

AER

Determination

Transgrid's HumeLink Stage 2 Delivery
Contingent Project Application

2 August 2024

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Executive Summary

This document sets out our decision on Transgrid's stage 2 contingent project application (CPA) for HumeLink.

HumeLink is a proposed 500 kV transmission line that will expand the transmission network in New South Wales. It will connect Wagga Wagga, Bannaby and Maragle in order to:

- increase the transfer capacity and stability limits between the Snowy Mountains and the major load centres of Sydney, Newcastle and Wollongong;
- enable greater access to lower cost generation to meet demand in these major load centres; and
- facilitate the development of renewable generation in high quality resource areas in southern New South Wales, which will further lower the overall investment and dispatch costs in meeting New South Wales demand while ensuring emissions targets are met at the lowest overall cost to consumers.¹

HumeLink was identified as a staged actionable Integrated System Plan (ISP) project in the Australian Energy Market Operator's (AEMO) 2020 and 2022 ISPs, and was confirmed to be actionable in AEMO's 2024 ISP. It will be constructed and operated by Transgrid.

In August 2022 (part 1) and August 2023 (part 2), we made decisions on Transgrid's HumeLink stage 1 contingent project application which related to early works, or pre-construction activities. These activities included project design, stakeholder engagement, land-use planning and approvals and acquisition, project management and procurement of long lead equipment. These activities also allowed Transgrid to lock in prices and secure supply-chain availability for necessary equipment and refine its construction cost estimate for stage 2 of the project.

On 22 December 2023, Transgrid submitted its stage 2 contingent project application for \$4,279.1 million (\$2022–23) in capital expenditure (capex) and \$28.5 million of incremental operating expenditure (opex).² This is the final step in Transgrid's application on the costs and revenues required for the construction of HumeLink.

Our role is to assess Transgrid's application to determine the incremental revenues that are to be added to its revenue allowance, based on the prudent and efficient capex and opex required to deliver the project.

Australia's energy sector is undergoing a transition towards renewable energy, with the Australian Government targeting 82% renewable electricity in our electricity grids by 2030. HumeLink will be a key enabler of the transition and will provide electricity consumers with greater access to lower cost generation. However, we are also mindful that our decision on HumeLink stage 2 comes at a challenging time for electricity consumers, many of whom are concerned about energy affordability, Australia's energy future and the impacts of this project on their families, communities and local businesses. HumeLink is a complex project of

¹ AEMO, [Integrated system plan 2024 - Appendix A5 – Network investments](#), June 2024.

² Unless otherwise stated, all dollar figures referred to in this document are in \$2022–23.

national significance and the recovery of its construction costs will have an impact on electricity bills. It also impacts the communities and landholders in the vicinity of the transmission line route.

It is therefore not surprising that throughout the process there has been considerable stakeholder interest and a diverse range of views put forward. It is important that we hear from stakeholders during these processes so we can consider their views. In doing so, it ensures our decisions are better balanced and contribute toward our overall objective of ensuring that consumers pay no more than necessary for safe and reliable electricity.

Of note, stakeholders provided views on several key issues, which we discuss in section 4. These issues include:

- Transgrid's material change in circumstance analysis and its conclusion that the Regulatory Investment Test for Transmission (RIT-T) does not need to be re-applied. We reviewed Transgrid's analysis, considered alternative cost assumptions and the results of independent market modelling, and found that Transgrid's opinion is not unreasonable on the basis that the preferred investment option is unchanged.
- Transgrid's target delivery date of 2026–27. We note that this is within the actionable window identified in AEMO's 2024 ISP. We are also satisfied that targeting this date is in consumers' best interests as the project has already commenced and delaying the project will likely lead to higher costs.
- Transgrid's proposed capex, financeability claims and proposal not to apply the Capital Expenditure Sharing Scheme (CESS) to the project. We considered stakeholder views as part of our capex assessment and in forming our decision on how the CESS should apply to the project.
- Transgrid's community stakeholder engagement undertaken so far, as well as its proposed future engagement activities and community investments. We agree that it will be critical that Transgrid continues to engage with communities to achieve and maintain social licence in delivering the project. As such, we have accepted Transgrid's proposed capex for this purpose.

Our decision on Transgrid's stage 2 contingent project application is set out in Table 1. It sets out our decision on the forecast prudent and efficient capex required to deliver the project, the estimated impact on the transmission component of residential customer electricity bills in New South Wales, and the incremental revenues that will be added to Transgrid's revenue in the 2023–28 regulatory control period (2023–28 period).

In making our decision on the prudent and efficient capex required to deliver the project, we:

- assessed Transgrid's application, supporting documentation, consultant reports and models;
- met with Transgrid to discuss aspects of its application and improve our understanding of the application;
- engaged Energy Market Consulting Associates (EMCa) to undertake an independent review of the proposed capex, and had regard to EMCa's findings;

- issued information requests and considered Transgrid’s responses to these information requests; and
- considered stakeholder submissions, including from members of Transgrid’s Advisory Council and other interested stakeholders.

Table 1 HumeLink stage 2 contingent project – Assessment of forecast expenditure, revenues and bill impact

	Transgrid’s application	AER’s determination
Total capex (\$2022–23) to be commissioned for HumeLink stage 2 in years 2023–24 to 2026–27	\$4,279.1 million ^A	\$3,964.8 million ^A
Stage 2 indicative average annual increase in residential electricity bills in NSW over 2025–26 to 2027–28	\$24 p.a. ^B	\$21 p.a. ^B
Stage 2 indicative average annual increase in small business electricity bills in NSW over 2025–26 to 2027–28	\$64 p.a. ^B	\$54 p.a. ^B
Total incremental revenue to be recovered from customers over 2025–26 to 2027–28 (\$ nominal, smoothed)	\$619.6 million	\$523.6 million ^C

Source: Transgrid application and AER analysis.

(A) Total capex excludes equity raising costs.

(B) Transmission bill proportion updated to reflect the 2024–25 Default Market Offer prices.

(C) Incremental revenues are calculated relative to the AER’s VNI West Stage 1 CPA determination; AER, *Transgrid VNI West Stage 1 CPA 2023–28 PTRM*, May 2024.

Transgrid’s stage 2 application for HumeLink

In December 2023, Transgrid submitted a contingent project application to amend its 2023–28 revenue determination under clause 6A.8.2 of the National Electricity Rules (NER). Transgrid proposed \$4,279.1 million in capex (excluding equity raising costs) and \$28.5 million in incremental opex for stage 2 of HumeLink, and \$619.6 million (\$ nominal) in incremental revenue in the 2023–28 period.

Transgrid’s stage 2 contingent project application included costs for tendered works (design and construction), long lead equipment, other construction costs (risk costs), land and easement acquisition, biodiversity offset costs and labour and indirect costs.

It also proposed changes to the treatment of other parts of its proposal relating to depreciation and the application of incentive schemes.³

Transgrid proposed to apply ‘as-incurred’ depreciation to all depreciable asset classes associated with the HumeLink project, instead of the standard ‘as-commissioned’ approach for transmission assets. Transgrid proposed this approach due to concerns with financeability. However, Transgrid subsequently withdrew its proposal for as-incurred depreciation for all depreciable asset classes, following our request for further information on potential funding commitments or agreements with the Clean Energy Finance Corporation. It

³ Transgrid, [HumeLink stage 2 CPA - A.1 Principal application](#), December 2023, pp. 19–21.

maintained the proposal to apply as-incurred depreciation for the biodiversity offsets asset class.

Transgrid also proposed a new 'Biodiversity offsets costs' asset class to enable depreciation of the costs over the weighted average of standard asset lives of all other assets.

For incentive schemes, Transgrid proposed to not apply the CESS, stating:⁴

“...we do not support the CESS being applied to AEMO’s ISP projects, including HumeLink. We believe that, for high-value, complex and specialised projects, the current inflationary and uncertain operating environment makes it likely that these incentive schemes will introduce asymmetric risk.”

Our role in assessing actionable ISP projects

Contingent projects are significant network augmentation projects that may arise during a regulatory control period but the need for and timing is uncertain. Expenditures for such projects do not form part of the total forecast expenditure in a revenue determination. However, the project costs may ultimately be recovered from customers if the requirements of the NER are met.

For actionable ISP projects such as HumeLink, our role is to first assess whether the four criteria set out under clause 5.16A.5 (also called the ‘trigger event’) have been satisfied. If we consider the trigger event for the actionable ISP project has been satisfied, we must then determine the incremental revenues that will be added to Transgrid's revenue allowance, reflecting the forecast prudent and efficient capital expenditure and operating expenditure required to deliver the contingent project.⁵

The four criteria which form the trigger event are:

- Transgrid must issue a RIT-T project assessment conclusions report (PACR) that meets the requirements of clause 5.16A.4 and which identifies a project as the preferred option (which may be a stage of an actionable ISP project if the actionable ISP project is a staged project).⁶
- Transgrid must obtain written confirmation from AEMO that the preferred option addresses the relevant identified need specified in the most recent ISP and aligns with the optimal development path referred to in the most recent ISP;⁷ and, the cost of the preferred option does not change the status of the actionable ISP project as part of the optimal development path as updated in accordance with clause 5.22.15 where applicable.^{8,9}
- No dispute notice has been given to the Australian Energy Regulator (AER) under rule 5.16B(c) or, if a dispute notice has been given, then in accordance with rule 5.16B(d), the

⁴ Transgrid, [HumeLink stage 2 CPA - A.1 Principal application](#), December 2023, p. 19.

⁵ NER, cl. 6A.8.2(e)(1).

⁶ NER, cl. 5.16A.5(a).

⁷ NER, cl. 5.16A.5(b)(1).

⁸ NER, cl. 5.16A.5(b)(2).

⁹ This process is the ‘ISP feedback loop’.

dispute has been rejected or the project assessment conclusions report has been amended and identifies that project as the preferred option.¹⁰ Transgrid published an addendum to its project assessment conclusions report in December 2021, in response to the AER's dispute determination.¹¹

- The cost of the preferred option set out in the contingent project application must be no greater than the cost considered in AEMO's ISP feedback loop assessment.¹²

We are satisfied all four criteria in the trigger event have been met and that the project capex exceeds the threshold. This threshold is \$46.2 million (nominal), which is calculated as the higher of \$30 million or 5% of the maximum allowable revenue in the first year of the 2023–28 regulatory control period.¹³

Our decision on HumeLink stage 2

We have made a determination on Transgrid's contingent project application for: the expenditure reasonably required for the purpose of undertaking the contingent project; the likely commencement and completion dates for the project; and the incremental revenue.¹⁴

We note that the project has commenced. Based on the information before us, we are satisfied that Transgrid's proposed timing for completing stage 2 in 2026–27 is reasonable, as:

- this aligns with the stage 2 timing in the 2024 ISP and AEMO considered Transgrid's proposed timing when undertaking its feedback loop assessments¹⁵, and
- both Transgrid and its design and construction contractors are incentivised to meet this timing as a later completion date will be more costly.

Our alternative estimate of prudent and efficient costs for stage 2

Our decision is to not accept Transgrid's proposed capex of \$4,279.1 million. Instead, we substitute an alternative estimate of \$3,964.8 million to ensure consumers pay no more than necessary for the delivery of the project.¹⁶

In the course of our assessment, Transgrid provided new information and acknowledged that some costs were included in error, which lowered its initial capex forecast to \$4,173.4 million. We discuss these updates in section 6. Our alternative capex forecast of \$3,964.8 million is \$208.6 million (or 5.0%) lower than this updated capex forecast.

Our detailed review of the cost categories ensures the proposed costs are reasonably required. We consider the majority of Transgrid's forecast capex is prudent and efficient and

¹⁰ NER, cl. 5.16A.5(c).

¹¹ Transgrid, [HumeLink RIT T PACR Addendum](#), December 2021.

¹² NER, cl. 5.16A.5(d).

¹³ NER cl. 6A.8.1(b)(2)(iii)

¹⁴ NER, cl. 6A.8.2(e).

¹⁵ HumeLink has an actionable window of six years after its earliest in-service date of 2026–27.

¹⁶ NER, cl. 6A.8.2(e)(1)(ii).

reflects the capital expenditure criteria.¹⁷ However, we consider that Transgrid's proposed capex is overstated due a number of key reasons, including:

- Transgrid's forecasts for some categories of capex rely on outdated information, and more recent information indicates a lower level of capex is required;
- Transgrid's forecast of risk costs (or contingencies) contains costs within its control and costs sufficiently funded in other areas of its capex proposal; and
- Transgrid's overall risk cost estimate is based on a P70 level (with a 70% probability of the cost not being exceeded). We consider that a P50 level is appropriate as it is the point at which risks are shared equally between Transgrid and its customers.

We conclude the estimates for risk costs, biodiversity offset costs, and tendered works are not justified, and we substitute an alternative estimate for these categories.

The most significant adjustment relates to other construction costs (or risk costs). Transgrid provided a detailed cost build up for 74 individual risk costs it expects to incur in the construction phase, which are not already included in its forecast of tendered works expenditure. We consider that Transgrid overstated these costs by including risks not consistent with our guidance and overstated the value of these risks.¹⁸ Our alternative estimate includes a lower cost estimate of \$382.1 million for risk costs, which is \$217.0 million (or 36.2%) lower than Transgrid's forecast of \$599.1 million.

We also make an adjustment to biodiversity offset costs, which relates to necessary expenditure to comply with regulatory obligations. We consider that, although Transgrid's forecast was based on the best available information at the time of the contingent project application, there is significant uncertainty associated with the forecast and it can be adjusted based on new information. Our alternative estimate includes a lower cost estimate of \$353.6 million for biodiversity offset costs, which is \$83.9 million (or 19.2%) lower than Transgrid's forecast of \$437.5 million.

Finally, we make an adjustment to tendered works expenditure (for design and construction activities). We are satisfied this expenditure forecast is largely prudent and efficient, and represents the outcome of a robust, market tested process. However, we found evidence that costs included in the forecast were already in Transgrid's stage 1 (part 1) application. Our alternative estimate includes a lower cost estimate of \$2,590.6 million for tendered works, which is \$13.5 million (or 0.5%) lower than Transgrid's forecast of \$2,604.1 million.

For the other capex categories, we are satisfied that the forecast expenditure reasonably reflects prudent and efficient costs and is reasonably required to deliver HumeLink. This includes costs for long lead equipment, land easement acquisition and labour and indirect costs. We also accept Transgrid's incremental opex forecast of \$28.5 million for HumeLink

¹⁷ NER, cl. 6A.8.2(e)(1)(i).

¹⁸ AER, [Guidance note - Regulation of actionable ISP projects](#), March 2021.

for the 2023–28 regulatory period (including debt raising costs) as we are satisfied that it is reasonably required and reflects the operating expenditure criteria.^{19, 20}

Our decision on depreciation and application of incentive schemes

We accept Transgrid's proposed as-incurred depreciation approach for the biodiversity offsets asset class. We consider that depreciating biodiversity offset costs on an as-incurred basis better reflects the nature of these costs. We have applied our standard as-commissioned depreciation approach to the asset classes for 'Transmission lines' and 'Substations' to reflect the nature of these assets.

We do not accept Transgrid's proposal not to apply the CESS to the HumeLink project. Instead, we will modify the existing CESS as follows:

- A 30% sharing ratio will apply to capex overspends and underspends up to 10% of the net present value of forecast capex.
- If an overspend or underspend exceeds 10%, the sharing ratio is set to the average level of the financing cost or benefit, assuming no shift in the timing of the capex.
- The modified CESS will apply to all expenditure undertaken in Stage 1 and Stage 2 of HumeLink in the 2023–28 regulatory control period.
- Biodiversity offset costs will be excluded from the CESS altogether, as we consider they are highly uncertain in nature and can be driven by factors outside Transgrid's control.
- Any deferrals between regulatory periods will be included in the calculation of the CESS rewards or penalties.

We consider these modifications reasonably account for the circumstances of the project, ensure incentives to invest efficiently are maintained, and result in a reasonable sharing of the benefits and risks between Transgrid and its customers.

Next steps

Following this decision and by the operation of the NER, Transgrid's revenue determination is now amended such that the incremental revenues we approve in this determination will be added to Transgrid's total maximum allowed revenues for the 2023–28 period. This follows the process set out in clause 6A.8.2 of the NER.

The increase in allowed revenues will be reflected in customer bills over the remaining three years of the 2023–28 period (2025–26 to 2027–28).

¹⁹ NER, cl. 6A.8.2(e)(1)(i).

²⁰ NER, cl. 6A.8.2(f)(2).

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1 HumeLink stage 2 contingent project

HumeLink is a proposed 500 kV transmission line which will connect Wagga Wagga, Bannaby and Maragle. Transgrid's proposed total costs for HumeLink based on its Stage 1 (early works) and Stage 2 (delivery) applications is \$4.88 billion.

On 22 December 2023, Transgrid submitted its stage 2 delivery contingent project application (CPA or "application") for \$4,279.1 million in capex (excluding equity raising costs) to the AER. The stage 2 application involves costs for tendered works (design and construction), long lead equipment, other construction costs (risk costs), land and easement acquisition, biodiversity offset costs and labour and indirect costs.

We previously approved Stage 1 funding for early works activities in two parts. This included:

- \$380.8 million in our decision on the Stage 1 (Part 1) application (August 2022). This included capex for project design, stakeholder engagement, and land-use planning.
- \$227.8 million in our decision on the Stage 1 (Part 2) application (August 2023). This included capex for transformers, reactors, conductor and steel.

AEMO has identified HumeLink as an actionable ISP project since 2020 and its status has not changed in the 2022 ISP and 2024 ISP ('the most recent ISP'). AEMO provided feedback loop confirmation on 21 December 2023 and 8 July 2024 for the HumeLink project.²¹

The identified need for HumeLink is to:

- increase the transfer capacity and stability limits between the Snowy Mountains and the major load centres of Sydney, Newcastle and Wollongong;
- enable greater access to lower cost generation to meet demand in these major load centres; and
- facilitate the development of renewable generation in high quality resource areas in southern New South Wales, which will further lower the overall investment and dispatch costs in meeting New South Wales demand while ensuring emissions targets are met at the lowest overall cost to consumers.²²

The preferred option 3C in the Regulatory Investment Test for Transmission (RIT-T) project assessment conclusions report (PACR) involves constructing new 500 kV double-circuit transmission lines in an electrical 'loop' between Wagga Wagga, Bannaby and Maragle.²³

Transgrid expects to complete stage 2 in 2026–27.²⁴ AEMO noted that this timing is consistent with that of an actionable project in service at its earliest delivery date.²⁵

²¹ AEMO, [Integrated System Plan Feedback Loop Notice - HumeLink](#), December 2023 and AEMO, [Integrated System Plan Feedback Loop Notice - HumeLink](#), July 2024.

²² AEMO, [Integrated System Plan 2024 - Appendix A5 – Network investments](#), June 2024.

²³ Transgrid, [HumeLink RIT T PACR Addendum](#), December 2021.

²⁴ Specifically, July 2026 for the East section and December 2026 for the West section.

²⁵ AEMO, [Integrated System Plan Feedback Loop Notice - HumeLink](#), July 2024.

2 Summary of NER requirements

For an actionable ISP project, a transmission network service provider (TNSP) may submit a contingent project application to the AER if the trigger event under clause 5.16A.5 of the National Electricity Rules (NER) has occurred.²⁶ A TNSP is required to submit a contingent project application as soon as practicable after the occurrence of the trigger event. The information that a TNSP is required to include in its application is set out under clause 6A.8.2(b). As noted in section 1, Transgrid submitted its application on 22 December 2023.

As soon as practicable following receipt of the application, we must publish the application and invite submissions on the application.²⁷ We must consider any written submissions on the application in making our determination and we must make our decision within 40 business days from the later of the date we receive the application and the date we receive any information required by us under clause 6A.8.2(h1).²⁸

We published the application on 1 March 2024 due to the late submission of key application documents and resolving of confidentiality claims. In the consultation period between 1 March and 3 April we received eight submissions. We then received seven additional submissions after the consultation period. In July, Transgrid notified us that AEMO provided a further feedback loop assessment against the Final 2024 ISP. We sought further stakeholder submissions in relation to this update and received a further 50 submissions. All submissions are published on our website.²⁹

We issued nine notices under clause 6A.8.2(h1) and Transgrid's final response was received on 26 June 2024.

