Draft Decision

Endeavour Energy Electricity Distribution Determination 2024 to 2029

(1 July 2024 to 30 June 2029)

Attachment 4
Regulatory depreciation

September 2023

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 3131
Canberra ACT 2601
Tel: 1300 585 165

AER reference: AER212494

Amendment record

Version	Date	Pages
1	28 September 2023	12

Contents

4 Regulatory depreciation

Regulatory depreciation is the amount 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 Endeavour Energy (Endeavour), we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for Endeavour's 2024–29 regulatory control period.[1] The regulatory depreciation amount is the net total of the straight-line depreciation less the indexation of the RAB.

This attachment sets out our draft decision on Endeavour's regulatory depreciation amount. It also presents our draft decision on the proposed depreciation schedules, including an assessment of the proposed standard asset lives used for calculating straight-line depreciation.

4.1 Draft decision

We determine a regulatory depreciation amount of $1,126.8 million ($ nominal) for Endeavour for the 2024–29 period. Endeavour proposed a regulatory depreciation amount of $1,106.2 million ($ nominal).[2] Our draft decision represents an increase of $20.6 million (1.9%) from the proposed amount.

This increase is primarily the result of our draft decision on the expected inflation rate for the 2024–29 period (Attachment 3), which affects the projected RAB over this period. The indexation of the RAB is $42.7 million lower than the proposal, largely due to applying a lower expected inflation rate of 2.80% per annum in this draft decision compared to Endeavour's proposal of 2.87% per annum. However, straight-line depreciation is $22.1 million lower than the proposal, largely due to a lower opening RAB as at 1 July 2024 (Attachment 2). The lower RAB indexation has more than offset the decrease in straight-line depreciation (since indexation is deducted from straight-line depreciation).

For our draft decision on Endeavour's regulatory depreciation:

- We accept Endeavour's proposed straight-line depreciation method used to calculate the regulatory depreciation amount.
- We accept Endeavour's proposed application of the year-by-year tracking approach to implement straight-line depreciation of its existing assets, and its forecast capital expenditure (capex) (section 4.4.1).
- We accept Endeavour's proposed existing asset classes and standard asset lives. We also accept the proposed new asset classes for 'Short term leases' and 'Long term leases', and their standard asset lives (section 4.4.2).

---

1 Clause 6.12.1 of the National Electricity Rules (NER) sets out the 'constituent decisions' we must make as part of a distribution determination. We must decide whether or not to approve the depreciation schedules submitted by a Distribution Network Service Provider (cl. 6.12.1(8)). This is one of the building blocks we must use to determine the annual revenue requirement: cl. 6.4.3 of the NER.

2 Endeavour Energy, *0.04 Post-Tax Revenue Model,* January 2023.

We made determinations on other components of Endeavour's proposal which affect the forecast regulatory depreciation—for example, the opening RAB at 1 July 2024 (Attachment 2), expected inflation (Attachment 3), and forecast capex (Attachment 5) including its effect on the projected RAB over the 2024–29 period.[3]

Table 4.1 sets out our draft decision on the annual regulatory depreciation amount for Endeavour's 2024–29 period.

Table 4.1 AER's draft decision on Endeavour's forecast depreciation for the 2024–29 period ($million, nominal)

	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Straight-line depreciation	508.4	469.7	461.0	440.2	445.8	**2,325.1**
Less: inflation indexation on opening RAB	229.5	234.3	239.7	244.6	250.2	**1,198.3**
Regulatory depreciation	278.9	235.4	221.3	195.6	195.6	**1,126.8**

Source: AER analysis.

