Draft decision

Transgrid Waratah Super Battery
(non-contestable)
(1 July 2024 to 30 June 2029)

Made under the Electricity Infrastructure Investment Act 2020 (NSW)

Appendix A
Assessment approaches

September 2023

AUSTRALIAN ENERGY REGULATOR

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Note

This appendix forms part of the AER's draft decision on Transgrid's 2024–29 non-contestable determination for the Waratah Super Battery (WSB) project. It should be read with all other parts of the draft decision.

The draft decision includes the following documents:

- **Draft decision** (main document)
- Appendix A – Assessment approaches
- Appendix B – Quarterly service payments
- Appendix C – Adjustment mechanisms
- Confidential Appendix D – Rate of return averaging periods

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1 Total revenue and schedule of payments – assessment approach

1.1 The building block approach

The annual building block revenue requirement (ABBRR) is calculated using the post-tax revenue model (PTRM).[1] The ABBRR for each year of the regulatory control period must be determined using a building block approach.[2] The total revenue cap is then the sum of the ABBRRs for the regulatory control period.[3] Therefore, we adopt a building block approach when making our decision on Transgrid's total revenue cap and ABBRR for each regulatory year of the regulatory control period. Under this approach, we determine the value of the building block costs that make up the ABBRR for each regulatory year. These building block costs are set out in section 1.2.

Transgrid's revenue proposal must be prepared using our PTRM.[4] Our PTRM was developed for the NER framework, to bring together the various building block costs and calculate the ABBRR for each year of the regulatory control period.[5] However, this form of the PTRM also included X factors as per the CPI–X methodology which is used to escalate the expected maximum annual revenue for each year (other than the first year) of the regulatory control period. As the EII framework explicitly requires our assessment of revenues must exclude X factors,[6] we issued a guidance note governing the approach under which the NER PTRM should be amended for use in non-contestable revenue determinations under the EII.[7] For this draft decision, we refer to the NER PTRM amended in accordance with our guidance note for use in a non-contestable determination as an EII PTRM.

Transgrid's proposed EII PTRM used version 5.1 of the NER PTRM,[8] with amendments to align with the requirements of the EII Framework as per our final guidance note.[9] Our draft decision used Transgrid's proposed EII PTRM, with an additional amendment to ensure the schedule of payments can be amended for annual updates (see our draft decision, section 4.2.3).

In this non-contestable determination for Transgrid's WSB project, we first calculate the ABBRR for each year of the 2024–29 period. To do this, we consider the various costs facing Transgrid and the trade-offs and interactions between these costs, service quality and across years. This reflects our holistic assessment of Transgrid's proposal.

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1 EII Chapter 6A, cl. 6A.5.1(a).

2 EII Chapter 6A, cl. 6A.5.4(a).

3 EII Chapter 6A, cl. 6A.4.2(a)(2).

4 EII Chapter 6A, cl. 6A.5.1(a).

5 NER, cl. 6A.5; EII Chapter 6A, cl. 6A.5.

6 EII Regulations, s. 47A(5)(e).

7 AER, *Final guidance note – Amendments to NER PTRM for determinations under the Electricity Infrastructure Investment Act and Regulations*, June 2023.

8 Transgrid, *Revenue proposal 2024–29 – WSB (non-contestable)– PTRM*, June 2023; AER, *Electricity transmission network service providers: Post-tax revenue model (version 5.1)*, May 2022.

9 AER, *Final guidance note – Amendments to NER PTRM for determinations under the Electricity Infrastructure Investment Act and Regulations*, June 2023.

We understand the trade-offs that occur between building block costs and test the sensitivity of these costs to their various driver elements. These trade-offs are discussed in the interrelationships section of the assessment approaches for the other components in this draft decision and are reflected in the calculations made in the PTRM.[10] Such understanding allows us to exercise judgement in determining the final inputs into the PTRM and the ABBRR that result from this modelling.

The building block costs (and the elements that drive those costs) used to determine the ABBRR are set out in section 1.2.

1.2 The building block costs

The efficient costs to be recovered by Transgrid can be thought of as being made up of various building block costs.[11] Our draft decision assesses each of the building block costs and the elements that drive these costs. The building block costs are approved reflecting trade-offs and interactions between the cost elements, service quality and across years.

Table 1 shows the building block costs that form the ABBRR for each year and where discussion on the elements that drive these costs can be found in this draft determination.

Table 1 Building block costs

Building block costs	Section where elements are discussed (main draft decision document)
Return on capital	Regulatory asset base (Section 5) Rate of return (Section 6) Capital expenditure (Section 8)
Regulatory depreciation (return of capital)	Regulatory asset base (Section 5) Depreciation (Section 7) Capital expenditure (Section 8)
Operating expenditure	Operating expenditure (Section 9)
Estimated cost of corporate tax	Corporate income tax (Section 10)
Other revenue adjustments: • Operating efficiency benefits/penalties • Capital efficiency benefits/penalties • Pre-period opex	Operating expenditure (Section 9) Incentive schemes (Section 11) Adjustment mechanisms (Section 12)

[10] There are trade-offs that are not modelled in the PTRM but are reflected in the inputs to the PTRM. For example, service quality is not explicitly modelled in the PTRM, but the trade-offs between service quality and price are reflected in the forecast capital expenditure and operating expenditure inputs to the model. Other trade-offs are obvious from the calculations in the PTRM. For example, while it may be expected that a lower regulatory asset base would also lower revenues, the PTRM shows that this will not occur if the reduction in the regulatory asset base is due solely to an increase in the depreciation rate. In such circumstances, revenues increase as the increased depreciation amount more than offsets the reduction in the return on capital caused by the lower regulatory asset base.

[11] EII Chapter 6A, cl. 6A.5.4(a).

1.3 Schedule of payments

Our draft decision must include a schedule of the amounts required to be paid to the Network Operator.[12] For non-contestable determinations, this payment schedule represents the quarterly amounts to be paid to the Network Operator by the Scheme Financial Vehicle for carrying out a project under the EII Act for the following 5 years.[13] As per our Guideline, our decision sets out how the schedule of payments is to be calculated from the total revenue.

The quarterly schedule of payments is recovered throughout a regulatory year, compared to the ABBRR which is a single annual payment. Thus, in conducting our assessment of the schedule of payments, we look to ensure the ABBRR for each regulatory year is equal to the net present value (NPV) of the four quarterly payments corresponding to that year. Subsequently, our PTRM will also ensure that the total revenue for the period is equal to the sum of all quarterly payments for the regulatory control period, in NPV terms.

