

Draft Decision

**Power and Water Corporation
Electricity Distribution
Determination 2024 to 2029
(1 July 2024 to 30 June 2029)**

**Attachment 4
Regulatory depreciation**

September 2023

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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 Power and Water Corporation, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for Power and Water Corporation’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 Power and Water Corporation’s regulatory depreciation. It also presents our draft decision on the proposed depreciation schedules, including an assessment of the proposed standard asset lives used for forecasting depreciation.

4.1 Draft decision

We determine a regulatory depreciation amount of \$206.0 million (\$ nominal) for Power and Water Corporation for the 2024–29 period. Power and Water Corporation proposed a regulatory depreciation amount of \$204.9 million (\$ nominal).² Our draft decision represents an increase of \$1.1 million (0.5%) on the proposed amount.

This change reflects the net impact of our draft decision on the expected inflation rate for the 2024–29 period (Attachment 3), which affects the projected RAB over this period, and straight-line depreciation. Indexation of the RAB is \$12.1 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 Power and Water Corporation’s proposal of 2.92% per annum. However, straight-line depreciation is also \$11.0 million (2.7%) lower than the proposal mainly due to a lower forecast capital expenditure (capex) (Attachment 5). The lower RAB indexation has slightly offset the decrease in straight-line depreciation leading to a slightly higher regulatory depreciation amount (since indexation is deducted from straight-line depreciation).

For our draft decision on Power and Water Corporation’s regulatory depreciation:

- We accept Power and Water Corporation’s proposed straight-line depreciation method used to calculate the regulatory depreciation amount.
- We accept Power and Water Corporation’s proposal to continue applying the year-by-year tracking approach to implement straight-line depreciation of its existing assets, and its forecast capex (section 4.4.1).
- We accept most of Power and Water Corporation’s proposed existing asset classes and standard asset lives. We have extended the standard asset life for its ‘Property leases’

¹ Clause 6.12.1 of the Northern Territory National Electricity Rules (NT 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 NT NER.

² PWC, 10.02 - 2024-29 SCS PTRM - 31 Jan 2023 - Public.

asset class by 5 years to reflect our draft decision on forecast capex (attachment 5). We also accept the proposed new asset class for ‘Batteries’ and its standard asset life (section 4.4.2).

We made determinations on other components of Power and Water Corporation’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 Power and Water Corporation’s 2024–29 period.

Table 4.1 AER’s draft decision on Power and Water Corporation’s forecast depreciation for the 2024–29 period (\$million, nominal)

	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Straight-line depreciation	71.4	74.4	79.0	86.3	91.1	402.2
Less: inflation indexation on opening RAB	35.6	37.5	39.5	41.3	42.2	196.2
Regulatory depreciation	35.8	36.8	39.5	45.0	48.9	206.0

Source: AER analysis.

4.2 Power and Water Corporation’s proposal

For the 2024–29 period, Power and Water Corporation proposed a total forecast regulatory depreciation amount of \$204.9 million (\$ nominal). To calculate the depreciation amount, Power and Water Corporation 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 Power and Water Corporation
- an expected inflation rate of 2.92% 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, with the exception of the standard asset lives for the ‘Fleet leases’ and ‘Property leases’ asset classes. Power and Water Corporation proposed

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 2021–26 regulatory control period.

⁴ PWC, 10.02 - 2024-29 SCS PTRM - 31 Jan 2023 - Public.

amended standard asset lives for these asset classes which reflect the average life of leases expected to be entered over the 2024–29 period. The ‘Fleet leases’ standard asset life has increased from 5.7 to 10 years and the ‘Property leases’ standard asset life has decreased from 15.8 to 4.5 years. It also recalculated its standard asset life for equity raising costs to reflect the mix of forecast capex.

- a new asset class for ‘Batteries’ to be included in the PTRM with a standard asset life of 10 years. However, its proposal did not include any forecast capex on batteries for the 2024–29 period, but that it is exploring potential battery investments.

Table 4.2 sets out Power and Water Corporation’s proposed regulatory depreciation amount over the 2024–29 period.

Table 4.2 Power and Water Corporation’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	72.0	75.4	80.6	88.9	96.2	413.2
Less: inflation indexation on opening RAB	37.4	39.5	41.7	43.5	46.2	208.2
Regulatory depreciation	34.6	36.0	39.0	45.4	49.9	204.9

Source: PWC, 10.02 - 2024-29 SCS PTRM - 31 Jan 2023 - Public.