4.2 Endeavour's proposal

For the 2024–29 period, Endeavour proposed a total forecast regulatory depreciation amount of $1,106.2 million ($ nominal). To calculate the depreciation amount, Endeavour 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 2024 derived from the AER's roll forward model (RFM)
- the forecast capex for the 2024–29 period proposed by Endeavour
- an expected inflation rate of 2.87% per annum for the 2024–29 period
- the AER's year-by-year tracking depreciation module in the RFM, which implements the straight-line method to calculate the forecast depreciation (over the 2024–29 period) of the opening RAB at 1 July 2024
- the same asset classes and standard asset lives for depreciating its forecast capex for the 2024–29 period, which are consistent with those approved in the 2019–24 distribution determination. Endeavour proposed two new asset classes of 'Short term leases' and 'Long term leases' which covers leases pertaining to motor vehicle fleet and property leases over the 2024–29 period.

---

3 Capex enters the RAB net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year weighted average cost of capital (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 2024–29 period.

4 Endeavour Energy, *0.04 Post-Tax Revenue Model,* January 2023; Endeavour Energy, *0.05 Roll Forward Model*, January 2023.

Table 4.2 sets out Endeavour's proposed regulatory depreciation amount for the 2024–29 period.

Table 4.2 Endeavour's proposed regulatory depreciation for the 2024–29 period ($million, nominal)

	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Straight-line depreciation	512.9	474.0	465.3	444.6	450.4	2,347.2
Less: inflation indexation on opening RAB	237.5	242.5	248.2	253.4	259.3	1,240.9
Regulatory depreciation	**275.4**	**231.5**	**217.1**	**191.2**	**191.1**	**1,106.2**

Source: Endeavour Energy, *0.04 Post-Tax Revenue Model,* January 2023.

4.3 Assessment approach

We must determine the regulatory depreciation amount as part of determining a distributor's annual revenue requirement.[5] 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]

4.3.1 Approach to determining depreciation

Our standard approach to calculating depreciation is to employ the straight-line method 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.[7] We must consider whether the proposed depreciation schedules conform to the following key requirements:

- the schedules must 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) and (b)(3).

6 NER, cl. 6.5.5(a).

7 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).

AER, *Final decision: Electricity distribution network service providers – Post-tax revenue model handbook*, April 2021, p. 15.

AER, *Draft decision: AusNet Services transmission determination 2017-18 to 2021-22, Attachment 5 – Regulatory depreciation*, July 2016, p. 37.

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

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

To the extent that a distributor's regulatory proposal does not comply with the above requirements, we must determine the depreciation schedules for calculating the depreciation for each regulatory year.[10]

The regulatory depreciation amount is an output of the PTRM. We therefore assessed Endeavour's proposed regulatory depreciation amount by analysing the proposed inputs to the PTRM for calculating that amount. The key inputs include:

- the opening RAB at 1 July 2024
- the forecast net capex in the 2024–29 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 of existing assets in the opening RAB as at 1 July 2024—calculated in a separate year-by-year tracking depreciation module.

Our draft decision on Endeavour's regulatory depreciation amount reflects our determinations on the opening RAB at 1 July 2024, expected inflation rate and forecast capex (the first three building block components in the above list).[12] Our determinations on these components of Endeavour's proposal are discussed in Attachments 2, 3 and 5 respectively.

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

- the approved standard asset lives in the distribution determination for the 2019–24 period
- the standard asset lives of comparable asset classes approved in our recent distribution determinations for other service providers
- the appropriate economic lives of the assets.

Our regulatory models (RFM and PTRM) provide for two approaches for calculating the straight-line depreciation of existing assets:

- The 'weighted average remaining lives' (WARL) approach: This approach calculates the remaining asset life for an asset class by weighting together its remaining asset life at the beginning of the regulatory control period with the new capex added to the asset class during that period. The residual asset values are used as weights to calculate the remaining asset life at the end of that period. The WARL for the asset classes are calculated in our RFM and are inputs to the PTRM. We consider this approach meets

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 is adjusted for half-year weighted average cost of capital (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 2024–29 period.

12 Our final decision will update the opening RAB as at 1 July 2024 for revised estimates of actual capex and inflation.

the requirements for determining depreciation under the National Electricity Rules (NER).

