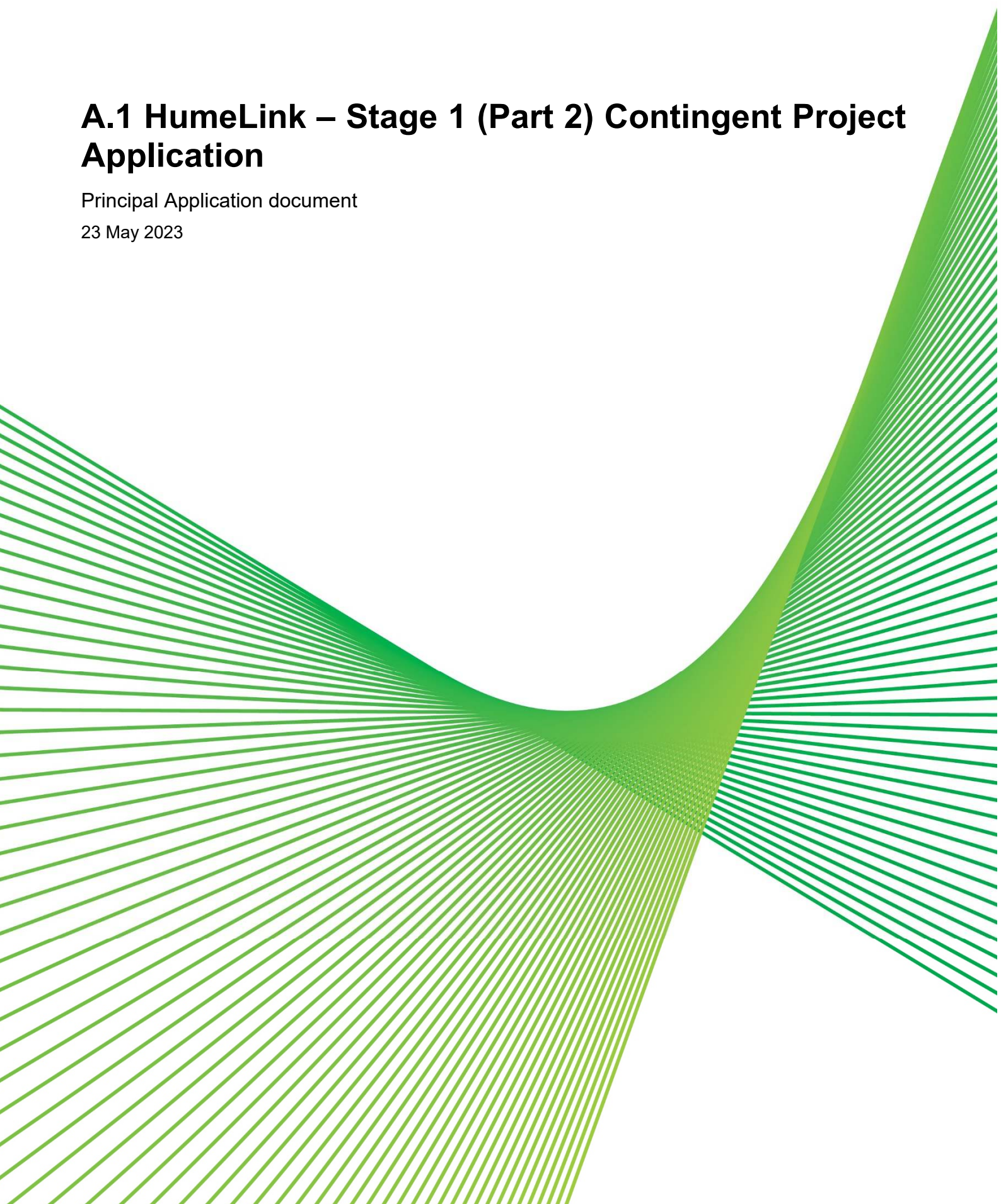


A.1 HumeLink – Stage 1 (Part 2) Contingent Project Application

Principal Application document

23 May 2023



Contents

Executive Summary	1
The Project and this Application.....	1
A project of national significance.....	2
Direction in AEMO’s Final 2022 ISP to proceed with Stage 1	2
Our Stage 1 (Part 1) Application	3
Our Stage 1 (Part 2) Application	3
Our incremental capex and revenue forecasts and indicative price impact	4
1. Introduction	6
1.1. Compliance with the NER	7
1.2. Structure of this document	7
1.3. Structure of the Stage 1 (Part 2) Application	7
2. Project Overview	10
2.1. A project of national significance.....	10
2.2. Direction from AEMO to proceed with Stage 1 (Early Works).....	11
2.3. Approval of our Stage 1 (Part 1) Application.....	12
3. Regulatory Requirements	14
3.1. Regulatory requirements	14
3.2. Trigger events.....	15
3.3. Project timing.....	16
3.4. Customer and other Stakeholder engagement.....	17
3.4.1. Stage 1 Engagement activities.....	17
3.4.2. Engagement on this Application.....	17
4. Capex forecast.....	19
4.1. AEMO’s feedback loop confirmation of Stage 1 (Part 2) capex	19
4.2. The scope of our Stage 1 (Part 2) activities and outcomes for consumers.....	19
4.3. Our forecast Stage 1 (Part 2) capex and the basis of our forecast	21
4.4. Capex threshold	23
5. Forecast Revenue and impact on customers’ bills.....	24

5.1. Commercial viability of the Project	26
6. Guide to compliance	27
Appendix A Revenue Application	29
A.1 WACC	29
A.2 Asset lives	30
A.3 Incremental regulatory depreciation	30
A.4 Tax allowance	31
A.5 Debt and equity raising costs.....	31
A.6 Incremental revenue requirements for each year to end of period	32
A.7 Amended ABBRR and MAR	33
A.8 Modelling approach.....	34

This page is intentionally left blank.

Executive Summary

The Project and this Application

We are pleased to submit our Stage 1 Contingent Project Application (CPA or Application) for Long Lead Equipment (LLE) for HumeLink (the Project or HumeLink), referred to in this document as our Stage 1 (Part 2) Application or CPA-1 Part 2. This follows our Stage 1 (Part 1) Application (or CPA-1 Part 1), which the AER approved in August 2022.¹

This document is the Principal Application document, which sets out our proposed expenditure, the associated incremental revenue requirement and the indicative customer bill impacts for purchasing LLE for HumeLink as part of our early works activities.

HumeLink is a key component of the energy market transition and will reinforce the southern shared network, which transports electricity from generators across southern New South Wales (NSW), and electricity imported from Victoria and South Australia to major population centres. The current southern shared network is heavily congested at times of high demand and will become more congested as new renewable generation is connected in southern NSW.

HumeLink will create additional capacity for new generation in areas with high quality resources – primarily, wind and solar generation – in southern NSW, increase the transfer capacity between Victoria and NSW and improve wholesale market competition, reducing customers' final electricity bills.

The Australian Energy Market Operator's (AEMO's) Final 2022 Integrated System Plan (2022 ISP), has defined HumeLink as a staged actionable ISP project, without decision rules.² The project stages and target timing identified in the 2022 ISP are:³

- Stage 1 – complete the early works by approximately 2024, and
- Stage 2 – deliver the Project by July 2026, subject to feedback loop confirmation by AEMO.

