DRAFT DECISION

TasNetworks
Transmission Determination
2019 to 2024

Attachment 4
Regulatory depreciation

September 2018

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's draft decision on TasNetworks' 2019–24 transmission determination. It should be read with all other parts of the draft decision.

The draft decision includes the following attachments:

Overview

Attachment 1 – maximum allowed revenue

Attachment 2 – regulatory asset base

Attachment 3 – rate of return

Attachment 4 – regulatory depreciation

Attachment 5 – capital expenditure a

Attachment 6 – operating expenditure

Attachment 7 – corporate income tax

Attachment 8 – efficiency benefit sharing scheme

Attachment 9 – capital expenditure sharing scheme

Attachment 10 – service target performance incentive scheme

Attachment 11 – pricing methodology

Attachment 12 – pass through events

Contents

Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	annual service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CCP13	Consumer Challenge Panel, sub panel 13
CESS	capital expenditure sharing scheme
CPI	consumer price index
DRP	debt risk premium
DMIAM	demand management innovation allowance (mechanism)
DMIS	demand management incentive scheme
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
F&A	framework and approach
MAR	maximum allowed revenue
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

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
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
TNSP	transmission network service provider
TUoS	transmission use of system
WACC	weighted average cost of capital

4 Regulatory depreciation

Regulatory 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 TasNetworks, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for TasNetworks' 2019–24 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 TasNetworks' regulatory depreciation allowance. It also presents our draft decision on the proposed depreciation schedules, including an assessment of the proposed asset lives used for calculating the straight-line depreciation.

4.1 Draft decision

We determine a regulatory depreciation allowance of $123.5 million ($nominal) for TasNetworks for the 2019–24 regulatory control period. TasNetworks proposed a regulatory depreciation allowance of $124.8 million ($nominal). This represents a reduction of $1.3 million (or 1.0 per cent) on the proposed amount. This reduction occurs mainly as a consequence of our determinations on other components of TasNetworks' proposal that affect the forecast regulatory depreciation allowance. Specifically, they relate to:

- the opening RAB as at 1 July 2019 (attachment 2)
- forecast capital expenditure (attachment 5) including its effect on the projected RAB over the 2019–24 regulatory control period.[2]

For our draft decision on TasNetworks' regulatory depreciation:

- we accept TasNetworks' proposed straight-line method used to calculate the regulatory depreciation allowance.
- we accept TasNetworks' proposed asset classes and standard asset lives for its existing asset classes. This is because they are consistent with those approved at the 2014–19 transmission determination and largely comparable to the standard asset lives used by other TNSPs. However, we did not retain the proposed new 'Business Management Systems' asset class and the proposed standard asset life of 10 years for this asset class in the post-tax revenue model (PTRM). This is because TasNetworks has not allocated any proposed capex to this asset class.

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1 NER, cll. 6A.5.4 and 6A.14.1.

2 Capex enters the RAB net of forecast disposals. 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 updates made to the WACC for the 2019–24 regulatory control period.

Therefore, no standard asset life is required for this asset class. We consider our decision on TasNetworks' standard asset lives would lead to a depreciation schedule that reflects the nature of the assets over their economic lives (section 4.4.1).[3]

- 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 other regulated businesses.[4] However, we have made changes in the proposed year-by-year tracking depreciation model to fully depreciate small residual asset values as at 1 July 2019. We have also updated the latest CPI and WACC values in the depreciation model which were not available at the time of the initial proposal.

Table 4.1 sets out our draft decision on the annual regulatory depreciation allowance for TasNetworks' 2019–24 regulatory control period.

Table 4.1 AER's draft decision on TasNetworks' depreciation allowance for the 2019–24 regulatory control period ($million, nominal)

	2019–20	2020–21	2021–22	2022–23	2023–24	Total
Straight-line depreciation	53.9	58.3	61.6	65.9	69.6	309.3
Less: inflation indexation on opening RAB	35.8	36.2	37.2	38.1	38.4	185.7
Regulatory depreciation	**18.1**	**22.1**	**24.4**	**27.8**	**31.2**	**123.5**

Source: AER analysis.

4.2 TasNetworks' proposal

For the 2019–24 regulatory control period, TasNetworks proposed a forecast regulatory depreciation allowance of $124.8 million ($nominal). To calculate the depreciation allowance, TasNetworks proposed to use:[5]

- the straight-line depreciation method employed in the AER's PTRM
- the opening RAB value as at 1 July 2019 calculated by applying the AER's roll forward model (RFM)

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3 NER, cl. 6A.6.3(b)(1).