- The 'year-by-year tracking' approach: Under this approach, the capex (in addition to grouping assets by type via asset classes) for each year of the regulatory control period is depreciated separately and tracked on a year-by-year basis over the assigned standard life for the asset class. This approach does not require the assessment of the remaining asset life at each five-yearly distribution determination. We consider this approach also meets the requirements for determining depreciation under the NER. Our depreciation tracking module in the RFM conducts the detailed calculations required under this approach. The output of this module is then recorded in the PTRM.

Endeavour has proposed to apply the year-by-year tracking approach to calculate the straight-line depreciation of its opening RAB as at 1 July 2024. Our assessment of Endeavour's proposed year-by-year tracking approach is discussed in section 4.4.1.

4.3.2 Interrelationships

The regulatory depreciation amount 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 amount, although this impact is usually smaller than the increased depreciation amount in the short to medium term.[14]

Ultimately, however, a distributor can only recover the capex that it incurs on assets once. The depreciation amount reflects how quickly the RAB is being recovered, and it is based on the 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 amount.

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 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, operating expenditure (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. Our standard approach is to subtract the indexation of the opening RAB—the opening RAB multiplied by the expected

---

13 The PTRM distinguishes between straight-line depreciation and regulatory depreciation, where regulatory depreciation is the straight-line depreciation less the indexation adjustment.

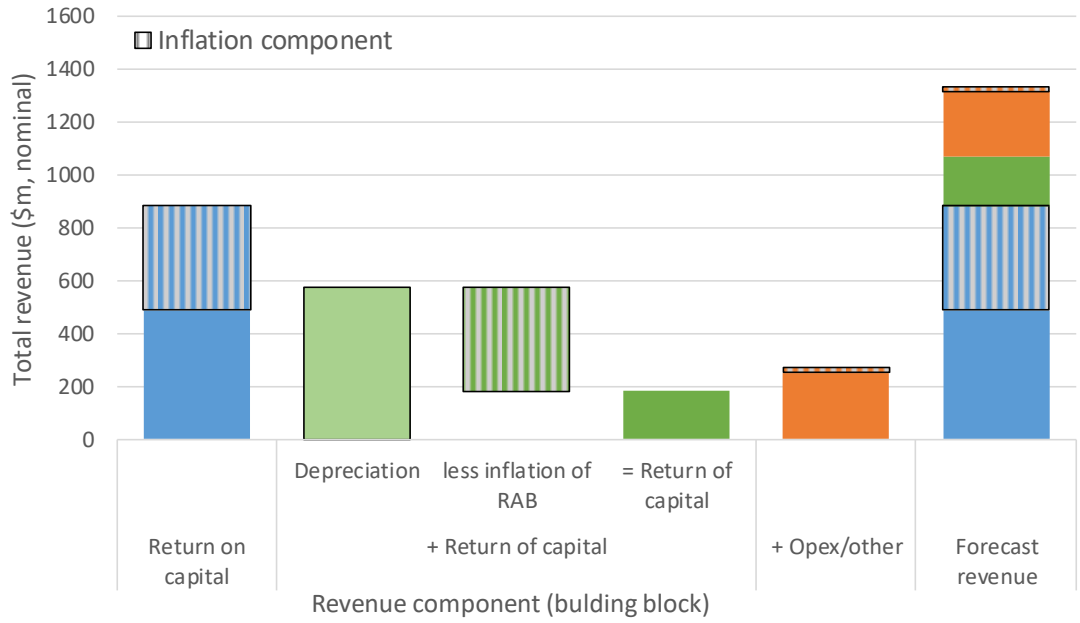
14 This is generally the case because the reduction in the RAB amount feeds into the higher depreciation building block, whereas the reduced return on capital building block is proportionate to the lower RAB multiplied by the WACC.

15 NER, cl. 6.2.3(c)(4).

16 AER, *Rate of return instrument*, cll. 1, 3, 36(c), February 2023.

inflation for the year—from the RAB depreciation. The net result of this calculation is referred to as regulatory depreciation.[17] 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. Figure 4.1 shows where the inflation components are included in the building block costs.

