Draft Decision

Murraylink Transmission Determination 2023 to 2028

(1 July 2023 to 30 June 2028)

Attachment 4
Regulatory depreciation

September 2022

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

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

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Note

This attachment forms part of the AER's draft decision on Murraylink's 2023–28 transmission determination. It should be read with all other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – Maximum allowed revenue

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 6 – Operating expenditure

Attachment 7 – Corporate income tax

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 – Negotiated services

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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 Murraylink, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for Murraylink's 2023–28 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 Murraylink's regulatory depreciation amount. 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 amount of $25.1 million ($ nominal) for Murraylink for the 2023–28 period. Murraylink proposed a regulatory depreciation amount of $25.5 million ($ nominal).[2] Our draft decision represents a decrease of $0.4 million (1.5%) on the proposed amount.

This decrease is primarily the result of our draft decision on the calculation of expected inflation (Attachment 3)[3], which affects the projected RAB over the 2023–28 period. Indexation of the RAB is $5.8 million higher than the proposal, largely due to applying a higher expected inflation rate of 3.0% per annum in this draft decision compared to Murraylink's proposal of 2.37%. However, straight-line depreciation is $5.4 million (13.7%) higher than the proposal mainly due to a higher opening RAB as at 1 July 2023 (Attachment 2). The higher RAB indexation has more than offset the increase in straight-line depreciation (since indexation is deducted from the straight-line depreciation).

For our draft decision on Murraylink's regulatory depreciation:

- we accept Murraylink's proposed straight-line depreciation method used to calculate the regulatory depreciation amount
- we accept Murraylink's proposed asset classes and standard asset lives
- we accept Murraylink's proposed weighted average method to calculate the remaining asset lives as at 1 July 2023 for depreciating its existing assets. In accepting the weighted average method, we have updated Murraylink's remaining asset lives to reflect our adjustments to the proposed RFM
- we accept Murraylink's proposed renaming of 5 of its existing asset classes from those approved in the 2018–23 determination[4]

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

2 Murraylink, *2023–28 Revenue proposal, Post-tax revenue model*, January 2022.

3 Our draft decision on the RAB (Attachment 2) also reflects our updates to the WACC for the 2023–28 regulatory control period.

4 The renaming of asset classes do not affect the regulatory depreciation amount calculated as part of our decision for Murraylink.

- we amended Murraylink's depreciation of its regulatory reset costs to 5 years instead of 3 years.

Table 4.1 sets out our draft decision on the annual regulatory depreciation amount for Murraylink's 2023–28 period.

Table 4.1 AER's draft decision on Murraylink's regulatory depreciation for the 2023–28 regulatory control period ($ million, nominal)

	2023–24	2024–25	2025–26	2026–27	2027–28	Total
Straight-line depreciation	7.2	7.9	9.4	9.9	10.2	44.6
Less: inflation indexation on opening RAB	3.9	4.0	4.0	3.9	3.7	19.5
Regulatory depreciation	**3.3**	**3.9**	**5.4**	**6.0**	**6.5**	**25.1**

Source: AER analysis.

4.2 Murraylink's proposal

For the 2023–28 period, Murraylink proposed a total forecast regulatory depreciation amount of $25.5 million ($ nominal). To calculate the depreciation amount, Murraylink proposed to use:[5]

- the straight-line depreciation method employed in our post-tax revenue model (PTRM)
- the closing RAB value at 30 June 2023 derived from our roll forward model (RFM)
- the proposed forecast capex for the 2023–28 period
- an expected inflation rate of 2.37% per annum for the 2023–28 period
- the weighted average approach to determine remaining asset lives as at 1 July 2023 derived from the RFM to calculate the forecast depreciation of existing assets for the 2023–28 period.
- the same standard asset lives for depreciating new assets associated with forecast capex for the 2023–28 period, which are consistent with those approved in the 2018–23 determination. However, Murraylink proposed to rename five of its existing asset classes from those approved in the 2018–23 determination for the 2023–28 period.[6] Murraylink submitted that the proposed changes are required to better clarify the nature of the assets being added to those asset classes and reduce the restrictiveness of the asset classes.[7]

Table 4.2 sets out Murraylink's proposed depreciation over the 2023–28 period.