If we are satisfied the trigger event has occurred, the forecast total capital expenditure in the application exceeds the threshold in clause 6A.8.1(b)(2)(iii),³⁰ we must then:

- determine the capital expenditure (capex), incremental operating expenditure (opex) and incremental revenue reasonably required for the purposes of undertaking the project, and the likely commencement and completion dates for the project³¹
- determine the estimate of incremental revenue likely to be required in each remaining regulatory year as a result of the project³²
- amend the relevant revenue determination in accordance with clause 6A.8.2(h).³³

We discuss our assessment of the trigger event and cost threshold in section 5.

²⁶ NER, cl. 6A.8.2(a)(2).

²⁷ NER, cl. 6A.8.2(c).

²⁸ NER, cl. 6A.8.2(d).

²⁹ AER, [Transgrid HumeLink contingent project stage 2 - Submissions](#), updated August 2024.

³⁰ NER, cl. 6A.8.2(e).

³¹ NER, cl. 6A.8.2(e)(1).

³² NER, cl. 6A.8.2(e)(2).

³³ NER, cl. 6A.8.2(e)(3).

In making the determinations required under clause 6A.8.2(e)(1), we must accept the relevant amounts and dates in the application if we are satisfied that:

- the forecast of the total capex for the project meets the threshold in clause 6A.8.1(b)(2)(iii)³⁴
- the capex and opex in the application reasonably reflects the capex and opex criteria required to achieve the capex and opex objectives,³⁵ taking into account the capex and opex factors^{36, 37}
- the estimates of incremental revenue and the dates are reasonable.³⁸

In making the determinations under 6A.8.2(e)(1) and determining whether to accept the amounts and dates in the application, we must have regard to the matters under clause 6A.8.2(g).³⁹ Having regard to the matters under clause 6A.8.2(g), if we are then satisfied of the matters in clause 6A.8.2(f), we must accept the amounts and dates proposed in the application. If we are not satisfied, then we must determine the amounts and dates.

We are not satisfied that Transgrid's estimate of capex reasonably reflects the capex criteria.⁴⁰ Therefore, we are required to determine an alternative estimate of capex that is reasonably required for the purposes of undertaking the contingent project.⁴¹

In the rest of the document, we set out:

- our overall determination on the amounts and dates (section 3),
- how we considered stakeholder submissions (section 4),
- our assessment of the project trigger event and expenditure threshold (section 5),
- our alternative estimate of capex and opex and the application of expenditure incentive schemes (section 6), and
- the corresponding incremental revenue (section 7).

³⁴ NER, cl. 6A.8.2(f)(1).

³⁵ The capex and opex criteria are set out in NER clauses 6A.6.7(c) and 6A.6.6(c), respectively. The capex and opex objectives are set out in NER clauses 6A.6.7(a) and 6A.6.6(a), respectively.

³⁶ The capex and opex factors are set out in NER clauses 6A.6.7(e) and 6A.6.6(e), respectively.

³⁷ NER, cl. 6A.8.2(f)(2).

³⁸ NER, cll. 6A.8.2(f)(3) and (4).

³⁹ NER, cl. 6A.8.2(g).

⁴⁰ NER, cl. 6A.8.2(f)(2).

⁴¹ NER, cl. 6A.8.2(e)(ii).

3 Our contingent project determination

The HumeLink stage 2 CPA meets the criteria under clause 6A.8.2(e) required for us to make a determination because:

- we are satisfied that each element of the actionable ISP project trigger event for this project has occurred⁴²
- we are satisfied that the proposed capex amount of \$4,279.1 million exceeds the applicable materiality threshold of \$46.2 million (nominal), which is 5% of the maximum allowable revenue in year one of the 2023–28 period.⁴³

We discuss our assessment of the project trigger event and materiality threshold in section 5. Our determination on Transgrid's CPA is in accordance with clause 6A.8.2 of the NER, which specifies the process we must undertake and the determinations we must make on a CPA.

In accordance with clause 6A.8.2(e)(1) of the NER, we determine:

- the total capex and incremental opex that is reasonably required for the project and the amount of capex for each remaining year of the regulatory control period (section 6).
- the incremental revenue which is likely to be required by Transgrid for each remaining regulatory year as a result of the efficient capex for the contingent project (section 7).
- the project has commenced and is likely to be completed in 2026–27.

Based on our review of Transgrid's application, we do not accept Transgrid's forecast \$4,279.1 million for stage 2 capex to be incurred in years 2023–24 to 2026–27. Our alternative estimate of stage 2 capex is \$3,964.8 million, which is \$314.4 million (7.3%) lower than Transgrid's forecast.⁴⁴ We discuss our reasons in section 6.1. As discussed in section 7, our decision is for Transgrid to recover incremental revenue of \$523.6 million over the remaining three years of the 2023–28 period (2025–26 to 2027–28).⁴⁵

We determine that the project has already commenced and that the likely date for completing stage 2 is 2026–27.⁴⁶

We consider that Transgrid's proposed timing for completing stage 2 in 2026–27 is reasonable because:⁴⁷

- This aligns with the actionable window provided in the Final 2024 ISP and AEMO considered this timing when undertaking its feedback loop assessments. We recognise that in the 2022 ISP AEMO stated that the project would optimise benefits to consumers if delivery is targeted for 2026–27. Although the 2024 ISP provides a later optimal timing of 2029–30, AEMO noted that under all scenarios in the 2024 ISP, delivery of HumeLink

⁴² The criteria for the actionable ISP project trigger event are set out in NER clause 5.16A.5.

⁴³ NER, cl. 6A.8.1(b)(2)(iii).

⁴⁴ NER, cl. 6A.8.2(e)(1)(ii).

⁴⁵ NER, cl. 6A.8.2(1)(iv).

⁴⁶ NER, cl. 6A.8.2(e)(1)(iii).

⁴⁷ NER, cl. 6A.8.2(f)(4).

within its actionable window is found to be optimal, and maintaining the project's momentum is in consumers' long-term interest.

- Both Transgrid and its design and construction contractors are incentivised to meet this timing as a later completion date will be more costly. Transgrid has taken steps to ensure that the delays experienced for Project EnergyConnect are not repeated for HumeLink. This includes by engaging its contractors under an incentivised target cost model to ensure that all parties are motivated to meet the target completion date. In addition, Transgrid broke the project into two separate contract packages (East and West), to introduce competition and reduce market capacity risk. Transgrid's early contractor involvement process was also expanded to identify project risks and controls more clearly. We note that Transgrid is targeting a July 2026 completion for the East section of HumeLink and a December 2026 completion for the West section. We consider that the delayed commencement of construction may result in some delays relative to these target dates, however the proposed 2026–27 completion date is reasonable.

We accept the proposed as-incurred approach for depreciating forecast capex associated with biodiversity offsets. The transmission lines and substations asset classes will be depreciated using the as-commissioned approach. We discuss our reasons in section 7.1.

We do not accept Transgrid's proposal to not assign a standard tax asset life for costs associated with payments made directly into the Biodiversity Conservation Fund and other indirect costs. We consider a standard tax asset life of 50 years should be assigned for tax depreciation purposes for these costs. However, we accept the proposal to not assign a standard tax asset life for costs associated with biodiversity stewardship sites. We discuss our reasons in section 7.2.

We have published on our website a supporting post-tax revenue model (PTRM) for the 2023–28 period which sets out the updated annual revenues and X-factors for the 2023–28 period after including the contingent project amount.

4 How we considered stakeholder submissions

Australia and its energy sector are in the midst of a major transformation, with the transition to renewables well underway. The Australian Government is targeting 82% renewable energy in our electricity grids by 2030. Transmission has been identified as a key enabler of the transition, playing a significant role in connecting new hubs of renewable energy to networks that reach our towns, cities, and industries. While new transmission build is crucial, we understand that it can have a significant impact on landholders and communities. We also understand that our decision comes during a time when consumers are increasingly concerned about energy affordability and the effects of this project on their homes, families, and communities, which is why it is important that we consider the submissions and views put to us during this consultation process.

We sought stakeholder submissions on Transgrid's HumeLink stage 2 contingent project application. A total of 65 submissions were received during our public consultation on Transgrid's application. We considered each of these submissions in the course of our assessment of Transgrid's application.⁴⁸ We also engaged in informal consultation by meeting with impacted communities and their representatives directly.

Stakeholders provided a diverse range of views on several key issues. The key issues that received attention from stakeholders were:

- Transgrid's material change in circumstance assessment (MCCA) and its conclusion that Option 3C remains the preferred option in light of recent changes.
- The potential for network infrastructure to be undergrounded.
- The feedback loop assessments undertaken by AEMO.
- Transgrid's proposal not to apply the Capital Expenditure Sharing Scheme (CESS) to the project.
- Transgrid's community stakeholder engagement and social licence activities.
- Transgrid's proposed delivery date and implications for proposed capex.
- AEMO's ISP modelling.

We discuss these topics further below. We valued the input of all stakeholders and sought to balance a range of interests in our decision-making process.

Transgrid's MCCA

A key consideration raised by stakeholders during this consultation process has been whether there was a material change in circumstances for HumeLink, and whether Transgrid is required to re-apply the RIT-T.

⁴⁸ NER, cl. 6A.8.2(g)(2).

Transgrid published its MCCA in February 2024, concluding that the preferred option identified in the HumeLink PACR (Option 3C) had not changed. Our role as regulator was to assess whether, in accordance with the rules in place at that time, Transgrid's opinion was not unreasonable.

Our approach to this assessment was informed by the views and submissions put to us by stakeholders. Stakeholders expressed concerns in relation to the objectivity of Transgrid's analysis and the credibility of the conclusions reached in its MCCA. In particular, stakeholders noted that Transgrid's MCCA estimated much greater net benefits than estimated under AEMO's ISP modelling.

We took a number of steps to investigate and address these concerns, including:

- commissioning independent market modelling, to ensure our net present value analysis was based on an unbiased assessment of the gross benefits of each option
- factoring in alternative and more favourable cost assumptions for Options 1C-new and 2C, to address concerns that these options had not been given equal consideration, and
- reviewing the different modelling approaches used in Transgrid's MCCA, to address concerns relating to credibility.

After taking these steps, and upon factoring in alternative and more favourable cost assumptions for Options 1C-new and 2C, we found that Option 3C remained the option that resulted in the greatest net benefits to the NEM.

Therefore, we concluded that Option 3C remained the preferred option, and that Transgrid was not unreasonable in reaching this conclusion in its MCCA. This means that Transgrid will not be required to re-apply the RIT-T. We discuss our reasoning further in section 5.1.1.

Some stakeholders also suggested that Transgrid contravened the NER by not submitting its MCCA at the time of its contingent project application.⁴⁹ However, Transgrid was not required to do so, as it published a project assessment draft report (PADR) prior to the commencement date of the relevant rule.⁵⁰ Although we asked Transgrid to submit its MCCA prior to its CPA submission, this was to ensure that we could consult with stakeholders concurrently on both the MCCA and Transgrid's CPA.

Undergrounding network infrastructure

A further issue that received significant interest from stakeholders, was the issue of undergrounding network infrastructure. Many stakeholders expressed a strong desire for the HumeLink project to be undergrounded.

The HumeLink PACR did not identify undergrounding of network infrastructure as a credible option. Therefore, Transgrid did not assess an undergrounding option as part of its MCCA and, accordingly, it did not feature in our analysis of options. We accept that only comparing the credible options identified in the PACR in the MCCA is reasonable. We also consider it unlikely that an undergrounding option would be preferable to the currently preferred option,

⁴⁹ HumeLink Alliance, [Submission to HumeLink Stage 2 CPA](#), April 2024, p. 1.

⁵⁰ NER clause 5.16A.4(t) was introduced in NER v203, however the transitional clause 11.154.2 notes that it does not apply if, prior to the commencement date, the RIT-T proponent has prepared a PADR.

due to its greater cost. However, we acknowledge the issue and the stakeholder views on different options for the future development of transmission infrastructure.

The feedback loop for HumeLink

Some stakeholders expressed concerns regarding the feedback loop process for HumeLink, specifically about whether there was adequate opportunity to comment on the ISP update made prior to the feedback loop process. In addition, stakeholders suggested that Transgrid should re-submit its application following the most recent feedback loop assessment.

We note that the feedback loop was carried out in 2023 using inputs from an updated version of the 2022 ISP. We have proceeded on the basis that the feedback loop assessment completed in December 2023 is valid. However, in response to stakeholder feedback, following the publication of the finalised 2024 ISP in June 2024, we identified an opportunity for a further feedback loop assessment to be undertaken as an additional cross-check against the existing feedback loop assessment.

In July 2024, Transgrid wrote to us to confirm that the HumeLink project had passed the feedback loop using inputs from the finalised 2024 ISP, meaning that:

- Option 3C, the preferred option identified in the HumeLink PACR, remains aligned with the optimal development path, and
- the cost of Option 3C does not change the status of HumeLink as actionable.

We appreciate the submissions made on this topic and consider the additional cross-check against the 2024 ISP has addressed stakeholder concerns on the validity of the feedback loop assessment. We do not consider that Transgrid is required to re-submit its application and are satisfied that the application meets the requirements of 6A.8.2(e) of the NER.

We discuss this further in section 5.1.2.

Transgrid's CESS proposal

Stakeholders also commented on Transgrid's proposal to exempt its capex for HumeLink from the Capital Expenditure Sharing Scheme (CESS). Transgrid made this proposal to mitigate what it considered to be an asymmetric risk of overspending for HumeLink arising out of an uncertain operating environment.

PIAC and the EUAA did not agree with Transgrid's proposal to not apply the CESS, citing potential adverse outcomes for consumers. They emphasised that:

- Consumers are in a position where there is information asymmetry due to the principal agent relationship. The CESS is a key protection for consumers that should be retained to incentivise Transgrid to undertake efficient capex.⁵¹
- Exempting HumeLink's capex from the CESS could shift undue risk onto consumers, for a project in which they have limited ability to influence outcomes and therefore manage this risk.⁵²

⁵¹ Public Interest Advocacy Centre (PIAC), [HumeLink CPA stage 2 submission](#), April 2024, p. 3.

⁵² Energy Users' Association of Australia (EUAA), [HumeLink CPA stage 2 submission](#), April 2024, p. 2.

- The size and complexity of the HumeLink project amplifies the importance of maintaining the protections of the CESS, as the potential cost of overruns are much greater and will be borne by consumers.⁵³

In light of these submissions and our own assessment, we decided to apply the CESS to HumeLink's capex. However, in recognition of the unique challenges facing the HumeLink project, we have decided to apply the CESS with some modifications.

Under the modified CESS, the existing sharing ratio will apply to overspends and underspends of up to 10% of the net present value of forecast capex. Over this amount, the sharing ratio will be adjusted to the average level of the financing cost or benefit. Biodiversity offset costs will also be excluded from the CESS altogether, as we consider they are highly uncertain in nature and can be driven by factors outside Transgrid's control. We consider these modifications provide an appropriate sharing of the benefits and risks between Transgrid and its customers.

We discuss this in further detail in section 6.3.

Transgrid's community engagement and social licence activities

Transgrid has proposed a range of programs and activities as part of its plan to achieve social licence, and our role is to assess this proposed expenditure for prudence and efficiency. As set out in our Social Licence Directions Paper, our position is that the costs for achieving social licence, whether for community engagement, benefits programs or other arrangements, are a legitimate and necessary business expense, and that these expenses should be recoverable so long as they are justified.⁵⁴

We assess social licence expenditure holistically by applying the *but for* test. After applying this test, we decided to accept all of Transgrid's proposed costs to achieve social licence. Our primary reason for doing so is that, in the absence of Transgrid's proposed expenditures, we are concerned that Transgrid may not have sufficient resources to engage with and address the needs of affected community members.

The way that Transgrid has engaged with affected landholders for the HumeLink project has been a topic of concern amongst stakeholders, and we saw this reflected in stakeholder submissions. We took great interest in the views expressed by community stakeholders, and appreciate the insight we have been given into the way in which Transgrid has conducted its engagement activities.

We received a number of submissions from stakeholders on Transgrid's engagement, and observed that many community stakeholders reported negative experiences to date. Some key issues raised by stakeholders were that:

- Transgrid has not achieved sufficient social licence to proceed with the project;⁵⁵
- some parts of the community were not engaged during the route selection process;⁵⁶

⁵³ Public Interest Advocacy Centre (PIAC), [HumeLink CPA stage 2 submission](#), April 2024, p. 3

⁵⁴ AER, [Directions paper – Social licence for electricity transmission infrastructure](#), October 2023, pp. 18–20.

⁵⁵ Anonymous, Submission to HumeLink Stage 2 CPA, July 2024; Braeburn Pastoral, Submission to HumeLink Stage 2 CPA, July 2024; Andrew Purcell, Submission to HumeLink Stage 2 CPA, July 2024.

⁵⁶ Anonymous, [Submission to HumeLink Stage 2 CPA](#), April 2024.

- there has been a lack of genuine and transparent information sharing;⁵⁷
- it was unclear how social licence expenditure will improve community acceptance;⁵⁸
- there has been inadequate consultation and engagement with local communities, environmental groups and Indigenous groups;⁵⁹
- there has been a lack of collaboration with the community consultative group;⁶⁰ and
- Transgrid has not adequately considered undergrounding concerns.⁶¹

These submissions demonstrate that Transgrid has not yet adopted the entirety of its social licence engagement plan in practice. In addition to these submissions, we found that Transgrid has not genuinely and collaboratively engaged with key stakeholders such as local governments. The Wagga Wagga and Snowy Valleys Councils raised concerns about the quality of Transgrid's engagement.⁶²

Moving forward, we expect Transgrid to engage with communities in a genuine, meaningful and respectful way. Meeting community needs and building ongoing relationships of trust will be pivotal to the timely delivery of HumeLink, which will benefit both consumers and the energy system as a whole.

We consider that, in approving all of Transgrid's proposed costs to achieve social licence, Transgrid is sufficiently equipped to meet and achieve its social licence commitments. We do not dictate specific social licence activities, and expect Transgrid to effectively engage and undertake the social licence activities that it deems suitable for affected communities. Transgrid will have the flexibility to reallocate its funding as necessary based on its continuing engagement, and may have to do so to meet the needs of its stakeholders.

We discuss social licence costs in more detail in section 6.1.4.

Transgrid's proposed delivery date and implications for proposed capex

Stakeholders submitted that Transgrid's plan to deliver HumeLink by 2026–27 is earlier than necessary, and three years in advance of the optimal timing in AEMO's 2024 ISP. In addition, some stakeholders suggested that the purpose of undertaking early works activities is to maintain the option of delivering the project earlier or later if necessary, and therefore project construction should be delayed.

As noted in section 3, we consider that delivery in 2026–27 is likely as it aligns with the actionable window identified in AEMO's 2024 ISP and Transgrid and its contractors are incentivised to meet this timing. We consider that this timing is likely to be the most efficient

⁵⁷ Anonymous, [Submission to HumeLink Stage 2 CPA](#), April 2024; Ted Woodley, [Submission to HumeLink Stage 2 CPA](#), April 2024; HumeLink Alliance, [Submission to HumeLink Stage 2 CPA](#), April 2024; Braeburn Pastoral, [Submission to HumeLink Stage 2 CPA](#), April 2024; HumeLink United, [Submission to HumeLink Stage 2 CPA](#), April 2024.

⁵⁸ Ted Woodley, [Submission to HumeLink Stage 2 CPA](#), April 2024.

⁵⁹ Michael Katz, [Submission to HumeLink Stage 2 CPA](#), July 2024.

⁶⁰ HumeLink United, [Submission to HumeLink Stage 2 CPA](#), April 2024; Braeburn Pastoral, [Submission to HumeLink Stage 2 CPA](#), April 2024.

⁶¹ HumeLink Alliance, [Submission to HumeLink Stage 2 CPA](#), April 2024; Braeburn Pastoral, [Submission to HumeLink Stage 2 CPA](#), April 2024; HumeLink United, [Submission to HumeLink Stage 2 CPA](#), April 2024.