We are currently progressing early works in line with the AER's Final Decision on our Stage 1 (Part 1) Application. This, however, did not include an allowance for purchasing LLE. Rather, it included forecast capex for booking the production slots. The AER's approval of this Application would allow us to purchase LLE for transformers, reactors, conductor and steel as part of our Stage 1 activities. This will maximise benefits to customers by:

- providing the necessary cost certainty by locking in prices for LLE now. This will provide confidence that they will not be over-or-under investing in the Project
- protecting against future inflationary pressures, which are driving-up prices globally. This will ensure that the Project is delivered at the lowest sustainable cost

¹ AER, [HumeLink Early Works Contingent Project Determination](#) (HumeLink CPA-1 Part 2 Decision), August 2022

² AEMO, [2022 Integrated System Plan](#) (2022 ISP), June 2022, p.13.

³ AEMO, [2022 ISP](#), June 2022, p. 67 and 68

- securing supply-chain availability in a competitive global market, which is resulting in extensions on lead times for critical equipment. This will ensure that we meet AEMO's target delivery date of July 2026.⁴

Purchasing LLE now, as part of our Stage 1 activities, will not change the total project cost. Rather, it will bring the associated cost forward to Stage 1 and reduce our Stage 2 forecast capex by an equivalent amount.

We are on schedule to submit our Stage 2 Application to the AER by September 2023. This will contain the Project's deliver cost, which represents the bulk of the Project's costs. The AER's approval of this Stage 1 (Part 2) Application will support a class 2-3 cost estimate in our Stage 2 Application.

Unless otherwise specified, all expenditure forecasts in this Application are expressed in real terms (\$2022-23), and all revenue forecasts are expressed in nominal terms, consistent with the AER's recent 2023-28 Revenue Determination for Transgrid.

A project of national significance

HumeLink involves around 360km of new 500kV transmission lines in an electrical 'loop' that links the Greater Sydney load centre with the Snowy Scheme and Project EnergyConnect in south-west NSW.⁵

The NSW Government has declared HumeLink as a Critical State Significant Infrastructure for NSW.⁶ The Australian Government has also identified HumeLink in Australia's Long Term Emissions Reduction Plan, which finds that HumeLink is needed to strengthen the network in southern NSW and transport renewable energy to consumers from new projects, including Snowy 2.0.⁷

AEMO's 2022 ISP reconfirms the need for HumeLink given its key strategic value for the National Electricity Market (NEM) and the benefits it will provide to consumers.⁸ HumeLink has been a key project in AEMO's ISPs since 2018. AEMO's 2022 ISP has assessed that HumeLink will contribute roughly \$1.3 billion⁹ in net market benefits under the most likely scenario (step change) and will deliver significant value under all scenarios.¹⁰

AEMO's update to its 2022 Electricity Statement of Opportunities (ESOO) notes that HumeLink has 'the potential to significantly reduce the projected reliability risk' for NSW notwithstanding the NSW Electricity Infrastructure Roadmap developments, including the Waratah Super Battery.¹¹

Direction in AEMO's Final 2022 ISP to proceed with Stage 1

AEMO's 2022 ISP assessed that progressing Stage 1 urgently is critical to achieve the following benefits:¹²

⁴ AEMO, 2022 ISP, June 2022, p.13. (see Table 1).

⁵ AEMO, 2022 ISP, June 2022, p. 12 and 68

⁶ Section 5.3 of the Environmental Planning and Assessment Act 1979 (NSW) on 9 March 2018

⁷ Australian Government, [Australia's long-term emissions reduction plan – a whole-of-economy plan to achieve net zero emissions by 2050](#), 2021

⁸ AEMO, 2022 ISP, June 2022, p. 13

⁹ Of the \$24.5 billion in net market benefits that will be delivered by AEMO's ODP. See AEMO, 2022 ISP, June 2022, p. 68

¹⁰ AEMO, 2022 ISP, June 2022, p. 68

¹¹ AEMO, [Update to 2022 Electricity Statement of Opportunities](#) (ESOO), February 2023, p.12

¹² AEMO, 2022 ISP, June 2022, p. 80

- insurance value – mitigating the risk that not enough firm capacity is available if coal exits faster than anticipated over the period 2026 to 2028.¹³ HumeLink is the only project that can be delivered in time to address this risk
- option value¹⁴ – allowing us to deliver the Project as soon as possible or defer it if circumstances change, and
- protection against rising project costs – urgently undertaking further work to drive down costs and, if necessary, a government co-contribution could be considered, given the broader economic and societal value this project delivers.

Our Stage 1 (Part 1) Application

On 5 April 2022, following feedback loop confirmation from AEMO, we submitted our Stage 1 (Part 1) Application to the AER. This included forecast capex of \$383.3 million to undertake early works activities including project design, stakeholder engagement, land-use planning, approvals and acquisition, securing production slots for LLE and project management.¹⁵

In August 2022, the AER approved our Stage 1 (Part 1) capex forecast in full, noting that it was less than the \$390.1 million assessed by AEMO in its ISP feedback loop assessment.¹⁶ As noted above, our Stage 1 (Part 1) capex forecast did not include the cost of purchasing LLE. Rather, it included \$27.2 million for booking the production slots.¹⁷

We are currently undertaking early works activities and have been keeping the AER and our Transgrid Advisory Council (TAC) updated with our progress, key learnings and outcomes from these activities. We will provide a detailed update on this as part of our Stage 2 Application which we are targeting to submit to the AER in September 2023.

Our Stage 1 (Part 2) Application

The delivery of Major Projects, including HumeLink, are subject to rapidly evolving external factors including inflationary pressure, a heated construction market, increasing demand for capital and an extremely competitive global supply chain. These factors are resulting in unprecedented cost increases for labour and materials as well as significant extensions on lead times for critical equipment.

In light of these conditions, over the last six months, we have worked with the Commonwealth Government to establish a programmatic approach to accelerate the delivery of transmission infrastructure and drive costs down through economies of scale and scope. This is known as the Powering Tomorrow Together (PTT) program, which involves the integrated delivery of EnergyConnect, HumeLink and VNI West. Through the PTT program we are securing the lowest risk-adjusted price for LLE for HumeLink, specifically:

¹³ This is the amount of generation or storage that can be guaranteed to be available on demand

¹⁴ AEMO, 2022 ISP, June 2022, p 24, AEMO defines option value as the risks and regret of an investment (or lack of) based on an assumed future that does not play out, and the value of staging.

¹⁵ The \$383.3 million (\$Real 2022-23) is equivalent to \$321.9 million (\$Real 2017-18) included in AER's decision.

¹⁶ The \$390.1 million (\$Real 2022-23) is equivalent to \$327.6 million (\$Real 2017-18) included in AEMO's feedback loop confirmation.

¹⁷ The \$27.2 million (\$Real 2022-23) is equivalent to \$22.8 million (\$Real 2017-18) included in the AER's decision.

- in February 2023, we entered into agreements with suppliers to purchase transformers and reactors, and
- we are currently progressing similar procurement activities for conductor and steel and expect to enter into agreements with suppliers shortly.

The timing of establishing the LLE agreements with suppliers means that purchasing LLE (as opposed to booking production slots) will form part of our Stage 1 activities. We are therefore submitting this Stage 1 (Part 2) Application to enable recovery of costs required to secure LLE for transformers, reactors, conductor and steel.¹⁸ As noted above, this will not change the total project cost. Rather, it will bring the associated costs forward and reduce our Stage 2 cost by an equivalent amount.