5 Murraylink, *2023–28 Revenue proposal, Post-tax revenue model*, January 2022; Murraylink, *2023–28 Revenue proposal, Roll forward model*, January 2022.

6 'Transmission line' to 'Transmission cable', 'Ancillary 15 – control systems' to 'Control systems', 'Ancillary 30' to 'Ancillary asset – 30 years', 'Ancillary 7 – pressure vessel testing and inspection' to 'Ancillary asset – 7 years' and 'Office machines' to 'Non ancillary asset'.

7 Murraylink, *Transmission determination – overview*, January 2022, pp. 30–31.

Table 4.2 Murraylink's proposed regulatory depreciation for the 2023–28 regulatory control period ($ million, nominal)

	2023–24	2024–25	2025–26	2026–27	2027–28	Total
Straight-line depreciation	6.3	6.9	8.3	8.7	9.0	39.2
Less: inflation indexation on opening RAB	2.8	2.8	2.8	2.7	2.6	13.7
Regulatory depreciation	**3.5**	**4.1**	**5.5**	**6.0**	**6.4**	**25.5**

Source: Murraylink, *2023–28 Revenue proposal, Post-tax revenue model*, January 2022.

4.3 Assessment approach

We determine the regulatory depreciation amount using the PTRM as part of a transmission network service provider's (TNSP's) annual building block 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. 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.[10] We must consider whether the proposed depreciation schedules conform to the following key requirements:

- the schedules depreciate using a profile that reflects the nature of the assets or category of assets over the economic life of that asset or category of assets[11] (apart from in certain specified circumstances)[12]
- 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 transmission system.[13]

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.[14]

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

- the opening RAB as at 1 July 2023

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

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

10 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).

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

12 NER, cll. 6A.6.3(b)(1) and 6A.6.3(c).

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

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

- the forecast net capex in the 2023–28 period[15]
- 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 remaining asset life for each asset class—used for calculating the depreciation of existing assets as at 1 July 2023 under the weighted average approach.

Our draft decision on Murraylink's regulatory depreciation amount reflects our determinations on the opening RAB as at 1 July 2023, expected inflation and forecast net capex (the first three building block components in the above list).[16] Our determinations on these components of Murraylink's proposal are discussed in Attachments 2, 3 and 5 respectively.

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

- the approved standard asset lives in the transmission determination of the 2018–23 period
- the standard asset lives of comparable asset classes approved in our recent transmission determinations for other service providers
- the appropriate economic lives of the assets.

Our PTRM provides for two approaches for calculating the straight-line depreciation for the 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 depreciation criteria of the 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 determination review. We consider this approach would also meet the depreciation criteria of the NER. Our depreciation tracking module conducts the detailed calculations required under this approach. The output of this module is then recorded in the PTRM.

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15 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 our updates to the WACC for the 2023–28 regulatory control period.

16 Our final decision will update the opening RAB as at 1 July 2023 for revised estimates of actual capex and inflation.

Murraylink has proposed to continue applying the WARL approach to calculate its remaining asset lives as at 1 July 2023. Our assessment on Murraylink's proposed remaining asset lives is discussed in section 4.4.3.

4.3.1 Interrelationships

The regulatory depreciation amount is a building block component of the annual building block revenue requirement.[17] 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.[18]

Ultimately, however, a TNSP can only recover the capex that it incurred 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.[19] The return on capital building block has to be calculated using a nominal rate of return (WACC) applied to the opening RAB.[20] As noted in Attachment 1, the total annual building block 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.[21] 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.[22] 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.

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17 The PTRM distinguishes between straight-line depreciation and regulatory depreciation, with regulatory depreciation being straight-line depreciation minus the indexation adjustment.

18 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 a nominal rate of return (WACC).