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:

⁵ NT NER, cl. 6.4.3(a)(3) and (b)(3).

⁶ NT 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.

- 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 assets⁸
- 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

To the extent that a distributor’s revenue proposal does not comply with the above requirements, then we must determine the depreciation schedules for the purpose of calculating the depreciation for each regulatory year.¹⁰

The regulatory depreciation amount is an output of the PTRM. We therefore assessed Power and Water Corporation’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 period¹¹
- 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 2024—calculated in a separate year-by-year tracking depreciation model.

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

In this attachment, we assess Power and Water Corporation’s proposed standard asset lives against:

- the approved standard asset lives in the distribution determination for the 2019–24 regulatory control 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.

⁸ NT NER, cl. 6.5.5(b)(1).

⁹ NT NER, cl. 6.5.5(b)(2).

¹⁰ NT NER, cl. 6.5.5(a)(2)(ii).

¹¹ Capex enters the RAB net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Our draft decision on the RAB (Attachment 2) also reflects our updates to the WACC for the 2024–29 regulatory control period.

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

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 the requirements for determining depreciation under the National Electricity Rules – Northern Territory (NT 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 NT 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.

Power and Water Corporation has proposed to continue to apply the year-by-year tracking approach approved in the 2019–24 distribution determination to calculate the straight-line depreciation of its opening RAB as at 1 July 2024. Our assessment of Power and Water Corporation’s proposed implementation of the year-by-year tracking approach is discussed in section 4.4.1.

4.3.2 Interrelationships

The regulatory depreciation 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 increasing 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

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

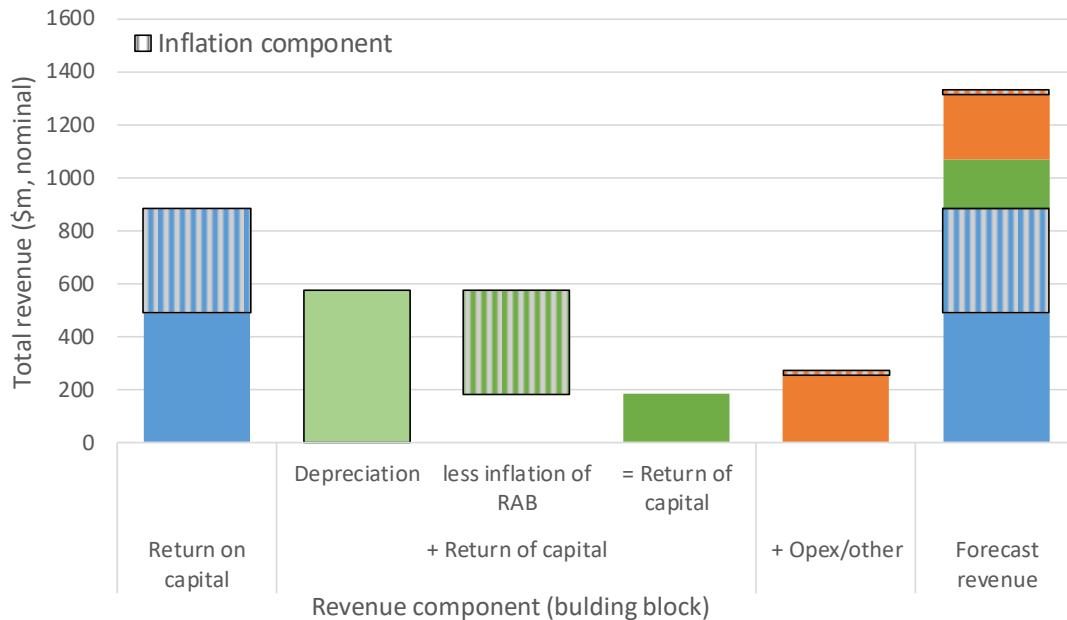
¹⁴ This is generally the case because the reduction in the RAB amount feeds into the higher depreciation building block, whereas the reduced return on capital building block is proportionate to the lower RAB multiplied by the WACC.

¹⁵ NT NER, cl. 6.2.3(c)(4).