Purchasing LLE as part of our Stage 1 activities maximises benefits to customers by:

- providing greater cost certainty for customers by locking in prices now
- protecting against future inflationary pressure to ensure the Project is delivered at lowest sustainable cost, and
- securing supply-chain availability, in a competitive global market, in order to meet AEMO's target delivery date of July 2026.¹⁹

On 6 April 2023, we requested feedback loop confirmation from AEMO for our Stage 1 (Part 2) costs of \$249.6 million for purchasing LLE.²⁰ On 19 May 2023, AEMO provided written feedback loop confirmation on the basis that our total Stage 1 costs do 'not change the status of the actionable ISP project as part of the optimal development path specified in the 2022 ISP'. These costs total \$632.9 million, comprising:²¹

- the AER's CPA Stage 1 (Part 1) Decision, which included a Stage 1 capex allowance of \$383.3 million,²² and
- our Stage 1 (Part 2) feedback loop request for \$249.6 million for LLE (i.e. the subject of this Application).²³

Our incremental capex and revenue forecasts and indicative price impact

Table 1 shows the total incremental forecast capex of \$226.7 million in this Application reflects the cost of purchasing LLE, shown in column B, less the production slot booking fee approved by the AER in our Stage 1 (Part 1) Application. The total capex forecast of \$226.7 million comprises:

- [REDACTED] for transformers and reactors, and
- [REDACTED] for conductors and steel towers.

¹⁸ AER, [HumeLink Early Works Contingent Project Determination](#), August 2022. See Table 4.

¹⁹ AEMO, 2022 ISP, June 2022, p.13. (see Table 1).

²⁰ The \$249.6 million (\$Real 2022-23) is equivalent to \$209.6 million (\$Real 2017-18) in our request to AEMO for Stage 1 (Part 2) costs.

²¹ The \$632.9 million (\$Real 2022-23) is equivalent to \$558.8 million (\$Real 2020-21) and \$531.5 million (\$Real 2017-18)

²² The \$383.3 million (\$Real 2022-23) is equivalent to \$321.9 million (\$Real 2017-18) included in its [HumeLink CPA-1 Part 2 Decision](#).

²³ The \$249.6 million (\$Real 2022-23) is equivalent to \$209.6 million (\$Real 2017-18) in our request to AEMO for Stage 1 (Part 2) costs.

Table 1: HumeLink forecast capex for LLE, \$Million Real 2023

LLE	Booking fee CPA-1 Part 1	Full cost of LLE	CPA-1 Part 2
	(A)	(B)	(B) – (A)
Transformers and Reactors	█	█	█
Steel and Conductors	█	█	█
Total	27.2	253.9	226.7

Note: 1. Totals may not add due to rounding

Based on our incremental capex forecast, we are seeking the AER’s approval to increase our maximum allowance revenue (MAR). Given the timing of this Application our required incremental revenue relates to the 2023-28 period, and is modest because:

- we are not seeking to adjust our 2018–23 or 2023–28 opex allowances as part of this Application, other than adjusting our 2023–28 allowance for debt raising costs as a consequence of the revised capex allowance, and
- our capex is not expected to be commissioned until June 2025 when the early works have been completed.

Table 2: – Incremental maximum allowed revenue – MAR (smoothed) (\$M, Nominal)

MAR (Smoothed Revenue)	2023-24	2024-25	2025-26	2026-27	2027-28	Total
AER 2023-28 Final Decision	924.0	930.0	963.7	998.7	1,034.9	4,851.3
Impact of CPA-1 Part 1	-	21.7	22.5	23.3	24.2	91.7
Impact of CPA-1 Part 2	-	9.1	9.4	9.8	10.1	38.5
Updated MAR	924.0	960.9	995.7	1,031.8	1,069.2	4,981.5

Based on the forecast MAR adjustment, the indicative customer bill impact is an increase of \$1.50 per annum for residential customers and \$5.62 per annum for small business customers, commencing in 2024-25.

1. Introduction

We are pleased to submit our Stage 1 (Part 2) Application for HumeLink which relates to purchasing LLE for transformers, reactors, steel and conductors. This follows our Stage 1 (Part 1) Application, which the AER approved in August 2022.

AEMO considers that Stage 1 activities, including purchasing LLE, are critical to achieve the following benefits:²⁴

- insurance value – mitigating the risk that not enough firm capacity is available if coal exits faster than anticipated over the period 2026 to 2028. HumeLink is the only project that can be delivered in time to address this risk²⁵
- option value²⁶ – allowing us to deliver the Project as soon as possible or defer it if circumstances change, and
- protection against rising project costs – urgently undertaking further work to drive down costs and, if necessary, a government co-contribution could be considered, given the broader economic and societal value this project delivers.

We are currently progressing Stage 1 works in line with the AER's Final Decision on our Stage 1 (Part 1) Application and have been keeping the AER and our TAC updated with our progress, key learnings and outcomes from these activities. We will provide a detailed update on this as part of our Stage 2 Application in September 2023.

Our Stage 1 (Part 1) Application did not include the cost of purchasing LLE. Rather, it included forecast capex for booking the production slots.

Purchasing LLE as part of our Stage 1 activities will not change the total project cost. Rather, it will bring the associated cost forward and reduce our Stage 2 forecast capex by an equivalent amount.

Purchasing LLE in Stage 1 maximises benefits to customers by:

- providing the necessary cost certainty by locking in prices for LLE now. This will provide confidence that they will not be over-or-under investing in the Project
- protecting against future inflationary pressures, which are driving-up prices globally. This will ensure that the Project is delivered at the lowest sustainable cost,
- securing supply-chain availability in a competitive global market, which is resulting in extensions on lead times for critical equipment. This will ensure that we meet AEMO's target delivery date of July 2026.²⁷

We are on schedule to submit our Stage 2 CPA to the AER by September 2023, and this Stage 1 (Part 2) Application will support this.

²⁴ AEMO, 2022 ISP, June 2022, p. 80

²⁵ This is the amount of generation or storage that can be guaranteed to be available on demand.

²⁶ AEMO, 2022 ISP, June 2022, p 24, AEMO defines option value as the risks and regret of an investment (or lack of) based on an assumed future that does not play out, and the value of staging.

²⁷ AEMO, 2022 ISP, June 2022, p.13. (see Table 1).

Section 3.2 of this Principal Application explains the relevant trigger events for this Application and demonstrates that they have occurred.

In accordance with clause 6A.8.2 of the National Electricity Rules (NER or Rules), this Principal Application seeks the AER's approval to amend the following so that we can recover the efficient costs of LLE contained in this Application:

- the capex allowance in the AER's 2018-23 and 2023-28 Revenue Determinations, and
- our revenue requirements and maximum allowed revenue (MAR) for the 2023–28 regulatory period.

1.1. Compliance with the NER

This Application and the supporting documents establish the matters in clause 6A.8.2(f) of the NER, being:

- the forecast of the total capex for the Project meets the threshold as referred to in clause 6A.8.1(b)(2)(iii)
- the amounts of forecast capex and incremental opex reasonably reflect the capex criteria and the opex criteria, taking into account the capex factors and the opex factors respectively, in the context of the contingent project
- the estimates of incremental revenue are reasonable, and
- the dates are reasonable.