⁶² Standing Committee of State Development, [Report – Feasibility Infrastructure for Renewable Energy Projects](#), 26 July 2023.

option for delivering HumeLink, as pausing or delaying the project to target a later delivery date would be both risky and costly.

In relation to early works activities, we agree that these should allow some flexibility in deciding whether to bring forward or delay project delivery. However, another key purpose of early works is to refine the project's stage 2 cost estimate. To do this, Transgrid needed to procure and engage its design and construction delivery partners in order to "lock in" the majority of the project's costs and prevent further cost escalation. We note that these costs represent over 60% of Transgrid's total capex estimate for HumeLink stage 2.

We consider it was reasonable that, as part of this process, Transgrid defined target delivery dates consistent with the latest ISP at the time (the 2022 ISP), in which AEMO noted "...the project would optimise benefits to consumers if delivery is targeted for 2026-27."⁶³ We also consider it likely that Transgrid's delivery partners would either propose higher rates, or choose not to enter contracts with Transgrid at their proposed rates, if they were required to maintain these rates for an extended period based on the possibility that the optimal timing changes in a later ISP. EMCa also agreed with this view, and noted that it would be both risky and more costly to pause the project.

We also accept that Transgrid's proposed completion date is within the actionable window defined in the 2024 ISP, and for this reason AEMO provided its feedback loop approval noting that Transgrid's proposal aligns with the optimal development path. AEMO also noted in its 2024 ISP that "under all scenarios in the 2024 ISP, delivery of HumeLink within its actionable window is found to be optimal...this demonstrates that maintaining the project's momentum is in consumers' long-term interest." Therefore, we are satisfied that targeting a 2026–27 delivery for HumeLink is in the long term interests of electricity consumers.

We received some stakeholder submissions on Transgrid's proposed risk costs and the potential for Transgrid to incur penalty costs from its contractors if a timely decision on the application is not made. These submissions argued that Transgrid should bear these costs rather than electricity consumers.

We found that Transgrid capex forecast is overstated as it proposed a higher than necessary forecast of time delay related costs (risk costs). We consider that Transgrid has at least partly contributed to some costs associated with a delayed project commencement, and these should be excluded from the capex forecast. However, this does not change our view on the likely completion date.

We discuss risk costs in more detail in section 6.1.2.

AEMO's ISP modelling assumptions

Stakeholders submitted that AEMO's modelling process which identifies the need for HumeLink is flawed as it assumes perfect foresight and HumeLink dependent on achieving an unrealistic 82% renewable energy target by 2030. Submissions were also critical of AEMO's 'take-one-out-at-a-time' (TOOT) analysis and claimed that it overstates the benefits of HumeLink.

We consider that these submissions should be directed to AEMO as part of its ISP consultation, as they raise issues which are beyond our role in assessing contingent project

⁶³ AEMO, [2022 Integrated System Plan](#), June 2022, p. 68.

applications. If we are satisfied that the trigger event is met, we are required to make a decision on the prudent and efficient costs that are reasonably required for undertaking the project.

Summary of actions

In making our decision, we have had regard to all submissions we received in relation to Transgrid's application.⁶⁴ We carefully read and considered each submission put to us and have incorporated feedback where possible into our decision-making process. We have also specifically responded in this decision document to the key issues raised by stakeholders.

To summarise what we have done to investigate, address or mitigate stakeholder concerns:

- In response to concerns regarding the veracity of Transgrid's MCCA, we commissioned independent third-party market modelling to ensure we had an unbiased understanding of the gross benefits of each credible option for the project. We also made favourable alternative cost assumptions for Options 1C-new and 2C.
- In response to concerns regarding the feedback loop process, we identified an opportunity for an additional cross-check against the final 2024 ISP. Transgrid has now received written confirmation from AEMO that HumeLink has passed the feedback loop process against both the updated 2022 ISP, and the final 2024 ISP.
- To address concerns regarding application of the CESS, we decided to reject Transgrid's proposal not to apply the CESS to HumeLink's capex, and instead to apply a modified version of the CESS to the project. This will mitigate the impact of cost overruns on electricity consumers.
- To address concerns regarding Transgrid's community engagement to date, we have approved all of Transgrid's proposed expenditure to achieve social licence. We are satisfied that Transgrid is sufficiently equipped to engage in high quality engagement and social licence activities moving forward and expect Transgrid to consult communities in a genuine, respectful and meaningful way.
- To address concerns regarding Transgrid's proposed risk costs, we made reductions to the allowed capex to exclude costs within Transgrid's control or costs adequately funded in other areas of the capex forecast. This will share ensure that risk is shared equally between Transgrid and electricity consumers.

We appreciate that it takes time and resources to engage in our consultation processes, and would like to thank all of the stakeholders that engaged with us during consultation for this decision.

We encourage stakeholders to continue to participate in consultation and engagement with Transgrid to ensure that their interests are represented.

⁶⁴ NER, cl. 6A.8.2(g)(2).

5 Project trigger and expenditure threshold

When we receive a contingent project application, we are required to establish whether the four criteria set out under clause 5.16A.5 (also called the ‘trigger event’) have been satisfied.⁶⁵ If we assess the trigger event for the actionable ISP project has been satisfied, we must then determine the incremental revenues that will be added to Transgrid’s revenue allowance, reflecting the forecast prudent and efficient capital expenditure and operating expenditure required to deliver the contingent project.⁶⁶

The four criteria are:

- Transgrid must issue a Regulatory Investment Test for Transmission (RIT-T) project assessment conclusions report (PACR) that meets the requirements of clause 5.16A.4 and which identifies a project as the preferred option (which may be a stage of an actionable ISP project if the actionable ISP project is a staged project).⁶⁷
- Transgrid must obtain written confirmation from AEMO that the preferred option addresses the relevant identified need specified in the most recent ISP and aligns with the ODP referred to in the most recent ISP;⁶⁸ and, the cost of the preferred option does not change the status of the actionable ISP project as part of the optimal development path as updated in accordance with clause 5.22.15 where applicable.^{69,70}
- No dispute notice has been given to the Australian Energy Regulator (AER) under rule 5.16B(c) or, if a dispute notice has been given, then in accordance with rule 5.16B(d), the dispute has been rejected or the project assessment conclusions report has been amended and identifies that project as the preferred option.⁷¹
- The cost of the preferred option set out in the contingent project application must be no greater than the cost considered in AEMO’s ISP feedback loop assessment.⁷²

Under clause 6A.8.2(e) of the NER, we must determine the expenditure reasonably required and the incremental revenues necessary to deliver the contingent project if we are satisfied that a specific trigger event has occurred, and that the project exceeds a cost threshold.

This section outlines our assessment of the trigger event and provides detail on our consideration of the Material Change in Circumstance Assessment (MCCA) provided by Transgrid (section 5.1.1) as well as AEMO’s feedback loop confirmation (section 5.1.2).

⁶⁵ NER, cl. 6A.8.2(e).

⁶⁶ NER, cl. 6A.8.2(e)(1).

⁶⁷ NER cl. 5.16A.5(a).

⁶⁸ NER, cl. 5.16A.5(b)(1).

⁶⁹ NER, cl. 5.16A.5(b)(2).

⁷⁰ This process is the ‘ISP feedback loop’.

⁷¹ NER, cl. 5.16A.5(c).

⁷² NER, cl. 5.16A.5(d).

5.1 Assessment of trigger event

Table 2 sets out the required elements of the actionable ISP project trigger event (as per NER clause 5.16A.5) and our assessment against each element of the trigger event. We are satisfied that each element of the trigger event has occurred.

Table 2 Actionable ISP project trigger event

Description of trigger event element	Assessment
<p>(a) The RIT-T proponent must issue a RIT-T project assessment conclusions report (PACR) that meets the requirements of clause 5.16A.4 and which identifies a project as the preferred option (which may be a stage of an actionable ISP project if the actionable ISP project is a staged project).</p>	<p>Transgrid published a RIT-T PACR in July 2021 and an addendum to the PACR in December 2021 for HumeLink that meets the requirements of clause 5.16A.4, and which identified the preferred option to be a new 500 kV double circuit transmission line in an electrical ‘loop’ between Maragle, Wagga Wagga and Bannaby (Option 3C).</p> <p>Transgrid published its material change in circumstance (MCC) analysis on 29 February 2024 which concluded that Option 3C remains the preferred option. Our assessment (detailed below in section 5.1.1) concluded that Transgrid’s analysis is not unreasonable and therefore Option 3C remains the preferred option.</p>
<p>(b) The RIT-T proponent must obtain written confirmation from AEMO that:</p> <ul style="list-style-type: none"> • the preferred option addresses the relevant identified need specified in the most recent ISP and aligns with the optimal development path referred to in the most recent ISP; and • the cost of the preferred option does not change the status of the actionable ISP project as part of the optimal development path as updated in accordance with clause 5.22.15 where applicable. 	<p>AEMO’s feedback loop assessments confirmed that HumeLink:</p> <ul style="list-style-type: none"> • <i>addresses the relevant identified need and aligns with the ODP specified in the most recent ISP; and</i> • <i>the total cost of the project, \$4.88 billion, does not change the status of the actionable ISP project as part of the ODP specified in the most recent ISP.</i>⁷³ <p>AEMO undertook its 21 December 2023 feedback loop assessment using the 2022 ISP as updated, and its 8 July 2024 feedback loop assessment using the 2024 ISP (detailed below in section 5.1.2).</p>
<p>(c) No dispute notice has been given to the AER under rule 5.16B(c) or, if a dispute notice has been given, then in accordance with rule 5.16B(d), the dispute has been rejected or the project assessment conclusions report has been amended and identifies that project as the preferred option.</p>	<p>On 16 August 2021, we received a dispute notice from Wunelli Pty Ltd under rule 5.16B(c) on the grounds that it believes the HumeLink RIT-T PACR fails to identify and consider all credible options to address the network need.⁷⁴</p> <p>On 24 November 2021, the AER determined that Transgrid is required to amend its Project Assessment Conclusions Report (PACR) as part of the RIT-T.⁷⁵</p> <p>On 17 December 2021, Transgrid published an addendum to the original PACR, in response to the AER’s determination of a dispute by Wunelli Pty Ltd. The PACR addendum extended the analysis to an additional option (Option 1C-new – a full double circuit option between Maragle and Bannaby). The analysis confirmed that the preferred option continued to be</p>

⁷³ AEMO, [Integrated System Plan Feedback Loop Notice – HumeLink](#), 8 July 2024.

⁷⁴ Wunelli Pty Ltd, [Dispute notice - HumeLink project assessment conclusions report](#), August 2021.

⁷⁵ AER, [Determination on RIT-T dispute - Transgrid - HumeLink](#), 24 November 2021.

Description of trigger event element	Assessment
	Option 3C, a new 500 kV double circuit transmission line in an electrical 'loop' between Maragle, Wagga Wagga and Bannaby.
(d) The cost of the preferred option set out in the contingent project application must be no greater than the cost considered in AEMO's feedback loop assessment.	Transgrid's proposed Stage 2 capex is \$4.28 billion (\$2022–23) (excluding equity raising costs). When combined with the \$0.6 billion for early works activities approved by the AER, the total project cost of \$4.88 billion does not exceed the \$4.88 billion cost considered in AEMO's feedback loop confirmation. (See Section 5.1.2)

Source: AER analysis.

5.1.1 Material change in circumstances assessment

There has been significant interest in Transgrid's Material Change in Circumstances Assessment (MCCA). Stakeholders were particularly concerned with the cost increases associated with the delivery of HumeLink.

We wrote to Transgrid in August 2023 setting out the need to substantiate the occurrence of the trigger event.⁷⁶ The trigger event requires Transgrid to have published a PACR that complies with clause 5.16A.4 of the NER. Clause 5.16A.4 requires Transgrid to consider whether there has been a material change of circumstances and why its reasonable opinion was that the preferred option had not changed. On that basis, in January 2024, we sent a formal information request to Transgrid for it to provide its MCCA for HumeLink.⁷⁷

Transgrid published its MCCA report in February 2024, concluding that Option 3C remained the preferred option for the HumeLink project. Our role under the NER is to consider whether Transgrid's analysis was not unreasonable. Stakeholder submissions and views helped shape the method we used to assess Transgrid's MCCA. In particular, we ensured that our assessment of the credible options was based on independent market modelling, to address concerns over the veracity of Transgrid's modelling.

The three options considered in the HumeLink MCCA and the PACR were:

- Option 1C-new: new double circuit 500 kV line between Maragle and Bannaby;
- Option 2C: new 500 kV double-circuit lines between Maragle, Wagga Wagga and Bannaby; and
- Option 3C (the RIT-T preferred option, currently being progressed by Transgrid): new 500 kV double-circuit lines in an electrical 'loop' between Maragle, Wagga Wagga and Bannaby.

After commissioning independent market modelling and factoring in more favourable cost assumptions for Options 1C-new and 2C, we found that Option 3C resulted in the greatest

⁷⁶ AER, *Advice to Transgrid in relation to material change in circumstances provisions*, 22 August 2023.

⁷⁷ AER, *Information request 1 – HumeLink Stage 2 CPA*, 19 Jan 2024.

net benefits to the NEM. We therefore determined that it was not unreasonable for Transgrid to conclude that Option 3C remained the preferred option for the HumeLink project.

We have set out the rule requirements guiding our decision, and the reasoning for our decision, below.

Requirements under the NER

The requirement for Transgrid to consider whether there has been a material change of circumstances and why its reasonable opinion was that the preferred option had not changed arises from the first criteria of the trigger event at 5.16A.5 of the NER,⁷⁸ noting that the applicable version of the NER to HumeLink is version 202.⁷⁹

To satisfy this criterion of the trigger event, proponents must have issued a PACR compliant with clause 5.16A.4. Clause 5.16A.4 sets out various requirements, such as time frames for publication and the contents of the PACR. Relevantly, clause 5.16A.4(n) of the NER(v202) states the circumstances in which a RIT-T would need to be re-applied. This is when:

*... there has been a **material change in circumstances** which, in the **reasonable opinion** of the RIT-T proponent, means that the preferred option identified in the project assessment conclusions report **is no longer the preferred option**...*
(emphasis added)

Therefore, to satisfy the first element of the trigger event, Transgrid was required to show that it considered whether there had been a material change in circumstances, and that it had formed the 'reasonable opinion' that the preferred option identified in the HumeLink PACR (Option 3C) remained the preferred option in light of changed circumstances.

Our role was to ensure that Transgrid could substantiate that this element of the trigger event had occurred. The key question before us was whether Transgrid's opinion, that Option 3C remained the preferred option, was not unreasonable.

Stakeholder submissions

Many stakeholder submissions commented on Transgrid's MCCA, indicating a high level of interest in this issue. Stakeholders were particularly interested in the following matters:

- **Cost increases:** The submissions expressed concerns relating to the significant cost increase for HumeLink, which many stakeholders considered to be indicative of a material change in circumstances.
- **Increase in stated benefits:** The submissions noted the significant increase in stated benefits for Option 3C in Transgrid's MCCA, compared to the benefits in the HumeLink PACR. Stakeholders sought close scrutiny of Transgrid's stated benefits for both the preferred option and the other two options assessed in the MCCA.

⁷⁸ Pursuant to cl. 6A.8.2(b)(1) of the NER, Transgrid must also substantiate that it has satisfied the trigger event in its CPA.

⁷⁹ In October 2022 the AEMC published its final determination and more preferable final rule on the [Material change in network infrastructure project costs rule change](#). This made changes to NER clause 5.16A.4 requiring the RIT-T proponent, at the time it submits its contingent project application, to provide a statement on whether there has been a material change in circumstance and any supporting analysis. However, this update to the NER does not apply to HumeLink because Transgrid had already prepared a PADR prior to the commencement date (see NER transitional rule 11.154.2).

- Potential conflict of interest: The submissions expressed concerns that there was a potential conflict of interest in Transgrid itself conducting the MCCA. A few submissions went into further detail about these concerns, scrutinising the way Transgrid treated biodiversity costs, sunk costs and contingency risks for Option 3C compared to Options 1C-new and 2C.

Our approach to considering Transgrid's MCCA

Our approach to considering Transgrid's MCCA is set out below:

1. We verified that Transgrid applied updated inputs and assumptions consistent with AEMO's Draft 2024 ISP (referenced by the 2022 ISP update of 15 December 2023) and 2023 IASR. Where it deviated, we ensured that Transgrid justified and provided reasonable explanation for its use of alternate inputs and assumptions. We also checked the inputs and assumptions against the final 2024 ISP when it was published, and found them to be consistent.⁸⁰
2. We commissioned independent market modelling to assess the gross benefits of Option 3C (preferred) and Option 2C (second ranked option in the MCCA), and to understand the impact on the ranking of the credible options.

This step was key to ensuring that our decision was based on an independent and impartial analysis of HumeLink's MCCA. We observed that a common theme amongst stakeholders who made a submission on this topic was the potential for bias in modelling presented by the project proponent. Stakeholders wished to see close and unbiased scrutiny of Transgrid's analyses, particularly of the benefits for Option 3C in Transgrid's MCCA.

In light of these views, we engaged a third-party economic consultant to assess the conclusions reached in Transgrid's MCCA. In selecting a consultant to perform the modelling, a key attribute was their ability to provide advice that can be accepted as clearly independent.

3. We sought additional information from Transgrid to understand its reasoning on its treatment of sunk costs, contingency costs, and biodiversity costs attributed to the credible options assessed in the MCCA report.⁸¹

We performed this step due to concerns expressed by the HumeLink Alliance and Ted Woodley, regarding Transgrid's treatment of these issues.

4. We undertook net present value analysis with alternative cost assumptions, which favoured options 2C and 1C-new, to understand any impacts on the ranking of the credible options assessed in the MCCA report.

Some stakeholders expressed that the ranking of credible options 2C and 1C-new may have been different had alternative cost assumptions been factored into the analyses. Therefore, in assessing the impact of alternative cost assumptions on the ranking of the credible options, we applied reductions to various cost assumptions relating to

⁸⁰ There were minor deviations to the timing of some future transmission projects to account for the proponent's earliest in-service date. This change was explained consistent with obligations in the CBA guidelines.

⁸¹ AER, *Information request 7 - HumeLink Stage 2 CPA*, 2 May 2024.

contingency, biodiversity and sunk costs for options 2C and 1C-new. This reduced the overall capital costs for these options consistent with the application of these cost assumptions used for option 3C.

- We reviewed the different modelling approaches used in Transgrid’s MCCA and AEMO’s draft 2024 ISP as well as Transgrid’s Humelink PACR and AEMO’s 2022 ISP. This was done to address stakeholder concerns regarding the credibility of the modelling used in Transgrid’s MCCA.

Our assessment of Transgrid’s MCCA

This section sets out our analysis of Transgrid’s MCCA in line with our approach. Table 3 presents the costs and benefits of the PACR options Transgrid assessed in its MCCA report. Transgrid’s MCCA report determined that option 3C is the preferred option with a net market benefit of \$4.186 billion.

Table 3 Transgrid MCCA reported costs and benefits (\$ million, \$ 2022–23)

Cost/cost assumptions	Option 1C-new (3 rd ranked option)	Option 2C (2 nd ranked option)	Option 3C (preferred option)
Weighted gross benefit – Transgrid’s MCCA report (present value)	6,159	7,579	7,857
Total capital cost – Transgrid’s MCCA report ^A	4,325	5,615	4,881
Total capital cost – Transgrid’s MCCA report (present value) ^B	2,754	3,607	3,525
Weighted net benefits – Transgrid’s MCCA report ^C	3,271	3,792	4,186

- (A) Costs as presented in Transgrid’s MCCA report. The cost for option 3C includes \$609m of costs for early works.
- (B) The present value of capital costs have been calculated using a terminal value in the final year of the modelling period equal to a pro rata share of the remaining capex in the asset’s life which falls outside the modelling period. This approach is consistent with guidance in the RIT-T application guidelines.
- (C) Net benefit includes planned routine maintenance and refurbishment costs over modelling period.

In our analysis we ensured that the options had consistent costs, by using alternative assumptions. We applied cost reductions to the capital costs of option 3C to reflect the capex categories reduced in our assessment in section 6 (for biodiversity offset costs and risk costs), and applied similar reductions to 2C and 1C-new for consistency. We also treated early works costs as sunk for option 3C, and applied a reduction in costs for options 1C-new and 2C, consistent with those options benefitting from a portion of these sunk early works costs (that can be used for these other options). Table 4 presents these cost reductions along with an updated weighted net benefit for each option. We found that option 3C remains the preferred option under these alternative cost assumptions.