The relationship between the quarterly payments and the ABBRR for any given regulatory year is demonstrated by the following formula:

For t=1:

$$\boldsymbol{q_t^r} = \frac{ABBRR_t}{4} \times \frac{(1 + nWACC_t)^{r/4}}{(1 + WACC_t)^{r/4}}$$

For t = 2 to 5:

$$\boldsymbol{q_t^r} = \frac{ABBRR_t}{4} \times \left(\prod_{1}^{t-1} \frac{(1 + nWACC_t)}{(1 + WACC_t)} \right) \times \frac{(1 + nWACC_t)^{r/4}}{(1 + WACC_t)^{r/4}}$$

Where:

$\boldsymbol{q_t^r}$	=	the quarterly payment amount for quarter *r* in year *t* expressed in nominal dollars
$\boldsymbol{ABBRR_t}$	=	the annual building block revenue requirement for year *t* expressed in $ real 2023-24, taken from the PTRM reflecting any relevant updates
$\boldsymbol{WACC_t}$	=	the real vanilla rate of return on capital for year *t* as determined in our regulatory determination, reflecting any relevant annual return on debt updates
$\boldsymbol{nWACC_t}$	=	the nominal vanilla rate of return on capital for year *t* as determined in our regulatory determination, reflecting any relevant annual inflation and return on debt updates

[12] EII Regulation, s. 52(1).

[13] EII Regulation, s. 52(2)(c).

r	=	the quarter within each particular regulatory year (for r = 1 (July–September), 2 (October–December), 3 (January–March), 4 (April–June))
t	=	time period/financial year (for t = 1 (2024–25), 2 (2025–26), 3 (2026–27), 4 (2027–28), 5 (2028–29))

Table 2 sets out the date on which the Scheme Financial Vehicle must make the quarterly payment to the Network Operator (Transgrid).

Table 2 Date on which the schedule of payments must be paid

r	Months covered by quarter	Date on which payment must be made
1	July–September	30 September
2	October–December	31 December
3	January–March	31 March
4	April–June	30 June

2 Regulatory asset base – assessment approach

The WSB project is a new transmission infrastructure project declared under the EII framework. This determination represents the first non-contestable regulatory determination for Transgrid's WSB project. In the absence of a prior determination with an existing RAB to roll forward, we must make an assessment on an appropriate opening RAB for the WSB project.

Under normal circumstances, we do not expect a new transmission infrastructure project to have an opening RAB at the start of the first regulatory determination. However, for Transgrid to meet the WSB project's contracted commissioning date as set out in the Network Operator Deed, it has undertaken certain capex activities in the two years (2022–23 and 2023–24) prior to the start of the first regulatory period on 1 July 2024. As set out in section 5.2.1 of our decision document, to include this pre-period capex in an opening RAB, we must determine this expenditure is prudent, efficient and reasonable. We may exclude any capex based on our assessment on these three key principles.

As part of our assessment of the prudent, efficient and reasonable capex to be included in an opening RAB, we also check actual capex amounts against audited regulatory accounts data for that year. We generally accept the capex reported in those accounts in establishing the opening RAB.[14] However, there may be instances where adjustments are required to the annual regulatory accounts data.[15]

To then establish an opening RAB as at 1 July 2024, we escalate the pre-period capex to the beginning of the 2024–29 period. As there is no prior revenue determination, Transgrid has not been able to recover this expenditure. We therefore do not subtract any depreciation when escalating these costs. To compensate for the financing costs and the delay in revenue recovery between the time of incurrence and the start of the regulatory period, we allow Transgrid to capitalise these costs. This is done by escalating the pre-period capex costs by the cost of capital, represented as the nominal WACC.[16]

The PTRM used to calculate the annual building block revenue requirement for the 2024–29 period generally adopts the following method for rolling forward a RAB over the forecast period:[17]

- adding forecast capex to the RAB for the relevant year.[18]
- subtracting depreciation from the RAB for the relevant year, calculated in accordance with the building block methodology as implemented in our PTRM.[19]

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[14] We will update any estimated capex with actual capex at the time of the next reset.

[15] For example, we make adjustments for movements in provisions if the actual capex amounts reported in the regulatory accounts include capitalised provisions.

[16] AER, *Final guidance note – Amendments to NER PTRM for determinations under the Electricity Infrastructure Investment Act and Regulations*, June 2023, pp. 8–9.

[17] EII Chapter 6A, cl. S6A.2.4.

[18] EII Chapter 6A, cl. S6A.2.4(c)(1).

[19] EII Chapter 6A, cl. S6A.2.4(c)(2).

- subtracting any gross proceeds for asset disposals for the relevant year from capex to be added to the RAB.[20]
- adding inflation (indexation) adjustment to the opening RAB for the relevant year. This adjustment is consistent with the inflation factors used in the annual indexation of the annual building block revenue[21]

The opening RAB as at 1 July 2029 can be determined using depreciation based either on forecast or actual capex incurred during the 2024–29 period.[22] To roll forward the RAB using depreciation based on forecast capex, we would use the forecast depreciation contained in the PTRM for the 2024–29 period, adjusted for actual inflation. If the approach to roll forward the RAB using depreciation based on actual capex was adopted, we would recalculate the depreciation based on actual capex incurred during the 2024–29 period.

Our decision on whether to use actual or forecast depreciation must be consistent with the capex incentive objective. This objective is to ensure that increases to the RAB through capex only occur where that capex reasonably reflects the capex criteria.[23] In deciding between actual and forecast depreciation, we have regard to:[24]

- the incentives the service provider has to undertake efficient capex
- substitution possibilities between assets with different lives and the relative benefits of each
- the extent of overspending and inefficient overspending relative to the allowed forecast
- the capex incentive guideline
- the capex factors.

2.1 Interrelationships

The RAB is an input into the determination of the return on capital and depreciation (return of capital) building block amounts.[25] Factors that influence the RAB will therefore flow through to these building block components and the annual building block revenue requirement. Other things being equal, a higher RAB increases both the return on capital and depreciation amounts.

The RAB is determined by various factors, including:

- the opening RAB (meaning the value of existing assets at the beginning of the regulatory control period)

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20 EII Chapter 6A, cl. S6A.2.4(c)(3).

21 EII Chapter 6A, cl. S6A.2.4(c)(4).

22 EII Chapter 6A, cl. S6A.2.2B(a).

23 EII Chapter 6A, cl. 6A.5A(b).

24 EII Chapter 6A, cl. S6A.2.2B(c).

25 The size of the RAB also impacts the benchmark debt raising cost allowance. However, this amount is usually relatively small and therefore not a significant determinant of revenues overall. It should be noted that the return on capital is calculated based on the RAB measured on an as incurred basis while depreciation (return of capital) is calculated based on the RAB measured on an as commissioned basis.

- net capex[26]
- depreciation
- indexation adjustment – so the RAB is presented in nominal terms, consistent with the rate of return.

