Draft decision on Basslink Electricity Transmission Determination 2026 to 2030

(1 July 2026 to 30 June 2030)

Attachment 1

Opening regulatory asset base

September 2025

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the Australian Energy Regulator's (AER's) draft decision on the transmission determination that will apply to Basslink for the 2026–30 period. It should be read with all other parts of the draft decision.

The draft decision includes the following attachments:

Overview

Attachment 1 – Opening regulatory asset base

Attachment 2 – Capital expenditure

Attachment 3 – Operating expenditure

Attachment 4 – Efficiency benefit sharing scheme

Attachment 5 – Capital expenditure sharing scheme

Attachment 6 – Service target performance incentive scheme

Attachment 7 – Transmission pricing methodology

Attachment 8 – Negotiated services

Attachment 9 – Pass through events

Contents

1 Opening asset value

The regulatory asset base (RAB) is the value of the assets used by Basslink to provide prescribed transmission services.[1] We are required to make a determination on Basslink's opening RAB value to apply at the beginning of the first year of the first regulatory control period (1 July 2026).[2]

1.1 AER draft decision

Our draft decision is to determine an opening value of Basslink's RAB at 1 July 2026 of $720.51 million ($2026-27).[3]

As shown in Figure 1–1, the opening RAB would be predominately constituted of the 'cable' asset class (69% of the overall asset value).

Our draft decision opening RAB value of $720.51 million (2026-27) is $32.27 million less than the revised opening RAB value proposed by Basslink of $752.78 million ($2025-26).[4] However, Basslink proposed that its first regulatory control period start on 1 July 2025 and its proposed opening RAB value was to apply from this date. Our draft decision is to commence Basslink's first regulatory control period on 1 July 2026, and our draft decision opening RAB value of $720.51 million applies from this date. If Basslink's first regulatory control period had started on 1 July 2025, we estimate its opening RAB value would be $728.28 million ($2025-26), $24.50 million less than proposed by Basslink.

Our draft decision opening RAB value reflects Basslink's depreciated actual cost and is estimated using the same methodology used by Basslink in its proposed value of depreciated actual cost. However, we have corrected a number of errors in Basslink's depreciated actual cost calculation, and used alternative input values that we consider result in a more accurate reflection of Basslink's depreciated actual cost.

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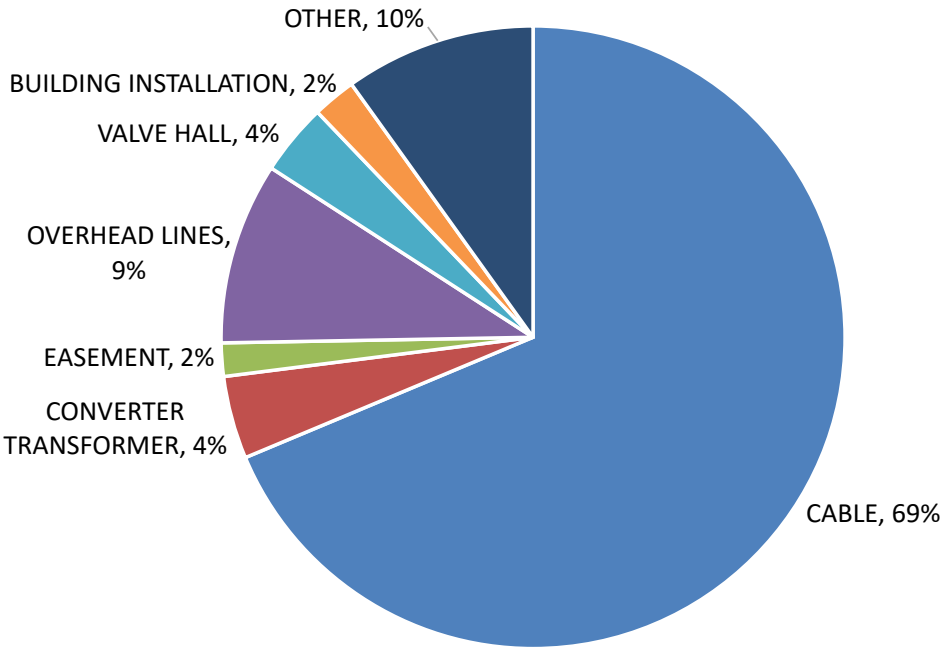
1 NER, cl. 6A.6.1(a).

2 NER, cl. 11.6.20(d).

3 The post-tax revenue model (PTRM) for Basslink's 2026-30 regulatory control period, published alongside our draft decision, presents our determination of the opening value and remaining lives at 1 July 2025 for each of Basslink's asset classes.

4 Basslink initially proposed an opening asset value of $831 million based on depreciated actual cost. On 12 April 2024, Basslink submitted an amended depreciated actual cost estimate of $792 million, reflecting revisions to on the day cost of debt instead of a trailing average cost of debt, estimates of forecast and actual inflation, and removal of the ambient temperature cooling project from forecast capital expenditure. On 10 July 2024, Basslink submitted a further amended depreciated actual cost estimate of $813 million, updated to include additional forecast expenditure in 2024-25 for cable spares and repair vessel fit out costs. On 27 September 2024, Basslink submitted a further amended depreciated actual cost estimate of $752.78 million, reflecting their use of different asset lives for the 'cables' and 'overhead lines' asset classes.

Figure 1–1 Contribution of asset classes to opening asset value



In determining Basslink's opening RAB value we are required to apply the previous regulatory approach[5] from the ACCC's 2003 Murraylink determination[6] and the AER's 2006 Directlink determination.[7] The previous regulatory approach involves applying a regulatory investment test to ascertain if the market benefits of the Basslink interconnector exceed its depreciated actual cost, and if there are any credible alternative asset options that could produce greater net benefits than Basslink. Broadly, if Basslink's depreciated actual cost is lower than the value of its benefits,[8] and there is no other more efficient alternative asset option, then Basslink's assets are valued at depreciated actual cost. The legislative framework for determining Basslink's RAB value, and the matters we consider, are set out in full in Appendix A. Our approach to determining Basslink's opening RAB value is consistent with Basslink's proposal.

5 NER, cl. 11.6.20(e).

6 ACCC, *Murraylink Transmission Company Application for Conversion and Maximum Allowed Revenue, Decision*, 1 October 2003.

7 AER, *Directlink Joint Venturers' Application for Conversion and Revenue Cap Decision*, March 2006

8 Which we have determined by quantifying Basslink's market benefits. The AER's Cost-Benefit Analysis Guidelines (November 2024) describe 'market benefits' as:

The present value of the benefits of a credible option or development path, or a benefit to those who consume, produce and transport electricity in the market, that is, the change in producer plus consumer surplus. The classes of market benefits are set out in the NER (clause 5.15A.2(b)(4), 5.15A.3(b)(4), 5.22.8(c)).

Further details on our estimation of Basslink's depreciated actual cost, alternative replacement assets (and the depreciated cost of the optimised replacement asset), and the market benefits provided by Basslink, are contained in appendices B, C, and D respectively.

To estimate depreciated actual cost we:

1) Estimate the original cost of constructing Basslink, including the costs of financing the construction (a return on capital during the construction period and capital raising costs).
2) Add the value of additions to the asset base (capital expenditure) made over time.
3) Subtract from the value of any assets disposed of over time.
4) Maintain the real value of the asset base over time by indexing the nominal value by the rate of inflation.
5) Depreciate the asset base – that is, subtract an amount of depreciation in each year so that the total amount of depreciation over the economic life of the asset equals the total value of the capital invested in the asset.

When exercising any discretion in determining the value of Basslink's opening RAB, we must have regard to the prudent and efficient value of Basslink's assets used to provide prescribed transmission services.[9] Overall, we consider that relying on the actual costs of constructing Basslink is likely to result in an estimate of depreciated actual cost that reflects the prudent and efficient costs of constructing Basslink. We come to this view after considering Basslink's circumstances at the time, benchmarking against modern construction costs, and considering the modelling of the value of the assets to the market. Further detail of our assessment is set out in appendix B.2.

Our RAB roll-forward model (RFM) provides a means for estimating depreciated actual cost from year to year by adjusting for the relevant matters set out in steps 1 to 5 above. Basslink used our RFM to estimate its proposed opening RAB value.[10]

Our draft decision opening RAB value is calculated using the same methodology and RFM used by Basslink in its proposed value of depreciated actual cost. In doing so we use Basslink's proposed estimates of historical capital expenditure derived from its fixed asset register. We consider that Basslink's proposed asset lives for each asset class are reasonable forecasts of economic lives.[11] We have come to this view after benchmarking Basslink's proposed asset lives against lives for similar asset classes of other transmission network service providers (TNSPs) (both standard (forecast) lives accepted in our revenue

9 NER, cl. 11.6.20(g).

10 Our RFM can be found on our website at https://www.aer.gov.au/industry/registers/resources/models/electricity-roll-forward-models-transmission-and-distribution-2020-amendment

Basslink's proposed opening RAB value, estimated using our RFM, can be found on our website at https://www.aer.gov.au/industry/registers/determinations/basslink-determination-2025-30/proposal#models-update-october-2024

11 See section 3.4.2 of our draft decision overview for Basslink's 2026–30 revenue determination.

determinations and experience of actual asset lifespans), and considering the Australian Tax Office's ruling TR2022/1 on effective lives of depreciating assets.