1.2. Structure of this document

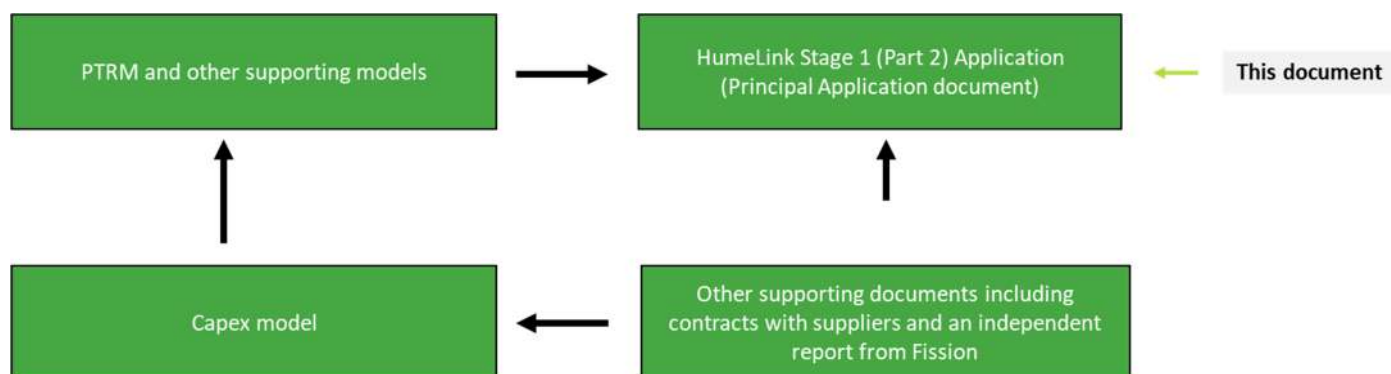
The remainder of this document is structured as follows:

- Chapter 2 describes the Project, the direction from AEMO in its 2022 ISP to proceed with Stage 1 and AEMO's approval of our Stage 1 (Part 1) Application
- Chapter 3 sets out the regulatory requirements for this Application
- Chapter 4 sets out forecast capex for the Stage 1 (Part 2) activities
- Chapter 5 sets out forecast incremental revenue for the Stage 1 (Part 2) activities and the indicative customer bill impact
- Chapter 6 sets out how the NER and Guidance note requirements have been addressed, and
- Appendix A is our revenue Application.

1.3. Structure of the Stage 1 (Part 2) Application

Our Stage 1 (Part 2) Application comprises the attachments and models (illustrated in Figure 1) as well as other supporting documents. This Principal Application document references these attachments, models and other supporting documents and should be read in conjunction with them.

Figure 1: HumeLink - Stage 1 (Part 2) Application



The attachments and models are summarised in Table 3.

Table 3: Documents and models comprising this Application (excluding our other supporting documents)

Document /model number	Name	Content/purpose
A.1	HumeLink – Stage 1 (Part 2) Application - Principal Application document	Seeks the AER’s approval to amend the forecast capex allowance, revenue requirements and MAR in the 2023-28 Revenue Determination based on this Application.
A.1.1A	HumeLink CPA-1 Part 1 2023-28 Post Tax revenue Model (PTRM)	Demonstrates the calculations of our incremental revenue requirements and MAR for the 2023-28 regulatory period, based on the AER’s HumeLink Stage 1 (Part 1) Determination.
A.1.1B	HumeLink CPA-1 Part 1 2018-23 Post Tax revenue Model (PTRM)	Demonstrates the calculations of our incremental revenue requirements for the 2018-23 regulatory period, based the AER’s HumeLink Stage 1 (Part 1) Determination
A.1.1C	HumeLink CPA-1 Part 1 2023–28 Roll-forward Model (RFM)	Rolls forward the Regulatory Asset Base (RAB) and Tax Asset Base (TAB) across the 2018–23 regulatory period, inclusive of capex approved in AER’s HumeLink Stage 1 (Part 1) Determination.
A.1.1D	HumeLink CPA-1 Part 1 2023–28 Depreciation Model	Calculates forecast depreciation based on as-commissioned capex in the 2018–23 regulatory period, including capex approved in AER’s HumeLink Stage 1 (Part 1) Determination.
A.1.2A	HumeLink CPA-1 (Part 2) 2023-28 Post Tax revenue Model (PTRM)	Demonstrates the calculations of our incremental revenue requirements and MAR for the 2023-28 regulatory period, based this Application for Stage 1 (Part 2)

Document /model number	Name	Content/purpose
A.1.2B	HumeLink CPA-1 Part 2 2023–28 Roll-forward Model (RFM)	Rolls forward the RAB and TAB across the 2018–23 regulatory period, including capex in this Stage 1 (Part 2) Application
A.5	LLE Capex forecast model	This model forecasts incremental LLE capex by regulatory asset class and year to 2024-25, calculated as the difference between the forecast capex for production slots, included in Stage 1 (Part 1), and the full cost of purchasing LLE.

In addition, we have provided the AER with other supporting documents that are referenced within the documents listed in Table 3.

2. Project Overview

2.1. A project of national significance

In March 2018, the NSW Government declared HumeLink as a Critical State Significant Infrastructure for NSW.²⁸ The Australian Government has also identified HumeLink in Australia's Long Term Emissions Reduction Plan, which finds that HumeLink is needed to strengthen the network in southern NSW and transport renewable energy to customers from new projects, including Snowy 2.0.²⁹

In July 2021, we published a Regulatory Investment Test for Transmission (RIT-T), which identifies HumeLink (Option 3C in the RIT-T) as the preferred option for reinforcing the southern shared network. The RIT-T assessment estimates that HumeLink will deliver \$491 million in net benefits (on a weighted basis in NPV terms) primarily from avoided, or deferred, costs associated with generation and storage infrastructure.³⁰

In June 2022, AEMO published its Final 2022 ISP, which reconfirms the need for HumeLink given its key strategic value for the NEM and the benefits it will provide to customers.³¹ It found that HumeLink will be needed if a third NSW coal-fired power station (including Liddell) retires, noting that the closure of two of NSW power stations (Liddell and Eraring) has already been announced as likely to occur by 2025. If this risk materialises, HumeLink will be needed to maintain power system reliability in NSW, avoiding the need to invest in long-duration storage.³² The 2022 ISP has assessed that:

HumeLink is the only actionable ISP project that could be delivered in the critical period that directly addresses this risk.

In February 2023, AEMO published an update to its 2022 ESOO. This assesses that HumeLink has 'the potential to significantly reduce the projected reliability risk' for NSW notwithstanding the NSW Electricity Infrastructure Roadmap developments including the Waratah Super Battery.³³

In April 2023, the Liddell power station closed. Consistent with the assumptions in AEMO's 2022 ISP, the Eraring power station is still expected to close in 2025 and Bayswater power station is scheduled to be retired between 2030 and 2033.³⁴

HumeLink will be our largest capital project since construction of our existing network. It involves around 360km of new 500 kV transmission lines in an electrical 'loop' that links the Greater Sydney load centre with the Snowy Mountains Hydroelectric Scheme and Project EnergyConnect in south-west NSW.³⁵

HumeLink is a key component of the energy market transition. It will create additional capacity for new generation – primarily renewable wind and solar generation – in southern NSW, increase the transfer

²⁸ Section 5.3 of the Environmental Planning and Assessment Act 1979 (NSW) on 9 March 2018

²⁹ Australian Government, [Australia's long-term emissions reduction plan – a whole-of-economy plan to achieve net zero emissions by 2050](#), October 2021

³⁰ Transgrid, HumeLink – Project assessment Conclusion Report (PACR) Addendum – December 2021 p.5.

³¹ HumeLink has been identified as a key project in AEMO's ISPs since 2018. AEMO, 2022 ISP, June 2022, p. 13

³² AEMO, 2022 ISP, June 2022, pp 64-65, 82.