4 AER, *Final decision: ElectraNet transmission determination 2018-23 – Attachment 5 – Regulatory depreciation*, April 2018, p. 7; AER, *Final decision: AusNet Services transmission determination 2017-22 – Attachment 5 – Regulatory depreciation*, April 2017, p. 8; AER, *Draft decision: TasNetworks distribution determination 2017-19 – Attachment 5 – Regulatory depreciation*, April 2017, pp. 18–21; AER, *Final decision: Jemena distribution determination 2016-20 – Attachment 5 – Regulatory depreciation*, May 2016, pp. 11–13; AER, *Final decision: AusNet Services distribution determination 2016-20 – Attachment 5 – Regulatory depreciation*, May 2016, pp. 10–14.

5 TasNetworks, *Transmission and distribution regulatory proposal 2019–24*, January 2018, pp. 164–165.

- a separate year-by-year tracking depreciation model, which implements the straight-line depreciation approach and is consistent with the approach adopted for its distribution network
- proposed forecast capex for the 2019–24 regulatory control period[6]
- an expected inflation rate of 2.45 per cent for the 2019–24 regulatory control period
- the asset classes and standard asset lives for the 2019–24 regulatory control period which are consistent with those approved in the 2014–19 transmission determination.
- a new asset class – 'Business Management Systems' with a standard asset life of 10 years.

Table 4.2 sets out TasNetworks' proposed depreciation allowance for the 2019–24 regulatory control period.

Table 4.2 TasNetworks' proposed depreciation allowance for the 2019–24 regulatory control period ($million, nominal)

	2019–20	2020–21	2021–22	2022–23	2023–24	Total
Straight-line depreciation	54.6	58.6	62.0	66.7	71.2	313.2
Less: inflation indexation on opening RAB	36.0	36.5	37.6	38.8	39.4	188.3
Regulatory depreciation	**18.6**	**22.2**	**24.4**	**27.9**	**31.8**	**124.8**

Source: TasNetworks, *Post Tax Revenue Model (PTRM) Transmission,* January 2018.

4.3 Assessment approach

We determine the regulatory depreciation allowance using the PTRM as a part of a TNSP's annual building block revenue requirement.[7] 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.[8]

Our standard approach to calculating depreciation is to employ the straight-line method as set out in the PTRM. 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.[9] We must consider whether the proposed depreciation schedules conform to the following key requirements:

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6 TasNetworks, *Transmission regulated asset base and tax depreciation model,* January 2018.

7 NER, cll. 6A.5.4(a)(3) and 6A.5.4(b)(3).

8 NER, cl. 6A.6.3(a).

9 This is the standard practice for the AER, as well as other jurisdictional regulators. See for example, IPART, *Cost building block model template*, 20 June 2014, Table 1; ERAWA, *Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network*, September 2012, Appendix 2: Target Revenue Calculation (Revenue Model).

- 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.[10]
- The sum of the real value of the depreciation 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 transmission system.[11]

To the extent that a TNSP's revenue proposal does not comply with the above requirements, we must determine the depreciation schedules for calculating the depreciation for each regulatory year.[12]

The regulatory depreciation allowance is an output of the PTRM. We therefore assess TasNetworks' proposed regulatory depreciation allowance by analysing the proposed inputs to the PTRM for calculating that allowance. The key inputs include:

- the opening RAB as at 1 July 2019
- the forecast net capex in the 2019–24 regulatory control period[13]
- 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 2019—calculated in a separate year-by-year tracking depreciation model (depreciation model).

Our draft decision on TasNetworks' regulatory depreciation allowance reflects our determinations on the opening RAB as at 1 July 2019, expected inflation and forecast capex (the first three building block components in the above list).[14] Our determinations on these components of TasNetworks' proposal are discussed in attachments 2, 3 and 5 respectively.

In this attachment, we assess TasNetworks' proposed standard asset lives against:

- the approved standard asset lives in the transmission determination for the 2014–19 regulatory control period
- the standard asset lives of comparable asset classes approved in our recent transmission determinations for other TNSPs.

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

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10 NER, cl. 6A.6.3(b)(1).

11 NER, cl. 6A.6.3(b)(2).

12 NER, cl. 6A.6.3(a)(2)(ii).

13 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 2019–24 regulatory control period.

14 Our final decision will update the opening RAB as at 1 July 2019 for revised estimates of actual capex and inflation.

remaining life approach.[15] The weighted average method rolls forward the remaining asset life for an asset class from the beginning of the previous regulatory control period. This method reflects the mix of assets within that asset class. It also 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 values of all assets are used as weights at the end of the period. However, TasNetworks has adopted an alternative approach—year-by-year tracking—to implement straight-line depreciation. We have therefore assessed whether this change of approach would meet the depreciation provisions of the NER, as discussed in section 4.4.1.