As noted above we also considered alternative benefits through independent market modelling in combination with the cost reductions presented in table 4 in conducting our own net present value analysis. As presented in table 5, we found that the net benefit of option 3C remains the greatest and therefore is the preferred option.

Table 4 Impact of alternative cost assumptions on total costs and net benefits (\$ million, \$ 2022–23)

Cost/cost assumptions	Option 1C-new (3rd ranked option)	Option 2C (2nd ranked option)	Option 3C (preferred option)
Overall cost reduction applied for consistent application of cost assumptions between options (accounting for early works costs and adjustments consistent with this determination)	601	540	314
Reduction in capital costs for committed early works (except where specific to an option)	408	408	609
Total cost with alternative assumptions (approx.)	3,316	4,667	3,965 ^A
Total cost with alternative assumptions (present value) ^B	2,266	3,166	3,027
Weighted net benefit with alternative cost assumptions (approx.) ^C	3,759	4,233	4,684

- (A) This table uses a total capital cost of \$4,888 million for option 3C, which is the sum of the Stage 1 CPA determinations (\$609 million) and Transgrid’s CPA for stage 2 (\$4,279 million).
- (B) The present value of capital costs have been calculated using a terminal value in the final year of the modelling period equal to a pro rata share of the remaining capex in the asset’s life which falls outside the modelling period. This approach is consistent with guidance in the RIT-T application guidelines.
- (C) Net benefit includes planned routine maintenance and refurbishment costs over modelling period.

Table 5 Impact of alternative cost assumptions and independent market modelling on ranking of credible options (\$ million, \$ 2022–23)

Cost/cost assumptions	Option 1C-new (3 rd ranked option)	Option 2C (2 nd ranked option)	Option 3C (preferred option)
Gross benefit – Independent modelling (present value) ^A	3,410	4,666	4,740
Total cost with alternative assumptions (present value) ^B	2,266	3,166	3,027
Net benefit with independent modelling and alternative cost assumptions (present value) ^C	1,010	1,320	1,523

- (A) The gross benefits have been assessed in AEMO’s step change scenario. The gross benefit of Option 1C-new has not been modelled but instead has been reduced on a pro rata basis considering the benefits reduction between option 3C in the MCCA report compared with option 3C within our independent market modelling.
- (B) The present value of capital costs have been calculated using a terminal value in the final year of the modelling period equal to a pro rata share of the remaining capex in the asset’s life which falls outside the modelling period. This approach is consistent with guidance in the RIT-T application guidelines.
- (C) Net benefit includes planned routine maintenance and refurbishment costs over modelling period.

In summary, our analysis found that:

- **Option 3C may not result in the gross benefits stated in Transgrid’s MCCA.** Independent market modelling based on the draft 2024 ISP Step Change scenario reported \$4.74 billion of gross benefits for option 3C, compared to Transgrid’s MCCA estimate of \$7.25 billion.

The analysis found that this difference in gross benefit estimates is likely due to the treatment of transmission network assumptions in Transgrid's MCCA, relating to South West NSW Renewable Energy Zone transmission limit and the treatment of costs and benefits of VNI West project. In response to our query, Transgrid provided further reasoning on the treatment of these network assumptions in its MCCA.

- **Option 3C still produces the greatest net benefit.** Our net present value analysis brought the net benefits of option 3C to \$1.52 billion instead of the \$4.19 billion stated in Transgrid's MCCA. The net benefits of options 1C-new, 2C, and 3C, are \$1.01 billion, \$1.32 billion, and \$1.52 billion respectively. These figures use favourable alternative cost assumptions which reduce the capital costs for 1C-new and 2C, so that these options also benefit appropriately from the costs that have already been incurred. This means that, even using alternative cost assumptions, the net benefits of option 3C are greater than those of 1C-new and 2C.

We therefore conclude that Transgrid was not unreasonable in forming the opinion that Option 3C remains the preferred option.⁸² Our decision means that Transgrid is not required to re-apply the RIT-T.

5.1.2 AEMO feedback loop confirmation

For a TNSP (in this case Transgrid) to be eligible to submit a contingent project application (CPA) to the AER for an actionable ISP project (in this case Humelink) a "feedback loop" confirmation is required from AEMO. This process confirms that the project remains aligned with the Optimal Development Path (ODP) published as part of the AEMO's ISP.⁸³

Transgrid sought feedback loop confirmation with respect to the Humelink project on four occasions:

- On 27 January 2022 AEMO confirmed the project satisfied the requirements of the feedback loop, including \$383.3 million of early works costs.
- On 19 May 2023 AEMO confirmed the project satisfied the requirements of the feedback loop, with updated early works costs of \$632.9 million.
- On 21 December 2023 AEMO confirmed the project satisfied the requirements of the feedback loop against the 2022 ISP as updated 15 December 2023, for a total project cost of \$4.88 billion.
- On 8 July 2024 AEMO confirmed the project satisfied the requirements of the feedback loop against the 2024 ISP, for a total project cost of \$4.88 billion.

Stakeholder submissions

Stakeholders including the Centre for Independent Studies (CIS) raised concerns on the validity of AEMO's feedback loop confirmation provided to Transgrid on 21 December 2023. In particular, the CIS submitted that:

⁸² In reviewing Transgrid's response to AER's information request 7, we note that while Transgrid did not satisfactorily respond to all our questions, our aforementioned assessment with alternative cost assumptions and independent market modelling finds that any remaining information gaps are insufficient to affect our conclusion that option 3C is likely to remain as the preferred option.

⁸³ A TNSP must obtain AEMO confirmation of the matters specified in clause 5.16A.5(b) of the NER.

We submit that the trigger event criteria in 5.16A.5 have not been met, because the feedback loop was performed using an unconsulted Optimal Development Path (ODP) from the Draft 2024 ISP; violating the National Electricity Rules (NER) at the time of the request for the feedback loop.

The feedback loop therefore needs to be performed again before the AER can approve this Contingent Project Application. Either it should be performed against the 2022 ISP, properly updated as per 5.22.15(c), or else performed against the Final 2024 ISP.

We note the concerns about the consultation process undertaken in producing the 2023 ISP update. Whether this process affects the validity of the 2023 ISP update or feedback loop assessment depends on the operation of the National Electricity Law and the NER. The National Electricity Law does create a presumption of validity in relation to statutory instruments including ISP updates. The AER has proceeded on this basis in assessing Transgrid's application.

In the course of our assessment of the contingent project application, including having regard to the submission referred to above, we considered that it was appropriate for Transgrid and AEMO to undertake a further feedback loop assessment against the 2024 Final ISP to address stakeholder concerns. We raised this with Transgrid and AEMO.

On 3 July 2024, Transgrid requested a fourth feedback loop assessment for the delivery of the HumeLink project. The request noted that the total cost, scope, and timing are unchanged since feedback loop 3. AEMO provided its fourth feedback loop confirmation on 8 July 2024 confirming that:

- the HumeLink project addresses the relevant identified need and aligns with the ODP specified in the most recent ISP i.e. final ISP 2024; and
- The total cost of the project, \$4.88 billion, does not change the status of the actionable ISP project as part of the ODP specified in the most recent ISP i.e. final ISP 2024.

These four feedback loop confirmations⁸⁴ provided by AEMO at different times on Transgrid's requests since the publication of Humelink PACR in 2021, sought to ensure that the Humelink project addressed the identified need and aligned with the ODP in each of the relevant ISPs including the most recent ISP 2024 published in June 2024. We consider that the feedback loop confirmation provided by AEMO on 8 July 2024 which assessed Humelink project against AEMO's final 2024 ISP, addresses stakeholder concerns on the validity of its earlier feedback loop confirmation provided on 21 December 2023.

We are satisfied that Transgrid Humelink Stage 2 CPA has met the trigger event element set out in NER cl. 5.16A.5(b) that entitled it to make an application under that clause. We are also satisfied that the requirements of clause 6A.8.2(e) have been met.

⁸⁴ AEMO, [Integrated System Plan \(ISP\) Feedback Loop Notices](#), accessed July 2024.

5.2 Assessment of expenditure threshold

As required under clause 6A.8.2(e) of the NER, we are satisfied that the proposed capex amount of \$4,279.1 million exceeds the applicable materiality threshold of \$46.2 million (nominal), which is 5% of the maximum allowed revenue in year one of the 2023–28 period. This is calculated from the updated post tax revenue model for the 2023–28 regulatory period following our decisions for HumeLink stage 1 part 1 and stage 1 part 2.⁸⁵

⁸⁵ AER, [Final decision HumeLink stage 1 \(part 2\) – post-tax revenue model](#), August 2023.

6 Prudent and efficient project expenditure

In making our decision in response to the contingent project application, we are required to determine the capex and opex for each year of the current regulatory control period that we consider is reasonably required.⁸⁶ In forming this view, we have considered the capex and opex criteria.⁸⁷ We must also have regard to the specific matters under clause 6A.8.2(g) of the NER. This section sets out our consideration of these matters and our assessment of the prudent and efficient costs for Transgrid's HumeLink stage 2 contingent project application.

6.1 Forecast capital expenditure

Our determination substitutes forecast capex of \$3,964.8 million, which is \$314.4 million (or 7.3%) lower than Transgrid's proposed forecast capex of \$4,279.1 million for its stage 2 CPA. We developed and substituted an alternative estimate as our analysis led us to consider that Transgrid's proposed capex was not prudent and efficient and reasonably required for the purposes of undertaking the project.⁸⁸

Table 6 sets out our determination on the total capex reasonably required for stage 2 of the project compared to Transgrid's proposal.⁸⁹

Table 6 AER's determination on HumeLink stage 2 capex (\$ million, \$2022–23)

	2023–24	2024–25	2025–26	2026–27	Total
Transgrid's application	5.2	1,348.8	2,692.7	232.5	4,279.1
AER's determination	4.3	1,081.2	2,477.7	401.6	3,964.8
Difference (\$)	-0.9	-267.5	-215.0	169.1	-314.4
Difference (%)	-17.5%	-19.8%	-8.0%	72.7%	-7.3%

Source: AER analysis of Transgrid's revised capex model submitted in response to our information request.

Note: Numbers may not add up due to rounding. Excludes equity raising costs.

In the course of our assessment, Transgrid provided new information and acknowledged that some costs were included in error, which lowered its initial capex forecast to \$4,173.4 million. We discuss these updates in section 6.1.1 to 6.1.3. Our alternative capex forecast of \$3,964.8 million is \$208.6 million (or 5.0%) lower than this updated capex forecast.

Table 7 sets out our capex determination for each stage of the project.

⁸⁶ NER, cl. 6A.8.2(e)(1)(i) and (ii).

⁸⁷ NER, cl. 6A.8.2(f)(2).

⁸⁸ NER, cl. 6A.8.2(g)(4).

⁸⁹ NER, cl. 6A.8.2.(e)(1)(i) and (ii).

Table 7 AER's determination on HumeLink capex, all stages (\$ million, \$2022–23)

Project stage	2018–23	2023–28	Total
Stage 1 (Part 1) early works	306.0	74.8	380.8
Stage 1 (Part 2) early works	-	227.8	227.8
Stage 2 delivery	-	3,964.8	3,964.8
Total	306.0	4,267.4	4,573.5

Source: AER analysis and HumeLink Stage 1 decisions.

Note: Numbers may not add up due to rounding. Excludes equity raising costs. Stage 1 (Part 1) capex has been escalated from \$2017-18 using unlagged June quarter CPI published by the ABS.

Table 8 provides a comparison of our determination against Transgrid's proposed stage 2 capex by category.

Table 8 AER's determination by category compared to Transgrid's application (\$ million, \$2022–23)

Capex category	Transgrid's application	AER's determination	Difference (\$)	Difference (%)
Tendered works (design and construction)	2,604.1	2,590.6	-13.5	-0.5%
Other construction costs (risk costs)	599.1	382.1	-217.0	-36.2%
Long lead equipment	29.6	29.6	0.0	0.0%
Land easement acquisition	197.3	197.3	0.0	0.0%
Biodiversity offset costs	437.5	353.6	-83.9	-19.2%
Labour and indirect costs (incl. escalation)	411.6	411.6	0.0	0.0%
Total capex	4,279.1	3,964.8	-314.4	-7.3%

Source: Transgrid, *HumeLink stage 2 Delivery Contingent Project Application*, December 2023 and AER analysis.

Note: Numbers may not add up due to rounding. Excludes equity raising costs.

Our capex assessment approach

We assessed whether the proposed capex meets the capital expenditure criteria.⁹⁰ This includes assessing whether Transgrid's proposed capex is prudent and efficient in achieving the capital expenditure objectives.

In making our decision, we have had regard to the range of supporting documents Transgrid submitted.⁹¹ This includes the following "core" documents provided in Transgrid's application:

⁹⁰ We are required to make this assessment under cl. 6A.8.2(f)(2) of the NER. The capital expenditure criteria are set out in NER cl. 6A.6.7(c).

⁹¹ NER, cl. 6A.8.2(g)(1).

- Principal application – Transgrid’s main application document, summarising the entire application and referring to various supporting documents.⁹²
- Direct capex forecasting methodology – this document explains the methodologies Transgrid used to determine its direct capex forecast and explains how Transgrid verified and validated its forecast.⁹³
- Labour and indirect capex forecasting methodology – this document sets out the nature and scope of labour and indirect capex, includes methodologies to determine the forecast capex and explains how Transgrid verified and validated its forecast.⁹⁴
- GHD Advisory: Independent verification and assessment – this document provides an independent assessment of Transgrid’s capex forecast.⁹⁵

In addition, Transgrid provided a range of supporting documents and models to support its category-level forecasts. Transgrid also responded to the information requests we issued under NER clause 6A.8.2(h1), which we have used in forming our decision and developing an alternative estimate of capex. We also had regard to written stakeholder submissions received on Transgrid’s capex forecast.

We also engaged Energy Market Consulting Associates (EMCa) to review the prudence and efficiency of Transgrid’s forecast capex, excluding capex related to biodiversity offset costs and costs to achieve social licence.⁹⁶ We refer to EMCa’s advice where relevant.

We also had regard to:⁹⁷

- the relative prices of operating and capital inputs in relation to the contingent project;
- the substitution possibilities between operating and capital expenditure in relation to the contingent project; and
- the actual and expected capital expenditure of Transgrid for contingent projects during any preceding regulatory control periods.

Our overall conclusion on Transgrid’s proposed capex

Our decision is to not accept Transgrid’s proposed total capex for HumeLink stage 2 based on our assessment. Instead, we substitute an alternative estimate of \$3,964.8 million, which is \$314.4 million (or 7.3%) lower than Transgrid’s application.

Through our analysis, we found that:

- **Transgrid’s forecasts for some categories of capex rely on outdated information, and more recent information indicates a lower level of capex is required.** For example, Transgrid’s forecast of biodiversity offset costs and associated risk costs was

⁹² Transgrid, [HumeLink CPA stage 2 - A1 Principal Application](#), December 2023.

⁹³ Transgrid, [HumeLink CPA stage 2 - A2 Direct Capex Forecasting Methodology](#), December 2023.

⁹⁴ Transgrid, [HumeLink CPA stage 2 - A3 Labour and indirect costs](#), December 2023.

⁹⁵ GHD Advisory, [HumeLink CPA stage 2: Independent Verification and Assessment](#), November 2023.

⁹⁶ NER, cl. 6A.8.2(g)(3).

⁹⁷ NER, cl. 6A.8.2(g)(5),(7) and (8).

refined based on new information which became available in the course of our assessment.

- **Transgrid’s forecast of risk costs (or contingencies) contains costs within its control and costs sufficiently funded in other areas of its capex proposal.** In our view, Transgrid does not require an additional capex allowance for these costs and its forecast of labour and indirect costs is sufficient for managing these risks.
- **Transgrid proposed a higher than necessary forecast of time delay related costs.** We consider that Transgrid has at least partly contributed to some costs associated with a delayed project commencement, and these should be excluded from the capex forecast. Our alternative estimate considers the likelihood of delays and the extent to which they are within Transgrid’s control and includes a reasonable sharing of these risks between Transgrid and its customers.

Despite our findings in relation to the delayed project commencement, we are satisfied that Transgrid’s target completion date of 2026–27 remains likely and is more efficient than targeting a later completion date. As noted in section 4, some stakeholders argued that HumeLink is not necessary until 2029–30, which is the optimal timing identified in the 2024 ISP.⁹⁸ However, Transgrid commenced its early works activities, including contractor engagement and procurement, on the basis of the 2022 ISP, in which AEMO noted that the project would optimise benefits to consumers if delivery is targeted for 2026–27.⁹⁹ We consider that Transgrid’s proposed timeline for delivery is reasonable, as it is within AEMO’s actionable window and it would likely be both risky and costly to now pause the project and target a later delivery date. In the event of a project pause, Transgrid would incur contractual penalties and there would be a high likelihood of increases in contract prices due to constrained labour and resource markets. Commencing construction but targeting a later completion date would likely increase labour and resource costs.

Our assessment of Transgrid’s capex at the category level

At the category level, we found that:

- Tendered works for design and construction activities contributed 60.9% to the total capex forecast, making it the single largest component of the capex forecast. Overall, we are satisfied that Transgrid’s contracting model and procurement process is reasonable, and the forecast expenditure for tendered works represents the outcome of a robust, market tested process. However, evidence showed that ‘Early Contractor Involvement’ (ECI) costs totalling \$13.5 million were already provided in Transgrid’s Stage 1 (Part 1) application. Transgrid acknowledged these costs were included in error. Therefore, our decision includes a lower cost estimate of \$2,590.6 million for tendered works, which is \$13.5 million (or 0.5%) lower than Transgrid’s forecast of \$2,604.1 million.
- Other construction costs (risk costs) contributed 14% to the total capex forecast. Transgrid provided a detailed cost build up for 74 individual risk costs it expects to incur

⁹⁸ Under the Step Change and Green Energy Export Scenario; AEMO, [2024 Integrated System Plan Appendix 5](#), June 2024, p. 22.

⁹⁹ AEMO, [2022 Integrated System Plan](#), June 2022, p. 68.

in the construction phase, which are not already included in its forecast of tendered works expenditure. The risk costs relate to time, variation, reimbursable and inherent risks.

We undertook a detailed review of these risk costs and found Transgrid had quantified some risks which are not consistent with our guidance note.¹⁰⁰ We also found that Transgrid's overall risk cost estimate was based on a P70 level (with a 70% probability of the cost not being exceeded). We consider that a P50 level is appropriate as it is the point at which risks are shared equally between Transgrid and its customers. However, we also recognise that some delay-related expenses have already been incurred by Transgrid due to factors outside its control, such as planning approval delays. It is reasonable that we account for this new information in making our decision.

Our decision accounts for the factors listed above and includes a lower cost estimate of \$382.1 million for risk costs, which is \$217.0 million (or 36.2%) lower than Transgrid's forecast of \$599.1 million.

- Biodiversity offset costs contributed 10.2% to the total capex forecast. Transgrid submitted that this expenditure was necessary to comply with the requirements under the Biodiversity Conservation Act 2016 (NSW). The majority of Transgrid's forecast capex is to make payments into the Biodiversity Conservation Fund (BCF), which is the fastest but most expensive way to acquit the offset liabilities.

During our review new information became available on the number of biodiversity offset credits and the prices of these credits. This reduced the level of expenditure required by Transgrid to acquit its offset liabilities. In addition, based on new information provided by Transgrid, we found that more expenditure could be allocated towards Biodiversity Stewardship Agreements (BSAs), which reduced the forecast of residual payments into the BCF.

As a result, our decision includes a lower cost estimate of \$353.6 million for biodiversity offset costs, which is \$83.9 million (or 19.2%) lower than Transgrid's forecast of \$437.5 million. We have also decided that these costs will be excluded from the CESS due to their uncertain and uncontrollable nature. We discuss this further in section 6.3.