³³ AEMO, [Update to 2022 Electricity Statement of Opportunities](#) (ESOO), February 2023, p.12

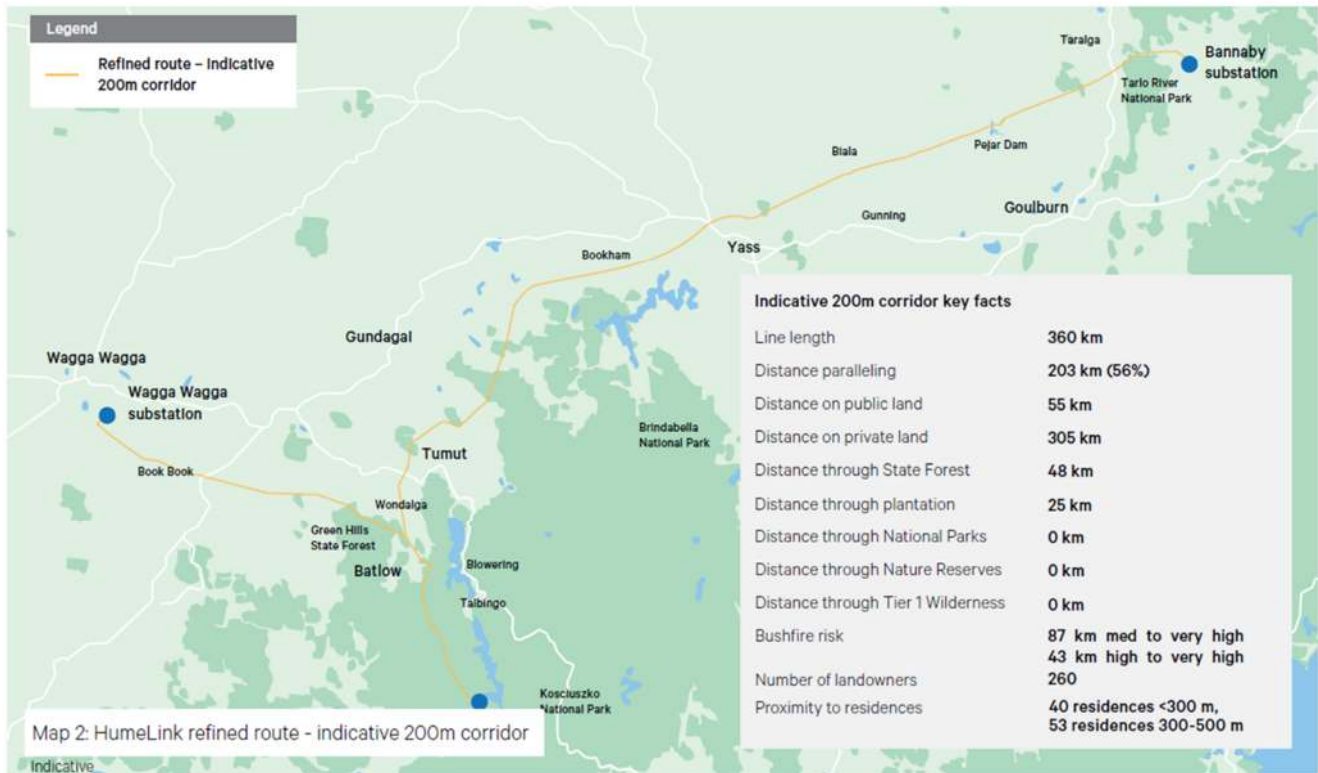
³⁴ Australian Financial Review (AFR), [AGL bows to shareholders and hastens coal exit](#), 29 September 2022

³⁵ AEMO, 2022 ISP, June 2022, p. 68

capacity between Victoria and NSW and improve wholesale market competition, thereby reducing customers' final electricity bills.

Figure 2 is a map of the proposed 500kV double circuit transmission line routes.

Figure 2: Map of proposed transmission line routes



2.2. Direction from AEMO to proceed with Stage 1 (Early Works)

AEMO's 2022 ISP defines HumeLink as a staged actionable ISP project, without decision rules, at a total cost of \$3.91 billion.³⁶ It has also assessed that HumeLink contributes roughly \$1.3 billion of the \$24.5 billion in net market benefits delivered by the Optimal Development Path (ODP) under the most likely scenario (step change) and will deliver significant value under all scenarios.³⁷ The project stages and target timing identified in the 2022 ISP are:³⁸

- Stage 1 – complete the early works by approximately 2024, and
- Stage 2 – implement the Project by July 2026, subject to feedback loop confirmation by AEMO.

AEMO has assessed that delivering the Project as early as possible, with early works as the first stage and with an additional checkpoint via the feedback loop before construction to reconfirm the Project's need,

³⁶ AEMO, [2022 ISP](#), June 2022, p. 67 and 68. The \$3.91 billion (\$Real 2022-23) is equivalent to \$3.28 billion (\$Real 2017-18) included in AEMO's [Feedback Loop Notice](#), published on 22 January 2022.

³⁷ AEMO, 2022 ISP, June 2022, p. 68.

³⁸ AEMO, [2022 ISP](#), June 2022, p. 67 and 68.

protects customers against the risk of schedule slippage and provides insurance value against the risk of coal exiting faster than projected in NSW.

AEMO's 2022 ISP therefore directs the staged delivery of the Project to ensure it can be delivered under all scenarios by July 2026 and achieve the following benefits through early works activities:³⁹

- insurance value – this mitigates the risk that not enough firm capacity is available if coal exits faster than anticipated over the period 2026 to 2028. HumeLink is the only project that can be delivered in time to address this risk
- option value⁴⁰– this allows us to deliver the Project as soon as possible or defer it if circumstances change, and
- protection against rising project costs – this directs us to urgently undertake further work now to drive down costs and, if necessary, a government co-contribution could be considered, given the broader economic and societal value this project delivers.

2.3. Approval of our Stage 1 (Part 1) Application

On 25 January 2022, we requested feedback loop confirmation from AEMO for our Stage 1 (Part 1) Application. On 27 January 2022, AEMO provided written feedback loop confirmation at a cost of \$390.1 million (Real 2017-18) and reconfirmed the total Project cost of \$3.91 billion.

On 5 April 2022, we submitted to the AER our Stage 1 (Part 1) Application seeking an increase to our revenue in accordance with clause 6A.8.2 of the NER to fund Stage 1 activities. Our Stage 1 (Part 1) Application included forecast capex of \$383.3 million to undertake these activities including project design, stakeholder engagement, land-use planning and approvals and acquisition, securing production slots for LLE and project management.⁴¹

Our Stage 1 (Part 1) Application did not include the cost of purchasing LLE in full but rather included \$27.2 million for booking the production slots.⁴²

In August 2022, the AER approved our Stage 1 (Part 1) capex forecast of \$383.3 million.⁴³ We are currently undertaking early works activities and have been keeping the AER and our TAC updated with our progress as well as the key learnings and outcomes from these activities. Key activities so far include:

- **Route selection and refinement** – we have now established the Project's centreline (i.e., route). There is one section near Tumut that requires additional review based on feedback from the local community. This will be dealt with through an amendment after the EIS submission.

³⁹ AEMO, 2022 ISP, June 2022, p. 80

⁴⁰ AEMO, 2022 ISP, June 2022, p 24. AEMO defines option value as the risks and regret of an investment (or lack of) based on an assumed future that does not play out, and the value of staging.

⁴¹ The \$383.3 million (\$Real 2017-18) is equivalent to \$321.9 million (\$Real 2017-18).

⁴² The \$27.2 million (\$Real 2022-23) is equivalent to \$22.8 million (\$Real 2017-18) included in the AER's decision.

⁴³ The \$383.3 million (\$Real 2022-23) is equivalent to \$321.9 million (\$Real 2017-18) included in AER's decision.