The opening RAB of the 2024–29 period depends on the value of existing assets and will depend on actual net capex, actual inflation outcomes and depreciation in the past.

The RAB when projected to the end of the regulatory control period increases due to both forecast new capex and the indexation adjustment. The size of the indexation adjustment depends on expected inflation (which also affects the nominal rate of return or WACC) and the size of the RAB at the start of each year throughout the regulatory control period.

Depreciation reduces the RAB. The depreciation amount depends on the size of the opening RAB, the forecast net capex and depreciation schedules applied to the assets. By convention, the indexation adjustment is also offset against depreciation to prevent double counting of inflation in the RAB and WACC, which are both presented in nominal terms. This reduces the regulatory depreciation building block that feeds into the annual building block revenue requirement.

We maintain the RAB in real terms by indexing for inflation.[27] A nominal rate of return (WACC) is multiplied by the opening RAB to produce the return on capital building block.[28] To prevent the double counting of inflation through the nominal WACC and indexed RAB,[29] the regulatory depreciation building block has an offsetting reduction for indexation of the RAB.[30] Indexation of the RAB and the offsetting adjustment made to depreciation results in a smoother revenue recovery profile over the life of an asset than if it was un-indexed. If the RAB was un-indexed, there would be no need for an offsetting adjustment to the depreciation calculation of total revenue. This alternative approach provides for overall revenues being higher early in the asset's life (as a result of more depreciation being returned to the Network Operator) and lower in the future—producing a steeper downward sloping profile of total revenue.[31] The implications of an un-indexed RAB are discussed further in section 4.1 of this appendix.

Figure 2.1 shows the key drivers of the changes in the RAB over the 2024–29 period as proposed by Transgrid. Overall, the closing RAB at the end of the 2023–28 period would be

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[26] Net capex is gross capex less disposals. The rate of return or WACC also influences the size of the capex. This is because capex is not depreciated in the year it is first incurred, but added to the RAB at the end of the year. Instead, the capex amount is escalated by half-year WACC to arrive at an end of year value. It begins depreciating once the asset is commissioned.

[27] EII Chapter 6A, cll 6A.5.4(b)(1).

[28] AER, *Rate of return instrument*, February 2023 (amended version 1.1) cll. 1, 3(a) and 36(c).

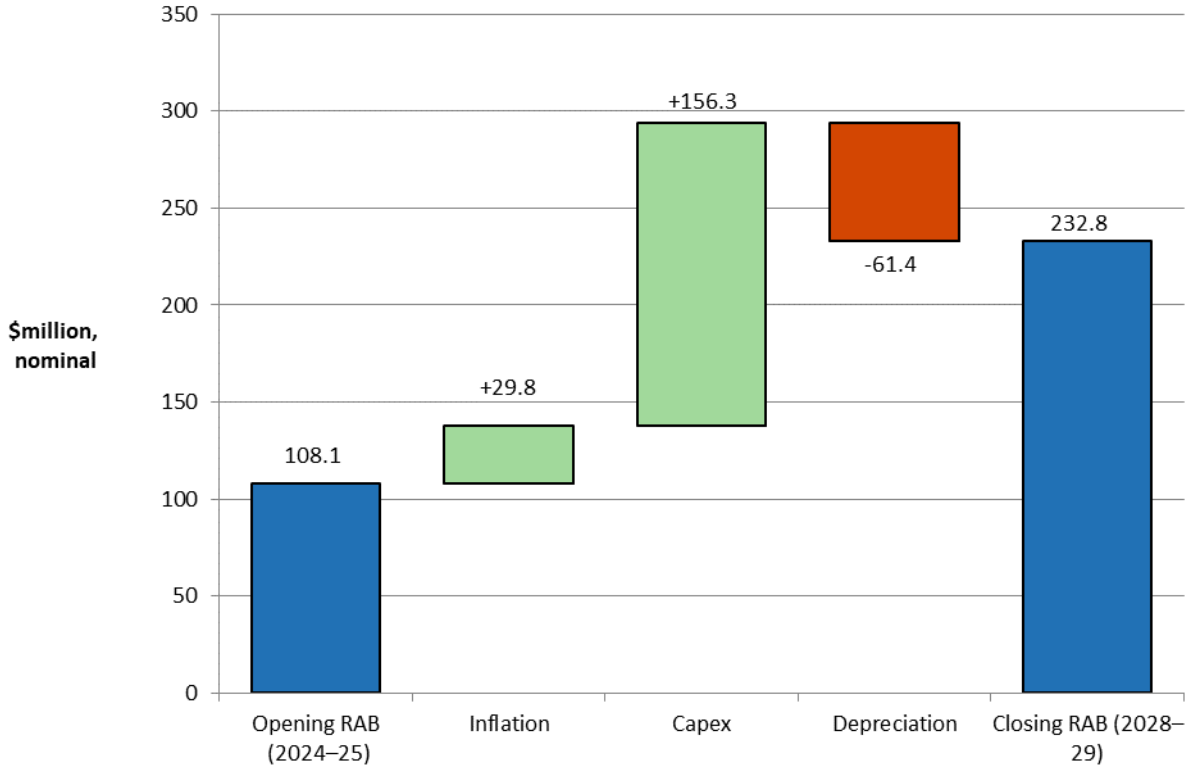
[29] EII Chapter 6A, cl. 6A.5.4(b)(1)(ii).

[30] 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. Please also refer to section 4 for further explanation of the offsetting adjustment to the depreciation.

[31] 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 neutrality.

115% higher than the opening RAB at the start of that period based on the proposal, in nominal terms. The proposed forecast net capex increases the RAB by 145%, while expected inflation increases it by 28%. Forecast depreciation, on the other hand, reduces the RAB by 57% of the initial opening RAB value.

Figure 2.1 Key drivers of changes in the RAB ($ million, nominal)



Source: Transgrid, *Revenue proposal 2024–29 – WSB (non-contestable)--PTRM,* June 2023.

Note: Capex is net of forecast disposals. It is inclusive of the half-year WACC to account for the timing assumptions in the PTRM.

Transgrid's proposed forecast straight-line depreciation for the 2024–29 period is $61.4 million ($ nominal). While we have accepted some aspects of Transgrid's depreciation proposal, particularly with regards to the proposed standard asset lives, we have not accepted the modifications to the forecast depreciation schedule for financeability concerns. The depreciation amount largely depends on the opening RAB, which in turn depends on capex in the past.[32] Depreciation associated with forecast capex is a relatively smaller amount. Proposed financeability-related modifications in accordance with clause 47D(3) of the EII Regulations can potentially constitute a large portion of overall depreciation, and this was the case in Transgrid's proposal.