- Transgrid's proposed costs to achieve social licence were justified. We determined that \$89.9 million of capex (or 2.1% of total capex) was included for this purpose in labour and indirect costs, across the community stakeholder engagement, major project initiatives and corporate support, land and property sub-categories.

In accepting Transgrid's proposed labour and indirect costs, we have provided Transgrid with the full amount for its proposed community stakeholder engagement and major project initiatives. Therefore, we expect that Transgrid will undertake high quality engagement and deliver its proposed social licence activities with this funding.

- We were satisfied that for other categories, Transgrid's forecast capex reasonably reflects prudent and efficient costs and is reasonably required to deliver HumeLink. This includes costs for long lead equipment, land easement acquisition and labour and indirect costs (including costs to achieve social licence). We found that Transgrid's estimate for labour and indirect costs was higher than expected when considered alongside

¹⁰⁰ AER, [Guidance note - Regulation of actionable ISP projects](#), March 2021.

Transgrid's forecast of tendered works and risk costs. However, we elected to provide an alternative estimate for risk costs rather than labour and indirect costs.

We discuss our decision on the key cost categories in more detail in sections 6.1.1 to 6.1.4.

Transgrid's proposal to include cost pass through events

In response to an information request, Transgrid suggested it could instead recover some risk costs related to planning approval delays and biodiversity offset costs via a cost pass through mechanism and sought to define new cost pass through events in our determination for this contingent project. However, this is not possible under the NER. We may only vary Transgrid's revenue determination by adjusting forecast capex and opex and making subsequent adjustments to the maximum allowed revenue and X factor for each regulatory year. Notwithstanding this, we note that the NER provides cost pass through events such as regulatory change events and service standard events, and if these occurred in relation to the HumeLink project Transgrid may be eligible to submit a cost pass through application.¹⁰¹

6.1.1 Tendered works (design and construction activities)

Our decision

Our decision includes \$2,590.6 million for tendered works (design and construction activities) compared to Transgrid's forecast of \$2,604.1 million. As noted, we are satisfied that Transgrid's contracting model and procurement process is reasonable, and the forecast expenditure for tendered works represents the outcome of a robust, market tested process. However, Transgrid acknowledged that 'Early Contractor Involvement' (ECI) costs totalling \$13.5 million were already provided in Transgrid's Stage 1 (Part 1) application. Our alternative estimate is 0.5% lower when these costs are removed.

Transgrid's proposal

Transgrid proposed \$2,604.1 million for tendered works relating to design and construction (D&C) activities. The D&C contractors will be responsible for designing, constructing and pre-commissioning the works under the relevant contract package.

Transgrid noted that due to the uncertain and challenging operating environment, contractors are not able or willing to enter into traditional fixed price contracts. Therefore, it adopted an incentivised target cost (ITC) D&C contracting model to deliver the East and West HumeLink packages. Transgrid also noted that if the contractors were required to offer a fixed price contract, the total cost would increase by around \$237 million (8%).

Transgrid submitted the following procurement documents to support its expenditure forecast for tendered works:

- Market Sounding Report (May 2022) – this provides a summary of Transgrid's market sounding process with potential delivery contractors and engineering firms.

¹⁰¹ NER, cl. 6A.7.3.

- HumeLink Transaction Management Plan (August 2022) – this outlines the resources, processes and systems that will be implemented during the transaction phase to procure the HumeLink delivery partners.
- Expression of Interest (EOI) Evaluation Plan (August 2022) – this includes Transgrid’s methodology for evaluating EOI applicants.
- EOI Evaluation Report (October 2022) – this outlines evaluation activities undertaken and provides a record of key decisions and findings.
- ECI Stage 1 Tender Evaluation Report (February 2023) – this provides the evaluation panel’s recommendations with respect to preferred contractors.
- O’Connor Marsden & Associates, Probity Report (March 2023) – a review of Transgrid’s procurement process against relevant probity principles.
- GHD’s independent review of the procurement process.

Based on the results of its ECI process, Transgrid elected to split the works into two contract packages (East and West). Transgrid noted that this approach provides a more manageable scope for contractors and allows it to select contractors with capabilities best suited to the varied works required. The two contract packages are:

- HumeLink East (Acciona Construction Australia and Genus Infrastructure), with forecast capex of \$1,256.5 million. This consists primarily of the transmission line works from the interface point to the eastern HumeLink terminus at Bannaby. This package spans a greater geographical area, with double the length of HV transmission lines (compared to West), while the substation works are relatively small (and predominately civil works rather than electrical works).
- HumeLink West (UGL Engineering and CPB Contractors), with forecast capex of \$1,347.6 million. This consists of the lines from the interface point south to the Snowy 2.0 connection at Maragle, and west to the HumeLink western terminus at Wagga Wagga. This package involves more substation works, including interfaces at brownfield sites and constructing a new substation near Wagga Wagga (Gugaa). The route involves more works within alpine regions, state forests and national parks.

Transgrid engaged an independent cost estimator to verify the D&C contractor costs. The procurement process was overseen by an external transaction manager and probity adviser.

Our assessment

We reviewed Transgrid’s application, procurement documents and responses to our information requests. Although stakeholders did not comment directly on the proposed tendered works costs, some questioned Transgrid’s claimed cost savings by adopting the ITC D&C contracting model and sought assurances that Transgrid’s proposal is the best approach to deliver HumeLink.¹⁰²

¹⁰² Energy Users’ Association of Australia (EUAA), [HumeLink CPA stage 2 submission](#), April 2024; Ted Woodley, [Submission to HumeLink Stage 2 CPA](#), April 2024.

We found that, for mega projects in Australia and overseas, there is a trend toward the adoption of target cost, or ITC contracting models. For example, the New South Wales and Victorian Governments have committed to using more collaborative forms of contracts.

The features of the ITC model (relative to a typical D&C contract) typically result in:

- lower project cost overall;
- lower risk premium added by the contractor;
- higher owner's risk;
- open book transparency and actual costs for change events; and
- a greater level of collaboration to manage risks.

EMCa noted that it will be critical that Transgrid and its contractors act in a collaborative way, and to the extent that commercial interests can align, that any costs (or efficiencies) can be realised that are in the best interest of consumers.

We consider that Transgrid's market engagement and tender evaluation process was satisfactory for the purpose of determining its capex forecast for tendered works. We found that Transgrid applied appropriate price and non-price criteria when evaluating tenders for the work packages. Apart from the ECI costs already provided in Transgrid's Stage 1 (Part 1) application, we found that the capex forecast was reflective of the outcome of the tender evaluation process. Similarly, EMCa concluded that Transgrid's:

- methodology and process for its tendered works is reasonable, and if applied correctly should result in an overall allowance that reasonably reflects and efficient market cost.
- procurement process was appropriate and the prices are an outcome of a market tested process, with reasonable allocation of risk.
- proposed cost build-up is reasonable and allocated correctly, however there is evidence of ECI costs which have already been provided in Transgrid's Stage 1 (Part 1) application, and presumably paid to tenderers in that period.¹⁰³

EMCa also noted that all owners' risks associated with the contract packages are included in other construction costs (risk costs), which were assessed separately.

However, we do not consider that Transgrid fully explained the impact of the ITC contract model on its proposed risk costs and labour and indirect costs. While it noted that risk premiums would be added to tendered costs under a fixed-price contract, it did not quantify the overall impact on capex, including the extent that labour and indirect costs would be different if a fixed-price contract were adopted.

EMCa noted similar concerns. Based on its review of benchmarks for other recent projects, it found that Transgrid's proposed commercial and project management costs are higher, and "...there is an element of double counting in allowing for a higher labour and indirect cost

¹⁰³ EMCa, *Transgrid HumeLink project: Assessment of proposed expenditure for CPA2*, June 2024.

allowance than under a standard contracting model, and also a significantly higher risk cost allowance.”¹⁰⁴

6.1.2 Other construction costs (risk costs)

Our decision

Our decision includes \$382.1 million for other construction costs (risk costs) compared to Transgrid’s forecast of \$599.1 million. Our decision reflects the following adjustments:

- In the course of our assessment, Transgrid provided updated information on the status of individual risk costs, reducing its estimate of other construction costs to \$550.6 million.
- We found that \$81.3 million (at P70 level) of the risk costs are within Transgrid’s control to manage, and excluded these costs. This includes costs that are unlikely to eventuate but for Transgrid’s actions or lack thereof.
- We found that \$50.1 million (at P70 level) of the risk costs are included in the other allowances provided in the CPA, and excluded these costs. This includes costs that may eventuate, but that have already been accounted for in other cost categories.
- We found that \$6.3 million (at P70 level) of the risk costs are symmetric or have a most likely cost of zero, and excluded these costs.
- For the remaining risk costs, we have not accepted the P70 confidence level Transgrid used for its risk assessment, and we have instead assessed the proposed risks at P50. The capex impact of this decision is a reduction of \$30.8 million.

Confidence levels refer to the probability of the cost not being exceeded.¹⁰⁵ P50 is the level where the cost will not be exceeded 50% of the time, and P70 is the level where the cost will not be exceeded 70% of the time. We consider that P50 is a more appropriate point to estimate risk costs as it is the point where risk is shared equally between Transgrid and consumers. This is the approach we have taken for recent decisions including Project EnergyConnect.

Transgrid’s proposal

Transgrid’s capex forecast included ‘other construction costs’ (risk costs) of \$599.1 million, or 14%, of the total stage 2 CPA capex forecast. These are to cover the costs Transgrid expects to incur in the construction phase that are not included in the tendered works.

Transgrid’s proposed capex of \$599.1 million for other construction costs is built up from 74 individual risk costs.¹⁰⁶ Transgrid classified each risk into categories of time, variation, inherent and reimbursable according to the general causes of the risks. These categories are described in Table 9, along with the risk cost totals.¹⁰⁷

¹⁰⁴ EMCa, *Transgrid Humelink project assessment of proposed expenditure for CPA2*, June 2024.

¹⁰⁵ Australian Department of Finance, [Defining P50 and P80](#), January 2024.

¹⁰⁶ Some individual risks were included at zero value.

¹⁰⁷ Some category totals are combined due to their confidential nature.

Transgrid states in its HumeLink Stage 2 Risk and Contingency Report that the other construction costs category is required due to the project complexity, current market and economic conditions, and the ITC contracting model. Transgrid states the lower ITC D&C contract costs plus the other construction costs as proposed in its CPA results in a lower overall cost to consumers than could be achieved with a traditional contracting model.¹⁰⁸

Transgrid explain its methodology for identifying and quantifying the individual risks for the HumeLink stage 2 CPA in its Risk and Contingency Report.¹⁰⁹ In summary, Transgrid held workshops with its internal subject matter experts, consultants and delivery partners to develop a risk register by identifying risks, mitigations, residual impacts and correlation factors. The residual impacts for most risks are three-point probability impacts (P10, P50 and P90) to the schedule or cost. Transgrid used Monte Carlo simulation software to produce aggregate time-delay and cost distribution outputs of the risk register. The cost impact output forms the basis of the total other construction costs capex estimate.

In response to our information request, Transgrid provided further information on the status of certain risk costs as of June 2024. In this update Transgrid informed us that it had increased (time) and decreased (variation and inherent) certain risk costs based on their updated status and had retired some risk costs that were no longer expected to eventuate. In aggregate, this update reduced Transgrid's total proposed risk costs to \$550.6 million.¹¹⁰ The originally proposed and updated category totals are provided in Table 9.

Table 9 Transgrid's categorisation of proposed risk costs (\$ million, \$2022–23)

Category and description	Transgrid original proposal	Transgrid updated proposal	Difference (\$)
Time Increase to Transgrid's labour resources and corporate overhead costs due to planning, secondary approval, or construction delays, such as delays to Environmental Impact Statement (EIS) approval and site access.	272.4	319.3	46.9
Variation and Inherent Variation includes increases to Transgrid's costs due to scope changes during the delivery phase, such as delay escalation and tower foundations. Inherent includes Transgrid's cost uncertainty due to lack of available information, such as biodiversity offsets and labour rates.	266.0	170.6	-95.4
Reimbursable Contractors' reimbursable component of the D&C contract, such as productivity and increase in plant.	60.7	60.7	0.0
Total	599.1	550.6	-48.5

¹⁰⁸ Transgrid, [HumeLink Stage 2 CPA Risk and Contingency Report](#), 7 February 2024, p. 9.

¹⁰⁹ Transgrid, [HumeLink Stage 2 CPA Risk and Contingency Report](#), 7 February 2024, pp 12-17.

¹¹⁰ Transgrid's response to our information request suggested that its forecast of risk costs had reduced to \$545.4 million, however we have relied on its updated bottom-up risk cost forecast of \$550.6 million for the purpose of our assessment.

Our assessment

We reviewed the information provided with the initial proposal in the *Principal Application*, *Direct Capex Forecasting Methodology* and *GHD Advisory HumeLink Independent Verification and Assessment* documents. Transgrid's initial proposal did not provide sufficient information to justify the inclusion of its other construction costs.

We sought further information about Transgrid's individual risk costs, including the risk causes, controls and model inputs used in building up its capex forecast. Transgrid provided the *Risk and Contingency Report*, which provided its detailed rationale for each risk cost, as well as several spreadsheets showing the inputs and outputs of its Monte Carlo simulation.

We attended a workshop with Transgrid to discuss these proposed costs in detail. The workshop revealed many aspects about Transgrid's process that were previously unclear from Transgrid's initial proposal, including;

- The other construction costs estimate was evaluated at P70 (70% probability of the cost not being exceeded). We understand this was Transgrid's internal risk management decision. Transgrid explained that the total estimate for other construction costs at P70 level is equivalent to aggregating each risk at the P55 level. The reason the aggregate risk confidence level (P70) is higher than the individual risk confidence level (P55) is that the likelihood of many risk costs being exceeded is lower than the likelihood of an individual risk cost being exceeded, so the aggregate risk has a higher confidence level. We asked Transgrid to re-run its Monte Carlo simulation at P50 in a range of scenarios with different risks excluded to understand the impact on the aggregate cost output.
- In a follow-up information request, Transgrid presented conflicting time-delay risk modelling. Transgrid acknowledged that the accuracy of the time-delay outputs of the model is secondary to the cost outputs. We consider that Transgrid's time-delay modelling is not credible and we have not relied on it for our assessment.

As noted above, Transgrid provided further information on the status of certain risk costs as of June 2024. In this update, Transgrid informed us that certain risk costs related to time delays were already being realised, and that increases above Transgrid's initial proposal may be necessary. Transgrid provided some evidence that costs related to the EIS approval delay, increases in owner's costs due to project duration extension and accommodation requirements were already being realised, and that the probable cost impact on the project had increased significantly.

Transgrid also informed us that certain risks had not been realised, or had reduced in probability or impact as project work had progressed. In these cases, Transgrid advised that these risk costs could be retired or reduced. In aggregate this update reduced Transgrid's proposed risk cost total to \$550.6 million. We considered this updated information in our decision to reflect the current risk profile of the project.

Stakeholder submissions

The EUAA did not support the inclusion of other construction costs, stating that they transfer the risks from Transgrid to consumers.¹¹¹ While we agree that consumers should not bear the cost of risks where Transgrid has the ability to avoid these costs, there are significant external factors that can increase the cost of a large infrastructure project over which Transgrid does not have control. In these cases, a probabilistic risk cost is a prudent way to account for these risks, as we discuss in the next section.

PIAC also did not support the inclusion of other construction costs. It claimed that Transgrid has insufficient incentive to minimise these costs, and that there is no assurance that costs to consumers will not increase above these costs. PIAC referred to our guidance note on the regulation of actionable ISP projects as a framework for assessing the appropriateness of risk costs, and referred to several risks that it considered may or may not meet the guidance note expectations.¹¹² We agree that our guidance note is the appropriate framework for assessing risk costs, which is how we have conducted our assessment. We also consider that the CESS will provide an incentive for Transgrid to invest efficiently.

Our assessment approach

Our guidance note on the regulation of actionable ISP projects sets out our assessment approach and expectations on the supporting information accompanying a CPA.¹¹³

When accounting for project risks, we do not provide a project risk allowance that completely covers all potential cost impacts to the project.¹¹⁴ We expect that most projects have symmetrical risk distributions, meaning that the likelihood of projects being over or under-budget is approximately equal. In those cases, we would expect a network service provider to balance the over and under-budget programs in its portfolio. Our contingent project determination is not intended to completely de-risk the project, as investment projects are inherently uncertain and financing arrangements account for this. However, it may be prudent to include specific and appropriate contingency costs for asymmetric risks, where the likelihood of programs being over-budget is greater than the likelihood of being under-budget.¹¹⁵ We only approve the incremental revenue for the expenditure reasonably required for the project by an efficient and prudent operator managing and mitigating the identified risks.¹¹⁶

We have assessed each of Transgrid's proposed contingency costs against the "project risks" section of our guidance note on the regulation of actionable ISP projects.¹¹⁷ The guidance note outlines the information and justification we expect to accept a risk cost as

¹¹¹ Energy Users' Association of Australia (EUAA), [HumeLink CPA stage 2 submission](#), April 2024.

¹¹² Public Interest Advocacy Centre (PIAC), [HumeLink CPA stage 2 submission](#), April 2024, pp 6-8.

¹¹³ AER, [Guidance note - Regulation of actionable ISP projects](#), March 2021.

¹¹⁴ AER, [Guidance note - Regulation of actionable ISP projects](#), March 2021, p. 17

¹¹⁵ AER, [Guidance note - Regulation of actionable ISP projects](#), March 2021, pp. 16-17.

¹¹⁶ NER, cl. 6A.8.2(g)(4).

¹¹⁷ AER, [Guidance note - Regulation of actionable ISP projects](#), March 2021, pp. 16-21.

prudent and efficient. In summary, it states that we can accept risk costs in a contingent project determination if the network service provider:

- comprehensively and transparently identifies and defines the different project risks
- identifies and justifies reasonable and realistic potential cost impacts (including potential cost reductions) and likelihoods of occurrence, accounting for controls or mitigations
- shows that the residual consequential cost is weighted to reflect the likelihood of occurrence
- shows why the risk cannot be efficiently transferred, avoided or mitigated (or included in cost pass through events)
- shows that the cost of mitigation measures exceeds the expected weighted cost impact should the risk eventuate
- shows that risk will be allocated to the party that is best placed to manage that risk.

Our analysis

In accordance with our guidance note, we consider that actionable ISP projects can include specific provisions for risk costs in the forecast for asymmetric risks provided there is sufficient justification that meets the expectations of our guidance note. We consider the risk costs in this HumeLink contingent project application are similar in nature to the “contingency costs” that Transgrid proposed in the contingent project applications for Project EnergyConnect and VNI West stage 1, as they cover construction risks which are not included in the contracted works. However, we consider that the process Transgrid used for producing the capex estimate for the risk costs in this CPA was much more robust than that for the contingency costs in the VNI West stage 1 CPA.

We conducted a bottom-up review of the information Transgrid provided in its proposal and in response to information requests. Our review focused on excluding the individual risks that we consider do not meet guidance note expectations, or that should be adequately covered by the allowances provided elsewhere in the CPA.

In addition to our review, EMCa independently reviewed Transgrid’s application, supporting documents and responses to our information requests. The scope of EMCa’s review did not include risks relating to social license or biodiversity. EMCa’s report also preceded the updated information on the status of the risk costs Transgrid provided on 18 June 2024. EMCa provided an alternative estimate of \$339 million, concluding that;¹¹⁸

- While it is reasonable to allow contingencies for some risks, Transgrid’s proposed risk-cost is overstated.
- The level of risk costs in this CPA as a percentage of the total project cost is more than double that of comparable projects.
- The proposed labour costs are also higher than expected for a project of this scale, however the additional resourcing will enable Transgrid to better manage certain risks.

¹¹⁸ EMCa, *Transgrid HumeLink project assessment of proposed expenditure for CPA2*, June 2024, pp. 34-66.

- The contracted construction costs include approximately \$163 million of additional contingency.
- The risk register should be assessed at P50, rather than P70.
- The “EIS delay” and “Delay escalation” risks are overstated by approximately 20%.
- Transgrid has presented some risks that are not aligned with the guidance note, and have overstated the cost impacts of some risks.