We also note two asset classes make up 78% of Basslink's opening asset base: cables (69%) and overhead lines (9%). We consider that Basslink's proposed asset life of 40 years for cables is within the range of lives adopted for similar asset classes for other TNSPs. On overhead lines, Basslink proposed an asset life of 40 years. Based on benchmarking against other TNSPs, we consider that overhead lines may, on their own, be expected to last longer than 40 years. However, given the importance of the cable asset class to the economic life of the Basslink interconnector overall, we consider it prudent for the life of overhead lines to be limited to 40 years and not exceed the expected life of the cable asset class. No stakeholder submissions commented on Basslink's proposed asset lives.

While we have adopted the same methodology for calculating depreciated actual cost as Basslink's proposal, we have corrected a number of errors in Basslink's proposed opening RAB calculation. We have also used alternative input values that we consider result in a more accurate reflection of Basslink's depreciated actual cost. In particular, we have made the following adjustments:

- Different input assumptions – for the historical rate of return, historical inflation rate, and forecast capex for 2023–24, 2024–25, and 2025–26.
- Modelling adjustments – to remove double-counting of inflation indexation during the 2000–06 period, prevent equating of expected and actual inflation in the roll-forward models for 2007–25, and to provide a full series of expected inflation over the modelled time period.

The impact of these adjustments and revised input assumptions are set out in Table 1–1. Further detail on these input assumptions and model adjustments is set out in Appendix B.2.

Table 1–1 Impact of adjustments to opening RAB value estimation

Adjustments to opening RAB value estimation	Amount
Basslink's proposed opening RAB value (as at 1 July 2025)	$752.78 million ($2025-26)
Adjustments to the AER RAB Roll-Forward Model to make fit for purpose (remove forecast net capex inputs and forecast depreciation, include full series from 2006 to 2025 for RAB and TAB remaining lives calculation)	+ $9.74 million
Revised inputs of forecast capex for 2023-24, 2024-25	- $2.20 million
Revised inputs of historical inflation rate	+ $9.41 million
Revised inputs for forecast inflation rate	- $0.35 million
Revised inputs for historical rate of return in the Roll-Forward Model	- $0.48 million
Revised input for equity raising costs during construction	- $0.47 million
Revised inputs for historical rate of return during construction, and adjustment to use real instead of nominal rate of return (prevent double inflation indexation)	- $40.15 million
AER assessed opening RAB value (as at 1 July 2025)	$728.28 million ($2025-26)
Roll-forward of RAB value to end of 2025-26 year (plus capex, less asset disposals, less depreciation, plus inflation indexation)	- $7.77 million
AER assessed opening RAB value (as at 1 July 2026)	$720.51 million ($2026-27)

A Legislative framework for determining the opening asset value

Clause 11.6.20(d) of the National Electricity Rules (NER) provides that if the AER determines that Basslink's services are to be prescribed transmission services, the value of the opening RAB is the amount determined in accordance with paragraphs (e), (f) and (g) of clause 11.6.20.

Clause 11.6.20(e) of the NER provides that the AER must determine the opening value of Basslink's RAB "by applying the previous regulatory approach to the circumstances of that transmission system".

Clause 11.6.20(a) of the NER defines "previous regulatory approach" to mean the methodologies, objectives and principles for determination of a RAB applied in the "previous regulatory determinations." This clause also defines previous regulatory determinations to be the 2003 Murraylink determination by the ACCC[12] and the 2006 Directlink determination by the AER[13]. Clause 11.6.20(f) of the NER provides that in the event of an inconsistency between the previous regulatory approaches adopted in the Murraylink and Directlink determinations, the Directlink approach will prevail to the extent of the inconsistency.

Clause 11.6.20(g) of the Rules provides that, without limiting paragraph (e), the AER must, when exercising any discretion in relation to the application of paragraph (e):

> (1) have regard to the prudent and efficient value of the assets that are used by the relevant Transmission Network Service Provider to provide those prescribed transmission services (but only to the extent that those assets are used to provide such services); and
> (2) for this purpose [i.e. for the purpose of having regard to the prudent and efficient value], determine that value having regard to the matters referred to in clause S6A.2.2.

The matters referred to in clause S6A.2.2 of the NER are matters the AER must have regard to in determining the prudency and efficiency of capital expenditure.

A.1 The previous regulatory approach in Murraylink (2003) and Directlink (2006)

The 2003 Murraylink decision

Similarly to Basslink, Murraylink was an electricity transmission interconnector that converted from a Market Network Service Provider (MNSP) to a regulated interconnector providing

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12 ACCC, *Murraylink Transmission Company Application for Conversion and Maximum Allowed Revenue, Decision*, 1 October 2003.

13 AER, *Directlink Joint Venturers' Application for Conversion and Revenue Cap Decision*, March 2006.

prescribed transmission services. The ACCC decided Murraylink's conversion application under the National Electricity Code (Code), and in doing so determined its RAB value.

The ACCC stated it used the Regulatory Test to determine Murraylink's opening RAB.[14] The Regulatory Test was made under the Code. It was the prior equivalent of the Regulatory Investment Test for Transmission (RIT-T) in the current National Electricity Rules. The Regulatory Test (like the RIT-T) was imposed to require proponents of a new interconnector or large augmentation to demonstrate that the proposed project optimised market benefits. A proposed augmentation was taken to maximise market benefits if it: (a) achieved a greater net market benefit than a future without the augmentation in most credible scenarios, and (b) maximised market benefits compared to credible alternative projects.

In its ordinary use, a regulatory investment test (such as the RIT-T or the previous Regulatory Test) is undertaken before the project is constructed. It is a tool to identify which options are suitable to meet a given need and to select from those options the optimal project. Once the optimal project is built, the cost of the project becomes the asset value. However, in the Murraylink decision the regulatory investment test was applied in the context of valuing an asset that was already built. In this context, the cost of the asset already in service can be compared against alternatives that could have been built or used in its place. Such an approach will determine whether the asset already in service reflects the optimal solution to address the relevant need or whether some other asset (or portfolio of assets and market services) would have been more preferable. Where an alternative is identified through a regulatory investment test to be a more efficient solution to the identified need than the asset already in service, the cost of the optimal alternative project can be used to determine the opening asset value.

The most preferable alternative option identified through a regulatory investment test can be considered as the optimised replacement to the asset already in service, and its costs can be considered the optimised replacement cost (ORC). When depreciated to reflect the same remaining life as the asset already in service its costs can then be referred to as depreciated optimised replacement cost, or 'DORC'.

In its 2003 Murraylink decision the ACCC assessed Murraylink and four alternative potential projects. The ACCC determined that one of the alternative projects, "Alternative 3", maximised net market benefit. The ACCC found that all potential projects had the same gross market benefits, but Alternative 3 had the lowest cost. Alternative 3 therefore maximised net market benefits. The ACCC decided to value Murraylink's RAB as the cost of constructing Alternative 3, which it determined to be an optimised replacement to Murraylink. The ACCC estimated the cost of constructing Alternative 3. It then applied that construction cost as Murraylink's opening RAB.

The valuation "approach" taken by the ACCC in the Murraylink decision can be most succinctly summarised as:

1) Applying the Regulatory Test to identify the optimal or most efficient asset configuration (including assessing Murraylink as built); and

[14] ACCC,*Murraylink Transmission Company Application for Conversion and Maximum Allowed Revenue, Decision*, 1 October 2003, p 47.

2) Applying the present day (2003) construction cost of the optimal configuration as the opening RAB for Murraylink.

The ACCC did not depreciate this value. In the Directlink draft decision, the AER noted that, at the time of Murraylink's conversion, it had only been in service for around 12 months.[15]

In effect the ACCC used an optimised replacement cost valuation method, in circumstances where the Alternative 3 was a lower-cost and higher net market benefit alternative to Murraylink.

The 2006 Directlink decision

In its 2006 Directlink decision the AER stated that it would apply the Regulatory Test in its process of determining Directlink's opening asset value. In considering Directlink's asset valuation the AER noted that it was required under the National Electricity Code to have regard to a 1994 Council of Australian Governments (COAG) agreement that deprival value is the preferred approach to valuing network assets. In considering the deprival value method, the AER stated:[16]

> *The AER notes that both the [optimised deprival value or] ODV method of asset valuation and the regulatory test framework seek to identify and evaluate the optimal configuration and sizing of the asset to achieve a particular level of service. The asset value is set by reference to the cost of the optimal project under both approaches and both discourage inefficient investment through inefficient assets being revalued down to their optimised replacement cost. The main difference between the two approaches is that the regulatory test may consider a wider range of alternatives that provide similar, but not identical levels of service, and a number of market scenarios… the AER proposes to apply the regulatory test to Directlink to identify an optimal project. The cost of this optimal project can then be used to determine Directlink's asset value.*

In applying the Regulatory Test, the AER considered Directlink as built, and three alternative project configurations. It considered those four project configurations against six credible market scenarios. It determined that none of the project configurations satisfied the Regulatory Test, as none of them returned a positive net market benefit in most of the scenarios. The AER discussed giving a zero value opening RAB to Directlink, stating that:[17]

> *The regulatory test assessment indicated that no project is optimal and that Directlink would not be constructed. One option for the AER, therefore, would be to allow conversion of Directlink with a zero asset value.*

If no project passes the Regulatory Test then no project is optimal and the 'do-nothing' option is the preferred option, with a cost of zero. However, the AER dismissed applying a valuation

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15 AER, *Directlink Joint Venture application for conversion and revenue cap, Draft decision*, 8 November 2005, p 131.