4.3.1 Interrelationships

The regulatory depreciation allowance is a building block component of the annual building block 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 (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.[17]

Ultimately, however, a TNSP can only recover the capex it has incurred on assets once. The depreciation allowance reflects how quickly the RAB is being recovered and 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.[18] The return on capital building block has to be calculated using a nominal rate of return (WACC) applied to the opening RAB.[19] As noted in attachment 1, the total annual building block 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.

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15 We consider this depreciation method to be a generally superior approach. The reasons are outlined in our decision on the roll forward model for electricity transmission network service providers. See AER, *Explanatory statement, Proposed amendment, Electricity transmission network service providers, Roll forward model*, August 2010, pp. 5–6.

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 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.

18 NER, cll. 6A.5.4(b)(1) and 6A.6.1(e)(3).

19 NER, cll. 6A.6.2(a) and 6A.6.2(d)(2).

To avoid this double compensation, we make an adjustment by subtracting the annual indexation gain on the RAB from the calculation of total revenue.[20] 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.[21] 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 (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 TNSP) and lower in the future—producing a steeper downward sloping profile of total revenue.[22] 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.[23] 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.

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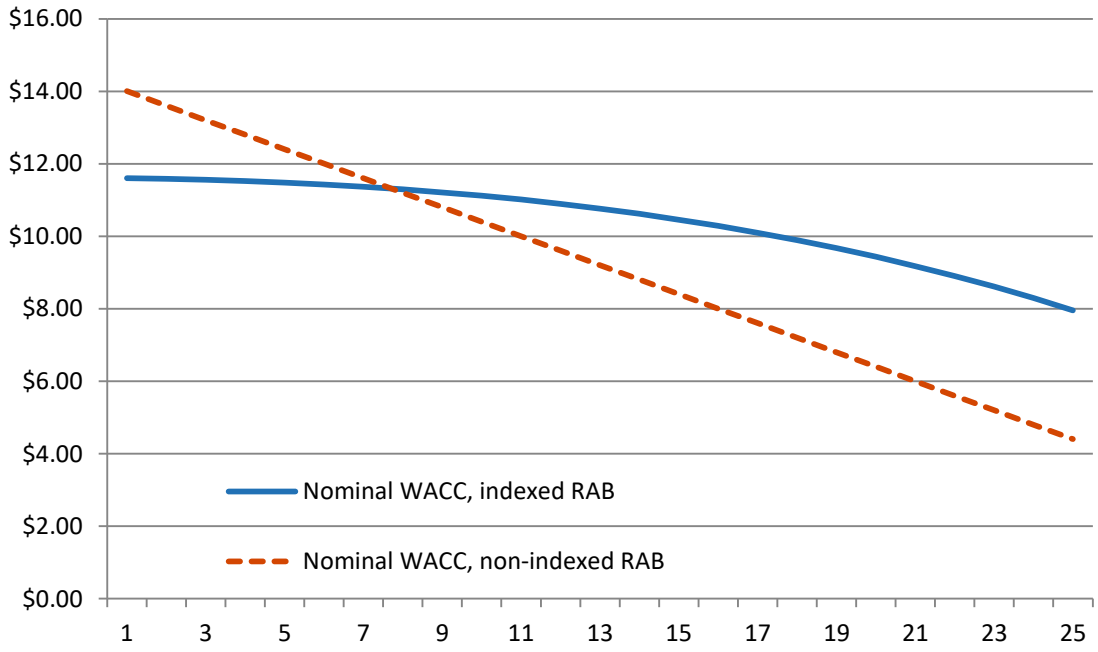
20 NER, cl. 6A.5.4(b)(1)(ii).

21 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.

22 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.

23 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.

Figure 4.1 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 ten per cent increase in the straight-line depreciation causes revenues to increase by about 4.5 per cent.

4.4 Reasons for draft decision

We accept TasNetworks' proposed straight-line depreciation method for calculating the regulatory depreciation allowance as set out in the PTRM and its depreciation model. We also accept TasNetworks' proposed asset classes and standard asset lives, except for the 'Business Management Systems' asset class.