However, we do have concerns with the forecast capex associated with the SIPS control asset class proposed by Transgrid. In this draft decision, we have reduced Transgrid's

[32] At the time of this draft decision, the past capex values for 2022–23 and 2023–24 are estimates. We expect to update the 2022–23 estimated capex with actuals in the final decision. We may also update the 2022–23 estimated capex with a revised estimate in the final decision.

proposed forecast capex by $3.8 million ($ nominal), or 2.4% over the 2024–29 period.[33] Our review of Transgrid's forecast capex is set out in section 8 of this draft decision.

Based on Transgrid's proposal, a 10% increase in the opening RAB causes revenues to increase by about 3.3%. However, the impact on revenues of the annual change in RAB depends on the source of the RAB change, as some drivers affect more than one building block cost.[34]

[33] This amount is net of asset disposals and excludes half-year WACC adjustment.

[34] If capex causes the RAB increase – return on capital, depreciation and debt raising costs all increase too. If a reduction in depreciation causes the RAB increase, revenue could increase or decrease. In this case, the higher return on capital is offset (perhaps more than offset) by the reduction in depreciation allowance. Inflation naturally increases the RAB in nominal terms.

3 Rate of return – assessment approach

Our assessment approach for the rate of return is a combination of the following matters:

- Overall rate of return (also called the weighted average cost of capital or WACC), which can be disaggregated into the return on equity and return on debt.
- Imputation credits (gamma)
- Expected inflation rate
- Capital raising costs, which is made up of two components: equity raising costs and debt raising costs.

3.1 Rate of Return Instrument

The Rate of Return Instrument, published under the NEL, governs our approach to assessing and determining the overall rate of return, including the return on equity and return on debt and its subcomponents, and imputation credits. The EII Regulation requires us to apply the current Rate of Return Instrument made by the AER under the NEL for non-contestable determinations.[35]

We publish a new Instrument every 4 years that will bind all regulatory determinations in the subsequent 4 years. The 2022 Rate of Return Instrument (2022 Instrument) is the current instrument that applies to Transgrid's 2024–29 determination for the WSB project.[36] The 2022 Instrument is largely consistent with the 2018 Instrument but updated to reflect the latest data and market conditions.

The rate of return is composed of the returns the owners of equity (shareholders) and owners of debt (debt holders) expect for their money. The overall required return is a weighted average of the return required on the equity and the return required on the debt used to fund the network investment. The weighting is 60% debt and 40% equity.

We do not set the rate of return with a specific network or project in mind. Instead, we set a benchmark across the sector. This provides incentives for networks to raise their capital at the lowest cost possible. We use information about the regulated networks to decide what a benchmark network might look like.

Our rate of return is set to match the risk of providing network services. This is done by adding an equity risk premium to the base rate to calculate the return on equity and directly estimating the total return on debt inclusive of the base rate and the debt risk premium. The base rate or the risk-free rate is computed from the rates the Australian Government pays for its long-term (10-year) borrowings.

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35 EII Regulation, s. 47D(4).

36 AER, *Rate of return instrument*, February 2023 (version 1.1 as amended August 2023).

3.2 Expected inflation rate

The treatment of inflation and the setting of the rate of return are foundational in setting regulated revenues. It is important they are set appropriately to promote efficient investment in, and operation of energy networks.

Our approach to estimating the expected inflation is to:

- apply a target inflation horizon that matches the regulatory period (typically 5 years)
- apply a linear glide-path from the RBA's forecasts of inflation for year 2 to the mid-point of the inflation target band (2.5%) in year 5.

By using a target horizon that is commensurate with the regulatory control period, we ensure that there is consistency between our estimate of expected inflation and the period over which we roll forward the RAB. While we acknowledge that this approach leads to a mismatch with the term of the rate of return and the inflation horizon, we consider this to be less of a concern than aligning with the regulatory period. This is because of the sustained decline in the required rate of return and the increased difference between 5–year and 10–year inflation expectations due to short-term fluctuations in inflation expectations.[37]

Applying a glide-path acknowledges that it is likely to take longer than previously for inflation to revert to the mid-point of the RBA's target band following periods of sustained low or high inflation.

Our approach to estimating expected inflation is symmetric and enduring, able to operate across a breadth of market conditions and forecasts and is responsive to changes in market conditions. By using our approach to estimating expected inflation, we ensure that what is calculated results in the best estimate of inflation expectations and is therefore likely to contribute to the achievement of the Objects of the EII Act.[38]

3.3 Capital raising costs

3.3.1 Equity raising costs

Equity raising costs are transaction costs incurred when a service provider raises new equity. We provide an allowance to recover an efficient amount of equity raising costs.

We apply an established benchmark approach for estimating equity raising costs. This approach estimates the costs of two means by which a service provider could raise equity—dividend reinvestment plans and seasoned equity offerings. It considers where a service provider's capex forecast is large enough to require an external equity injection to maintain the benchmark gearing of 60%.[39]

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37 AER, *Final position paper – Regulatory treatment of inflation,* December 2020, pp. 6–7.

38 EII Act, s. 3(1).

39 AER, *Final decision Amendment Electricity distribution network service providers, Post-tax revenue model handbook*, January 2015, pp. 15, 16 and 33. The approach is discussed in AER, *Final decision, Powerlink Transmission determination 2012–13 to 2016–17*, April 2012, pp. 151–152.

Our benchmark approach was initially based on 2007 advice from Allen Consulting Group (ACG).[40] We amended this method in our 2009 decisions for the ACT, NSW and Tasmanian electricity service providers.[41] We further refined this approach in our 2012 Powerlink Queensland decision.[42]

Our benchmark approach is implemented in PTRM to estimate equity raising costs. Other elements of our decision act as inputs to this assessment, particularly the level of approved capex and the return on equity. It also requires an estimate of the dividend distribution rate (sometimes called the payout ratio) as an input into calculating equity raising costs. The dividend distribution rate is also estimated when we estimate the value of imputation credits. We consider that a consistent dividend distribution rate should be used when estimating both the value of imputation credits and equity raising costs.

3.3.2 Debt raising costs

Our current approach to forecasting debt raising costs is based on the approach in a report from ACG, commissioned by the Australian Competition & Consumer Commission (ACCC) in 2004.[43] This approach compensates for the direct cost of raising debt.

It uses a five-year window of bond data to reflect the market conditions at that time. Our estimates were updated in 2013 (based on a report by PricewaterhouseCoopers (PwC), which used data over 2008–2013) and most recently in 2019 by Chairmont.[44]

The ACG method involves calculating the benchmark bond size, and the number of bond issues required to rollover the benchmark debt share (60%) of the capital base. This approach looks at how many bonds a regulated service provider may need to issue to refinance its debt over a 10-year period. Our standard approach is to amortise the upfront costs that are incurred in raising the bonds using the service provider's nominal vanilla weighted average cost of capital (WACC) over a 10-year amortisation period. This is then expressed in basis points per annum (bppa) as an input into the PTRM.