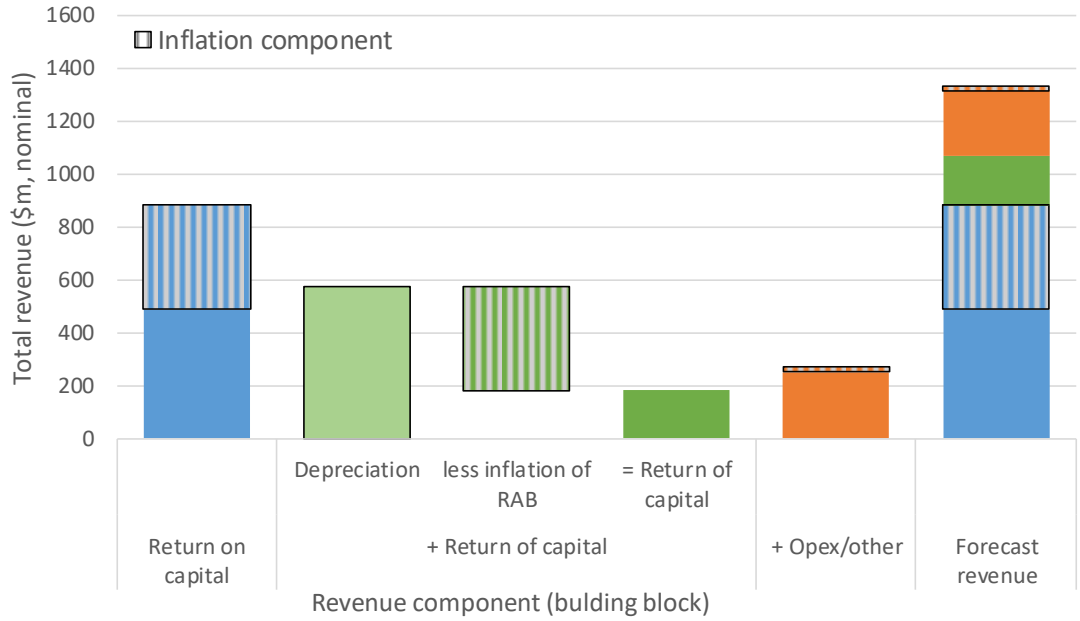
19 NER, cll. 6A.5.4(b)(1) and 6A.6.1(e)(3).

20 AER, *Rate of return instrument*, cll. 1, 3(a) and 36(c), December 2018.

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

22 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.

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 TNSP) and lower in the future—producing a steeper downward sloping profile of total revenue.[23] 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.[24] 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.[25]

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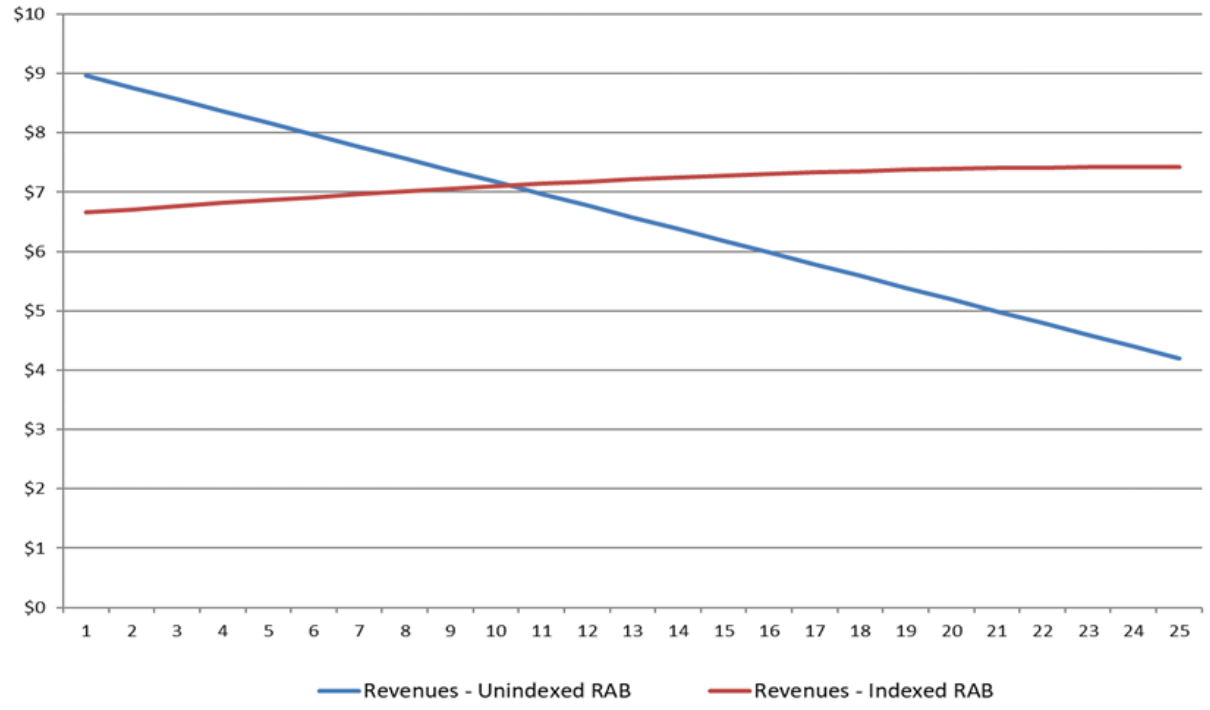
23 A change of approach from an indexed RAB to an un-indexed RAB would result in an initial step change increase in revenues to preserve net present value (NPV) neutrality.