- **Land acquisition** – we are making good progress and are ahead of schedule, in providing access for infrastructure delivery. Currently, we have in principle agreements with landowners for 36 per cent of private easements that are required for the Project.
- **Ground investigation and design development** – we have undertaken geotechnical drilling to develop the design and support the competitive design and construct procurement process for the Project.
- **Environmental Planning and Approvals** – we are on track to submit our draft Environment Impact statement (EIS) to the Department of Planning and Environment in May 2023.
- **Procurement** – we have undertaken a thorough procurement process comprising two phases to ensure that the Project’s construction cost is prudent and efficient and therefore provides the best possible value for money under the prevailing circumstances:
 - The first phase consisted of initial market sounding in mid-2022. This involved industry briefings, receipt of questionnaire and feedback submissions, and interviews. This phase was open to all bona-fide delivery contractors and major engineering firms, subcontractors and suppliers with the potential to play a key role in the delivery of the HumeLink project
 - The second phase consisted of:
 - > expressions of interest (EOI) to identify potential suitably experienced and capable contractors to participate in the next phase Early Contractor Involvement (ECI) process, and
 - > the ECI is a two-stage collaborative process to maximise responsiveness in the supplier market. This is on track to conclude at the end of May 2023, followed by the award of contracts to the successful Delivery partners in June 2023.

We will provide a detailed update on this as part of our Stage 2 Application in September 2023. By undertaking early works activities now, we expect to achieve a class 2-3 capex forecast for Stage 2, which represents the bulk of the Project’s costs.

3. Regulatory Requirements

The regulatory requirements for actionable ISP projects are contained in:

- clause 6A.8.2 of the NER
- the AER’s Process Guideline for CPAs,⁴⁴ and
- the AER’s Guidance Note for Regulation of actionable ISP projects.⁴⁵

The key requirements are outlined below. Chapter 6 of this Application shows how we have satisfied the regulatory requirements.

3.1. Regulatory requirements

Clause 6A.8.2 of the NER sets out the requirements for making an application to amend a revenue determination to include a contingent project that is an actionable ISP project. This Application is made in accordance with the requirements of clause 6A.8.2(a), (a1) and (b) of the NER, being:

- during the 2018 to 2023 regulatory period
- to amend the revenue determination that applies to us in respect of a contingent project included in AEMO’s ISP as an actionable ISP project, and⁴⁶
- within the specified time limits.⁴⁷

This Application includes the information specified in clause 6A.8.2(b) of the NER:

- (1) an explanation that substantiates the occurrence of the trigger event
- (2) a forecast of the total capital expenditure for the contingent project
- (3) a forecast of the capital and incremental operating expenditure, for each remaining regulatory year which the Transmission Network Service Provider considers is reasonably required for the purpose of undertaking the contingent project
- (4) how the forecast of the total capital expenditure for the contingent project meets the threshold as referred to in clause 6A.8.1(b)(2)(iii)
- (5) the intended date for commencing the contingent project (which must be during the regulatory control period)
- (6) the anticipated date for completing the contingent project (which may be after the end of the regulatory control period), and

⁴⁴ AER, [Process Guideline for Contingent Project Applications under the NER](#), September 2007.

⁴⁵ AER, [Guidance Note for Regulation of actionable ISP projects](#), March 2021.

⁴⁶ NER clause 6A.8.2(a)

⁴⁷ NER clause 6A.8.2(a)

- (7) an estimate of the incremental revenue which the Transmission Network Service Provider considers is likely to be required to be earned in each remaining regulatory year of the regulatory control period as a result of the contingent project being undertaken as described in subparagraph (3), which must be calculated:
- (i) in accordance with the requirements of the post-tax revenue model referred to in clause 6A.5.2
 - (ii) in accordance with the requirements of the roll forward model referred to in clause 6A.6.1(b)
 - (iii) using the allowed rate of return for that Transmission Network Service Provider for the regulatory control period as determined in accordance with clause 6A.6.2
 - (iv) in accordance with the requirements for depreciation referred to in clause 6A.6.3, and
 - (v) on the basis of the capital expenditure and incremental operating expenditure referred to in subparagraph (b)(3).

Clause 6A.8.2(f)(2) of the NER requires the AER to accept the relevant amounts in this Final Application if it is satisfied that:

the amounts of forecast capital expenditure and incremental operating expenditure reasonably reflect the capital expenditure criteria and operating expenditure criteria, taking into account the capital expenditure factors and operating expenditure factors, in the context of the contingent project.

In addressing these requirements, we have had regard for the AER's:

- Guidance Note for Regulation of actionable ISP projects,⁴⁸ and
- Process Guideline for Contingent Project Applications.⁴⁹

We have met regularly with the AER and our TAC in preparing this Application and the AER's feedback has informed the content and structure of this Final Application and supporting documentation.

3.2. Trigger events

Under the NER, we can submit this Stage 1 (Part 2) Application to the AER, if we satisfy the trigger events for actionable ISP projects in clause 5.16A.5.⁵⁰ Table 4 shows that the trigger events for Stage 1 of the Project have been met.

⁴⁸ AER, [Guidance Note, Regulation of actionable ISP projects](#), March 2021

⁴⁹ AER, [Process Guideline for Contingent Project Applications under the National Electricity Rules](#), September 2007

⁵⁰ Rule 5.16A.5 Actionable ISP project trigger event.

Table 4: Occurrence of the trigger events

Trigger event	Status
<p>Publish the RIT-T Project Assessment Conclusions Report (PACR), which must identify a preferred option that passes the RIT-T.</p>	<p>Complete</p> <p>On 29 July 2021, we published a PACR, which identified the preferred option to be a new 500 kV double circuit transmission lines in an electrical ‘loop’ between Maragle, Wagga Wagga and Bannaby (i.e., ‘Option 3C’).</p>
<p>Obtain written feedback loop confirmation from AEMO that:</p> <ul style="list-style-type: none"> the preferred option addresses the identified need and is on the optimal development path (ODP) in the most recent ISP, and at the forecast cost, the Project remains part of the ODP 	<p>Complete</p> <p>On 19 May 2023, AEMO provided written feedback loop confirmation that:</p> <ul style="list-style-type: none"> the Stage 1 (Part 2) for LLE meets the identified need in the most recent ISP, being the 2022 ISP⁵¹ and Stage 1 (Part 1 and Part 2) of the Project remains part of the ODP at a total cost of \$632.9 million,⁵² noting: <ul style="list-style-type: none"> the AER approved \$383.3 million for Stage 1 (Part 1) in August 2022,⁵³ and This Application seeks the AER’s approval for Stage 1 (Part 2) forecast capex of \$249.6 million⁵⁴
<p>There are no outstanding RIT-T PACR disputes - either no disputes were raised or if a dispute has been raised, it has been rejected by the AER or the PACR has been amended accordingly.</p>	<p>Complete</p> <p>On 17 December 2021, we resolved the dispute raised by Wunelli Pty Ltd by publishing an addendum to the PACR. This contained the additional analysis requested by the AER in its dispute determination, published on 24 November 2021. The resolution of this dispute marked the completion of the RIT-T process.</p>
<p>The cost in the Stage 1 CPA must be no more than the cost included in AEMO’s written feedback loop confirmation.</p>	<p>Confirmed</p> <p>Our Stage 1 capex (actual and forecast) in this application is within the Stage 1 cost cap of \$632.9 million,⁵⁵ set out in AEMO’s feedback loop confirmation.</p>

3.3. Project timing

For the purposes of this Stage 1 (Part 2) Application, the applicable dates for commencement and completion are:

- date for commencement – 1 July 2022, and
- anticipated date for completion – 30 June 2025.

We have already incurred some costs in relation to purchasing LLE, associated with design and establishing contract with suppliers to meet AEMO's July 2026 completion date. The proposed timing for the remaining LLE costs is based on the activities set out in the contract with suppliers.

3.4. Customer and other Stakeholder engagement

3.4.1. Stage 1 Engagement activities

Engaging with our customers is integral to our business. Given the size, scale and route of HumeLink, we are undertaking extensive engagement with a diverse group of stakeholders including local communities, landowners, First Nations people and primary producer groups.