Figure 4.1 Inflation components in revenue building block – example



Source: AER analysis.

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 distributor) and lower in the future—producing a steeper downward sloping profile of total revenue.[18] Under both approaches, the total revenues being recovered are in present value neutral terms—that is, returning the initial cost of the RAB.

Figure 4.2 shows the recovery of revenue under both approaches using a simplified example.[19] 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-

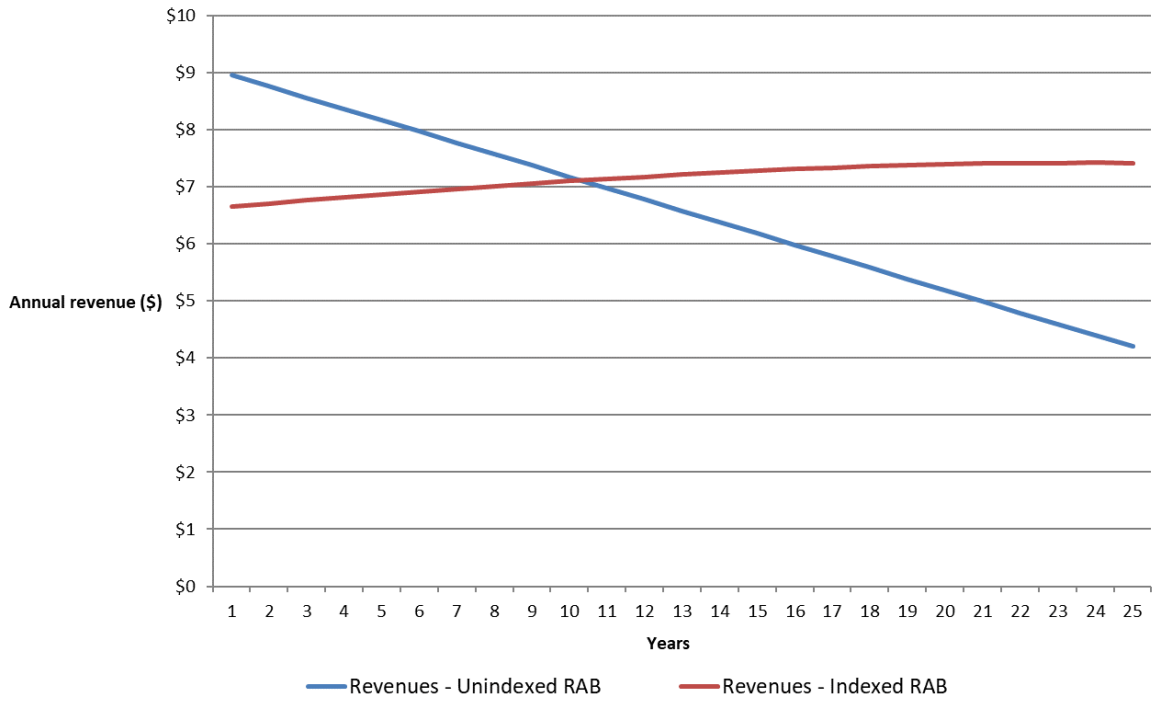
17 If the asset lives are extremely long, such that the RAB depreciation rate is lower than the inflation rate, then negative regulatory depreciation can emerge. The indexation adjustment is greater than the straight-line depreciation in such circumstances.

18 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 net present value (NPV) neutrality.

19 The example is based on the initial cost of an asset of $100, a standard economic life of 25 years, a real WACC of 2.5%, expected inflation of 2.4% and nominal WACC of 4.96%. Other building block components such as opex, tax and capex are ignored for simplicity as they would affect both approaches equally.

indexed. The indexation of the RAB also reduces prices shocks when the asset is replaced at the end of its life.[20]

Figure 4.2 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 Endeavour's proposal. A 10% increase in the straight-line depreciation causes unsmoothed revenues ($ nominal) to increase by about 4.5%.[21]

4.4 Reasons for draft decision

We accept Endeavour's proposed straight-line depreciation method for calculating the regulatory depreciation amount as set out in the PTRM. However, we increased Endeavour's proposed forecast regulatory depreciation amount for the 2024–29 period by $20.6 million (1.9%) to $1,126.8 million ($ nominal).