16 AER, *Directlink Joint Venture application for conversion and revenue cap, Draft decision*, 8 November 2005, p 40.

17 AER, *Directlink Joint Venture application for conversion and revenue cap, Draft decision*, 8 November 2005, p 127.

of zero on the basis that it would not encourage efficient use of Directlink.[18] The AER then turned to assessing an economic value (EV) for Directlink. The AER noted that an asset valuation based on Directlink's economic value was consistent with the optimised deprival value method and the National Electricity Code definition of 'deprival value' – namely, the lower of EV or DORC.[19] The AER interpreted economic value as being the greater of an asset's net realisable value (or scrap value) and its value to users, which the AER in turn interpreted as meaning the net present value of future market benefits.[20]

The AER took the median market benefit of Directlink under the six modelled market scenarios. It deducted life-cycle opex and added an equity raising cost allowance. That amount was depreciated for the five years that Directlink had been in service, resulting in a depreciated EV valuation of $116.7 million. The AER applied this final value as the opening RAB for Directlink.[21]

The previous regulatory approach

Considering the 2003 Murraylink and 2006 Directlink decisions, the previous regulatory approach, as applied to the circumstances of Basslink, may be summarised as:

- Apply a regulatory investment test to Basslink. That is, assess the costs and benefits of Basslink and any credible alternatives.
- If Basslink's depreciated actual cost is lower than its benefits, and there is no other more efficient alternative asset option, then Basslink's assets are valued at depreciated actual cost.
- If a more efficient alternative asset option exists that has a higher net benefit, then Basslink's assets are valued at the depreciated cost of that optimal alternative (that is, the depreciated optimised replacement cost).
- If none of the asset options have costs greater than benefits then Basslink's assets are valued at its Economic Value, estimated as the benefits that the asset provides to the market.

Clause 11.6.20(g) of the Rules

Under clause 11.6.20(e) of the Rules, we must determine the value of Basslink's RAB by applying the previous regulatory approach, which we have described above.

Clause 11.6.20(g) of the Rules then provides that without limiting paragraph (e), the AER must, when exercising any discretion in relation to the application of paragraph (e):

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18 AER, *Directlink Joint Venture application for conversion and revenue cap, Draft decision*, 8 November 2005, p 127.

19 AER, *Directlink Joint Venture application for conversion and revenue cap, Draft decision*, 8 November 2005, pp 127-128.

20 AER, *Directlink Joint Venture application for conversion and revenue cap, Draft decision*, 8 November 2005, pp 34-35.

21 AER, *Directlink Joint Venture application for conversion and revenue cap, Draft decision*, 8 November 2005, pp 130-131.

1. have regard to the prudent and efficient value of the assets that are used by the relevant Transmission Network Service Provider to provide those prescribed transmission services (but only to the extent that those assets are used to provide such services); and
2. for this purpose, determine that value having regard to the matters referred to in clause S6A.2.2.

Clause S6A.2.2 of the Rules is entitled "Prudency and efficiency of capital expenditure," and provides as follows.

> In determining the prudency or efficiency of capital expenditure under clause S6A.2.1(d)(2) or S6A.2.1(e)(2), the AER must have regard to:
>
> > **(1)** the need to provide a reasonable opportunity for the relevant Transmission Network Service Provider to recover the efficient costs of complying with all applicable *regulatory obligations or requirements* associated with the provision of prescribed transmission services;
> >
> > **(2)** the need to provide effective incentives to the Transmission Network Service Provider to promote economic efficiency in the provision of prescribed transmission services;
> >
> > **(3)** whether the relevant project in respect of which capital expenditure was made was evaluated against, and satisfied, the regulatory investment test for distribution or regulatory investment test for transmission (as the case may be);
> >
> > **(4)** whether the Transmission Network Service Provider undertook the capital expenditure in a manner consistent with good business practice and so as to practicably achieve the lowest sustainable cost of delivering the prescribed transmission services to be provided as a consequence of that capital expenditure;
> >
> > **(5)** the desirability of minimising investment uncertainty for the Transmission Network Service Provider; and
> >
> > **(6)** the need to provide incentives to the Transmission Network Service Provider to avoid undertaking inefficient capital expenditure.
>
> In determining the prudency or efficiency of capital expenditure the AER must only take into account information and analysis that the provider could reasonably be expected to have considered or undertaken at the time that it undertook the relevant capital expenditure.

Therefore, when exercising any discretion in applying the previous regulatory approach to Basslink, we must have regard to the prudent and efficient value of the assets that are used by Basslink to provide prescribed transmission services. We interpret "prudent and efficient value" to mean the efficient cost that a prudent network service provider would have incurred to construct the assets that are used (or will be used) to provide prescribed transmission services.

We consider the key discretion we exercise under the previous regulatory approach that may be affected by the prudent and efficient value of Basslink's assets is in relation to determining the actual cost of constructing Basslink, and in using that value to set the RAB. If we have reason to consider that the actual construction cost exceeded the prudent and efficient construction cost, we would have regard to this in determining the depreciated actual cost and in deciding the RAB value.

At appendix B we consider Basslink's depreciated actual cost and the prudency and efficiency of these costs.

At appendix C we consider credible alternatives to the Basslink interconnector, and the depreciated cost of these alternative assets. We then consider the market benefits that may result from these alternative assets, identify the optimal alternative with the greatest net benefit, and whether the optimal alternative is more efficient (provides greater net benefits) than Basslink's current assets.

At appendix D we discuss the estimation of the market benefits provided by Basslink and the market benefits provided by credible alternatives to the Basslink interconnector.

A.2 Submissions on the approach to determining the opening RAB value

Assessment approach – interpreting the 2003 Murraylink and 2006 Directlink decisions

Basslink submitted that: [22]

> *the 'previous regulatory approach' does not permit a value within a range. The 'previous regulatory approach' refers specifically to the methodologies adopted in the previous determinations, along with the relevant objectives and principles.*

Basslink also submitted that: [23]

> *in effect, under the previous regulatory approach, the RAB is equal to the lesser of the efficient cost of the optimal project and its value to users as reflected in gross market benefits.*

In our consultation paper on Basslink's conversion we noted that:

- The opening value of Basslink's regulatory asset base may reflect a cost to consumers of conversion
- It is possible that, depending on the circumstances, the costs of conversion may be too high and preclude a decision to convert

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22 APA, *Basslink Response – Response to AER Conversion Application Consultation Paper*, 20 September 2024, p 44.

23 APA, *Basslink Response – Response to AER Conversion Application Consultation Paper*, 20 September 2024 p 44.

- The opening asset value could be adjusted to a level that would result in the conversion cost-benefit test breaking even or resulting in positive net benefits.

Basslink submitted that our consultation paper referring to a potential 'adjustment' to the RAB in order to produce particular outcomes on the conversion test is "a step that was not contemplated in either of the previous regulatory determinations, and which has no basis in precedent or principle". [24]

The previous regulatory approach from the 2003 Murraylink and 2006 Directlink decisions is to apply a regulatory investment test to Basslink and to have regard to the outcomes of applying a regulatory investment test when determining opening asset value on the basis of depreciated actual cost, depreciated optimised replacement cost, or economic value. This is consistent with the approach proposed by Basslink.

In our conversion decision we considered the opening value of Basslink's RAB that might result from the application of the previous regulatory approach, and did not consider this cost too high or precluding a decision to convert. We considered that, while conversion would mean that consumers would face certain transmission costs and the risk that the benefits they receive may not outweigh those costs. We also considered that the asset would continue to have value and use, reducing the potential for this outcome. We indicated we would carefully consider this in our revenue determination. The previous regulatory approach, as applied in this determination, has enabled us to do so.

Alternative approaches to determining Basslink's opening RAB value

A number of stakeholders submitted alternative methods for determining Basslink's opening RAB value:

- Limiting the RAB value to the consumer benefits from conversion:

  The Tasmanian Government submitted that we should reduce the opening value of Basslink's regulatory asset base if the costs of conversion are higher than the benefits, stating that the RAB "should be set such that the incremental benefits to customers from regulation (over the status quo) are greater than the costs that they will face arising from conversion.[25] Aurora Energy and the Tasmanian Minerals, Manufacturing and Energy Council also encouraged us to review the opening value of Basslink's regulatory asset base, noting uncertainty about the net benefits to consumers of conversion.

- Limiting the RAB value to be no greater than recent transaction values:

  In response to our issues paper Aurora Energy and the Tasmanian Minerals, Manufacturing and Energy Council submitted that Basslink's initial proposed opening asset value of $831m is greater than the price APA paid to acquire the Basslink interconnector (APA acquired Basslink for $773 million in October 2022).[26]

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24 APA, *Basslink Response – Response to AER Conversion Application Consultation Paper*, 20 September 2024, p 44.

25 Tasmanian Government, *Basslink Conversion Application and Electricity Transmission Determination - Tasmanian Government Submission*, February 2024, p 9.

26 Aurora Energy, *Submission on Basslink Issues Paper*, 19 February 2024, p 1.

- Limiting the RAB value to be no greater than the net present value of unregulated interconnector earnings:

  Aurora Energy submitted that Basslink's proposed revenue if converted (noting that the opening asset value is a significant determinant of regulated revenue) would be higher than the revenue that the previous owner of Basslink earned when operating the interconnector as an unregulated market interconnector.[27]

While we acknowledge the content and intent of these submissions, the NER require us to determine Basslink's opening RAB value by applying the previous regulatory approach from the 2003 Murraylink and 2006 Directlink decisions. The previous regulatory approach does not include limiting the RAB value to the consumer benefits of conversion, or to the value of unregulated interconnector earnings, or to recent acquisition values for Basslink.