Informed by our own review of the material provided by Transgrid and EMCa, our alternative estimate for the other construction costs capex is based on the following:

- Transgrid’s updated position of \$550.6 million is the new starting point in making our decision, to reflect the current risk profile of the project. We understand the likely impact of risks can increase or decrease as a project progresses, and we appreciate Transgrid’s transparency in identifying risk costs that have reduced or are no longer needed.
- We also gave due consideration to risk cost increases where Transgrid presented us with new evidence that it had incurred or was likely to incur higher costs than originally proposed. For example, we accept that EIS delay costs are justified. These costs relate to delay and cost claims from Transgrid’s delivery partners if the EIS approval is not obtained by July 2024.¹¹⁹ For this reason, EMCa’s advice that EIS delay and the related delay escalation are overstated is no longer valid. As the delay is now certain and will exceed initial expectations, Transgrid also provided evidence it is likely to incur additional costs. However, we did not accept Transgrid’s proposed increase in owner’s costs in full, as we consider that Transgrid has partly contributed to delays, has some control over its resources and has sufficient labour and indirect costs in its forecast to partly manage and mitigate the impact of delays.
- We consider \$81.3 million (at P70 level) of the risks are within Transgrid’s control to manage. For example, the “Variations” risk relates to claims due to changes in design and construction manuals or Transgrid’s requirements. We consider that design requirements should be well established after the early works stage and included in the base estimate of the project. We consider consumers should not bear additional design costs for Transgrid’s changes from here on.
- We consider \$50.1 million (at P70 level) of the risks are included in or manageable with the other allowances provided in the capex forecast. For example, the “Productivity” risk relates to lower-than-expected delivery partner productivity. We consider this is accounted for in contingencies within the delivery partners’ contracted costs, and it is also Transgrid’s responsibility to manage with the labour resources allowed in this CPA (noting that the labour and indirect cost forecast includes \$80 million related to commercial, project management and project controls). We do not consider it is appropriate to include these costs if they are already sufficiently accounted for.
- We consider \$6.3 million (at P70 level) of the risks are symmetric or have a most likely probabilistic cost of zero. For example, the “Inefficient use of conductor” risk relates to the delivery partner using more conductor than ordered by Transgrid. We consider that there is symmetric probability that the delivery partner uses a higher or lower rate than

¹¹⁹ Transgrid, [HumeLink CPA stage 2 – Risk and Contingency Report – Public](#), 7 February 2024.

expected, and that consumers should not bear the cost of the assumption that the rate of conductor use will be higher than expected.

- For the remaining risk costs (which we accept are valid), P50 is a more appropriate confidence level to estimate risk costs than the P70 level Transgrid used, as this is the level where risk is shared equally between Transgrid and consumers. This is the approach we have taken for recent decisions including Project EnergyConnect. The capex impact of this decision is a reduction of \$30.8 million.

Table 10 summarises our decision on risk costs for each of the categories.

Table 10 AER decision on risk costs by category (\$ million, \$2022–23)

Category	Transgrid updated proposal	AER Decision	Difference (\$)
Time	319.3	262.9	-56.4
Variation and Inherent	170.6	109.2	-61.4
Reimbursable	60.7	10.1	-50.6
Total	550.6	382.1	-168.5

We consider our alternative estimate provides sufficient capex for Transgrid to complete the works if some additional costs are incurred during construction, while not transferring all potential risks to consumers. Our alternative estimate differs from EMCA's due largely to the updates Transgrid provided to us in June 2024.

6.1.3 Biodiversity offset costs

Our decision

Our decision includes \$353.6 million for biodiversity offset costs (the direct non-labour component) compared to Transgrid's forecast of \$437.5 million. Table 11 sets out our decision for each category, compared with Transgrid's proposal.

Table 11 AER's alternative estimate of biodiversity offset costs compared with Transgrid's proposal (\$million, \$2022–23)

Biodiversity cost category	Transgrid's application	AER's determination	Difference (\$)	Difference (%)
BSA site establishment and management costs	37.0	43.5	6.5	17.6%
Market credit purchases	14.9	14.9	0.0	0.0%
BCF payments	376.6	290.5	-86.1	-22.9%
Bank guarantee	8.5	4.1	-4.3	-51.1%
Independent expert biodiversity panel	0.6	0.6	0.0	0.0%
Total biodiversity offset costs	437.5	353.6	-83.9	-19.2%

Source: Transgrid application and AER analysis.

Note: Numbers may not add up due to rounding.

Our decision on the prudent and efficient costs for biodiversity offsets in stage 2 reflects:

- That we used updated information from Transgrid on its estimate of the number of biodiversity credits required and the latest credit prices that Transgrid received from the Biodiversity Conservation Trust. Using this updated information meant that most of the adjustments proposed by Transgrid to address uncertainty were no longer required.
- Based on information provided by Transgrid, we increased the value allocated to BSAs, which reduced the residual BCF payment, which is the largest and most expensive method of acquitting the biodiversity offset liabilities.

We note that at the time of our decision, Transgrid has not received approval of its Environmental Impact Statement, and therefore its biodiversity offset costs remain uncertain. For this reason, we have excluded these costs from the CESS. We discuss this further in section 6.3.

Transgrid's proposal

In order to gain planning approval, Transgrid is required to estimate and offset the likely biodiversity impacts attributable to the construction and ongoing operation of the HumeLink project. The impacts on the project area are calculated in terms of a number of biodiversity ecosystem and species credits. These credits are then required to be offset.¹²⁰

Transgrid initially proposed \$437.5 million for biodiversity offset costs. Transgrid's initial estimate relied on its consultant, Niche Environment and Heritage (Niche), for the credit estimate and biodiversity strategy. Niche developed the credit estimate for the Biodiversity Development Assessment Report (BDAR), which is part of the Environmental Impact Statement submitted at the initial stage of the planning approval process. Transgrid reported the offset credit liability to be 11,016 ecosystem credits with a BCF value of \$315.2 million and 134,578 species credits with a BCF value of \$54.9 million.¹²¹ This resulted in a base credit estimate of \$370.1 million.

Niche then adjusted the base credit estimate to \$582.7 million by taking into consideration:

- the new transmission line route through the Green Hills State Forest;
- an increase in access tracks and compounds;
- the expansion of Easement Clearing Zone areas into the Hazard Tree Zone; and
- the addition of contingencies, risk premiums and delivery fees.¹²²

¹²⁰ This is a regulatory obligation under Parts 5 to 7 of the *Biodiversity Conservation Act 2016* (NSW), Parts 5 to 7 of the *Biodiversity Conservation Regulation 2017* (NSW) and Chapters 2 to 4 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

¹²¹ Transgrid, [A.2 Humelink – Stage 2 \(Delivery\) – Capex Forecasting Methodology](#), December 2023, p.44. Transgrid's reported number of credits (11,016 ecosystem credits and 593,830 species credits) in its CPA2 do not align with those reported in the published BDAR: 10,997 ecosystem credits and 134,578 species credits (p. xii). In response to information request 8, Transgrid confirmed the numbers in the CPA2 were in error and should have been those of the BDAR. The BCF values reported exclude the delivery fee and premium which are added to the amount charged when making payment into the BCF.

¹²² Niche, [Cost Estimate Report](#), 25 August 2023, pp. 6-12.

Transgrid submitted this adjusted amount (\$582.7 million) represents the most expensive biodiversity acquittal option of paying solely into the BCF.

Transgrid's proposal included less expensive acquittal options, including the establishment of BSAs and purchasing credits from the market, together with a residual payment into the BCF. Transgrid's \$437.5 million proposal assumed:

- The total offset liability can be reduced from \$582.7 million to \$445.8 million by undertaking an information review prior to approval of the amended BDAR and additional survey work prior to and during construction.
- Five BSAs will be established at a total cost of \$37.0 million. These have a BCF payment equivalent value of \$49.4 million, which is deducted from the remaining offset liability.
- Market purchases represent \$14.9 million. These have a BCF payment equivalent value of \$19.8 million, which is deducted from the remaining offset liability.
- BCF payments represent the residual offset liability of \$376.6 million.

Transgrid's forecast also includes \$8.5 million to establish and maintain a bank guarantee, which will secure the deferral of the credit liability for the duration of the construction period, as well as \$0.6 million for an independent expert biodiversity panel.

Our assessment

Biodiversity offset costs are required to meet a regulatory obligation created by the *Biodiversity Conservation Act 2016* (NSW), the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), and associated regulations.¹²³ These Acts and regulations require Transgrid to estimate their expected environmental impact on ecosystems and species and offset them as part of the development approval process.¹²⁴ Transgrid has submitted its Response to Submissions and Amendment Report and is required to submit its revised BDAR,¹²⁵ which is then subject to approval by the NSW Department of Planning and Environment, prior to development approval being granted.¹²⁶

In assessing whether the proposed capex for the offset strategy is prudent and efficient, we assessed the accuracy of Transgrid's biodiversity credit liability, its proposed offset strategy and the likely timing of when the costs will be incurred. We also considered stakeholder submissions. Our assessment of each of these aspects is set out below.

¹²³ Compliance with regulatory obligations or requirements is a capital expenditure objective: cl. 6A.6.7(a)(2).

¹²⁴ See Parts 5 to 7 of the *Biodiversity Conservation Act 2016* (NSW), Parts 5 to 7 of the *Biodiversity Conservation Regulation 2017* (NSW) and Chapters 2 to 4 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). Transgrid, *VNI West stage 1 CPA - A.6 Direct Non-Labour Model*, January 2024, tab 'Biodiversity Offsets'; Transgrid, Victoria to New South Wales Interconnector West (VNI West) (NSW), Preferred Route Report – NSW, March 2024, p.37.

¹²⁵ The Response to Submissions report sets out Transgrid's assessment of areas of concern raised in public and agency submissions and how it intends to address them. The Amendment Report is an updated EIS, addressing the issues in the Response to Submissions and updating information acquired or changed since the EIS. It includes the revised Biodiversity Development Assessment Report, which sets out the consideration of the biodiversity impacts. Transgrid is required to lodge the revised BDAR by 26 June 2024.

¹²⁶ See Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW).

Assessment of biodiversity credit liability

Biodiversity offset costs are dependent on the overall credit liability. The credit liability is an estimate of the ecosystem and flora and fauna species disrupted or destroyed by the construction and ongoing operation of the transmission line.

Transgrid's credit numbers and the assigned BCF value in its proposal were determined by survey work up to November 2022 and May 2023.¹²⁷ There were significant changes to the project since the EIS, which were reflected as high-level, percentage adjustments. Furthermore, Transgrid was required to respond to significant agency feedback on the EIS. The Amendment Report indicated that there were mostly reductions in credit requirements.¹²⁸ Given these factors, Transgrid's original proposal did not provide the best estimate available.

In the course of our assessment, Transgrid advised that its estimate of biodiversity offset costs had reduced by 10%, to \$393.7 million, based on the latest available information.¹²⁹ Transgrid then lodged its revised BDAR with the NSW Department for approval.¹³⁰ For our alternative estimate we used the number of ecosystem and species credits from Transgrid's Biodiversity Assessment Method Calculator (BAM-C) report in the revised BDAR. The reported liability is 13,870 ecosystem credits and 200,174 species credits.

We also found that Transgrid received BCF charge quotes on 19 October 2023 and 3 April 2024.¹³¹ The October quote provided prices for 10,997 ecosystem credits and 130,838 species credits. The April quote repriced existing (and added a small number of) credits for a particular species. For our alternative estimate we have used this price information to establish the BCF opening liability and residual payment amounts.

We applied the BCF charge quote prices to these ecosystem and species credits to establish the biodiversity liability if Transgrid were to acquit its liability by only making a BCF payment. This resulted in a total of \$411.4 million.¹³² We used the BCF quote information as the starting base in our alternative estimate as this quote provided the most up-to-date credit cost estimates, with uncapped prices. It also specified the associated defined risk premium, delivery fees and quote inflation if a BCF payment was to be made.

In relation to the quote inflation, Niche submitted 'The monthly indexation published by the Biodiversity Conservation Trust (BCT) is currently 0.5% which is applied to the base credit price. This is not explicitly factored into contingencies as it represents inflationary costs. This advice is intended to be relevant to this point in time'.¹³³ We agree and have not included the

¹²⁷ The BCF credit prices were estimated at 16 May 2023. Niche, [Transgrid HumeLink Project: Biodiversity Offset Delivery Strategy](#), 27 September 2023, p.5.

¹²⁸ Transgrid, *HumeLink Amendment Report*, May 2024, pp.6-9.

¹²⁹ Transgrid, *Response to AER information request 9*, June 2024.

¹³⁰ Transgrid, *HumeLink Revised Biodiversity Development Assessment Report Technical Report 1: Attachment 23*, 26 June 2024.

¹³¹ BCT, *BCF Charge Report V3*, January 2024; BCT, *BCF Charge Report V4*, April 2024.

¹³² This reflects a total cost of \$423.5 million (\$2024) adjusted to \$2023, and inclusive of a premium and delivery fee that is charged with making a payment into the BCF.

¹³³ Niche, [Transgrid HumeLink Project, Biodiversity Offset Delivery Strategy](#), p.6.

inflation amount in our alternative estimate on the basis that this is a real forecast, rather than a nominal forecast.

In using this BCF charge quote as our starting point, we did not include in our alternative forecast the following adjustments proposed by Transgrid:

- 3% added to the total ecosystem and species credit costs to mitigate the risk of cost increases once the cap on credits was removed in October 2023. As the BCF charge quote obtained in October 2023 was no longer subject to price caps this is no longer a risk to be mitigated.
- 3% added to the total ecosystem and species credit costs to allow for price changes between the time of the May 2023 BCT estimate used for CPA2 and the BCF charge quote to be received post the EIS. The BCF charge quote is valid for 3 years. The price increase was estimated on the basis of potential changes in categorisation and weighting values in the NSW Department of Planning and Environment credit pricing model. As we are using the BCF charge quote this contingency is no longer applicable.
- 11.1% added to the total ecosystem and species credit costs as a BCT risk premium and 10.5% was added to the total ecosystem and species credit costs as a BCT delivery fee. We have instead applied the risk premium and delivery fee for each credit as they were specified in the October and April BCF quotes.

The revised BDAR, and in particular, the credit numbers, reflects the updated route, impact estimates and revision of information prior to lodging the revised BDAR. Therefore, the following adjustments assumed by Niche/Transgrid are no longer applicable and we did not include them in our alternative forecast:

- the impact of the new transmission line route through the Green Hills State Forest;
- the impact of additional access tracks and compounds;
- the impact of expanding Easement Clearing Zone areas into the Hazard Tree Zone; and
- the impact of the information review prior to approval of the amended BDAR.

However, we did apply three of Transgrid's proposed adjustments:

- 6% contingency to the total species credit costs to allow for the count of plant species being subjective and which may not be allowed by the NSW Biodiversity, Conservation and Science Directorate (BCSD).¹³⁴ Transgrid stated that there are certain flora species for which it has had to make an estimate. If there is disagreement regarding the estimation method, the count is expected to be higher.
- 4% contingency added to the total species credit costs to allow for additional indirect impacts. Given that BCSD described these as areas to be addressed in the revised BDAR and the proposal is still subject to approval we have included these adjustments in our alternative forecast.
- 15% reduction to total credit costs for incorporating the results of survey work post the revised BDAR but prior to and during construction. Transgrid applied this reduction to an acquittal scenario that utilises BSAs, market purchase of credits and a residual BCF

¹³⁴ The BCSD is part of the NSW Department of Climate Change, Energy, the Environment and Water.

payment, but not to an acquittal scenario based solely on BCF payments. We consider that this adjustment should equally apply to both scenarios as this assessed reduction applies to the credit liability, regardless of whether the acquittal method is via payment into the BCF or an alternative combination of BSAs, market credits, BCF payment or other agreed option (e.g. payment for a conservation project).

After making these adjustments, our alternative estimate of the opening biodiversity credit liability, before taking into account less expensive offset measures, is \$377.6 million. By comparison, Transgrid's assumed opening biodiversity credit liability is \$445.8 million.

Assessment of Transgrid's biodiversity offset expenditure

Transgrid proposed a mixture of establishing biodiversity stewardship site agreements to generate credits (the least cost option), purchasing credits on the market, and acquitting the residual liability by making a payment into the Biodiversity Conservation Fund (the most expensive option).

Biodiversity stewardship site agreements

Transgrid proposed establishing biodiversity sites on five, 370-hectare properties at a total cost of \$37.0 million. This included an allowance for land purchase costs with a 30% premium, stamp duty, BSA establishment costs, additional surveys, and in perpetuity management costs (as required by the BCT for ongoing BSA management). The BSAs are estimated to generate 5,262 credits, with a BCF payment equivalent to \$49.4 million.¹³⁵

We compared Transgrid's assumptions for the proposed HumeLink BSAs with actual results from Project EnergyConnect (East and West), as well as its assumptions for the VNI West project. We found that the land cost per hectare and the total fund deposit cost per hectare was significantly higher for HumeLink. We also found that the credits generated per hectare and the total hectares for BSAs relative to the credit liability was lower for HumeLink.

We discussed these findings with Transgrid and it decreased its land cost per hectare and increased the number of BSAs (from 5 to 7), which in turn increased the BCF payment equivalent from \$49.4 million to \$67.2 million.¹³⁶

We consider this new position is reasonable, which results in a total capex forecast for BSA site establishment and management of \$43.5 million (\$6.5 million greater than Transgrid's forecast).

Purchase of market credits

Transgrid proposed purchasing 5 percent of the total credits required from the market, at a cost of \$14.9 million (a 25% discount to the BCF credit valuation), with an offset benefit equivalent to a BCF payment of \$19.8 million.

In the Biodiversity Offset Delivery Strategy, Niche indicated that purchasing credits on the market is a key opportunity for reducing the cost of the biodiversity offset obligation and

¹³⁵ Niche, [Cost Estimate Report](#), 25 August 2023, p.10.

¹³⁶ Transgrid, *Email response to AER*, 4 June 2024, pp.2-3.

provided an indication of the likely ecosystem credits that could be available through market purchases.¹³⁷

For the groups of ecosystem credits that Niche identified as being in excess supply in the BDAR and the Biodiversity Offset Delivery Strategy, we found that they were still in excess supply on the credit supply register and that these groups had a BCF value of \$45.5 million rather than the \$19.8 million used by Transgrid.

We discussed these findings with Transgrid, however it maintained that its forecast of market purchased credits is reasonable as there is no certainty that credits currently available on the public register will be available to purchase when required. We consider it likely that Transgrid's forecast of market purchased credits is underestimated. We also note that Transgrid may be able to acquit credits it generates from Project EnergyConnect against the HumeLink project. However, due to the uncertainty of these possibilities, we have included Transgrid's proposed amount of \$14.9 million for market purchased credits in our alternative estimate.

Bank guarantee

Transgrid proposed a bank guarantee cost of \$8.5 million. In order to delay the acquittal of its biodiversity liability, Transgrid is planning to seek the use of a bank guarantee as surety with the NSW DCCEE. Using this mechanism, as it has done for Project EnergyConnect and is also planning to use for VNI West, will provide Transgrid with an additional two years post the commencement of construction to meet its biodiversity liability acquittal.¹⁰⁵ This will provide Transgrid with additional time to undertake BSA site establishment and purchase market credits, which Transgrid estimates will provide \$8.7 million of net savings.

With respect to the efficiency of Transgrid's bank guarantee, Transgrid stated that its estimates were based on those of Project EnergyConnect plus the addition of a buffer.¹³⁸ We sought an explanation for this but did not receive a response. We therefore applied the Project EnergyConnect fees.

Transgrid used a principal amount of \$582.7 million in calculating its bank guarantee costs. We consider this does not reflect the best available estimate. For our alternative estimate we applied a principal amount of \$410.9 million, which reflects the new information from the revised BDAR, a 15% deduction for the reduction in credit liability due to survey work undertaken prior to the submission of the revised BDAR and half of the 15% deduction for the reduction in credit liability due to survey work undertaken after the revised BDAR but before commencing construction.¹³⁹

We note Transgrid's intention to seek a condition of approval that it be able to revisit the bank guarantee amount every three months to take account of credits purchased on the

¹³⁷ Niche, [Transgrid HumeLink Project, Biodiversity Offset Delivery Strategy](#), 27 September 2023, p. 12, pp. 36-38 and pp. 39-45.