This rate is multiplied by the debt component of the service provider's projected capital base to determine the debt raising cost allowance in dollar terms. Our approach recognises that part of the debt raising transaction costs such as credit rating costs and bond master program fees can be spread across multiple bond issues, which lowers the benchmark allowance (as expressed in bppa) as the number of bond issues increases.

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40 ACG, *Estimation of Powerlink's SEO transaction cost allowance – Memorandum*, February 2007.

41 For example, see: AER, *Final decision, NSW distribution determination 2009–10 to 2013–14*, April 2009, Appendix N.

42 AER, *Final decision, Powerlink Queensland Transmission determination 2012–13 to 2016–17*, April 2012, pp. 151–152.

43 Allen Consulting Group, *Debt and Equity Raising Transaction Costs: Final Report*, December 2004

44 PricewaterhouseCoopers, *Energy Networks Association: Debt financing costs,* June 2013*; Chairmont, Debt Raising Costs*, June 2019.

4 Regulatory depreciation – assessment approach

We determine the regulatory depreciation amount using the PTRM as a part of a Network Operator's annual building block revenue requirement.[45] 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.[46]

Consistent with our assessment under the NER, our approach to calculating depreciation under the EII Act and EII Regulation (together the EII framework) 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.[47] As a starting point, in determining the deprecation for each regulatory year, we must consider whether the proposed depreciation schedules conform to the following key requirements:[48]

- 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[49]
- the sum of the real value of the depreciation that is attributable to any asset or category of assets over the economic life of that 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 infrastructure project.[50]

To the extent that a Network Operator's proposed depreciation schedules do not conform with the above requirements, we are to determine an alternative schedule that does conform with those requirements.[51]

Further, we must modify the depreciation schedules if we are satisfied that it is reasonably necessary to ensure:

- the Network Operator is capable of efficiently obtaining finance to carry out the network infrastructure project[52], and
- the revenue determination is consistent with the objective of the EII Act to improve electricity supply and co-ordinate and encourage investment, as per sections 3(1)(a)- (c) of the EII Act.[53]

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45 EII Chapter 6A, cll. 6A.5.4(a)(3) and 6A.5.4(b)(3).

46 EII Chapter 6A, cl. 6A.6.3(a).

47 This is the standard practice for the AER, as well as other jurisdictional regulators. See for example, IPART, *Cost building block model template,* 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).

48 EII Chapter 6A, cl. 6A.6.3(b)(3) also applies, but is less relevant to the WSB context because there is no preceding WSB revenue determination to establish asset lives on a prospective basis.

49 EII Chapter 6A, cl. 6A.6.3(b)(1).

50 EII Chapter 6A, cl. 6A.6.3(b)(2).

51 EII Chapter 6A, cl. 6A.6.3(a)(2)(ii).

52 EII Act s. 47D(3)(b); EII Chapter 6A cl. 6A.6.3(d)(2).

53 EII Act s. 47D(3)(a); EII Chapter 6A cl. 6A.6.3(d)(1).

If we are satisfied that modification is necessary to achieve these aims, we will then consider the approach and methodology by which the depreciation schedule is modified. This may include having regard to (among other factors):

- depreciation being calculated on an as incurred or as commissioned basis
- amending the standard or remaining asset lives
- amending the straight-line approach to depreciation and applying a different methodology (such as diminishing value or sum of digits approach).

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

- the opening RAB as at 1 July 2024[54]
- the forecast net capex in the 2024–29 period[55]
- 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 through either a remaining asset life for each asset class, the standard asset life for each asset class (where no depreciation has yet commenced) or as an outcome from Transgrid's proposed financeability test.

Our draft decision on Transgrid's regulatory depreciation amount reflects our determinations on the opening RAB as at 1 July 2024, expected inflation and forecast net capex (the first three building block components in the above list).[56] Our determinations on these components of Transgrid's proposal are discussed in sections 6, 7 and 9, respectively.

In section 7 of our draft decision, we assess Transgrid's proposed standard asset lives against:

- the standard asset lives of comparable asset classes approved in our recent transmission determinations under the NER for Transgrid and other service providers
- the appropriate economic lives of the assets.

We also assess Transgrid's proposed modifications to the depreciation schedule by examining:

- the proposed approach to identifying financeability issues

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[54] As the WSB project is a new investment project, it typically should not have an opening RAB as this is our first regulatory determination. However, Transgrid has incurred 'pre period' capex prior to this first regulatory determination. In the absence of an existing RAB for the WSB project, Transgrid has rolled forward this pre-period capex into an opening RAB.

[55] Capex enters the RAB net of forecast disposals. It includes equity raising costs (where relevant) and the half-year rate of return to account for the timing assumptions in the PTRM. Our draft decision on the RAB also reflects our updates to the rate of return for the 2024–29 regulatory control period.

[56] Our final decision will update the opening RAB as at 1 July 2024 for revised estimates of actual capex.

- the approach to determining the amount of additional cashflow to address any financeability issues.

Our default approach for depreciating a Network Operator's opening RAB in the PTRM uses a single remaining asset life for each asset class at the start of a regulatory control period. Transgrid has adopted this approach for the majority of its opening asset classes. However, Transgrid has proposed an alternative approach with regards to a 'financeability asset' asset class. The annual depreciation for this asset class is determined with regards to the amount of additional cashflow required for each year to resolve any identified financeability concerns under Transgrid's 'financeability test'. Once additional required cashflows are identified, assets are reallocated from the opening RAB for the other standard asset classes to the financeability asset class, in a form of accelerated depreciation. Transgrid has used the 'Supporting information' sheet in our PTRM to set out the calculations for this approach.

4.1 Interrelationships

The regulatory depreciation amount is a building block component of the annual building block revenue requirement.[57] 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 future 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.[58]

Ultimately, however, a Network Operator can only recover the capex it has 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 level of 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.[59] The return on capital building block has to be calculated using a nominal rate of return applied to the opening RAB.[60] As noted in section 4 of our draft decision, the total annual building block revenue requirement is calculated by adding 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 the Network Operator 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.[61] Our standard approach is

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

58 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.