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 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—

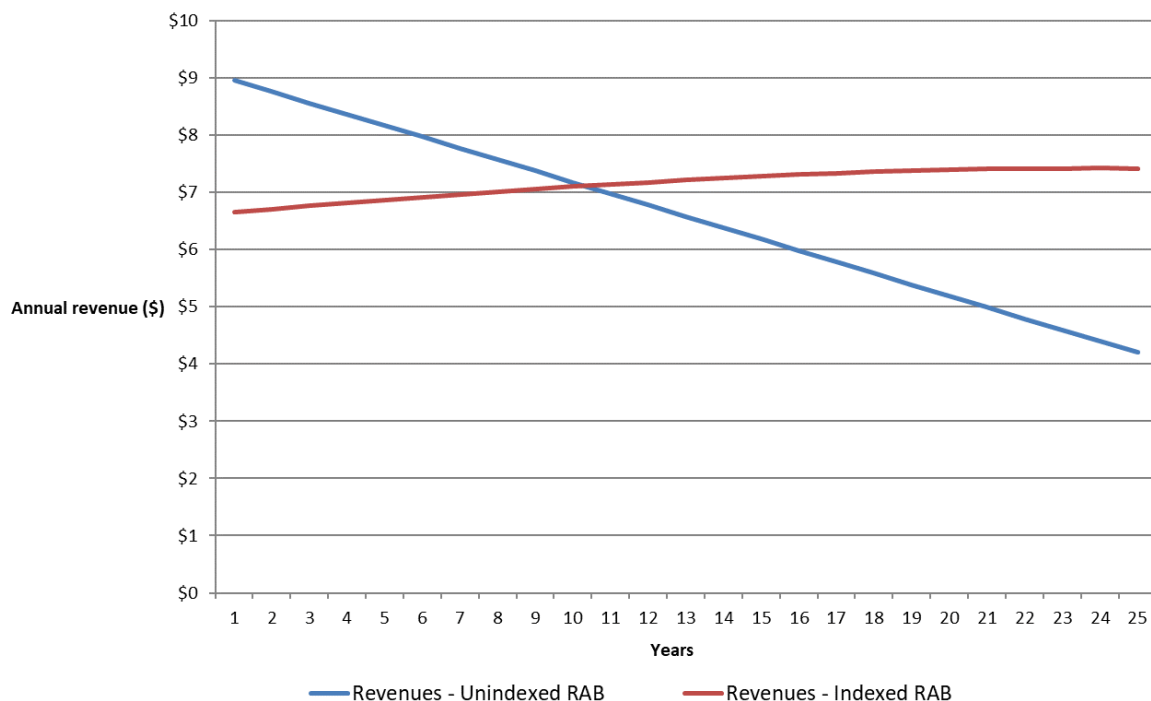
¹⁶ AER, *Rate of return instrument*, cl. 1, 3, 36(c), February 2023.

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 RAB depreciation in such circumstances.

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-indexed. The indexation of the RAB also reduces price 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 Power and Water Corporation’s proposal. A 10% increase in the straight-line depreciation causes unsmoothed revenues (\$ nominal) to increase by about 3.7%.²¹

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.

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 Power and Water Corporation’s proposal PTRM.

4.4 Reasons for draft decision

We accept Power and Water Corporation’s proposed straight-line depreciation method for calculating the regulatory depreciation amount as set out in the PTRM. However, we increased Power and Water Corporation’s proposed forecast regulatory depreciation amount for the 2024–29 period by \$1.1 million (0.5%) to \$206.0 million (\$ nominal).

This change reflects the net impact of our draft decision on the expected inflation rate for the 2024–29 period (Attachment 3), which affects the projected RAB over this period, and straight-line depreciation. Indexation of the RAB is \$12.1 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 Power and Water Corporation’s proposal of 2.92% per annum. However, straight-line depreciation is also \$11.0 million (2.7%) lower than the proposal mainly due to a lower forecast capex (Attachment 5). The lower RAB indexation has slightly offset the decrease in straight-line depreciation leading to a slightly higher regulatory depreciation amount (since indexation is deducted from straight-line depreciation).

Our assessment of Power and Water Corporation’s proposal to continue using the year-by-year tracking depreciation approach and proposed standard asset lives are discussed in the following subsections.