There is strong interest and reactions to the Project. We are undertaking extensive early engagement as part of our Stage 1 activities, which is critical to maintaining the social licence required to minimise the risk of the Project being delayed and the associated costs.

We are implementing our HumeLink Engagement Strategy which involves engaging with landowners, indigenous and local communities and other stakeholders to:

- provide information on the Project timeframes, milestones and engagement processes so that customers have the maximum opportunity to be involved in the Project
- effectively communicate the advantages of the Project to the community and facilitate their full participation in it, and
- offer initiatives and programs that invest in the community and provide benefits to them.

To date, we have undertaken 27 Community Consultation Group (CCG) meetings, and 777 stakeholder meetings across the project footprint.

A full description of our Stage 1 customer and stakeholder engagement activities and outcomes will be provided to the AER as part of our Stage 2 Application in September 2023.

3.4.2. Engagement on this Application

To inform the development of this Application, we undertook specific pre-lodgement engagement with our TAC. Since it was established in 2016, the TAC has been central to our customer engagement activities, providing ongoing support and insights to our business on policy issues, regulatory strategy, customer perspectives and industry insights.

Our pre-lodgement engagement with the TAC involved monthly meetings over the period February to May 2023.

⁵¹ AEMO's assessment must consider the Stage 1 costs as well as the full delivery cost of the Project.

⁵² The \$632.9 million (\$Real 2022-23) is equivalent to \$558.8 million (\$Real 2020-21) and \$531.5 million (\$Real 2017-18)

⁵³ The \$383.3 million (\$Real 2022-23) is equivalent to \$321.9 million (\$Real 2017-18) included in its [HumeLink CPA-1 Part 2 Decision](#)

⁵⁴ The \$249.6 million (\$Real 2022-23) is equivalent to \$209.6 million (\$Real 2017-18) in our request to AEMO for Stage 1 (Part 2) costs.

⁵⁵ The \$632.9 million (\$Real 2022-23) is equivalent to \$558.8 million (\$Real 2020-21) and \$531.5 million (\$Real 2017-18)

- On 23 March 2023, we discussed the drivers, benefits to consumers, expected costs and regulatory process for our Stage 1 (Part 2) Application
- On 23 March 2023, AEMO also attended our TAC meeting and explained how it will assess our Stage 1 (Part 2) Application
- On 11 April 2023, we provided TAC members with our Feedback Loop request letter to AEMO and asked them to complete an online feedback form seeking their views on the following three questions:
 - 'Do you support Transgrid's proposal to submit a further Stage 1 CPA (i.e., CPA-1 Part 2) for HumeLink, to recover costs of purchasing long lead equipment?
 - If you responded 'no' or 'undecided' for the previous question, could you please explain why?
 - Would you like to submit any further comments?'

Through this engagement we received written submissions from the Energy Users Association of Australia (EUAA) and the Public Interest Advocacy Centre (PIAC), which raised a number of questions and concerns. These ranged from the reliability of forecast costs and consumer impacts to the implications of delays to the Project, and the timeframe and approach to stakeholder engagement. On 17 April 2023, we provided a written responses to TAC members addressing these questions and concerns.

Table 5 summarises the issues and questions raised through our engagement process, what we heard on our Stage 1 activities and where in this Application we have addressed this feedback. The TAC also raised a broader range of questions and concerns beyond the scope of this Application, including on the savings arising from our PTT program and our social licence considerations. We have addressed this feedback outside of this Application.

Table 5: Summary of TAC feedback and where in this Application we have discussed this feedback

What we heard – key issues and questions	Discussed in this Application
What is the evidence of the need and the cost	Refer Chapter 2
What is the confidence level around the forecast costs	Refer Chapter 4
What is the confidence level around the re-sale value of the LLE? Will consumers be worse off from purchasing LLE in Stage 1 rather than Stage 2?	Refer Chapter 4
Who will benefit (Transgrid or consumers) if the LLE the is sold for more than the purchase price paid by consumers.	Refer Chapter 4
To what extent are consumers paying for what amounts to Transgrid's own business development?	Refer Chapter 4
How certain are the benefits for consumers if all projects go ahead as planned?	Addressed outside of this Application.
What effect will timing misalignments and unpredictable delays have on the consumer benefit?	
Where do extrinsic timing and cost issues relating to social licence and other factors fit into this?	
Dissatisfaction with timeframe and approach for stakeholder engagement	

We are grateful to the TAC for its continued participation, input and invaluable feedback.

4. Capex forecast

This chapter:

- overviews AEMO's feedback loop confirmation for our Stage 1 (Part 2) Application
- explains the scope of our Stage 1 (Part 2) activities and the expected benefits for consumers, and
- sets out our forecast Stage 1 (Part 2) capex and the basis of our forecast.

4.1. AEMO's feedback loop confirmation of Stage 1 (Part 2) capex

On 6 April 2023, we requested feedback loop confirmation from AEMO for our Stage 1 (Part 2) forecast capex of \$249.6 million for purchasing LLE.⁵⁶ On 19 May 2023, AEMO provided written feedback loop confirmation on the basis that our total Stage 1 costs do 'not change the status of the actionable ISP project as part of the optimal development path specified in the 2022 ISP'. These costs total \$632.9 million, comprising:⁵⁷

- the AER's CPA Stage 1 (Part 1) Decision, which included a Stage 1 capex allowance of \$383.3 million,⁵⁸ and
- our Stage 1 (Part 2) feedback loop request for \$249.6 million for LLE (i.e., the subject of this Application).⁵⁹

4.2. The scope of our Stage 1 (Part 2) activities and outcomes for consumers

The delivery of Major Projects, including HumeLink, are subject to rapidly evolving external factors. These include inflationary pressure, heated construction markets across all industry sectors, increasing demand for capital and an extremely competitive global supply chain. These factors are resulting in unprecedented cost increases for labour and materials both nationally and internationally as well as significant extensions on lead times for critical equipment.

In light of these conditions, over the last six months, we have worked with the Commonwealth Government to establish a programmatic approach to:

- accelerate the delivery of transmission infrastructure
- drive costs down through economies of scale and scope, and
- improve certainty of deliverability in a highly constrained labour and equipment supply chain market.

⁵⁶ The \$249.6 million (\$Real 2022-23) translates to the \$209.6 million (\$Real 2017-18) in our request to AEMO for Stage 1 (Part 2) costs.

⁵⁷ The \$632.9 million (\$Real 2022-23) is equivalent to \$558.8 million (\$Real 2020-21) and \$531.5 million (\$Real 2017-18)

⁵⁸ The \$383.3 million (\$Real 2022-23) is equivalent to \$321.9 million (\$Real 2017-18) included in its [HumeLink CPA-1 Part 2 Decision](#).

⁵⁹ The \$249.6 million (\$Real 2022-23) is equivalent to \$209.6 million (\$Real 2017-18) in our request to AEMO for Stage 1 (Part 2) costs.

This is known as the PTT program, which involves the integrated delivery of EnergyConnect, HumeLink and VNI West. The scale and scope of the PTT program allows us to:

- attract and retain Delivery Partners and their contract resources
- work with our Delivery Partners to ensure projects are delivered on time and at the lowest sustainable costs, and
- manage constraints by coordinating resources and timing of delivery of works across multiple projects.

Through the PTT program we are securing the lowest risk-adjusted price for LLE for HumeLink, specifically:

- in February 2023, we entered into agreements with suppliers to purchase transformers and reactors, and
- we are currently progressing similar procurement activities for conductor and steel and expect to enter into agreements with suppliers shortly.