¹³⁸ Transgrid, *Bank Guarantee – Public*, 28 September 2023, pp.1-2, 4.

¹³⁹ This reflects the timing of the bank guarantee lodgement, which is at the point of commencing construction. Hence, half of the 15% deduction is applied to capture the pre-construction survey work.

market or generated through BSAs that have been retired.¹⁴⁰ We have not made adjustments for the possibility that bank guarantee fees may be reduced over time.

Our alternative estimate of the bank guarantee cost is \$4.1 million.

Biodiversity offset expenditure profile

Transgrid forecast even expenditure of biodiversity costs across 2024–25 and 2025–26. However, according to Transgrid’s project timetable, it was scheduled to submit its Response To Submissions / revised BDAR by April 2024, receive planning approval in August 2024 and commence construction in October 2024.¹⁴¹

Consistent with Transgrid’s Capex Forecasting Methodology, we consider it more likely that retirement of BSA and market-purchased credit will continue up to the end of September 2026 and that the BCF payment for any residual liability is likely to occur in December 2026, or later.¹⁴² Therefore, we have apportioned most expenditure for BCF payments in 2026–27. Table 12 shows the expenditure profile of our alternative estimate for biodiversity offset costs.

Table 12 AER alternative capex forecast profile (\$million 2022–23)

	2024–25	2025–26	2026–27	2027–28	Total
BSA site establishment and management costs	21.8	21.8	-	-	43.5
Market credit purchases	7.4	7.4	-	-	14.9
BCF payments	-	116.2	174.3	-	290.5
Bank guarantee	4.1	-	-	-	4.1
Independent expert biodiversity panel	0.6	-	-	-	0.6
Total	33.9	145.3	174.3	0.0	353.6

Source: AER analysis

6.1.4 Costs to achieve social licence

Our decision

Our decision includes \$89.9 million of capex directly related to achieving social licence. We determined this figure represents the labour and indirect capex for this purpose, and includes community stakeholder engagement, major project initiatives and corporate support, and land and property expenditure.

¹⁴⁰ Transgrid, [HumeLink Project Biodiversity Offset Delivery Strategy](#), 23 September 2024, p.15.

¹⁴¹ Transgrid, [HumeLink Project Biodiversity Offset Delivery Strategy](#), 23 September 2024, p. 18.

¹⁴² Transgrid, [A.2 HumeLink – Stage 2 \(Delivery\) – Capex Forecasting Methodology](#), December 2024, p. 50.

As discussed in section 6.1.2, Transgrid proposed a number of risk costs, and some of these broadly relate to achieving and maintaining social licence.¹⁴³ Our alternative estimate for risk costs includes approximately \$36 million for these costs.

It will be critical that Transgrid achieves and maintains social licence to successfully deliver the HumeLink project. We consider these costs necessary and sufficient for Transgrid to undertake high quality community stakeholder engagement and deliver its proposed social licence activities. The onus is on Transgrid to effectively engage, monitor and deliver to the affected HumeLink communities' expectations.

Transgrid is not limited to undertaking the social licence related engagement and activities included in its application. Through the course of its engagement with stakeholders, Transgrid should evaluate whether there are new or other activities that will provide better social licence outcomes.

Transgrid's proposal

Although it is not its own capex category, we established that Transgrid proposed \$89.9 million in labour and indirect costs (excluding escalation) related to achieving social licence under the following sub-categories:

- Community stakeholder engagement (\$37.9 million), which includes Transgrid's proposed community investments, such as the regional telecommunications sites, community participation program grants, mental health and community resilience training and tree planting.
- Major project initiatives (\$41.2 million), which includes the HumeLink share of expenditure for the Wagga Training Centre and Wagga Engagement Hub, along with other project initiatives.
- Corporate support (\$10.8 million), which includes legal fees for land access matters.

During our engagement with Transgrid, it acknowledged there are other activities that may assist in achieving social licence, but the key driver of those activities was not to achieve social licence.¹⁴⁴ In addition, Transgrid's proposed strategic benefit payments of \$6.2 million are included in its opex forecast, which we discuss in section 6.2.

In support of its proposal, Transgrid provided its Social Licence Framework, HumeLink Community Communication and Engagement Plan (Engagement Plan) and HumeLink Community Investment and Benefits Plan. These documents outline Transgrid's approach to building and maintaining social licence, the investment planning tools and governance for the purpose of achieving social licence, as well as particular engagement and activities.

Our assessment

We recognise that Transgrid will incur costs to achieve and maintain social licence during the early works and construction of new transmission lines. We have considered the prudence

¹⁴³ For example, site access requirements, disruptions such as blockades and protests, noise works and native title claims.

¹⁴⁴ Transgrid, *Response to AER information request 2*, February 2024.

and efficiency of costs to achieve social licence along with other elements of transmission development and operation. As part of its contingent project application, the onus is on Transgrid to establish how each element of proposed social licence costs contributes to the delivery of the overall project in a prudent and efficient manner.

Our assessment of costs to achieve social licence adapts the approach set out in the Directions Paper published in October 2023¹⁴⁵ and community engagement expectations under the NER.¹⁴⁶ Given the timing of the proposal and our Directions Paper, we acknowledge Transgrid may have had limited scope to incorporate the principles from the Directions Paper into the contingent project application. As set out in the Directions Paper, rather than undertaking a bottom-up assessment of cost components, we assess social licence expenditure holistically by applying the *but for* test.¹⁴⁷ To do this, we applied a two-stage process:

- Firstly, we examined whether Transgrid’s Engagement Plan clearly sets out its approach to genuine engagement with affected communities, including relevant First Nations groups and local councils. In this stage, we also had regard to Transgrid’s approach to identifying and evaluating activities based on its engagement, in line with its Social Licence Framework.
- Then, we assessed whether Transgrid’s social licence activities were endorsed by the affected communities and evaluated subject to its Social Licence Framework and the NER.

We were broadly satisfied that Transgrid’s Engagement Plan is adequate in its design, as it includes engagement and collaboration with affected communities, local councils, First Nation groups and Parliamentary bodies.¹⁴⁸ We were also satisfied with its proposed processes for evaluating subsequent activities under its Social Licence Framework.

We found that Transgrid’s proposed activities generally reflect the outcomes of its stakeholder engagement to date.¹⁴⁹ For example, Transgrid submitted that its “Community Partnership Program” was proposed in response to community concerns.¹⁵⁰ This is an example where Transgrid’s proposed expenditure will be critical in contributing to Transgrid achieving a level of social licence.

Based on Transgrid’s Engagement Plan we consider it reasonable for Transgrid to incur costs related to obtaining social licence. We consider that, in the absence of the proposed engagement and activities, it is highly likely that Transgrid will encounter further issues in delivering HumeLink in the expected timeframe.

However, we identified some areas where Transgrid has not yet applied its social licence engagement plan in practice. This is demonstrated by stakeholder submissions, which

¹⁴⁵ AER, [Directions paper – Social licence for electricity transmission infrastructure](#), October 2023, pp. 18-20.

¹⁴⁶ NER, cl. 5.10.2.

¹⁴⁷ AER, [Directions paper – Social licence for electricity transmission infrastructure](#), October 2023, pp. 18–20.

¹⁴⁸ Transgrid, *HumeLink Community Communication and Engagement Plan*, August 2023.

¹⁴⁹ We note that some activities did not reflect stakeholder engagement outcome, but they were a minor component of social licence activity costs and supported by their consultant.

¹⁵⁰ Transgrid, *What We Heard Report*, March 2023, p. 10.

argued that Transgrid’s engagement has not been genuine, transparent and collaborative. These submissions are discussed in section 4. As noted in section 4, some affected local councils identified inadequate engagement with Transgrid so far.

While we accept the expenditure is necessary for social licence to be achieved, we are not satisfied that Transgrid’s engagement has been adequate to date. It is crucial that Transgrid genuinely and transparently engages with all relevant stakeholders prior to delivering the proposed activities.

Transgrid will have the flexibility to reallocate its funding as necessary, based on its continuing engagement, and may need to do so throughout the delivery phase. We also note that stakeholders have expressed concerns about the type of benefits their communities will receive. This is an example of where we consider Transgrid can adapt its approach to better meet the needs of affected communities. Transgrid should adhere to its Social Licence Framework if, and when, it reprioritises its activities.

6.2 Forecast operating expenditure

Our decision

We accept Transgrid’s incremental opex forecast of \$28.5 million for HumeLink for the 2023–28 regulatory period, including debt raising costs.¹⁵¹ We consider Transgrid’s forecast expenditure reasonably reflects the opex criteria.¹⁵² In forming this view we have had regard to the matters at clause 6A.8.2(g) of the NER.

Table 13 sets out Transgrid’s proposal (and our determination) for the incremental opex reasonably required for stage 2 of the project.

Table 13 AER’s determination on HumeLink stage 2 incremental opex (\$ million, \$2022–23)

	2023–24	2024–25	2025–26	2026–27	2027–28	Total
Transgrid’s application / AER’s determination	-	0.2	1.2	11.7	15.4	28.5

Note: Numbers may not add up due to rounding.

Transgrid’s proposal

Transgrid’s opex forecast is based on a bottom-up build and relates to the following (in order of materiality):

- \$8.3 million for operating and maintenance costs. These costs relate to substations, digital infrastructure and transmission lines. The proposed opex is based on current and proposed maintenance activity unit rates multiplied by projected volumes of activities.

¹⁵¹ NER, cl. 6A.8.2(e)(1).

¹⁵² NER, cl. 6A.8.2(f)(2).

- \$7.2 million for insurance expenses. These costs include premiums for industrial special risks and operational third-party liability insurance for HumeLink assets. The proposed opex is based on an independent report from Aon.
- \$6.2 million for strategic benefit payments. These payments will compensate private landholders impacted by the project, in accordance with the NSW Government’s strategic benefit payment scheme.
- \$5.3 million for debt raising costs. These costs are calculated using the same approach applied by the AER in its 2023–28 revenue determination, as reflected in the PTRM.
- \$0.7 million for vegetation integrity rehabilitation costs. These costs are estimated based on works required within the HumeLink easement clearing zone.
- \$0.6 million for property related expenses. This includes expenses for council rates, land tax, water and electricity.
- \$0.1 million for real input cost escalation. These costs are based on labour escalators set out in its 2023–28 revenue determination.

Our assessment

We assessed whether the proposed opex meets the operating expenditure criteria.¹⁵³ This includes assessing whether Transgrid’s proposed opex is prudent and efficient in achieving the operating expenditure objectives.

In assessing the prudence and efficiency of the proposed opex, we reviewed Transgrid’s Opex forecasting methodology, which explains the key steps Transgrid took to develop and validate its opex forecast.¹⁵⁴ We found that Transgrid’s forecasting approach is consistent with approaches we have previously accepted for contingent projects.

We found that Transgrid’s incremental opex forecast aligns with its capex forecast, in that:

- operating and maintenance activities are assumed to begin once capital assets are installed and commissioned;
- operational insurance coverage will commence once the assets are commissioned;
- strategic benefit payments are assumed to commence once the transmission lines are commissioned;
- debt raising costs are assumed to be incurred when new debt is required to fund capital investment; and
- property ownership costs are assumed to be incurred once land and easements are acquired.

For operating and maintenance expenditure, we verified that the proposed frequency of maintenance activities is prudent and unit rates are based on recent actual costs.

¹⁵³ We are required to make this assessment under cl. 6A.8.2(f)(2) of the NER. The operating expenditure criteria are set out in NER cl. 6A.6.6(c).

¹⁵⁴ Transgrid, [HumeLink CPA stage 2 – A4 Opex Forecasting Methodology](#), December 2023.

6.3 Application of expenditure incentive schemes

Our decision

We have had regard to whether Transgrid's capex and opex forecasts are consistent with the expenditure incentive schemes that apply to Transgrid.¹⁵⁵

Our decision modifies the Capital Expenditure Sharing Scheme (CESS) that will apply to HumeLink. We consider this modification to the CESS reflects the circumstances of the HumeLink project, ensures Transgrid is incentivised to invest efficiently, and provides a reasonable sharing of the benefits and risks between Transgrid and its customers.

Under the modified CESS:

- A 30% sharing ratio will apply to capex overspends and underspends up to 10% of the net present value forecast capex.
- Above a 10% overspend or below a 10% underspend, the sharing ratio is set to the average level of the financing cost or benefit assuming no shift in the timing of the capex.
- The modified CESS will apply to all expenditure undertaken in stage 1 part 1, stage 1 part 2 and stage 2 CPAs excluding biodiversity offset costs.
- All deferrals will be accounted for following the completion of HumeLink to ensure consistent treatment of deferrals within the 2023–28 regulatory control period and any deferrals from the 2023–28 regulatory control period to subsequent regulatory control periods.

For the opex, the efficiency benefit sharing scheme (EBSS) will continue to apply.

In making this decision we had regard to whether the capex and opex forecasts are consistent with the CESS and EBSS that apply to Transgrid and we have considered how the forecasts affect the incentive properties of the scheme.¹⁵⁶

Transgrid's proposal

Transgrid proposed that the CESS should not apply to ISP projects, including HumeLink. It submitted that, for high-value, complex and specialised projects, the current inflationary and uncertain operating environment makes it likely that these incentive schemes will introduce asymmetric risk.

Transgrid argued that the NER currently has no provision for adjusting the capex allowance approved by the AER for ISP projects to deal with costs arising from the uncertain operating environment in a way that is fair to all market participants, including customers and TNSPs. It noted that currently, it would need to fund the gap in financing the investment for the remainder of the period and would be penalised under the CESS for any overspend, even when the higher levels of expenditure are efficient. The result could remove its opportunity to

¹⁵⁵ NER cl. 6A.8.2(g)(9).

¹⁵⁶ NER, cl 6A.8.2(g)(9).

recover the efficient costs of delivering HumeLink, and if the CESS applies, these projects are expected to generate less than the benchmark rate of return. Transgrid added that investors may therefore not be willing to commit capital to these projects, which is not in the long-term interests of consumers.

To support its proposal, Transgrid provided a report authored by HoustonKemp.¹⁵⁷ It argued that a modification to the current capex incentive arrangements is appropriate due to the asymmetric cost risks for the HumeLink project, arising from:

- A relatively high degree of uncertainties on the scope of the project, where a significant proportion of the costs of the project are unknown at the time of the CPA;
- Unanticipated real increases in the cost of building HumeLink, which are not passed onto the contractors and so borne by Transgrid; either because contractors were unwilling to bear that risk or because the cost of passing on risk is regarded by Transgrid as uneconomic;
- Unforeseen cost pressures linked to the transition to a zero emissions energy system, with the scale of the new transmission investment inevitably making it difficult to forecast the cost of delivering transmission network projects; and
- The potential for real increases in international prices of key inputs such as steel, copper and aluminium, in line with observed recent increases.

HoustonKemp also noted that the forecast capex for HumeLink represents over three and a half times the amount Transgrid is expected to spend in the 2023–28 regulatory period for non-ISP related works. If the CESS were to apply to HumeLink then a 5% cost overrun is equivalent to Transgrid overspending its forecast non-ISP capex by 23%.¹⁵⁸

Stakeholder submissions

Stakeholders strongly supported the application of the CESS to the HumeLink project. The EUAA noted that Transgrid argues that equity injection from its investors is questionable with the CESS in place. However, it noted that Transgrid has one of the highest debt to equity ratios of the NEM's network service providers, and as willing investors in the transition of our energy system, equity participants are acknowledging the challenges, risks and rewards of doing so.¹⁵⁹

PIAC submitted that the CESS is crucial and key among the few protections for consumers in a principal-agent relationship with transmission service providers which is often defined by information asymmetry. It functions alongside the ex-post review but is important as it does not suffer from the same limitations of the latter. It added that the size of the project makes the role and importance of the CESS greater for HumeLink than for any other project, as the potential costs of overruns (borne by customers) are much greater. PIAC noted that this concern was raised with Transgrid directly via the Transgrid Advisory Council, but no

¹⁵⁷ HoustonKemp, [Capital expenditure incentives applying to HumeLink](#), 29 February 2024.

¹⁵⁸ HoustonKemp, [Capital expenditure incentives applying to HumeLink](#), 29 February 2024, p. 2.

¹⁵⁹ Energy Users' Association of Australia (EUAA), [HumeLink CPA stage 2 submission](#), April 2024.

alternative replacement for the CESS was offered, and no mention of this opposition has been noted or responded to anywhere in the application.¹⁶⁰

Our assessment

We consider some form of the CESS should be applied to HumeLink. Although Transgrid identified issues related to cost pressures which increase the perceived risk of Transgrid overspending capex, Transgrid has not demonstrated how its proposal of no CESS would mitigate the issues that arise in the absence of the CESS, such as a declining incentive to incur efficient capex within a regulatory control period. Transgrid's proposal also did not consider any alternatives which could mitigate some of the issues it identified while retaining reasonable incentives to undertake efficient capex.

The 2023 capital incentives guideline introduced the ability for us to decide whether or not to exclude, or vary, the application of the CESS to large transmission projects such as HumeLink. It also noted that our default position is to apply the CESS and we will be careful in making exclusions.¹⁶¹ As part of this decision, we have sought to modify the CESS in a way that mitigates most of the concerns that have been raised, while still retaining an appropriate sharing of risks between Transgrid and its customers.

The sections below discuss our process to determine what CESS should apply to HumeLink.

Purpose of the CESS

The purpose of the CESS is to provide a constant incentive throughout a regulatory control period to undertake efficient capex. It achieves this by providing a financial incentive where a TNSP is provided with a CESS payment if it underspends capex and a CESS penalty if it overspends capex.

In the absence of a CESS, the incentive declines throughout a regulatory control period and is almost zero in the last year of a regulatory control period. This is because revenues (including the return on capital) are calculated on a forecast basis and if a TNSP spends less capex than forecast, it still earns a return on the forecast capital until the end of the regulatory period after which the actual capex gets rolled into the regulatory asset base (RAB). If it spends more (less) capex than forecast it will incur a financing cost (benefit). The incentive declines throughout the period as the TNSP will keep a benefit, or incur a cost, from the time of an under or overspend until the end of the regulatory period. This means there is a relatively high financing incentive to reduce capex in the early years of a regulatory period and a low incentive in later years.

The CESS calculates the financing cost or benefit that a TNSP incurs or receives and then adds a CESS penalty or CESS reward in order to achieve a defined sharing ratio. The sharing ratio for the standard CESS is 30%. This means the CESS calculates any additional payment above the financing cost or benefit that is required to ensure that the TNSP receives 30% of the benefit or cost of an underspend or overspend respectively, whichever year of the regulatory control period the underspend or overspend occurs. Therefore, a key

¹⁶⁰ Public Interest Advocacy Centre (PIAC), [HumeLink CPA stage 2 submission](#), April 2024.

¹⁶¹ AER, [Capital expenditure incentive guideline for electricity network service providers](#), April 2023, p. 7.

advantage of the CESS is that it results in a constant incentive to achieve capex efficiencies across the regulatory control period.

As around 90% of the HumeLink capex is expected to occur in the first 3 years of the 2023–28 regulatory control period, there is a significant incentive for Transgrid to defer expenditure towards the end of the regulatory control period. This is because, in the absence of a CESS, forecast capex that is deferred until later in the period will result in a financing benefit to Transgrid. This financing benefit occurs simply from deferral and not because the total present value of the expenditure has decreased.

Given Transgrid has identified a specific timing for HumeLink's capex which is then reflected in its revenue profile, we do not consider it is reasonable to incentivise and reward Transgrid for delaying HumeLink which would happen in the absence of a CESS. It is preferable for Transgrid to retain a constant incentive to undertake the capex in the years it has indicated in its proposal.

Should the CESS not apply to HumeLink?

Transgrid has proposed to not apply the CESS to HumeLink because of the costs it could incur from a cost overrun and the potential impact on the project's rate of return. Transgrid indicated the risk of this occurring may place the project at risk of not going ahead.

We consider given the size and complexity of HumeLink, there is potential for there to be significant cost overruns. However, Transgrid only considered the CESS penalty in isolation and did not take into account how risk was accounted for in its capex forecast. It also did not consider the incentive issues that would be created in the absence of a CESS.