4.4.1 Year-by-year tracking approach

Power and Water Corporation proposed to continue using the year-by-year tracking approach for calculating depreciation of its existing assets, consistent with that approved for the 2019–24 determination.²²

For our draft decision, we accept Power and Water Corporation’s proposed year-by-year tracking approach meets the requirements of the NT NER in that it will result in depreciation schedules that:²³

- reflect the nature of the assets and their economic life
- ensure that total depreciation (in real terms) equals the initial value of the assets
- allow the economic lives of existing assets to be consistent with those determined on a prospective basis in our 2019–2024 distribution determination.

Power and Water Corporation used our depreciation module in the RFM to implement year-by-year tracking. We have reviewed Power and Water Corporation’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 Power and Water Corporation 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*

²² AER, *Power & Water Corporation 2019-24 - Final decision - Attachment 4 - Regulatory depreciation*, April 2019, p. 6.

²³ NER. cl. 6.5.5(b).

- the nominal vanilla weighted average cost of capital (WACC) for 2023–24 to reflect the 2023–24 return on debt update in the PTRM for the 2019–24 period, which became available after Power and Water Corporation submitted its proposal
- the value of corporate assets being rolled into the RAB at the end of the 2019–24 period to reflect more up-to date CPI values.

4.4.2 Standard asset lives

We accept most of Power and Water Corporation’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 new asset class for ‘Batteries’ and its standard asset life. However, we have extended the standard asset life for its ‘Property leases’ asset class by 5 years to reflect our draft decision on forecast capex (attachment 5).

We consider that Power and Water Corporation’s proposed standard asset lives for most of its existing asset classes are appropriate. This is because—with the exception of ‘Property leases’ and ‘Fleet leases’—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. We accept its revised standard asset life for its ‘Fleet leases’ asset class because we consider it reflects the weighted average terms of leases expected to be entered over the 2024–29 period. However, we do not accept Power and Water Corporation’s proposed revision to the standard asset life for its ‘Property leases’ asset class.

Power and Water Corporation proposed to reduce its standard asset life for the ‘Property leases’ asset class from 15.8 to 4.5 years to reflect its proposal to consolidate key business services and support functions into a single site. This proposal would shorten the expected lease renewal at the Mitchell Centre to 5 years (rather than the current 10 year term). Our draft decision does not accept Power and Water Corporation’s proposed single site consolidation project capex.²⁴ As a result, we expect that Power and Water Corporation would need to continue to lease the Mitchell Centre for an additional 5 year lease period. Consistent with this capex draft decision, we also increase the proposed standard asset life for the ‘Property leases’ asset class by 5 years—to 9.7 years.

We accept Power and Water Corporation’s new asset class for ‘Batteries’ and proposed standard asset life of 10 years. We consider that this standard asset life generally reflects the economic life of grid scale batteries.²⁵ However, no forecast capex on batteries has been included in Power and Water Corporation’s proposal for the 2024–29 period. Power and Water Corporation submitted that this asset class may be required as it is exploring potential battery investment.

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

²⁴ AER, *PWC 2024-29 - Draft Decision - Attachment 5 - Capital Expenditure*, September 2023.

²⁵ This is consistent with our draft decision for Essential Energy, see AER, *Draft decision, Essential Energy electricity distribution determination 2024 to 2029, Attachment 4 Regulatory depreciation*, September 2024, p. 13.

equity raising cost benchmark is associated with that forecast.²⁶ However, no equity raising cost have been determined in our draft decision modelling. This is because Power and Water Corporation 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 Power and Water Corporation’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 Power and Water Corporation.

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.

²⁷ NT NER, cl. 6.5.5(b)(1)–(2).

Table 4.3 AER’s draft decision on Power and Water Corporation’s standard asset lives for the 2024–29 period

Asset class	Standard asset life
Substations	42.0
Distribution lines	55.5
Transmission lines	56.5
LV services	55.8
Distribution substations	45.0
Distribution switchgear	52.4
Protection	42.0
SCADA	23.0
Communications	13.4
Land and easements	n/a
Property	40.0
IT and communications	11.9
Motor vehicles	14.3
Plant and Equipment	13.6
Property leases	4.5
Fleet leases	7.0
Batteries	10.0
Buildings	40.0
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 and easements’ asset class because the capex allocated to it is not subject to depreciation.

(a) For this draft decision, the forecast capex determined for Power and Water Corporation 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
AER	Australian Energy Regulator
capex	capital expenditure
CPI	consumer price index
NT NER	National Electricity Rules – Northern Territory
NPV	net present value
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