24 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.

25 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.

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 Murraylink's proposal. A 10% increase in the straight-line depreciation causes unsmoothed revenues ($ nominal) to increase by about 5.7%.[26]

4.4 Reasons for draft decision

We accept Murraylink's proposed straight-line depreciation method for calculating the regulatory depreciation amount as set out in the PTRM. However, we reduced Murraylink's proposed forecast regulatory depreciation amount for the 2023–28 period by $0.4 million (1.5%) to $25.1 million ($ nominal).

The decrease is primarily the result of our draft decisions on the calculation of expected inflation (Attachment 3) which affects the projected RAB over the 2023–28 regulatory control period. Our assessment of Murraylink's asset classes, standard asset lives and remaining assets lives are discussed in the following subsections.

4.4.1 Asset classes

Murraylink proposed to rename a number of its existing asset classes from those approved in the 2018–23 determination. Murraylink submitted that the proposed changes are required to

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

better clarify the nature of the assets being added to those asset classes and reduce the restrictiveness of the asset classes.[27]

In particular, Murraylink has proposed to rename the following asset classes:

- 'Transmission line' to 'Transmission cable'
- 'Ancillary 15 – control systems' to 'Control systems'
- 'Ancillary 30' to 'Ancillary asset – 30 years'
- 'Ancillary 7 – Pressure vessel testing and inspection' to 'Ancillary asset – 7 years'
- 'Office machines' to 'Non ancillary asset'.

Our draft decision approach is to accept the proposed renamed asset classes. We consider the proposed asset classes for the 2023–28 period are appropriate and continue to reflect the nature of the assets being added to each class. The renaming of these existing asset classes does not affect the regulatory depreciation amount of the opening RAB values and forecast capex because it does not affect the remaining and standard asset lives.

4.4.1.1 Regulatory reset costs

Our draft decision does not approve of Murraylink's proposed depreciation of regulatory reset costs over 3 years. We have instead depreciated these costs over 5 years.

Murraylink's proposal PTRM allocated capex associated with regulatory reset costs to the 'Non ancillary asset' class for the 2023–28 period. This asset class has a standard asset life of 3 years. We do not consider this appropriate as regulatory reset costs should reflect the expected regulatory control period that these costs are related to, in this case the 5-year period for 2023–28. In previous determinations for Murraylink, these costs were allocated to the 'Other operating assets' asset class with a 5 year standard asset life. In response to our information request, Murraylink confirmed that the proposed allocation was an error and these costs should be depreciated over 5 years.[28]

Our draft decision approach therefore is to reallocate regulatory reset costs from the 'Non ancillary asset' class to the 'Other operating assets' class for depreciation over 5 years, reflecting the 2023–28 period.

As we explain in our assessment of Murraylink's forecast capex (Attachment 5) we consider these costs would be better characterised as opex costs and that they are not related to any new regulatory obligations.

4.4.2 Standard asset lives

We accept Murraylink's proposed standard asset lives in respect of the forecast capex to be incurred in the 2023–28 regulatory control period. These standard asset lives are consistent with the equivalent approved standard asset lives in the determination for Murraylink's 2018–23 period and are largely comparable with the standard asset lives approved in our recent

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27 Murraylink, *Transmission determination – overview*, January 2022, pp. 30–31.