This increase is primarily the result of our draft decision on the calculation of a lower expected inflation rate (Attachment 3), which affects the projected RAB over the 2024–29 period. The magnitude of the increase, however, is reduced by our draft decision on the lower opening RAB as at 1 July 2024 (Attachment 2). Our assessment of Endeavour's

[20] In year 26, the revenues in the example for the un-indexed approach would jump from about $4 to $9, assuming the asset is replaced by an asset of roughly similar replacement cost as the initial asset. In contrast, in the same circumstances, the indexed approach would see revenues stay at roughly $7.

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

proposal to use the year-by-year tracking depreciation approach and standard asset lives are discussed in the following subsections.

4.4.1 Year-by-year tracking approach

Endeavour has proposed a change in approach to implementing the straight-line method for the calculation of its forecast regulatory depreciation amount. It proposed to change from the period-by-period approach[22] (approved for the 2019–24 period) to the year-by-year tracking approach going forward. We accept Endeavour's proposed year-by-year tracking approach as it meets the requirements of the NER. The current period-by-period tracking approach already includes some elements of tracking, and the impact of the change to year-by-year tracking is not material. We note that year-by-year tracking improves the matching of depreciation with the assets' underlying economic lives. Therefore, consistent with our assessment in amending our regulatory models,[23] our draft decision is to accept Endeavour's proposed change in approach as we consider that it results in depreciation schedules that meet the requirements of the NER by:[24]

- reflecting the nature of the assets and their economic life
- ensuring that total depreciation (in real terms) equals the initial value of the assets
- allowing the economic lives of existing assets to be consistent with those determined on a prospective basis in our 2019–24 distribution determination.

Endeavour used our depreciation module in the RFM to implement year-by-year tracking. We have reviewed Endeavour's application of this module and updated the following inputs to be consistent with the RFM:

- the actual CPI for 2022–23 with the 2022 December quarter CPI published by the Australian Bureau of Statistics, which became available after Endeavour submitted its proposal. The estimated CPI for 2023–24 has also been updated with the latest forecast inflation published in the Reserve Bank of Australia's August *Statement on Monetary Policy*
- the nominal vanilla weighted average cost of capital (WACC) for 2023–24 and equity raising costs. These updates are required to reflect the 2023–24 return on debt update in the PTRM for the 2019–24 period, which became available after Endeavour submitted its proposal
- the lease costs being rolled into the RAB at the end of the 2019–24 period to reflect more up-to date CPI and WACC values.

---

22 The period-by-period tracking approach creates separate asset classes for each regulatory control period, with the weighted average approach used to determine the remaining lives for the existing assets at the start of the period. Compared to the weighted average remaining lives method, period-by-period tracking improves the matching of depreciation with the assets' underlying economic lives.

23 AER, *Explanatory statement, Electricity transmission and distribution network service providers, Proposed amendments to the roll forward models (Distribution – version 3) (Transmission – version 4)*, December 2019, pp. 18–21; AER, *Final decision, Electricity transmission and distribution network service providers, Proposed amendments to the roll forward models (Distribution – version 3) (Transmission – version 4)*, April 2020, p. 11.