Value of benefits provided by Basslink's services

As we have discussed above, to apply the previous regulatory approach to the circumstances of Basslink we need to determine the benefits that the Basslink interconnector, and credible alternatives to the interconnector, may provide to the market.

Submissions from AEMO, Aurora Energy, the Tasmanian Minerals Manufacturing and Energy Council, Mr J Pauley, the Victorian Government, and Hydro Tasmania commented on Basslink's estimated value of the benefits provided by the interconnector. A number of submissions queried the input assumptions underpinning the market modelling undertaken by EY and used to estimate the benefits provided by Basslink to the market. Further detail on these submissions is in appendix D.2 below.

Alternate estimates of the benefits of the Basslink asset resulting from alternate input assumptions could be lower or higher than proposed by Basslink. Nonetheless, we consider that, overall, these benefits are likely to be greater than Basslink's depreciated actual cost.

We note, as submitted by Mr J Pauley, that market modelling of the benefits of Marinus Link (conducted by both Marinus Link in its RIT-T and AEMO in its ISP) supports the finding of significant benefits from interconnection between Tasmania and Victoria.[28]

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27 Aurora Energy, *Submission on Basslink Issues Paper*, p 1-2.

28 John Pauley, *Submission on Basslink Conversion Consultation Paper*, September 2024, pp 4-5. For information on the modelling of net benefits of increased interconnection between Tasmania and Victoria, see: Marinus Link Pty Ltd, Project Marinus RIT-T update, 16 April 2024; AEMO, 2024 Integrated System Plan, 26 June 2024.

B Estimating Basslink's depreciated actual cost

Basslink estimated the depreciated actual cost of its assets, as at 1 July 2025, to be $752.78 million ($2025-26).[29] Attachments 5.1a, 5.1b, and 5.1c to Basslink's revenue proposal set out Basslink's estimation of depreciated actual cost.

We consider that Basslink's method for estimating its depreciated actual cost is reasonable, but that a number of inputs, particularly Basslink's historical cost of capital and historical inflation rates, should be adjusted to reflect more accurate estimates. We estimate a revised depreciated actual cost, as at 1 July 2025, to be $728.28 million ($2025-26).

Our draft decision is also to commence Basslink's first regulatory control period on 1 July 2026, one year later than proposed by Basslink. Accordingly, we estimate Basslink's depreciated actual cost as at 1 July 2026 to be $720.51 million ($2026-27).

Section B.1 below outlines the method adopted by Basslink to estimate its depreciated actual cost. Section B.2 below sets out our assessment of factors relevant to estimating Basslink's depreciated actual cost and assessing the prudency and efficiency of this cost estimate.

B.1 Basslink's proposed method for estimating depreciated actual cost

To estimate its proposed depreciated actual cost of its assets, Basslink:

1. Identified its earliest asset values from its fixed asset register at the time Basslink first came into operation (2006).
2. Allocated the initial asset values across the earlier construction period (2000 to 2006) based on a construction profile reported to ASIC.
3. Added financing costs during construction based on an estiamted cost of capital at the time and an estimated transaction cost for raising equity. Basslink submitted that as Basslink was a commercial service at the time and would have required capital at commercial rates, it is reasonable to consider the appropriate rate of return to be a commercial rate of return. Basslink submitted that its assumed cost of capital reflected the risks the service provider faces in providing services in a single-asset unregulated business, subject to the market and the market of its customers.[30]
4. Adjusted the asset values from year to year from 2006 to 2025, using the AER RAB Roll-Forward Model, to account for:

[29] APA, *Regulatory asset base – update to Basslink Pty Ltd proposal*, October 2024. Basslink's estimate of its deprecated actual cost of $753m was submitted in 2023, and was based on forecasts of capex for the 2023-24 and 2024-25 years. Basslink subsequently submitted actual capex estimates for these years that result in a revised estimate of deprecated actual cost of $748m.

[30] APA, *Basslink Transmission Revenue Proposal*, 15 September 2023, pp 125, 141.

- Actual capital expenditure and asset disposals as recorded in Basslink's accounts up to 2023
- Capital expenditure and asset disposals forecast by Basslink to occur from 2023 to 2025
- Depreciation, based on assumed asset lives for each asset category (average asset life of 40 years) and a straight-line depreciation profile
- Inflation indexation applied to capital costs based on historical CPI to 2023
- Inflation indexation applied to capital costs based on Basslink's forecast of inflation from 2023 to 2025.

B.2 AER assessment of depreciated actual cost and prudent and efficient value

We consider that Basslink's general approach of beginning with its fixed asset register and adjusting over time for additions, disposals, depreciation, and inflation indexation is an appropriate method for estimating depreciated actual cost.

It is difficult to directly assess the prudency and efficiency of the asset values within Basslink's fixed asset register. Most of the assets in this register relate to capital expenditure that occurred over 20 years ago, well before APA acquired Basslink, and records of the particulars of this capital expenditure are limited. Nonetheless, we can indirectly assess the prudency and efficiency of Basslink's depreciated actual cost by considering the following factors.

First, Basslink was constructed, and has to date been operating, as an unregulated market network service provider with incentives to minimise efficient costs. We are not aware of any evidence that Basslink's historical costs were not prudent and efficient.

Second, Basslink's depreciated actual cost is lower than modern construction costs. Amplitude Consultants estimated the (depreciated) current-day cost to construct a modern engineering equivalent interconnector to Basslink to be 23 per cent higher than Basslink's depreciated actual cost. Similarly, the forecast costs of Marinus Link's first cable are also materially higher than Basslink's depreciated actual cost, even after adjusting for capacity differences between Marinus Link and Basslink.

Third, market modelling of the benefits of Basslink indicate that the interconnector is likely to produce benefits that significantly exceed its depreciated actual cost.

For these reasons we consider that deriving Basslink's depreciated actual cost from its fixed asset register is likely to result in an estimate of depreciated actual cost the reflects the prudent and efficient value of Basslink.

However, we consider that some of Basslink's other input assumptions and inflation indexation calculations should be adjusted to result in a more prudent and efficient estimate of depreciated actual cost. These adjustments are described in the subsections below.

Forecast capex for 2023-24, 2024-25, and 2025-26

In its proposal, submitted in September 2023, Basslink forecast the capex it would incur in 2023-24, 2024-25, and 2025-26. We now have available to us data on the actual capex incurred by Basslink in 2023-24 and 2024-25. Basslink also submitted a revised forecast of capex it would incur in 2025-26. We have substituted these updated actual capex and forecast capex amounts into our estimation of Basslink's depreciated actual cost.

We have also made the following adjustments to Basslink's proposed capex in 2023-24, 2024-25, and 2025-26 to ensure that Basslink's depreciated actual cost reflects the prudent and efficient value of Basslink:

- In the 'Other' asset category, Basslink included capex of $1.7 million in 2022-23, $1.6 million in 2023-24, and $0.2 million in 2024-25 as costs incurred to prepare its conversion application and revenue proposal. We consider that these costs are more appropriately treated as operating expenses rather than capital expenditure, and have excluded these amounts of capex in 2023-24 and 2024-25 from our opening asset value calculation.
- Within the 'Other' asset class, Basslink also included $0.25 million for Minor Plant and Equipment in 2025-26. We have included $0.2 million on the basis that some of the historical data included elements that are included in other forecast categories.
- In the 'Building Installation' asset category, Basslink included $1.7 million of capex in 2025-26 for security upgrades to the Loy Yang and Georgetown buildings. We do not consider that all elements of Basslink's proposed expenditure is efficient. We consider that $1.1 million of capex in 2025-26 for these upgrades is prudent and efficient.
- In the 'Cable' asset category, Basslink included capex of $0.29 million in 2022-23, $16.63 million in 2023-24, $0.25 million in 2024-25, and $0.41 million in 2025-26 for the fit out of the Lodbrog, the contracted repair vessel. The costs of the Lodbrog fit out are particular to the Lodbrog and are only likely to be fit for purpose for the 5-year length of the contract for that particular vessel. We therefore consider that it is more appropriate that this expenditure is included in the 'Other' asset class, which has a 5 year life, rather than in the Cable asset class, which has a 40 year life. This is also consistent with the forecast period 2026-30, where Basslink proposed vessel fit out capex in the 'Other' asset class.
- In the 'Control systems' asset class, Basslink forecast that it would incur capex of $5.28 million in 2025-26 related to its proposed renewal of its control and protection systems. In Attachment 2 (Capital Expenditure) of our draft revenue determination we noted that we have included placeholder amounts of forecast capex for renewal of Basslink's control and protection systems, noting that we have insufficiently robust cost information to form a view on the prudency and efficiency of the capex amounts for this renewal project. We expect Basslink will provide more robust cost information in its revised proposal following negotiations with potential suppliers.

Further detail on our assessment of the prudency and efficiency of these capex items is in Attachment 2 (Capital Expenditure) of our draft revenue determination.

Inflation indexation during the construction period 2000-06

Basslink's model for estimating depreciated actual cost applied both inflation indexation and an estimate of financing costs during construction. Basslink used a nominal rate of return in estimating financing costs over this period. The combination of a nominal rate of return for calculating financing costs on top of inflation indexation provides a double-inflation-indexation of the asset base. To ensure the asset base is indexed only once, we consider that financing costs should be estimated using a real rate of return (adjusted from the nominal rate of return based on inflation expectations over the model period).

