreciation method which recognises the specific timing of new capex. In our recent decisions for the Victorian distributors, SA Power Networks and Ergon Energy, we referred to this approach described by TasNetworks as the year-by-year tracking method.³⁶

Although TasNetworks proposed to use the year-by-year tracking method, it has not implemented this method correctly in its proposed RFM. We note that it has instead employed the average depreciation method in its proposed RFM to determine remaining asset lives to be used for depreciating existing assets at 1 July 2017. In an information request to TasNetworks, we sought clarification on which approach its proposal was seeking to adopt. In its response, TasNetworks confirmed that its proposal is to adopt the year-by-year tracking method for depreciating its existing assets, which it submitted is compliant with the NER. It also submitted that the average depreciation method is compliant with the NER. TasNetworks noted that following its review of the year-by-year tracking method recently approved for CitiPower (one of the Victorian distributors) it has no objection to applying the depreciation model that implements this method.³⁷

We do not agree that the average depreciation method is consistent with the NER as submitted by TasNetworks. We have previously considered the three approaches in detail in our decisions for the Victorian distributors, SA Power Networks and Ergon Energy, where we rejected the average depreciation method.³⁸

We note that all three approaches—average depreciation, weighted average remaining life and year-by-year tracking—implement straight-line depreciation. The average depreciation method uses a simple approximation (total asset value divided by annual

³⁴ NER, cl. 6.5.5(b)(3).

³⁵ TasNetworks, *Regulatory proposal 2017–19*, January 2016, p. 111

³⁶ AER, *Final decision SA Power Networks distribution determination - Attachment 5 - Regulatory depreciation*, October 2015, p.7; AER, *Final decision Ergon Energy distribution determination - Attachment 5 - Regulatory depreciation*, October 2015, p. 11; AER, *Preliminary decision Jemena distribution determination - Attachment 5 - Regulatory depreciation*, October 2015, p.6.

³⁷ TasNetworks, *Response to AER information request IR009 - Depreciation approach*, June 2016, pp. 6–7.

³⁸ AER, *Final decision SA Power Networks distribution determination - Attachment 5 - Regulatory depreciation*, October 2015, pp. 10–17; AER, *Final decision Ergon Energy distribution determination - Attachment 5 - Regulatory depreciation*, October 2015, pp. 10–17; AER, *Preliminary decision CitiPower distribution determination - Attachment 5 - Regulatory depreciation*, October 2015, pp. 14–22; AER, *Preliminary decision Powercor distribution determination - Attachment 5 - Regulatory depreciation*, October 2015, pp. 15–22; AER, *Preliminary decision Jemena distribution determination - Attachment 5 - Regulatory depreciation*, October 2015, pp. 12–19.

depreciation in the final year of the previous period) to project future depreciation. In contrast, the other two methods have more explicit regard for the age of assets in the asset class. The key difference is that the weighted average remaining life method makes one depreciation calculation for all assets in an asset class, but the year-by-year tracking method performs multiple depreciation calculations within each asset class, disaggregating assets by year of expenditure. All three approaches ensure that the initial capital investment is recovered (in real terms), without over or under recovery and so they conform with clause 6.5.5(b)(2) of the NER. However, the three approaches differ with regard to the fulfilment of clause 6.5.5(b)(1) of the NER:³⁹

- The average depreciation method consistently overestimates annual depreciation (because it underestimates remaining asset lives), and so the initial capital investment is recovered earlier than the expected economic life. We consider that this approach does not meet the requirement of clause 6.5.5(b)(1). This is because the average depreciation method brings forward a proportion of the assets' depreciation so that it is received earlier than the underlying economic life of the assets. The resulting depreciation schedules will reflect asset lives that are shorter than the standard asset lives assigned to the assets when capex is incurred.
- The year-by-year tracking method meets the requirement of clause 6.5.5(b)(1). This is because the depreciation received each year will reflect the underlying economic life of the assets. The resulting depreciation schedules will reflect the standard asset lives assigned to the assets when capex is incurred.
- The weighted average remaining life method also meets the requirement of clause 6.5.5(b)(1). This is because the depreciation received over the life of the assets will reflect the underlying economic life of the assets. Like the average depreciation method, there will be some years where depreciation is received earlier than the underlying economic life of the assets. However, there will also be some years where depreciation is received later than the underlying economic life of the assets. These two effects will exactly offset each other. In aggregate, across the life of the assets, the resulting depreciation schedules will reflect the standard asset lives assigned to the assets when capex is incurred.