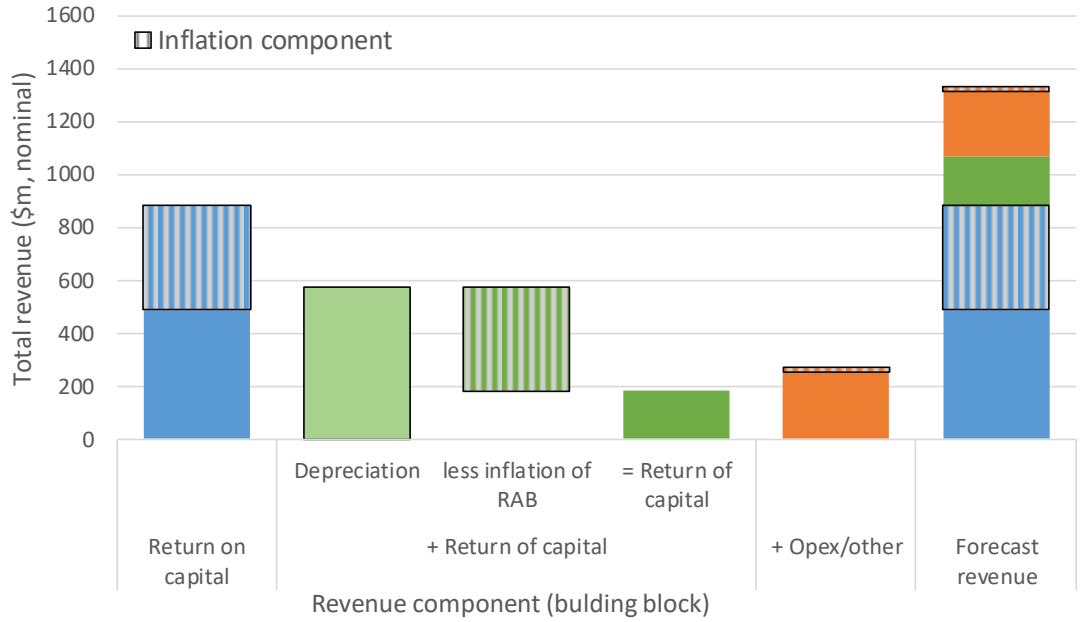
59 EII Chapter 6A, cll. 6A.5.4(b)(1) and S6A.2.4(c)(4).

60 AER, *Rate of return instrument*, paragraphs 1, 3(a) and 36(c), February 2023 (version 1.1 amended August 2023) and EII Regulation, s. 47D(4).

61 EII Chapter 6A, cl. 6A.5.4(b)(1)(ii).

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.[62] 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 blocks – example



Source: AER analysis.

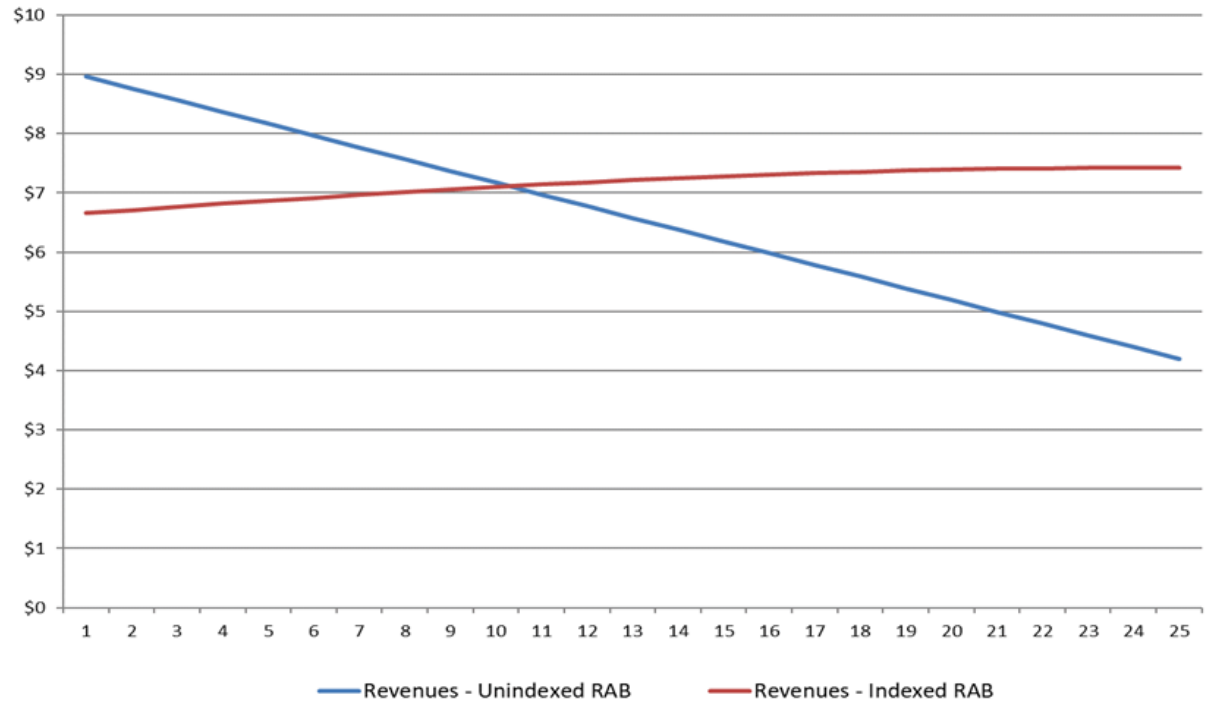
This approach produces the same total revenue requirement and RAB as if a real rate of return had been used in combination with an indexed RAB. Under an alternative approach where a nominal rate of return was used in combination with an un-indexed (historical cost) RAB, no adjustment to the depreciation 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 Network Operator) and lower in the later years of the asset's life—producing a steeper downward sloping profile of total revenue.[63] Under both approaches, the total revenues being recovered are in present value neutral terms—that is, returning the initial cost of the RAB.

[62] 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.

[63] 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.

Figure 4.2 shows the recovery of revenue under both approaches using a simplified example.[64] Indexation of the RAB and the offsetting adjustment made to depreciation results in a 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.[65]

Figure 4.2 Revenue path example – indexed vs un-indexed RAB ($ nominal)



Source: AER analysis.

Figure 5.1 in section 5 of our draft decision shows the relative size of the inflation and straight-line depreciation, and their impact on the RAB based on Transgrid's proposal. A 10% increase in the straight-line depreciation causes unsmoothed revenues ($ nominal) to increase by about 4.7%.[66]

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

[65] 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.

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

5 Capital and operating expenditure – assessment approach

We provide guidance on our expenditure assessment approach in the following documents:

- Expenditure Forecast Assessment Guidelines[67]
- Transmission Efficiency Test and Revenue Determination Guideline for NSW non-contestable network infrastructure projects.[68]

For capital expenditure, the expenditure forecast assessment guidelines state that prudent expenditure is that which reflects the best course of action, considering available alternatives. We recognise that the NSW infrastructure planner has determined the best course of action for this project and that the Ministerial direction has obligated Transgrid to meet the requirements of this action. Accordingly, we do not assess the prudency of the project requirements as set out in the Ministerial direction. However, we do assess the prudency of Transgrid's capital expenditure where it does have discretion.