Inflation indexation in the roll-forward from 2006 to 2026

The AER's Roll-Forward Model adjusts the asset base by indexing for actual inflation, as well as applying adjustments for cash flow timing and financing costs based on a real rate of return. Therefore, the model requires estimates of both actual inflation (for indexation) and expected inflation (for calculating the real rate of return from the benchmark nominal rate of return). On this basis we consider the following adjustments are required:

- A consistent series of the expected inflation rate over the model period (2000-2026) should be estimated and distinguished from the actual (outturn) inflation rate.
- Basslink's proposed application of the Roll-Forward Model included inputs for expected inflation for the first three years, then assumed a constant rate of expected inflation in later years equal to the expected inflation rate in the third year. For Basslink's depreciated actual cost we consider that a series for expected inflation should be developed for each year (2000-2026) to ensure an accurate estimate of the real rate of return in each year.
- Our Roll-Forward Model for Basslink's 2026-30 regulatory control period would use a six-month lagged actual inflation index – that is, an actual inflation rate based on the Australian Bureau of Statistics' December quarter Consumer Price Index (CPI). For consistency and to ensure that the indexation of Basslink's asset base reflects the actual, historical inflation rate without any gaps in the data series, we consider that the depreciated actual cost should be estimated using a consistent December-quarter CPI series.

Adjusting the Roll-Forward Model for Basslink's circumstances

Basslink used our RAB Roll-Forward Model to adjust the asset base over time. Our Roll-Forward Model was established to adjust the regulatory asset base for established regulated transmission businesses. It needs to be adjusted in the following ways to be fit-for-purpose for adjusting the asset base of Basslink's (historically) unregulated transmission business:

- The 'forecast net capex', 'actual net capex', 'forecast regulatory depreciation – as incurred', and 'forecast regulatory depreciation – as commissioned' input cells should be left black. Filling out these inputs results in a true-up calculation, which is not relevant for the historically unregulated Basslink.
- Historical capex data for earlier periods (from 2006 onwards) should be retained in the 'RAB remaining lives' and 'TAB remaining lives' sheets to ensure correct calculation of remaining lives.

Historical benchmark rate of return and inflation expectations

As noted in the previous subsection, our Roll-Forward Model requires an estimate of the rate of return and expected inflation for the purpose of adjusting the asset base to account for cash flow timing assumptions and financing costs. Therefore, estimating Basslink's depreciated actual cost requires estimating a benchmark rate of return and expected inflation over the model period of 2000-2026.

Our views for each rate of return parameter are set out in Table 1–3 below.

Table 1–2 Adjustments to historical rate of return assumptions

Rate of return parameter	Description
Risk free rate	Basslink applied the estimate of risk-free rate developed by Brailsford, Handley and Maheswaran (BHM) (2012).[31] BHM's estimate uses the 10-year treasury bond yield, obtained from the Reserve Bank of Australia (RBA), at the end of December each year as the proxy for the risk-free rate in that year.[32] BHM's estimate is calculated based on calendar years. To align with financial years, we recalculated the risk-free rate. Specifically, we used the return on Commonwealth Government Securities (CGS) with a 10-year term, downloaded from the Reserve Bank of Australia (RBA), as the proxy for the risk-free rate. The CGS yield is averaged over each financial year to determine the risk-free rate for that year.
Market risk premium	Basslink adopted a Market Risk Premium (MRP) estimate of 6.5%. It stated that this aligns with the standard market-accepted risk premium for the reporting period.[33] We consider our current estimate of 6.2%, as adopted in the 2022 Rate of Return Instrument (2022 Instrument), to be an acceptable MRP estimate.[34] The 6.2% estimate is primarily based on the arithmetic average of the historical excess returns over the period from 1988 to 2022. It also covers the period that we are estimating a WACC for Basslink.
Equity beta	Basslink proposed an equity beta of 1.0, "reflecting the risks the service provider faces in providing services as a single-asset unregulated business, subject to the market and the market of its customers".[35] We consider two factors important in estimating beta for Basslink. Firstly, we consider APA to be an optimal comparator for Basslink, because the two businesses are similar in nature and over 90% of

31 APA, *Basslink Transmission Revenue Proposal, Attachment 5 – Regulatory Asset Base*, 15 September 2023, p 141.

32 T. Brailsford, JC. Handley and K. Maheswaran, '*The historical equity risk premium in Australia: post-GFC and 128 years of data*', Accounting and Finance, 2012, vol. 52(1), pp 237–247.

33 APA, *Basslink Transmission Revenue Proposal, Attachment 5 – Regulatory Asset Base*, 15 September 2023, p 142.

34 AER, *Rate of Return Instrument*, February 2023.

35 APA, *Basslink Transmission Revenue Proposal, Attachment 5 – Regulatory Asset Base*, 15 September 2023, p 141.

Rate of return parameter	Description
	APA's revenue is unregulated with much of that contracted. Therefore, they are likely to have similar exposure to systematic risk. Our most recent longest-period estimate of APA's equity beta, re-levered to 60% gearing, is 0.68 (with a historical maximum of 0.69). Secondly, because Basslink is a commercial entity, we consider that its historical beta should be set at a level that is at least as high as our past decisions on regulated beta assuming the same gearing ratio. This is because we consider its systematic risk would have been as high or higher than if it had been regulated, and if it had been regulated it would have received an allowed return based on the regulated beta. Therefore, as the gearing ratio used for this assessment is the same as the gearing ratio used in all past regulated AER determinations, our position is to estimate Basslink's beta through time as the higher of our past decision on equity beta and our equity beta estimate for APA for each year. From 1 July 2000 to 30 June 2014, we apply our past decisions because they were higher than our equity beta estimates for APA. This means that we estimate Basslink's equity beta to be 1.0 from 1 July 2000 to 30 June 2009 and 0.8 from 1 July 2009 to 30 June 2014, based on the AER's 2009 Weighted Average Cost of Capital review.[36] From 1 July 2014 to the present, we estimate Basslink's beta to be 0.7, in line with our equity beta estimate for APA. This is the same as our benchmark value of 0.7 from the AER's 2013 Rate of Return Guideline but higher than the value of 0.6 from the AER's 2018 Rate of Return Instrument and the 2022 Instrument.[37]
Gearing	Basslink assumes an efficient capital structure for Basslink and applied a gearing ratio of 60%, rather than using the gearing ratio derived from the statutory financial statements of Basslink.[38] We consider the gearing ratio of 60% proposed by Basslink to be appropriate. We consider APA to be an optimal comparator for Basslink, because the two businesses are similar in nature and over 90% of APA's revenue is unregulated. APA's average gearing ratio is 52% from 2001 to 2023, with a range of 45% to 73%, and is not significantly different from 60%. Additionally, the regulated benchmark gearing ratio applied in our past decisions, including the 2009 WACC Review, the 2013 Rate of Return Guideline, the 2018 Instrument, and the 2022 Instrument, have all been 60%.[39]

36 AER, *Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p. v.

37 AER, *Rate of Return Guideline*, December 2013, p 15; AER, *Rate of Return Instrument*, December 2018; AER, *Rate of Return Instrument*, February 2023.

38 APA *Basslink Transmission Revenue Proposal, Attachment 5 – Regulatory Asset Base*, 15 September 2023, p 141.

39 AER, *Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 48; AER, *Rate of Return Guideline*, December 2013, p 9; AER, *Rate of Return Instrument*, December 2018; AER, *Rate of Return Instrument*, February 2023.

Rate of return parameter	Description
Return on debt	Basslink submitted a cost of debt analysis report, provided by AquAsia, detailing the method for estimating Basslink's historical benchmark cost of debt estimate.[40] We consider that the cost of debt estimates adopted by Basslink are too high relative to our benchmark return on debt for the model period. We use the historical yield on Australian corporate bond index with a BBB rating and a tenor of 10 years as a proxy for Basslink's return on debt, starting from 1 July 2000. The yield is then averaged over each financial year to determine the return on debt for that year. We adopt the bond yields provided by two third-party data providers: the RBA and Bloomberg. We give equal weight to these providers where they are both available. To estimate the yield from 2001 to 2026, we rely on the following series: • RBA F3 series: 10-year BBB yield back to 31 January 2005 • Bloomberg BVAL series: 10-year BBB yield back to 14 April 2015 and 7, 5-year back to 16 April 2010 • Bloomberg BFV series: 10, 7, 5-year BBB yield back to 4 December 2001 Four yield series have been produced based on the above Bloomberg BVAL and BFV series: 1. BVAL 10-year yields 2. BVAL extrapolated 10-year yields (extrapolated using 5- and 7- year yields) 3. BFV 10-year yields 4. BFV extrapolated 10-year yields (extrapolated using 5- and 7-year yields) For any point in time, we consider the quality of the yields in the above order. Additionally, the BFV 10-year yield series is not complete and is missing in some periods. When this is the case, the yield on BFV extrapolated 10-year series (extrapolated using 5- and 7-year yields) is used. Lastly, the yields from BFV series between 1 July 2000 and 3 December 2001 are missing and need to be estimated. In this case, we follow the steps below: 1) Calculate the 20-day average of the BBB yield spreads starting from 4 December 2001 (the BBB yield spreads are obtained by subtracting the yield of the AUD 10-year swap rate from the BFV 10-year yield). 2) Add this 20-day average to the AUD 10-year swap rate from 1 July 2000 to 3 December 2001 as a proxy for the BFV 10-year yield during the corresponding period. We also apply the same method to the BFV extrapolated 10-year yields (extrapolated using 5- and 7-year yields).