However, we reduced TasNetworks' proposed forecast regulatory depreciation allowance for the 2019–24 regulatory control period by $1.3 million (or 1.0 per cent) to $123.5 million. This reduction mainly reflects our determinations regarding other components of TasNetworks' revenue proposal that affect the forecast regulatory depreciation allowance—the opening RAB as at 1 July 2019 (attachment 2) and forecast capital expenditure (attachment 5) including its effect on the projected RAB over the 2019–24 regulatory control period.[24] Our assessment of TasNetworks'

[24] 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 2019–24 regulatory control period.

proposed 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

TasNetworks proposed the year-by-year tracking approach to calculate the forecast straight-line depreciation amounts for asset values as at 1 July 2019. This represents a change from the current depreciation approach (employed in the 2014–19 regulatory control period) to determining remaining asset lives at the end of each regulatory control period. We accept that TasNetworks' 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[25]
- ensure that total depreciation (in real terms) equals the initial value of the assets[26]
- allow the economic lives of existing assets to be consistent with those determined on a prospective basis in our 2014–19 transmission determination.[27]

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

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

We have reviewed TasNetworks' year-by-year tracking depreciation model and updated the latest CPI and WACC values in the depreciation model which were not available at the time of the initial proposal. We have also made some changes in the depreciation model to ensure that any small residual asset values as at 1 July 2019 as calculated in the RFM are fully depreciated in the depreciation model.

In particular, we note that there are minor divergences in the asset values calculated between the depreciation model and the RFM due to different timing lag assumptions on inflation between the two models. As a consequence of this divergence, while some asset classes may have shown as fully depreciated in the depreciation model, the RFM may still calculate a small residual value for these asset classes. To correct this inconsistency, we have assigned a remaining life of 1 year in the depreciation model to

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25 NER, cl. 6A.6.3(b)(1).

26 NER, cl. 6A.6.3(b)(2).

27 NER, cl. 6A.6.3(b)(3).

ensure that any small residual values are fully depreciated in the first year of the 2019–24 regulatory control period.

4.4.2 Standard asset lives

We accept the majority of TasNetworks' proposed standard asset lives for its asset classes in respect of forecast capex to be commissioned in the 2019–24 regulatory control period. We note that TasNetworks' proposed standard asset lives are consistent with those approved in the 2014–19 determination and largely comparable with those used by other TNSPs for similar asset classes.[28] However, we did not retain the proposed new asset class for 'Business Management Systems' and the standard asset life of 10 years assigned for this asset class in the PTRM. This is because TasNetworks has not proposed any forecast capex for this asset class during the 2019–24 regulatory control period. As a result, we are not required to assess the proposed standard asset life for this asset class for depreciation purposes. TasNetworks agreed with this amendment in its response to our information request on this matter.[29]

Table 4.3 sets out our draft decision on TasNetworks' standard asset lives for the 2019–24 regulatory control period. We are satisfied that:[30]

- the 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
- the sum of the real value of the depreciation attributable to the assets is equivalent to the value at which the assets was first included in the RAB for TasNetworks.

Table 4.3 AER's draft decision on TasNetworks' standard asset lives as at 1 July 2019 (years)

Asset class	Standard asset life
Transmission line assets – long life (60)	60.0
Transmission line assets – medium life (45)	45.0
Transmission line assets – short life (10)	10.0
Substation assets – long life (60)	60.0

[28] AER, *Final decision: Powerlink transmission determination 2017–22 – Overview*, April 2017, p. 24; AER, *Final decision: AusNet Services transmission determination 2017–22 – Attachment 5 – Regulatory depreciation*, April 2017, p. 14; AER, *Final decision: ElectraNet transmission determination 2018–23 – Attachment 5 – Regulatory depreciation*, April 2018, p. 8; AER, *Draft decision: TasNetworks transmission determination 2014–19 – Attachment 5 – Regulatory depreciation*, November 2014, pp. 14–15; AER, *Draft decision: TransGrid transmission determination 2018–23 – Attachment 5 – Regulatory depreciation*, September 2017, pp. 18–20.

[29] TasNetworks, *Response to information request #012 – Transmission RFM, PTRM & depreciation models,* April 2018.

[30] NER, cll. 6A.6.3(b)(1)–(2).

Substation assets – medium life (45)	45.0
Substation assets – short life (15)	15.0
Protection and control – short life (15)	15.0
Protection and control - short life (4)	4.0
Transmission operations – short life (10)	10.0
Transmission operations – short life (4)	4.0
Other – medium life (40)	40.0
Other – short life (9)	9.0
Other – short life (4)	4.0
Land and Easements[a]	n/a
Communication assets – long life (45)	45.0
Communication assets – medium life (10)	10.0
Communication assets – short life (5)	5.0
Equity raising costs[b]	n/a

Source: AER analysis; TasNetworks, *Post Tax Revenue Model (PTRM) Transmission*, 31 January 2018.

n/a: not applicable.

(a) We have not assigned a standard asset life to this asset class because the assets allocated to it are not subject to depreciation.

(b) For this draft decision, TasNetworks does not satisfy the requirements to incur benchmark equity raising costs associated with its forecast capex for the 2019–24 regulatory control period. Therefore, a standard asset life for equity raising costs is not required for the 2019–24 period.