For operating expenditure, although we applied the expenditure forecast assessment guidelines, we have modified our approach to assessing Transgrid's opex to reflect the differences between the EII framework and the NER framework. As this is an initial determination for the WSB project, we have no base year from a preceding regulatory period on which to assess revealed opex. Accordingly, we do not use a base-step-trend approach in this determination and instead opt for a bottom-up assessment approach. This could involve:

- comparing input costs, metrics and benchmarks against those observed for other similar network projects.
- considering approved opex from contestable determinations or other network projects similar to the project being assessed.

For both capital and operating expenditure, we also have regard to the guiding principles in the AER's *Better Resets Handbook – Towards consumer centric proposals* which encourages networks to develop high quality, well-justified proposals that genuinely reflect consumers' preferences.[69]

Our determination is based on the information before us. Information we had regard to includes:

- Transgrid's initial regulatory proposal
- Transgrid's responses to our information requests
- stakeholder comments in response to Transgrid's initial proposal.

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67 AER, *Better Regulation, Expenditure forecast assessment guideline for electricity distribution*, August 2022.

68 AER, *Final guideline, Transmission efficiency test and revenue determination guideline for non-contestable network infrastructure projects*, April 2023.

69 AER, *Better resets handbook, Towards consumer centric network proposals*, December 2021.

6 Corporate income tax – assessment approach

We make an estimate of taxable income for each regulatory year as part of our determination of the annual building block revenue requirement for Transgrid's 2024–29 regulatory control period.[70] Our estimate is the taxable income that a benchmark efficient entity would earn for providing regulated network services if it operated Transgrid's business and is determined in accordance with the PTRM. Our draft decision uses the EII PTRM which is version 5.1 of the NER PTRM,[71] with amendments to align with the requirements of the EII framework as per our final guidance note.[72]

6.1 Calculating estimated cost of corporate income tax in the PTRM

Our approach for calculating a Network Operator's estimated cost of corporate income tax is set out in our PTRM[73] and involves the following steps:

1. We estimate the annual assessable income (taxable revenue) that would be earned by a Network Operator operating Transgrid's business. This is the approved forecast revenues for the Network Operator that we determined using the building block approach.[74]
2. We then estimate the benchmark tax expenses such as opex, interest expense, tax depreciation in the following ways:
    - operating expense is set equal to the opex building block (section 9)
    - interest expense is a function of the size of the RAB, the benchmark gearing assumption (60%) and the regulated cost of debt
    - tax depreciation expense is calculated using a separate value for the TAB, and standard and/or remaining tax asset lives for taxation purposes. The PTRM (version 5.1) applies the diminishing value tax depreciation method[75] for all new assets except for in-house software, buildings and equity raising costs. The expenditure for these assets is to be depreciated using the straight-line method under the tax law. The PTRM also accounts for the value of certain forecast capex to be immediately expensed when estimating the benchmark tax expense. The value of immediately expensed capex is deducted from the net capex being depreciated for tax purposes for the year in which it is forecast to be

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70 EII Chapter 6A, cl. 6A.6.4.

71 AER, *Electricity transmission network service providers: Post-tax revenue model (version 5.1)*, May 2022.

72 AER, *Final guidance note – Amendments to NER PTRM for determinations under the Electricity Infrastructure Investment Act and Regulations*, June 2023.

73 AER, *Electricity transmission network service providers: Post-tax revenue model (version 5.1)*, May 2022.

74 The total revenue for tax purposes is the sum of the building blocks including return on capital, return of capital, operating expenditure and cost of corporate taxation. It may also include other revenue adjustments, but the assessment of whether they should give rise to a tax cost will occur on a case-by-case basis.

75 For more explanation of how we calculate depreciation using the diminishing value method, please see: AER, *Transmission PTRM handbook,* April 2019, pp. 22–23.

commissioned.[76] The immediately expensed amount is then included in the total tax depreciation amount for the relevant year.

There may be other revenue adjustments, but the assessment of whether they should give rise to a tax cost occurs on a case-by-case basis.

3. We estimate the annual taxable income that would be earned by a Network Operator operating Transgrid's business by subtracting the benchmark estimates of tax expenses (step 2) from the approved forecast revenues for the transmission business (step 1).
4. We apply the statutory income tax rate to the estimated annual taxable income (after adjustment for any tax loss carried forward) to arrive at a notional amount of tax payable.
5. We deduct the expected value for the utilisation of imputation credits (gamma) by investors from the notional amount of tax payable. The tax payable net of the expected value of imputation credits represents the cost of corporate income tax and is included as a separate building block in determining Transgrid's annual building block revenue requirement.

6.2 Assessing tax inputs to the PTRM

The estimated cost of corporate income tax is an output of our PTRM. We therefore assess the Network Operator's proposed cost of corporate tax by analysing the proposed inputs to the PTRM for calculating that cost. Our assessment approach for each of the tax inputs required in the PTRM are discussed below:

- **the standard tax asset life for each asset class:** Our assessment of a TNSP's proposed standard tax asset lives is generally guided by the effective life of depreciating assets determined by the Commissioner of Taxation. We consider that the standard tax asset lives for the majority of Transgrid's asset classes should be consistent with the ATO Taxation Ruling 2022/1 regarding the effective life of depreciating assets where possible.[77]

  As discussed above, the PTRM applies the diminishing value tax depreciation method for all new assets except for in-house software, buildings and equity raising costs. It provides designated asset classes for these assets to be depreciated using the straight-line method for tax purposes.[78] We note that the tax effective lives for in-house software, buildings and equity raising costs are not covered under the ATO Taxation Ruling 2022/1. Therefore, our assessment of the standard tax asset lives for these asset classes are guided by the *Income Tax Assessment Act 1997* (ITAA). Specifically, we consider that the standard tax asset life should be:

  - 40 years for buildings – This is consistent with the number of years required to completely depreciate a capital works asset such as buildings for tax purposes when applying sections 43.15, 43.140 and 43.210 of the ITAA.

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[76] That is, the net capex to be added to the TAB for tax depreciation purposes is the amount of gross capex, less disposals, less the immediately deductible capex.

[77] ATO, *Taxation Ruling TR2022/1 – Income tax: effective life of depreciating assets (applicable from 1 July 2022).*

[78] Our assessment approach on new assets to be exempted from the diminishing value method is discussed in detail below.

  - 5 years for in-house software – This is consistent with subsection 40.95(7) of the ITAA.
  - 5 years for equity raising costs – This is consistent with section 40.880 of the ITAA.