[40] AquAsia, *Cost of Debt Analysis*, CONFIDENTIAL, 26 October 2018.

Rate of return parameter	Description
Equity raising costs	Basslink proposed using an equity-raising-costs rate of 3.83% per year, stating that this rate was accepted by the AER in our 2007 Powerlink determination.[41] In the 2007 Powerlink determination, Powerlink proposed an ERC of 3.83% on its initial equity base. However, the AER, in its final decision, decided not to provide Powerlink with an allowance for equity raising costs associated with its 2001 initial opening RAB.[42] The ACCC commissioned the Allen Consulting Group (ACG) in 2004, which recommended that in cases where new standalone assets are built and a RAB has not yet been established, the initial regulated asset value should encompass all costs, including a benchmark allowance for the cost of raising equity.[43] In our draft decision on the 2006 Directlink conversion application, we considered that benchmark equity raising costs should be allowed for Directlink Joint Venturers (DJV) because DJV's RAB is being established for the first time.[44] Thus, we consider that an equity raising costs should be allowed for Basslink during the construction period as Basslink's opening RAB is being established for the first time. For estimating equity raising costs, we consider the cost of IPOs is more relevant than the cost of SEOs in this situation. This is because the equity raising costs proposed by Basslink represents the transaction cost for Basslink to raise initial equity, rather than subsequent equity, during its construction period. The ACG proposed to use the median IPO transaction cost measured across a sample of seven infrastructure capital raisings as a proxy for ERC. This resulted in an ERC rate of 3.83%.[45] However, in the draft decision of the 2006 Directlink conversion application, we decided to allow 3.64% to account for the ERC of Directlink.[46] This is because we updated the ACG's analysis to include the IPO for Hastings Diversified Utilities Fund (HDF), which brought the new median benchmark to 3.64%. We consider an allowance of 3.64% for equity raising costs should be adopted during Basslink's construction period between 2000 and 2006.
Expected inflation	Basslink did not estimate historical expected inflation but rather used actual inflation in the roll-forward model.

41 APA, *Basslink Transmission Revenue Proposal, Attachment 5 – Regulatory Asset Base*, 15 September 2023, p 128.

42 AER, *Powerlink Queensland transmission network revenue cap 2007-08 to 2011-12 - final decision*, 14 June 2007, p 98.

43 ACG, *Debt and Equity Raising Transaction Costs – Report to the ACCC*, December 2004, p. 54-55.

44 AER, *Directlink joint venture application for conversion and revenue cap - draft decision*, 8 November 2005, p 224. This draft decision is not changed in the final decision.

45 ACG, *Debt and Equity Raising Transaction Costs – Report to the ACCC*, December 2004, p xi.

46 AER, *Directlink joint venture application for conversion and revenue cap - draft decision*, 8 November 2005, p 223. This draft decision is not changed in the final decision.

Rate of return parameter	Description
	We have developed a series of expected inflation rates from 2000-2026 based on the approach to estimating inflation expectations applied in our regulatory determinations at the time. Three methods have been adopted by the ACCC and AER since 2000. Considering the three methods for estimating expected inflation, we believe each is appropriate for the time in which it was applied. Each method reflects the economic conditions and forecasting requirements of the period it is used. Up to December 2007, we have used the Fisher equation to estimate an annual 10-year inflation estimate. This approach involved forecasting the inflation rate as the difference between the yield to maturity of a nominal bond and the yield to maturity of an inflation-indexed bond of the same maturity, as determined using the Fisher equation. From July 2008 to June 2021 we estimate expected inflation using a 10-year average of the: [47] • RBA's forecast headline rate for 1 and 2 years ahead, then • Mid-point (2.5 per cent) of the RBA's target inflation band of 2 to 3 per cent for years 3 to 10. From January 2020 onwards we estimate expected inflation by augmenting the 2008-2021 method by: [48] • shortening the target inflation horizon from 10 years to a term that matches the regulatory period (typically 5 years) • applying 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.

47 AER, *Final decision for SP AusNet transmission determination 2008–09 to 2013–14*, January 2008, p 105.

48 AER, *Final position – Regulatory treatment of inflation*, December 2020, p. 6.

C Estimating Basslink's depreciated optimised replacement cost

Depreciated optimised replacement cost (DORC) is a measure of the efficient (optimised) cost of a modern replacement asset that addresses the same energy needs as Basslink. Considering Basslink's depreciated optimised replacement cost ensures that the value of Basslink's regulatory asset base is no greater than this efficient cost.

To consider if an alternative asset could more efficiently address the same energy needs as the Basslink interconnector at a lower cost, we need to consider both the costs and benefits of credible alternatives. Only alternatives that can provide greater net benefits than the current interconnector would represent a more efficient alternative.

Table 1–4 below sets out the alternative, replacement asset options we have considered and their estimated costs and benefits. The most efficient replacement / alternative asset option is the modern equivalent construction of Basslink (500MW high-voltage direct current (HVDC) with Modular Multi-level Converter - Voltage Source Converter (MMC VSC)), with greater net benefits than other alternative assets considered. Therefore, we consider the depreciated cost of this asset option to be Basslink's depreciated optimised replacement cost.

We estimate Basslink's depreciated optimised replacement cost to be $891 million ($2026-27), $171 million more than Basslink's depreciated actual cost. We also estimate that the Basslink DORC asset would provide similar amount of market benefits as the current Basslink asset. Therefore, none of the alternative options would generate greater net benefits than the current asset (on a depreciated cost basis). As a result, none of the alternative options would have been preferred over the current asset in a regulatory investment test assessment or be considered to represent a more efficient asset valuation than Basslink's depreciated actual cost.

Section C.1 below provides further detail about the scoping of alternative options for assets that may replace the Basslink interconnector. Section C.2 provides further detail about the estimated costs of alternative asset options. The benefits of alternative options are estimated via the same methods of modelling the National Electricity Market as described in appendix D.

Table 1–3 AER estimated costs and benefits of Basslink replacement asset options

Option	Cost (depreciated)	Benefits	Net Benefits
Basslink current asset	$721m	$2,839m – $3,710m	$2,119m – $2,989m
Modern equivalent Basslink 500MW HVDC MMC VSC (DORC asset)	$891m		$1,948m – $2,819m
Alternative cable 500MW HVDC LLC	$943m		$1,896m – $2,766m
Alternative cable 300MW	$714m	$2,608m	$1,894m
Alternative cable 150MW	$490m	$1,049m	$559m
Alternative cable 500MW HVAC	$2,815m	Not modelled Likely less benefits than the current asset and other 500MW HVDC options due to lack of directional power transfer control. If benefits are equal to the current asset / modern equivalent asset, then net benefits would be $509m (step change scenario).	

Note: Source: AER estimates based on cost and benefit information provided by Basslink. Market benefits estimates sourced from EY market modelling provided by Basslink.
All values in $2026-27, as at the start of Basslink's first regulatory control period (1 July 2026).
Costs are depreciated costs, reflecting Basslink's remaining asset life from July 2026 to 2046, based on a 40 year asset life.
Market benefits vary based on different modelling scenarios. Market benefits for the 300MW cable and 150MW cable options estimated under the ISP step change scenario only.

C.1 Basslink's proposed scope of alternatives

In considering alternatives to the current interconnector, Basslink considered that non-network options do not provide credible solutions to the identified need serviced by the Basslink interconnector, submitting:[49]

> We consider it highly unlikely that any non-interconnector project would both fulfil the identified [need] and provide similar net market benefits as the existing asset. Addressing the same identified need without building an interconnector would require a significant cost and a package of investments in Victoria and Tasmania including new generation plants, energy storage options, and ancillary services.
>
> …

[49] APA, *Basslink Transmission Revenue Proposal*, 15 September 2023, pp 130,131.

> Our initial calculations found even when only considering the provision of a similar amount of firm renewable capacity for both states, costs were more than double the actual cost of the interconnector.

In considering alternative network options, Basslink submitted that alternative interconnector routes do not provide credible options, stating: [50]

> We consider the route taken by Basslink to be the only applicable route to consider, both because of construction constraints and how regulatory precedent has been set.
>
> …
>
> When developing the plans for Basslink, the route was carefully negotiated and was optimised around several constraints. The project's designers had to take into account the extensive environmental considerations set out by the Victorian, Tasmanian, and Federal governments. These included regulations on passing through residential and agricultural communities, protected areas such as Wilsons Promontory, coastal and sea floor habitats.

We consider it appropriate to focus on interconnector alternatives. We expect the market modelling undertaken by Basslink in estimating the market benefits of the interconnector (detailed in appendix D) to provide information on the viability of non-network alternatives. We note that this market modelling finds that the Basslink interconnector provides significant market benefits over the modelled alternative generation investment in the market that would be required to meet forecast demand in the absence of Basslink. That is, it is unlikely that non-network alternatives would present a more efficient alternative to the Basslink interconnector.

To consider alternative network options, Basslink considered the following technology options:

- Capacity – Basslink costed the interconnector's current 500MW capacity as well as two smaller 300MW and 150MW options
- Both HVDC and HVAC
- For HVDC, both MMC VSC and LLC converter stations
- Symmetric monopole converter station configuration assumed for all HVDC options
- 800mm2 aluminium core cables assumed for all options, with polymeric cable for MMC VSC and mass impregnated cable for LLC

As a result, Basslink estimated the costs and benefits of the following alternative asset configurations that address similar service needs to the current interconnector asset:

- A modern equivalent construction of Basslink (a 500MW HVDC interconnector with and modular multi-level voltage source converters (MMC VSC)).
- A 500MW HVDC interconnector with line-commutated converters (LLC).
- A 500MW HVAC interconnector
- A 300MW HVDC interconnector

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[50] APA, *Basslink Transmission Revenue Proposal*, 15 September 2023, p 131.