24 NER, cl. 6.5.5(b).

In its proposed RFM and depreciation module, Endeavour has kept separate the same asset classes for the pre-2014 and 2014–19 periods as the approved PTRM for the 2019–24 period. However, Endeavour has grouped together the same labelled asset classes for the pre-2014 and 2014–19 periods to create one set of asset classes in the proposed PTRM for the 2024–29 period. While the proposed grouping of asset classes does not affect the year-by-year depreciation calculation for the 2024–29 period, the proposed approach would affect the depreciation module at the next distribution determination for the 2029–34 period.[25] We have discussed this issue with Endeavour. We agreed that a better approach to implementing the year-by-year tracking approach is to keep the asset classes in the PTRM for the 2024–29 period disaggregated, consistent with the RFM and depreciation module. We note that this amendment in the PTRM does not affect the total forecast straight-line depreciation amount for the 2024–29 period, all else being equal.

4.4.2 Standard asset lives

We accept Endeavour's proposed standard asset lives for its existing asset classes in respect of the forecast capex to be incurred in the 2024–29 period. We also accept the proposed two new asset classes for capitalised leases and their standard asset lives.

We consider that Endeavour's proposed standard asset lives for existing asset classes remain appropriate for the 2024–29 period. This is because they are consistent with those approved for the 2019–24 period and are largely comparable with the standard asset lives used by other network businesses for similar asset classes.

Endeavour proposed two new asset classes for capitalised leases, to give effect to a change in accounting standards (AASB 16). The proposed new asset classes and the standard asset lives are:

- 'Short term leases' (5 years standard asset life) – This asset class covers Endeavour's motor vehicle fleet and office leases.
- 'Long term leases' (10 years standard asset life) – This asset class covers Endeavour's office lease.

We accept Endeavour's proposed two new asset classes for capitalised leases and their standard asset lives. We consider that the proposed standard asset lives reflect the expected duration of motor vehicle and office leases for Endeavour. Therefore, we are satisfied that the proposed standard asset lives reasonably reflect the nature of the assets over the expected economic lives of these asset classes.

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.[26] However, no equity raising

---

25 If the asset classes are grouped together for the 2024–29 period, the RAB and tax remaining life as at 2018–19 for each asset class will need to be recalculated to reflect the weighted average of the previous approved remaining lives for the purposes of the depreciation module at the next distribution determination. This is inconsistent with the year-by-year tracking approach.

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

costs have been determined in our draft decision modelling. This is because Endeavour does not satisfy the requirements to incur benchmark equity raising costs associated with the approved forecast capex. Accordingly, we record the standard asset life as not applicable in the PTRM for this draft decision.

Table 4.3 sets out our draft decision on Endeavour's standard asset lives for the 2024–29 period. We are satisfied that:[27]

- the standard asset lives and depreciation approach more broadly 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 were first included in the RAB for Endeavour.

[27] NER, cll. 6.5.5(b)(1)–(2).

Table 4.3 AER's draft decision on Endeavour's standard asset lives (years)

Asset class	Standard asset life
Land & easements	n/a
Sub-transmission lines and cables	47.4
Distribution lines and cables	50.6
Substations	40.0
Transformers	44.3
Low voltage lines and cables	52.4
Customer metering and load control	25.0
Communication	8.4
Emergency spares (Major plant, excludes inventory)	23.6
Information & communication technology	5.0
Furniture, fittings, plant and equipment	13.0
Motor vehicles	8.0
Short term leases	5.0
Long term leases	10.0
Buildings (System)	40.0
Buildings (Non system)	50.0
In-house software	5.0
Equity raising costs[a]	n/a

Source: AER analysis.
n/a not applicable. We have not assigned a standard asset life to the 'Land & easements' asset class because the capex allocated to this asset class is not subject to depreciation.
(a) For this draft decision, the forecast capex determined for Endeavour does not meet a level to trigger any benchmark equity raising costs and is therefore not assigned a standard asset life.

Shortened forms

Term	Definition
AASB	Australian Accounting Standards Board
AER	Australian Energy Regulator
capex	capital Expenditure
CPI	consumer price index
NPV	net present value
NER	National Electricity Rules
opex	operating expenditure
PTRM	post-tax revenue model
RAB	regulatory asset base
RFM	roll forward model
WACC	weighted average cost of capital
WARL	weighted average remaining lives