We acknowledge that some elements of Transgrid's forecast capex are uncertain. For this reason, we have accepted \$382.1 million in risk costs and Transgrid's proposed labour and indirect costs so that it can mitigate various risks in delivering HumeLink.

As noted in section 6.1, our alternative estimate for risk costs reflects a P50 confidence level, which is the level where risk is shared equally between Transgrid and consumers. Transgrid is best placed to manage most of the risks it has identified and we consider it should face a constant incentive throughout the regulatory period to undertake efficient capex.

However, given the size of HumeLink, we acknowledge at higher levels of overspend this could result in significant additional costs. And, as Transgrid noted, the risk of this occurring may result in Transgrid's investors not being willing to commit to HumeLink and ultimately result in a worse outcome to consumers.

Further, given the scale of HumeLink capex relative to other Transgrid capex, and the need for the project to be delivered on time, there is less discretion for Transgrid to shift capex between HumeLink and its other capex projects. Unlike our standard capex approach where we set out total forecast capex and a TNSP can choose to manage its portfolio of projects to maintain the safety and reliability of the network, HumeLink is a large contingent project that is required to be delivered as part of the ISP.

Based on these considerations we consider the CESS should be modified to better balance providing an incentive to undertake efficient capex while limiting the potential negative impact on the return to the project, such that the project does not get delivered.

How do we modify the CESS?

We have considered various aspects of the CESS that we can adjust to mitigate the concerns raised in the sections above. These areas are:

- Any categories of capex that can justifiably be excluded from the CESS.
- A cap on the range of the overspend and underspend to which the CESS applies.
- The sharing ratio within the cap and the sharing ratio outside of the cap.

Exclusions

We have also examined whether any specific category of capex should be excluded from the CESS. We consider Transgrid's biodiversity offset costs should be excluded from the CESS. We discuss biodiversity offset costs, including our alternative estimate, in section 6.1.3.

We have identified this cost category to be excluded from the CESS due to a combination of the following factors:

- Uncertainty
- Uncontrollable costs
- Size

We consider our forecast of Transgrid's biodiversity costs has a material element of uncertainty that cannot be mitigated as part of our decision. The full extent of Transgrid's biodiversity offset costs will not be known until after this decision. Further, the forecast biodiversity costs have shifted significantly when new information has become available. Although the range of uncertainty has narrowed with the recent BDAR this category of costs still has the highest element of uncertainty. For example, Transgrid's proposed costs which relied on a BDAR submitted in August 2023 had potential range of costs between –28% to +38%. Although the revised BDAR supports our alternative capex estimate, which is 19% lower than Transgrid proposed, uncertainty remains until environmental approvals are provided and construction is underway.

In addition to the costs being highly uncertain, we consider these costs are largely uncontrollable. Although Transgrid has some discretion over its strategy to offset its biodiversity obligations, there still remain factors outside of Transgrid's control which could have a material effect on its costs. These are:

- The number of potential BSA properties that come to market and the type of credits on those properties during the project timeframe. BSAs are a cheaper option to offset biodiversity credits but the supply is largely not within Transgrid's control.
- The number and type of credits that come to market during the project timeframe. The cost and quantities of the credits shift and are subject to supply and demand.

We also acknowledge these costs are not part of its core work in managing the network, and Transgrid is working closely with NSW DCCEE on efficiently meeting its biodiversity obligations.

Although uncertainty and the extent to which costs are with Transgrid's control are important factors, we must also be satisfied that these two factors can have a material impact on Transgrid's costs.

We have included \$353.6 million for biodiversity costs in our substitute estimate. We consider this is a material amount of capex that is both uncertain and uncontrollable. Removing this amount of capex from the CESS reduces the potential upside and downside of any differences between actual biodiversity offset costs and forecast costs.

However, the removal of these costs does increase the incentive for Transgrid to defer incurring these costs to later in the regulatory control period as noted above in our assessment of whether the CESS should apply to Transgrid.

Excluding these costs from the CESS also reduces the incentive for Transgrid to find cheaper alternatives to meeting its biodiversity obligations. Overall, we consider these issues are less material for biodiversity costs as Transgrid will retain some incentive to undertake efficient capex and there is less discretion for Transgrid to defer incurring these costs as it is a regulatory obligation.

We also note that the exclusion of these costs does not indicate that in general we consider biodiversity costs should be excluded from the operation of the CESS. We have made this decision based on the accuracy and timing of the biodiversity information that is available for this decision.

Cap and sharing ratio

We consider a CESS based on a 30% sharing ratio for overspends and underspends up to 10% of HumeLink capex in present value terms mitigates the issues identified by Transgrid while retaining a reasonable incentive to undertake efficient capex.

We acknowledge that due to the size of the project, there is the risk of large CESS rewards and penalties that investors will take into account in their investment decisions. For example, an overspend of 30% absent a CESS cap, would reduce the benchmark return on equity by over 1% for HumeLink.

We have undertaken analysis on a range of overspend scenarios and we consider for HumeLink a 10% cap mitigates the risk from significant overspends Transgrid faces while still providing Transgrid sufficient incentive to undertake efficient capex. Were Transgrid to overspend on HumeLink by 10% in each year of the regulatory control period, it would incur a total cost of \$106 million in NPV terms. Of this \$31 million would be due to financing costs and \$75 million due to a CESS penalty. Any expenditure over the cap would not result in a higher CESS penalty but Transgrid would still incur higher financing costs (for example a 20% overspend in each year would incur \$62 million in financing costs but the same \$75 million CESS penalty).

We also consider a 30% sharing ratio within the cap is appropriate. This is because the standard CESS sharing ratio of 30% applies to the rest of Transgrid's capex. Where there is a different in sharing ratios between different capex projects, it would create an additional incentive to cost shift capex from projects with a higher CESS reward to projects with a low CESS penalty. This type of cost shifting is more likely to occur where there are shared costs such as labour and indirect costs, which account for 10% of our alternative capex estimate. A

material mismatch in incentives across projects can also increase the risk of introducing other unforeseen changes in incentives.

For capex that exceeds the 10% cap, rather than no CESS applying, we have set the sharing ratio to the average of the financing cost. Based on a real WACC of 3.99%, the average financing cost is 9.25%. However, the average financing cost will change if the real WACC changes and it will be calculated at the next determination following the completion of HumeLink.

We consider setting the sharing ratio to the average financing cost has the same financial effect on Transgrid as having no CESS, however it does not result in an incentive to defer capex between years. By setting a constant sharing ratio, it removes the reward for shifting costs between different years. If no costs are shifted, then it is the equivalent of no CESS.

We note that the cap and sharing ratio will apply symmetrically. There will be a 10% cap on underspends (up to which Transgrid receives 30% of the present value of the underspend) and for any underspend above 10% saving will only receive the financing benefit.

Deferrals across regulatory control periods

The CESS has a deferral mechanism to ensure that where capex is deferred from one regulatory control period to the next the consumers share in the benefit of this deferral.

Under the standard CESS, we will make an adjustment to the CESS payments for deferral where a network has deferred capex in the current regulatory control period and:

1. the amount of the deferred capex in the regulatory control period is material, and
2. the amount of the estimated underspend in capex in the current regulatory control period is material, and
3. total approved forecast capex in the next regulatory control period is materially higher than it is likely to have been if a material amount of capex was not deferred in the current regulatory control period.

The materiality criteria provides an NSP with an incentive to efficiently defer some capex while also being able to bring forward other capex as circumstances change during a regulatory control period. Otherwise, an NSP would not be able to reprioritise its capex by deferring a project without incurring an adjustment to the CESS. This also recognises that an NSP is best placed to decide the projects and programs it needs to carry out once it knows its forecast capex allowance.

As HumeLink is a single project with a bespoke CESS, we consider the materiality criteria in the deferral mechanism which facilitates efficient reprioritisation of total capex, which includes a large number of projects, should not apply to HumeLink.

Instead, for the purposes of calculating the CESS on HumeLink capex forecasts, all capex deferred into the 2028–33 regulatory control period for HumeLink will be taken into account in calculating the CESS payment to be applied in the 2028–33 regulatory control period. At the end of the 2028–33 regulatory control period we will then update for the differences between estimated and actual capex for HumeLink (i.e., do a CESS true up) which is consistent with our current process. Any true up will flow through to the CESS penalty or reward in the 2034–38 regulatory control period.

This should ensure that Transgrid will be rewarded or penalised based on the total cost of HumeLink over the life of the project. We modified the CESS application in this way because under the current CESS guideline, we are only able to adjust the CESS payment for differences between actual and estimated capex if it meets the materiality thresholds identified above.

This approach also ensures that there is no difference in treatment between a deferral of capex that occurs within the 2023–28 regulatory control period and a deferral from the 2023–28 regulatory control period to subsequent regulatory control periods.

However, if there is a material deferral which would result in a CESS penalty in the 2028-33 regulatory control period that may result in cash flow issues for Transgrid, then we may consider a pro rata approach to the deferral adjustment to account for any overspend that may occur in 2028–33. If we did this the CESS on the forecast overspend in the 2028-33 regulatory period would be partially or fully deferred, including accounting for the time value of money at Transgrid's regulatory cost of capital, until after that overspend occurred, and would flow through into the 2034–38 regulatory period.

Ex-post review

On 9 May 2024, the Australian Energy Market Commission (AEMC) released a draft rule change that would enable us to undertake separate, targeted ex post reviews for ISP projects. It is proposed that this rule change would apply to HumeLink.¹⁶²

The rule change, if made, will require us to update the capital expenditure incentives guideline and set out how we will undertake an ex post review for an ISP project. We would also consider the interaction between the application of the CESS and the ex post review as part of a guideline update.

¹⁶² AEMC, [Draft rule determination – National Electricity Amendment \(Managing ISP project uncertainty through targeted ex post review\) Rule 2024](#), p. 18.

7 Calculation of incremental allowed revenues

This section sets out our calculation of the incremental revenue that Transgrid can recover from customers over the 2023–28 period to account for our determination of efficient project costs. We have applied an annual building block revenue approach, in accordance with clause 6A.8.2(h) of the NER. Transgrid's application is based on this approach. The incremental revenues are calculated on the basis of the capex and opex that we determined and otherwise in accordance with Transgrid's application.¹⁶³

Table 14 shows Transgrid is able to recover \$523.6 million (\$ nominal) in additional revenues for HumeLink stage 2 from customers over the 2023–28 period.

Table 14 Incremental revenue calculation (\$ million, nominal)

	2023–24	2024–25	2025–26	2026–27	2027–28	Total
Return on capital	–	4.6	117.1	238.4	265.6	625.6
Return of capital ^A	–	–1.4	–38.6	–37.8	–28.9	–106.7
Straight-line depreciation ^B	–	0.9	20.1	80.5	100.9	202.4
Less: inflation indexation on opening RAB	–	2.4	58.7	118.2	129.8	309.1
Operating expenditure	–	0.2	1.2	12.8	17.7	31.8
Revenue adjustments	–	-	-	-	-	-
Net tax amount ^C	–	–0.9	–3.2	–10.5	–11.6	–26.3
Annual building block revenue requirement (unsmoothed)	–	2.4	76.5	202.9	242.7	524.5
Annual expected maximum allowed revenue (MAR – smoothed)	–	–	89.5	198.8	235.3	523.6
Increase to annual expected MAR (smoothed) (%)	–	–	8.8%	18.3%	20.3%	10.2%

Source: AER analysis.

- (A) Regulatory depreciation (return of capital) consists of straight-line depreciation net of indexation of the RAB. The negative incremental regulatory depreciation is a result of a higher growth in the RAB and the consequent increase in the indexation of the RAB exceeding the increase in the straight-line depreciation.
- (B) Based on as-commissioned capex.
- (C) The negative incremental net tax amount in this decision is due to the growth in tax expenses, primarily the tax depreciation, being higher than the incremental increase in taxable income as a result of HumeLink stage 2.

¹⁶³ NER, cl. 6A.8.2(e)(2).

As a result of recovering these revenues, we estimate that the transmission component of an average residential electricity bill in New South Wales would increase by \$21 per year over the remaining three years of the 2023–28 period (2025–26 to 2027–28).

We estimate the total impact of HumeLink (including stage 1 early works and stage 2) on the transmission component of an indicative residential electricity bill in New South Wales would be an increase of \$25 per year over the remaining three years of the 2023–28 period (2025–26 to 2027–28).¹⁶⁴

Table 15 provides the effect of the resultant incremental increase in revenues on Transgrid's total annual building block revenue requirement (unsmoothed), expected maximum allowed revenues, and the X-factors over the 2023–28 period.

Table 15 Indicative annual building block revenue requirement, expected MAR and X-factors (\$ million, nominal)

	2023–24	2024–25	2025–26	2026–27	2027–28	Total
Annual building block revenue requirement (unsmoothed)	865.6	967.8	1,132.1	1,330.6	1,383.3	5,679.4
Annual expected MAR (smoothed)	924.0	959.7	1,110.7	1,285.4	1,391.4	5,671.2
X-factors	n/a	–0.92%	–12.45%	–12.45%	–5.18%	n/a

Source: AER analysis.

7.1 As-incurred depreciation and financeability

Transgrid initially proposed to apply an ‘as-incurred’ depreciation approach for all depreciable asset classes associated with the HumeLink stage 2 project (including transmission lines, substations and biodiversity offsets). This is a change from our standard ‘as-commissioned’ depreciation approach under the AER’s regulatory models for transmission networks.

Financeability concerns were Transgrid’s principal justification for its proposal to use as-incurred depreciation. It noted that financeability of HumeLink remains a key challenge and it has been working with the Clean Energy Finance Corporation (CEFC) to develop a concessional financing package via the Rewiring the Nation program. However, Transgrid proposed that receiving depreciation on its assets on an as-incurred basis would also assist in addressing the cash-flow issues of financing the HumeLink project.

To assess Transgrid’s financeability claim we requested that it provide any funding commitment letter or legal documents related to concessional finance arrangements with the CEFC for the HumeLink project. We also requested that Transgrid provide the financial models underpinning the terms of the funding commitment letter or legal documents.

¹⁶⁴ The impact of HumeLink Stage 1 on the transmission component of an indicative residential electricity bill in New South Wales was estimated to be approximately \$4 per year over the remaining four years of the 2023–28 period (2024–25 to 2027–28). See AER, [Final decision – HumeLink Stage 1 \(part 2\)](#), August 2023, p. 13.

On 29 April 2024, Transgrid provided a letter to us formally withdrawing its request for as-incurred depreciation for assets other than biodiversity offset costs. Instead, it proposed to rely on the revised as-commissioned capex profile submitted on 22 April 2024 for regulatory depreciation purposes. The letter also noted that Transgrid had been working with the CEFC to create a financing package that would make the HumeLink project be considered investible.

Accordingly, for the HumeLink CPA determination we apply our standard approach of using as-commissioned capex for calculating the regulatory depreciation building block. However, we accept Transgrid's proposal to apply as-incurred depreciation for biodiversity offset costs. Consistent with our determination on Transgrid's VNI West CPA-1, we consider that depreciating biodiversity offset costs on an as-incurred basis better reflects the nature of these biodiversity offset 'assets'. The nature of biodiversity offset costs is that they relate to intangible assets (such as biodiversity credits). Unlike the physical transmission assets, biodiversity credits will be acquired and retired during the ISP project construction stage. Therefore, the amortisation (depreciation) of these assets should commence at the time the costs are incurred.

7.2 Biodiversity offset costs asset classes and asset lives

As part of its HumeLink stage 2 CPA, Transgrid proposed a new asset class for 'Biodiversity offsets' costs. It has assigned a standard asset life of 47.7 years for regulatory depreciation for this asset class, and no standard tax asset life for tax depreciation purposes.

The biodiversity offset costs that Transgrid will incur are related to the following cost categories:

1. Land purchases for establishing the biodiversity stewardship sites: This includes the purchase of land and the management of the land in perpetuity.
2. Direct payments: This includes market purchases of biodiversity credits and payments into the Biodiversity Conservation Fund.
3. Other costs: This includes costs for bank guarantee, independent expert biodiversity panel, labour costs and indirect non-labour costs.

In this determination, we:

- accept the proposed standard asset life of 47.7 years for regulatory depreciation for all cost categories of the biodiversity offsets costs
- accept the proposal not to assign a standard tax asset life for costs associated with land purchases for establishing the biodiversity stewardship sites (category 1 above)
- reject the proposal not to assign a standard tax asset for costs associated with direct payments and other costs (categories 2 and 3 above). We consider a standard tax asset life of 50 years should be assigned for tax depreciation purposes for these costs.

PIAC did not support Transgrid's new biodiversity offset asset class as it considered these costs should not be capitalised in the RAB and earn a return on investment, and therefore

should be treated as opex rather than capex.¹⁶⁵ However, we consider that biodiversity offset costs are inextricably linked to the project life as the biodiversity credits are used to offset the project's biodiversity obligation. In addition, treating these costs as opex would result in them being recovered from customers immediately and would have more volatile bill impacts. For these reasons, we consider that the costs of establishing the biodiversity credits should be depreciated over the weighted average life of the project.

Therefore, we have determined that the biodiversity offset class should be treated as capex and included in the RAB. We consider that Transgrid's proposed standard asset life of 47.7 years for regulatory depreciation of biodiversity offset costs is reasonable because it reflects the weighted average of the standard asset lives for all depreciating assets associated with HumeLink stage 2. This approach is consistent with that approved for our determination on the VNI West stage 1 CPA.

For tax depreciation purposes, we do not agree with Transgrid's proposal of not assigning a standard tax asset life for all cost categories of the biodiversity offsets costs.

We agree with Transgrid that costs associated with land purchases for establishing the biodiversity stewardship sites are not subject to tax depreciation, consistent with the *Income Tax Assessment Act 1997*. Therefore, no standard tax asset life is applicable for these costs.

However, we consider that costs which are not related to land purchases should still be subject to tax depreciation. Transgrid has previously stated to us that direct payments (such as payments into the Biodiversity Conservation Fund) represent a capital cost to be incurred in developing the transmission network. It stated that such costs should therefore be included in the cost base of the relevant capital asset—that is, the transmission line which gave rise to the biodiversity offset obligation.¹⁶⁶ We note that the standard tax asset life for the transmission line asset class is 50 years. Therefore, we consider it is appropriate to assign the same life for tax depreciation purpose of direct payments for biodiversity offset costs as the 'Transmission lines' asset class. This is consistent with that approved for our determination on VNI West stage 1.

For the purposes of the roll forward model (RFM) and the PTRM, we have split the 'Biodiversity offsets' asset class into the following two asset classes to reflect our approach on tax depreciation:

- Biodiversity offsets (Stewardship sites): Not assign a standard tax asset life.
- Biodiversity offsets (Direct payments & other costs): Assign a standard tax asset life of 50 years.

In its response to our information request, Transgrid agreed with this approach.¹⁶⁷

¹⁶⁵ Public Interest Advocacy Centre (PIAC), [HumeLink CPA stage 2 submission](#), April 2024, pp. 8-9.

¹⁶⁶ Transgrid, *Response to AER information request 3*, March 2024.

¹⁶⁷ Transgrid, *Response to AER information request 3*, April 2024.

Shortened forms

Term	Definition
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
BCF	Biodiversity Conservation Fund
BCSD	Biodiversity Conservation and Science Directorate
BCT	Biodiversity Conservation Trust
BDAR	Biodiversity Development Assessment Report
BSA	Biodiversity Stewardship Agreement
capex	capital expenditure
CBA	Cost benefit analysis
CEFC	Clean Energy Finance Corporation
CESS	Capital Expenditure Sharing Scheme
CPA	contingent project application
EIS	Environmental Impact Statement
ISP	Integrated System Plan
MAR	maximum allowed revenue
NER	National Electricity Rules
NSP	Network Service Provider
NSW DCCEEW	New South Wales Department of Climate Change, Energy, the Environment and Water
ODP	Optimal Development Path
opex	operating expenditure
PACR	Project Assessment Conclusions Report
PTRM	post-tax revenue model
RAB	regulatory asset base
regulatory control period	period
RFM	roll-forward model
RIT-T	regulatory investment test for transmission
TNSP	Transmission Network Service Provider
VNI West	Victoria to New South Wales Interconnector West