- A 150MW HVDC interconnector

We consider the choice of capacities, technologies, and routes for alternative interconnectors to be reasonable. Overall, we consider the scoping of alternatives undertaken by Basslink to be reasonable.

C.2 Estimated costs of alternatives

Basslink engaged independent engineering experts, Amplitude Consultants, to estimate the appropriate alternative projects and cost them.[51] While we consider that the estimates by Amplitude Consultants of the Engineer, Procure, Construct (EPC) cost for the alternative replacement asset options to be reasonable, we consider that the risk allowances included in the overall cost estimates are too high.[52]

In our guidance note on the regulation of actionable ISP projects we set out principles for the identification and assessment of project risks for which TNSPs are seeking a cost allowance.[53] We have assessed the estimated costs of Basslink replacement assets against these principles and made the following adjustments:

- Scope and technology risks:

  In the AC overhead lines, easement, and environmental offsets cost categories Amplitude applied risk allowances of 12.93 per cent, 13 per cent, and 13 per cent respectively. We expect scope and technology risks for these categories to align with those applied for the HVDC overhead lines category (9.67 per cent).

- Cultural and heritage risks:

  In the HVDC overhead lines cost category Amplitude applied a cultural heritage risk allowance of 1.73 per cent. We expect cultural heritage risks for HVDC overhead lines to align with those applied for AC overhead lines (1.69 per cent).

- Project overhead risks, productivity and labour cost risks

  We consider that these risks to be symmetric and manageable by the asset owner, and accordingly that no allowance should be made for project overhead risks or productivity and labour cost risks.

- Project complexity risks

  Amplitude applied a 4 per cent risk allowances for project complexity risk in the cost categories of HVDC overhead lines, subsea cables, and HVDC converter and transition stations. We consider that project complexity risks are already included in scope and technology risk allowances, and accordingly no additional allowance should be made for project complexity risks.

- Plant procurement costs risks

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51 APA, *Basslink Transmission Revenue Proposal*, 15 September 2023, p 129-135.

52 See table 6.12 of Attachment 5.2 to APA's Regulatory Proposal: Amplitude, Basslink HVDC Interconnector: Depreciated Optimised Replacement Cost, 21 August 2023.

53 AER, *Guidance note on regulation of actionable ISP projects*, March 2021, pp 16-21.

Amplitude applied plant procurement risks to the subsea cables and HVDC converter and transition stations cost categories. For subsea cables, we agree that there may be greater risk of cost increases than cost decreases in current market conditions. However, for HVDC converter and transition stations we consider plant procurement risks to be symmetric and no allowance should be made.

In addition to the Engineer, Procure, Construct (EPC) cost estimated by Amplitude Consultants, Basslink also included costs of acquiring land and easements, non-interconnector plant and equipment, and financing costs. We consider that the financing costs estimated by Basslink are too high. We have substituted these for our benchmark rates of return on debt, return on equity, and equity raising costs.[54] We also consider that the forecast inflation rates used by Basslink for 2023-24 and 2024-25 to be too high. We have substituted these for actual inflation rates derived from the Australian consumer price index.

Basslink's cost estimates are depreciated costs as at 1 July 2025, aligning with Basslink's proposed start of its regulatory control period. Our draft decision is for Basslink's first regulatory control period to start one year later than proposed, on 1 July 2026. Accordingly, we have adjusted the depreciated cost estimates to account for an additional year of depreciation and inflation indexation.

Table 1–4 below compares our cost estimates with those proposed by Basslink.

[54] See Table 1–2 for details on our benchmark financing costs.

Table 1–4 Estimates of depreciated cost

Option	Basslink proposal, cost at 1 July 2025 ($2025-26)	AER estimate, cost at 1 July 2025 ($2025-26)	AER estimate, cost at 1 July 2026 ($2026-27)
Basslink current asset	$753m	$728m	$721m
Modern equivalent Basslink (DORC asset) 500MW HVDC MMC VSC	$1,079m	$911m	$891m
Alternative cable 500MW HVDC LLC	$1,138m	$965m	$943m
Alternative cable 300MW	$869m	$730m	$714m
Alternative cable 150MW	$603m	$501m	$490m
Alternative cable 500MW HVAC	$3,331m	$2,879m	$2,815m

Note: Source: AER estimates based on cost and benefit information provided by Basslink.
Costs are depreciated costs, based on a 40 year asset life from 2006 to 2046. Basslink's estimate of the deprecated cost of the current (actual) asset of $753m was submitted in 2023, and was based on forecasts of capex for the 2023-24 and 2024-25 years. Basslink submitted actual capex estimates for these years that result in a revised estimate of deprecated actual cost of $750.98m.
After submitting its proposal Basslink identified a number of errors and inconsistencies in the inputs used in its replacement cost calculations (APA, *Response to AER information request #012*, 30 July 2025, p. 2). Basslink submitted a revised estimate for the modern equivalent (DORC) asset of $1,016m. Basslink did not submit revised estimates for other alternative asset options.

D Estimating market benefits

To apply the previous regulatory approach from the 2003 Murraylink and 2006 Directlink decisions to estimating an opening RAB value for Basslink, we need to determine the market benefits of the Basslink interconnector and the market benefits of alternatives to Basslink.

Basslink's estimates of market benefits are based on modelling the development of the National Electricity Market (NEM) in two different states of the world – one with the Basslink interconnector (or alternative option) and the other without the Basslink interconnector (or alternative). The difference between the total cost of producing and supplying electricity in the two states of the world provides an estimate of the value of the efficiency benefits that Basslink (or the alternative option) provides to the market.[55] Further detail on the market modelling, undertaken by EY for Basslink, is set out in section D.1 below.

We have reviewed EY's modelling of market benefits, including the classes of market benefits estimated, the range of scenarios and sensitivities tested, and the inputs and assumptions adopted. Though this modelling of market benefits was not undertaken as a RIT-T, we consider that EY has undertaken its market modelling in accordance with the guidance set out in our RIT-T application guidelines. We consider that EY's modelling of market benefits is based on a reasonable set of market development scenarios, based on ISP scenarios available at the time. We also consider that the inputs and assumptions adopted by EY were reasonable given the information available at the time. On this basis we accept EY's market modelling as appropriate estimates of the market benefits of the Basslink interconnector and of alternative asset options.

Basslink estimated the benefits that the interconnector, and alternative options, would provide from the date of Basslink's proposed commencement of the regulatory control period (1 July 2025) to the end of the interconnector's asset life in 2046. Basslink adopted the market benefits estimated by EY in 2023 in nominal dollar terms, and inflated these estimates of market benefits to $2025-26 terms using Basslink's forecast of the inflation rate.

Our draft decision is for Basslink's first regulatory control period to commence in 1 July 2026. The estimate of the market benefits of the Basslink interconnector and of alternative options must therefore be as at 1 July 2026 – reflecting one less year of benefits than Basslink originally estimated. The benefits must also be inflated an additional year to be in $2026-27 terms. We also consider that the forecast inflation rate used by Basslink to inflate its initial benefit estimates from $2023 to $2025-26 was too high. Our estimate of the appropriate estimates of the actual and forecast inflation rates are set out in section B.2 above. Adjusting for these matters, we estimate Basslink's market benefits to range from $2.839 billion to $3.710 billion ($2026-27), as shown in Table 1–5 below.

[55] This is contrasted to the benefits considered in our conversion decision, which considers the benefits of converting Basslink – that is, it considers benefits provided by a regulated Basslink compared to an unregulated Basslink.

Table 1–5 Estimates of market benefits

Option	Benefits 2025-2046 ($2025-26) Basslink proposal	Benefits 2025-2046 ($2025-26) Adjusted inflation	Benefits 2026-2046 ($2026-27) Adjusted inflation
Basslink current asset	$3,102m – $4,190m	$2,858m – $3,872m	$2,839m – $3,710m
Modern equivalent Basslink 500MW HVDC MMC VSC			
Alternative cable 500MW HVDC LLC			
Alternative cable 300MW	$3,499m	$2,715m	$2,608m
Alternative cable 150MW	$1,741m	$1,075m	$1,049m
Alternative cable 500MW HVAC	Not modelled. Likely less benefits than the current asset and other 500MW HVDC options due to lack of directional power transfer control.		

Note: Source: AER estimates based on information provided by Basslink.
Market benefits vary based on different modelling scenarios. Market benefits for the 300MW cable and 150MW cable options estimated under the ISP step change scenario only.

We are satisfied that the Basslink interconnector is likely to provide significant benefits to the market above Basslink's depreciated actual cost. Further, we are satisfied that none of the alternative options considered would result in greater net benefits than the current Basslink asset.

We note a number of submissions from stakeholders commented on the modelling assumptions underpinning Basslink's estimate of market benefits. Our consideration of these submissions is set out in section D.2 below. Although alternate estimates of the market benefit of Basslink resulting from alternate assumptions could be lower or higher than proposed by Basslink, we consider that these benefits are likely to remain materially greater than Basslink's depreciated actual cost.