Overall, the outcome under the year-by-year tracking method means TasNetworks will receive a lower amount of depreciation than it proposed for the 2017–19 regulatory control period. This is largely because of two existing asset classes which are due to expire in the first year of the 2017–19 regulatory control period (subject to revised capex forecasts).

Although we have accepted the year-by-year tracking method for TasNetworks, we maintain our preference for the weighted average remaining life method, which is our standard approach used in other decisions. We hold this preference because this method:

³⁹ Clause 6.5.5(b)(1) of the NER requires the depreciation schedule must depreciated 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.

- meets the requirements of the NER, in that it produces depreciation schedules that align with the economic life of the assets
- avoids the additional complexity inherent in the year-by-year tracking method, which brings with it additional administration costs and increased risk of error
- reduces the variability in depreciation schedules that may arise under year-by-year tracking.

The year-by-year tracking depreciation model

As discussed above, the year-by-year tracking method is different to the other approaches. Under the year-by-year tracking method:

- assets in existence at 1 July 2012 are depreciated by asset class using straight-line depreciation with the remaining asset lives as approved in the 2012 final decision
- capex in each year of the 2012 to 2017 regulatory control period is grouped by asset classes and separately depreciated over their standard asset lives as approved in the 2012 final decision.

Each asset class will now have an expanding list of sub-classes to reflect every regulatory year in which capital expenditure on those assets was incurred. This extra data helps track remaining asset values, lives and associated depreciation. The year-by-year tracking method is more disaggregated, compared with the other approaches, and involves multiple depreciation calculations within each asset class, separately tracking capex by the regulatory year it was incurred. For this reason, it does not combine capex incurred during 2012 to 2017 with existing assets in 2012, and so does not require average remaining asset lives to be estimated at 1 July 2017.

We have set up a separate depreciation model for TasNetworks to implement the year-by-year tracking method to determine the depreciation on existing assets as at 1 July 2017. This model depreciates assets acquired prior to 1 July 2012 using the remaining asset lives approved in the 2012 final decision.⁴⁰ It separately depreciates each year's capex from 1 July 2012, using the standard asset life for the particular asset class. Each year's capex effectively becomes a separate asset sub-class. The total depreciation amounts for each year from this model are then included (by way of hardcoding the outputs from the depreciation model) directly into the PTRM.

As discussed in attachment 2, we have determined that forecast depreciation, rather than actual depreciation, will be used to roll forward the RAB over the 2017–19 regulatory control period. The adoption of a forecast depreciation approach in the RAB roll forward will create some distortion in the depreciation of disaggregated asset sub-classes, which can reduce the benefit of year-by-year tracking (particularly for short lived assets). For example, a particular year's forecast capex may prove to be much greater than actual capex. In this case, the asset sub-class will have its value

⁴⁰ NER, cl. 6.5.5(b)(3).

depreciated by more than the asset sub-class' forecast depreciation would have suggested had actual capex been known at the time. The depreciation amount of the asset sub-class in future years will then be relatively lower to offset this over-depreciation early in the asset's life.

Forecast depreciation, coupled with the greater disaggregation of capital expenditures under year-by-year tracking, will also increase the prospect of negative asset sub-classes at the end of the regulatory control period. This would occur where actual capex was much lower than forecast for a particular year so that actual capex was less than the forecast depreciation allowance. When negative asset classes emerge at the end of the regulatory control period, we consider these amounts should be returned to customers over the next regulatory control period.⁴¹ To the extent this situation occurs, we will consider it further as part of our assessment of TasNetworks' proposed depreciation schedules at the next regulatory determination.

⁴¹ Offsetting any negative closing asset sub-class value against another sub-class with a positive value within the same asset class would undermine the core reason year-by-year tracking is proposed. That is, to more accurately reflect the remaining asset lives of disaggregated asset sub-classes.