28 Murraylink, *Response to information request AER IR003*, 11 May 2022.

determinations for other TNSPs in respect of similar asset classes.[29] As Murraylink is an interconnector, not all its asset classes and standard asset lives are comparable with the other TNSPs. However, for some asset classes (such as 'Transmission cable' and 'Non ancillary asset'), Murraylink's proposed standard asset lives are similar to those used by other TNSPs.

Table 4.3 sets our draft decision on Murraylink's standard asset lives for the 2023–28 regulatory control period. We are satisfied that:[30]

- 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 Murraylink.

4.4.3 Remaining asset lives

We accept Murraylink's proposed weighted average method to calculate the remaining asset lives as at 1 July 2023. The proposed method is a continuation of the approved approach used in the 2018–23 determination and applies the approach as set out in the RFM. In accepting the weighted average method, we have updated Murraylink's remaining asset lives to reflect our adjustments to the proposed RFM (Attachment 2).

Further, in its proposed RFM, Murraylink did not include inputs for 2013–18 actual capex in the 'RAB remaining lives' sheet to calculate the remaining asset lives as at 1 July 2023 under the weighted average method. Our draft decision approach therefore is to add the inputs to calculate the remaining asset lives as at 1 July 2023. This is consistent with the approach determined in our RFM handbook for electricity transmission businesses.[31] This results in an increase in the regulatory depreciation amount by $0.4 million (1.5%) due to small reductions in the remaining asset lives for some asset classes.

For this draft decision, the remaining asset lives as at 1 July 2023 reflect estimated capex values for 2021–22 and 2022–23. As part of the final decision, we will update the 2021–22 estimated capex with actuals and the 2022–23 estimated capex may be revised based on more up to date information by Murraylink in its revised proposal. Therefore, we will recalculate Murraylink's remaining asset lives as at 1 July 2023 using the method approved in this draft decision to reflect the revised capex inputs for the final decision.

Table 4.3 sets out our draft decision on Murraylink's remaining asset lives for the 2023–28 period.

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29 AER, *Final decision: Directlink transmission determination 2020–25, Attachment 4 – Regulatory depreciation*, June 2020, p. 7; AER, *Draft decision: Powerlink transmission determination 2022–27 – Attachment 4 – Regulatory depreciation*, September 2021, p. 14; *ElectraNet, 2023–28 Revenue proposal, Attachment 4 – Regulatory depreciation*, January 2022, p. 8; *Transgrid, 2023–28 Revenue proposal*, January 2022, p. 126; AER, *Final decision: TasNetworks transmission determination 2019–24, Attachment 4 – Regulatory depreciation*, April 2019, p. 8; AER, *Final decision: AusNet Services transmission determination 2022–27, Attachment 4 – Regulatory depreciation*, January 2022, pp. 6–7.

30 NER, cll. 6A.6.3(b)(1)–(2).

31 AER, *Appendix E – Transmission roll forward model handbook – Electricity*, April 2020, pp. 43–44.

Table 4.3 AER's draft decision on Murraylink's standard and remaining asset lives as at 1 July 2023 (years)

Asset class	Standard asset life	Remaining asset life as at 1 July 2023
Switchyard	40.0	22.3
Transmission cable	40.0	20.3
Easements	n/a	n/a
Control systems	15.0	11.6
Ancillary asset - 30 years	30.0	24.0
Ancillary asset - 7 years	7.0	5.0
Other operating assets	5.0	4.3
Non ancillary asset	3.0	3.0

Source: AER analysis

n/a not applicable. We have not assigned a standard asset life to the 'Easements' asset class because the asset is not subject to depreciation.

Glossary

Term	Definition
AER	Australian Energy Regulator
Capex	Capital expenditure
NER	National Electricity Rules
NPV	Net present value
Opex	Operating expenditure
PTRM	Post-tax revenue model
RAB	Regulatory asset base
RFM	Roll forward model
TNSP	Transmission network service provider
WACC	Weighted average cost of capital
WARL	Weighted average remaining lives