We also note that market modelling of the benefits of Marinus Link, conducted by both Marinus Link in its RIT-T and AEMO in its ISP, supports the finding of significant benefits from interconnection between Tasmania and Victoria.[56]

[56] For information on the modelling of net benefits of increased interconnection between Tasmania and Victoria, see: Marinus Link Pty Ltd, Project Marinus RIT-T update, 16 April 2024; AEMO, 2024 Integrated System Plan, 26 June 2024.

D.1 EY's modelling of the market benefits of the Basslink interconnector

Basslink commissioned EY to undertake modelling of the National Electricity Market to determine the impact of the Basslink interconnector on the market, and therefore the benefits Basslink provides to the market. The approach involved modelling the least-cost generation dispatch and capacity development plan for the National Electricity Market in two different states of the world:

- a state of the world with Basslink, and
- a state of the world without Basslink (that is, assuming Basslink is retired at 1 July 2026).

The difference between the total system costs in the two states of the world (that is, total system costs with Basslink and total system costs without Basslink) results in an estimate of the value of the benefits that Basslink provides to market.

Each state of the world is also modelled under different scenarios, which reflect different sets of inputs and assumptions that may affect the future development of the National Electricity Market. EY's modelling was undertaken over three scenarios: Step Change, Progressive Change and Hydrogen Superpower (all adopted from AEMO's 2022 Integrated System Plan).[57]

The modelling indicates that the benefits that Basslink provides to the market are a result of avoidance of costs associated with:[58]

- Generation (including capital costs, fixed operation and maintenance costs, variable operation and maintenance costs and fuel costs);
- Voluntary and involuntary load curtailment;
- Transmission expansion associated with development of Renewable Energy Zones; and
- Transmission and storage losses.

In all scenarios avoided capital expenditure in generation investment is found to be the largest source of benefits. EY considers this to be largely due to the requirement in the modelling to meet the Australian Government's 82 per cent renewable energy target in 2029-30 and the requirement to meet the Tasmanian Renewable Energy Target (TRET). The latter target requires 150 per cent and 200 per cent available renewable generation as a percentage of demand by 2025 and 2030 respectively. Without Basslink, renewable generation (primarily wind) is built in both Tasmania (to meet the TRET) and in Victoria because of the lack of ability for the mainland to access the Tasmanian wind generation. With Basslink, the mainland can access Tasmanian wind that would already be built to meet the TRET and avoid the need to build some renewable generation on the mainland.

The requirement to meet the Australian Government target also contributes to the avoided capital cost benefit as Basslink enables more efficient use of existing Tasmanian renewable

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57 EY, *Gross market benefit assessment of Basslink,* 15 September 2023, p 8.

58 EY, *Gross market benefit assessment of Basslink,* 15 September 2023, p 9.

generation along with the new wind capacity built to meet the TRET (which is largely spilt in the without Basslink scenario).

Beyond 2030, Basslink provides access to Tasmanian hydro generation which substitutes some of the gas generation which occurs in the 'without Basslink' state-of-the-world.

D.2 Submissions on Basslink's market benefit modelling

Outdated input assumptions

AEMO made the following submissions regarding Basslink's market benefits modelling:[59]

- The completion date for VNI West from the 2022 ISP has been used, whilst the most recent in-service date for VNI West is 2028.
- Load forecasts were taken from the 2021 Electricity Statement Of Opportunities (ESOO), which has since been updated twice.
- The above outdated information was included, however the updated Federal renewable energy target of 82 per cent by 2030 was used.

The Victorian Government submitted that Basslink's modelling assumed that the first Marinus Link cable would be commissioned in 2029, but that the draft 2024 ISP assumes a delivery date of 1 December 2030.[60]

We understand that Basslink attempted to include up-to-date input assumptions in its market modelling, but that some of this input data may become outdated over time. We acknowledge that updated modelling using more recent input data may result in different estimates of market benefits. However, given Basslink's estimates of benefits are substantially above its depreciated actual cost estimate, we consider it unlikely that updated input assumptions would result in benefits lower than Basslink's depreciated actual cost. We also note that market modelling of the benefits of Marinus Link, conducted by both Marinus Link in its RIT-T and AEMO in its 2024 ISP, supports the finding of significant benefits from interconnection between Tasmania and Victoria.[61]

Impact of Marinus Link and generation investment on Basslink benefits

Aurora Energy submitted that the Australian Government's capacity investment scheme may reduce market benefits of Basslink given the higher levels of variable and dispatchable renewable generation that will be made available to mainland jurisdictions.[62]

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59 AEMO, *Submission in response to AER Issues Paper*, 19 February 2024, p 2.

60 Victorian Government, *Submission in response to AER Issues Paper*, 29 February 2024, p 4.

61 For information on the modelling of net benefits of increased interconnection between Tasmania and Victoria, see: Marinus Link Pty Ltd, Project Marinus RIT-T update, 16 April 2024; AEMO, 2024 Integrated System Plan, 26 June 2024.

62 Aurora Energy, *Submission in response to AER Issues Paper*, 19 February 2024, p. 2.

Aurora Energy submitted that Marinus Link is expected to result in a narrowing in the spread between Tasmanian and Victorian spot price outcomes, which may reduce the available benefits of additional interconnection provided by Basslink.[63]

The Victorian Government noted the new generation investment assumed to take place as part of the Tasmanian Renewable Energy Target. The Victorian Government submitted that there is a lack of certainty regarding this assumed investment, and that these TRET projects are dependent on some combination of the following uncertain outcomes: additional interconnection between Victoria and Tasmania provided by Marinus Link, the Battery of The Nation project, and/or increased demand in Tasmania.[64]

We acknowledge that there is uncertainty around future take-up of the Capacity Investment Scheme on the mainland, the TRET in Tasmania, and the timing of any Marinus Link investment. We note that the overall effect of these uncertainties may affect the market benefits of Basslink to some degree. That is, greater renewable generation investment on the mainland under the Capacity Investment Scheme and lower renewable generation investment in Tasmania under the TRET may reduce the market benefits of Basslink. On the other hand, delays to the timing of the first Marinus Link cable may increase market benefits of Basslink.

Corroborating evidence from Marinus Link market modelling

Mr J Pauley submitted that:[65]

- modelling carried out for both Basslink and Marinus Link by EY indicates significant market benefits from interconnection between Tasmania and Victoria;
- this modelling indicates that the second Marinus Link cable delivers lesser, though still positive and considerable, benefits for consumers; and
- this outcome from the Marinus Link modelling implies that even when interconnection capacity is doubled there are still considerable benefits available.

We agree that this information is relevant and indicates that the benefits of the Basslink interconnector are likely to exceed its depreciated actual cost.

Basslink's operating limits and the special protection scheme

Hydro Tasmania and the Tasmanian Minerals Manufacturing and Energy Council commented on the uncertainty of Basslink's Special Protection Scheme if Basslink was converted, and the potential impact on Basslink's transfer capacity.[66] Hydro Tasmania submitted that if there was no load or generation available for tripping under the Frequency Control Special Protection Scheme (FCSPS) then Basslink would effectively be limited to

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63 Aurora Energy, *Submission in response to AER Issues Paper*, 19 February 2024, p 2.

64 Victorian Government, *Submission in response to AER Issues Paper*, 29 February 2024, p. 4.

65 John Pauley, *Submission on Basslink Conversion Consultation Paper*, September 2024, pp 4-5.

66 Hydro Tasmania, *Submission in response to AER Issues Paper*, 16 February 2024, p. 3; Tasmanian Minerals Manufacturing and Energy Council, *Submission in response to AER Issues Paper*, 15 February 2024.

144 MW import and 200 MW export to ensure compliance with frequency operating standards.

Basslink's estimated market benefits are based on the interconnector being available at full capacity (500 MW).[67] Constraining Basslink to 144 MW of import and 200 MW of export capacity would be expected to materially reduce the market benefits provided by Basslink. However, we expect Basslink would be incentivised to maintain the FCSPS and be available at full capacity. The costs of maintaining the FCSPS over the modelling period should be included in forecasts of Basslink's ongoing operating costs and subtracted from gross benefits when estimating Basslink's net market benefit. We note that estimated net benefits of Basslink to the market remain substantially greater than depreciated actual cost after considering forecast FCSPS costs.[68]

[67] Subject to a stochastic unplanned outage rate.

[68] See Attachment 3 (operating expenditure) and 9 (pass through events) of our draft decision for our consideration of Basslink's SPS costs.

Glossary

Term	Definition
ACCC	Australian Competition and Consumer Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
capex	capital expenditure
CPI	Consumer Price Index
DAC	depreciated actual cost
DORC	depreciated optimised replacement cost
ERC	equity raising costs
ESOO	Electricity Statement of Opportunities, published by AEMO
FCSPS	Frequency Control Special Protection Scheme
GW	Giga-watts (one billion watts)
HVAC	High Voltage, Alternating Current
HVDC	High Voltage, Direct Current
ISP	Integrated System Plan, published by AEMO
LLC	LLC Resonant Converter
MMC VSC	Modular Multi-level Converter - Voltage Source Converter
MNSP	Market Network Service Provider
MRP	Market risk premium
MT CO2-e	Million tonnes of carbon dioxide equivalent emissions
MW	Mega-watts (one million watts)
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
ODV	optimised deprival value
opex	operating expenditure
RAB	regulatory asset base

Term	Definition
RFM	Roll-Forward Model
RIT	Regulatory Investment Test
RIT-T	Regulatory Investment Test for Transmission
SPS	Special Protection Scheme
STPIS	service target performance incentive scheme
TAB	Tax asset base
TNSP	Transmission Network Service Provider
TRET	Tasmanian Renewable Energy Target