- **the income tax rate:** The statutory corporate income tax rate is 30% per year, which was adopted in Transgrid's proposal.
- **the value of gamma:** The gamma input for Transgrid is 0.57 for this draft decision. This is consistent with the 2022 *Rate of Return Instrument*, which requires us to use a gamma value of 0.57,and is adopted in Transgrid's proposal.[79]
- **the size and treatment of any tax losses as at 1 July 2024:** Where a business has tax losses, we require the provision of this value to determine the appropriate estimated taxable income for a regulatory control period. If there is an amount of tax losses accumulated, the forecast taxable income for the regulatory control period will be reduced by this amount. Transgrid does not have any accumulated tax losses as at the start of the 2024–29 regulatory control period as this is the first period for the WSB project.[80]
- **forecast immediate expensing of capex:** The PTRM requires a forecast for immediately deductible capex to be provided for each regulatory year of the 2024–29 period. Our assessment of forecast immediate expensing of capex will be guided by the Network Operator's actual immediate expensing of capex from the previous regulatory control period.[81] We will collect actual data relating to this expenditure to further inform our decision on the amount of forecast immediate expensing of capex in future regulatory determinations. Benchmarking may also be considered going forward.[82]
- **diminishing value multiplier:** The PTRM applies the diminishing value method of tax depreciation and provides an input section for the 'diminishing value multiplier' to be recorded for each year of the regulatory control period. We note that currently the diminishing value multiplier is set at 200% by the ATO.
- **new assets to be exempted from the diminishing value method:** The PTRM applies the diminishing value method for tax depreciation purposes to all new depreciable assets except for certain assets. It provides for asset classes 47 to 50 to be depreciated using the straight-line method for tax purposes rather than the diminishing value method. These asset classes are to contain new assets associated with in-house software, buildings (capital works) and equity raising costs.

  We consider that the benchmark cost for equity raising costs should not be depreciated using the diminishing value method. We note that section 40.880 of the ITAA and the ATO's Taxation Ruling 2011/6[83] require that businesses claim deductions on equity raising costs in equal proportions over a five-year period. Therefore, in the PTRM, we

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79 AER, *Rate of return Instrument, Explanatory Statement*, February 2023, pp. 240–250.

80 Transgrid, *2024–29 Revenue Proposal – Post-tax revenue model*, 30 June 2023.

81 In the tax review final report we labelled our approach to determining the amount of capex that is to be immediately expensed as an 'actuals informed approach'. AER, *Final report, Review of regulatory tax approach*, December 2018, p. 66.

82 AER, *Final report, Review of regulatory tax approach*, December 2018, pp. 66–67.

83 ATO, *Taxation Ruling 2011/6*, July 2016.

apply the straight-line method for calculating the tax depreciation for equity raising costs, consistent with the ITAA and ATO's requirements.[84] Further, the Network Operator may propose capex associated with buildings and in-house software to be exempted from the diminishing value method of tax depreciation in the PTRM if the proposal satisfies the following requirements:

- **buildings**: We consider that capex for buildings may be exempted from the diminishing value method in the PTRM, consistent with sections 43.15, 43.140 and 43.210 of the ITAA. However, such capex must be consistent with the definition of a capital work under section 43.20 of the ITAA and in ATO Taxation Ruling 97/25.[85] We note that this includes new buildings and structural improvements to existing buildings.[86] However, capex on separate assets within a building such as air-conditioning units, transformers and converters are not consistent with the definition of a capital work, and therefore required to be depreciated using the diminishing value method in the PTRM.
- **in-house software**: We consider that capex for in-house software may be exempted from the diminishing value method in the PTRM, consistent with section 40.72 of the ITAA. However, such capex must be consistent with the definition of in-house software under section 995.1 of the ITAA and in ATO Taxation Ruling 2016/3.[87] We note that this includes computer software, or the right to use computer software that the Network Operator acquires, develops or has someone else develop for the Network Operator's business use.[88] However, capex associated with other IT assets such as computer hardware is not consistent with the definition of in-house software, and therefore required to be depreciated using the diminishing value method in the PTRM.

6.3 Interrelationships

The cost of corporate income tax building block feeds directly into the annual building block revenue requirement. This cost is determined by five factors:

- pre-tax revenues
- tax expenses (including tax depreciation)
- the corporate tax rate
- any tax losses carried forward
- gamma—the expected proportion of company tax that is returned to investors through the utilisation of imputation credits—which is offset against the cost of corporate income tax.

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84 The benchmark cost for equity raising costs is determined within the PTRM.

85 ATO, *Taxation Ruling 97/25,* July 2017.

86 ITAA, section 43.20.

87 ATO, *Taxation Ruling 2016/3*, October 2018.

88 ITAA, section 995.1.

Of these factors, the corporate tax rate is set externally by the Government. The higher the tax rate the higher the required cost of corporate income tax.

The pre-tax revenues depend on all the building block components. Any factor that affects revenue will therefore affect pre-tax revenues. Higher pre-tax revenues can increase the tax payable.[89] Depending on the source of the revenue increase, the tax increase may be equal to or less than proportional to the company tax rate.[90]

The tax expenses (or deductions) depend on various building block components and their size. Some components give rise to tax expenses, such as opex, interest payments and tax depreciation of assets. However, others do not, such as increases in return on equity. Higher tax expenses offset revenues as deductions in the tax calculation and therefore reduce the cost of corporate income tax (all things being equal). Tax expenses include:

- Interest on debt – because interest is a tax offset. The size of this offset depends on the ratio of debt to equity and therefore the proportion of the RAB funded through debt. It also depends on the allowed return on debt and the size of the RAB.
- General expenses – these expenses generally will match the opex including any revenue adjustments, but the assessment of whether they should be treated as a tax expense occurs on a case-by-case basis.
- Tax depreciation – a separate TAB is maintained for the Network Operator reflecting tax rules. This TAB is affected by many of the same factors as the RAB, such as capex, although unlike the RAB value it is maintained at its historical cost with no indexation. The TAB is also affected by the depreciation rate/method and asset lives assigned for tax depreciation purposes.

A business that has tax expenses which are greater than its taxable revenue in a period would not be subject to pay tax and generate a tax loss. A tax loss can be carried forward to offset against tax payable in the future.

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89 Further, there is an iterative relationship between tax and revenues. That is, revenues lead to tax being applied, which increases revenues and leads to slightly more tax and so on. The PTRM is therefore set up to run an iterative process until the revenue and the cost of corporate income tax become stable.

90 For example, although increased operating expenditure adds to the revenue requirement, these expenses are also offset against the revenues as deductions in determining tax, so there is no net impact in this case. A higher return on equity, in contrast, gives rise to no offsetting tax expenses and therefore increases the cost of corporate income tax in proportion to the company tax rate.