Our procurement process for transformers and reactors highlighted the capacity challenges in the market and that large-scale equipment orders require extensive lead time due to factory order books nearing capacity. We found that near-term capacity outside of China is exhausted. A letter from a key supplier received through the recent procurement process, provided as an Attachment to this Application, evidences the current market capacity challenges. It states that:

As TransGrid would be aware, the increase in both global and local demand for power transformers is growing exponentially and we cannot forecast what will happen in the next 6 or more months. Our manufacturing slots are booked on a first come first served basis and those organisations that have secured factory capacity in binding agreements will meet their targeted project dates. As a local example, Central West Orana which has a larger demand than [sic] the HumeLink project for this portfolio and also requires delivery at the same time as HumeLink.

The timing of establishing the LLE agreements with suppliers means that purchasing LLE, as opposed to booking production slots, will form part of Stage 1 rather than Stage 2 activities. This does not change the total project cost, rather it simply brings forward the cost of the activity and reduces our Stage 2 cost by an equivalent amount.

Purchasing LLE as part of Stage 1 activities maximises benefits to customers by:

- providing the necessary cost certainty by locking in prices for LLE now. This will provide confidence that they will not be over-or-under investing in the Project
- protecting against future inflationary pressures, which are driving-up prices globally. This will ensure that the Project is delivered at the lowest sustainable cost, and
- securing supply-chain availability in a competitive global market, which is resulting in extensions on lead times for critical equipment. This will ensure that we meet AEMO's target delivery date of July 2026.⁶⁰

⁶⁰ AEMO, 2022 ISP, June 2022, p.13. (see Table 1).

The resale value of the LLE is the same as the forecast capex of \$249.6 million,⁶¹ included in this Application. This means that should the project not proceed to Stage 2, then we could:

- repurpose the LLE for other projects that we are currently progressing, such as VNI-West
- sell the LLE to enable the delivery of NSW Government’s Renewable Energy Zones (REZs) such as Central-West Orana REZ, New England REZ or Hunter-Central Coast REZ
- sell the LLE to enable the delivery of large transmission projects being progressed by other transmission businesses, such as CopperString which is being built by Powerlink in north Queensland, or
- sell the LLE to the Commonwealth Government in return for any underwritten funds.

The proceeds from the sale of LLE would be treated as disposals and deducted from RAB when it becomes time to roll forward the RAB over the 2023–28 period. This means that customers would not be worse off from purchasing the LLE in Stage 1 given the Commonwealth Government’s underwriting agreement and the overall demand for LLE for other large transmission projects. This provides confidence that the sale proceeds would not be lower than the cost included in this Application. Moreover, consumers would benefit if the sale proceeds exceeded the costs in this Application.

We are on schedule to submit our Stage 2 Application by September 2023.⁶²

4.3. Our forecast Stage 1 (Part 2) capex and the basis of our forecast

Table 6 shows our total forecast early works capex for LLE is \$226.7 million, excluding equity raising costs. This reflects the cost of purchasing LLE, shown in column B, less the production slot booking fee approved by the AER in our Stage 1 (Part 1). The total Stage 1 (Part 2) capex forecast of \$226.7 million comprises:

- ██████████ for transformers and reactors, and
- ██████████ for conductors and steel towers.

Table 6: HumeLink forecast capex for LLE, \$Million Real 2023 (excluding equity raising costs)

Stage 1 (Part 2)	Booking fee CPA-1 (Part 1)	Full purchase cost	CPA-1 (Part 2)
	(A)	(B)	(C) = (B) – (A)
Transformers and reactors	██████	██████	██████
Steel and conductors	██████	██████	██████
Total	27.2	253.9	226.7

Note: 1. Totals do not add due to rounding

Table 7 sets out our total forecast incremental capex of \$226.7 million for LLE by year. This shows that:

- there is a negative capex amount in 2022-23, because capex was higher in CPA-1 (Part 1) than it is in CPA-1 (Part 2), leading to a reduction in capex in that year, and

⁶¹ The \$249.6 million (\$Real 2022-23) is equivalent to \$209.6 million (\$Real 2017-18) noted earlier in this Application.

⁶² AEMO, [Integrated System Plan Feedback Loop Notice – HumeLink \(Early works\)](#), 27 January 2022 (HumeLink Feedback Loop Notice). The \$3.91 billion (\$Real 2022-23) is equivalent to \$3.28 billion (\$Real 2017-18) included in the notice.

- the majority of the costs will be incurred in 2023-24 and 2024-25 and that our total capex is within the cost capex of \$249.6 million in AEMO's feedback loop confirmation.⁶³

Our forecast capex is additional to the forecast capex approved by the AER in its:

- HumeLink Stage 1 (Part 1) Determination,⁶⁴ and
- 2023-28 Revenue Determination

Table 7: CPA-1 Part 2 forecast capex (\$M, Real 2022-23, excluding equity raising costs)

Stage 1 (Part 2)	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total ¹
Transformers and reactors							
Steel and conductors							
Total capex	(1.1)	102.1	125.8	-	-	-	226.7

Note: 1. Totals may not add due to rounding

Our forecast capex for transformers and reactors is calculated based on agreements with suppliers, which contain the number of transformers and reactors as well as the associated unit rates. We entered into these agreements in February 2023 as part of our PTT process. These agreements are provided as Attachments to this Application along-side our procurement strategy, which demonstrates how we maximised responsiveness of the supplier market to ensure that costs for transformers and reactors is prudent and efficient.

We are currently progressing similar procurement activities for conductor and steel and expect to enter into agreements with suppliers shortly. Given we do not have agreements with suppliers, we have calculated our forecast capex based on rates and quantities contained in a report from Fission, who has been appointed as the independent estimator for the Project during the ECI process that is currently underway (this is discussed in section 2.3). Our Stage 2 Application will explain our ECI process and outcomes.

In its assessment of the rates and quantities for steel towers and conductor, Fission has had regard for:

- Aurecon's high-level concept design, provided to the ECI tenderers to enable them to commence work, noting that the tendered will develop their own detailed scope through the ECI process
- early market sounding responses for conductor
- ECI Stage 1 tenderer submissions from specialist suppliers of steel towers, and
- benchmark information from other major infrastructure projects encompassing Power, Rail and Transport Infrastructure

Based on this information:

- For steel towers – Fission assessed:

⁶³ The \$249.6 million (\$Real 2022-23) translates to the \$209.6 million (\$Real 2017-18) in our request to AEMO for Stage 1 (Part 2) costs.

⁶⁴ AER, [Determination – HumeLink Early Works Contingent Project](#), August 2022

- that prices in the ECI tender responses are reasonable and in line with contractor prices for similar size projects (i.e., consistent with benchmark costs), and
- quantities (i.e., tower weights) having regard for Aurecon’s concept design and the ECI tender responses and found that:
 - > for the East, the ECI tender responses are reasonable and consistent Fission’s own assessment based on Aurecon’s high level concept design, however.
 - > for the West, the ECI tender response are reasonable but differed to Fission’s own assessment of quantities based on Aurecon’s high level concept design. This is due to the ECI tenderers considering the tower type assessment for non-alpine versus alpine region. Fission determined that the ECI tender responses were more appropriate based on the feedback from the tenderers.
- For conductor – Fission has assessed that:
 - its quantities are consistent with ECI tender responses (East and West) and
 - for prices, the mid-point of early market sounding responses is reasonable.

4.4. Capex threshold

The proposed capex of a contingent project is required to exceed either \$30 million, or 5 per cent of the MAR for the first year of the regulatory control period, whichever is the greater.

Table 8 shows that the forecast capex satisfies the relevant threshold. This means that the capex is covered by the contingent project requirements of the NER.

Table 8 – Contingent project thresholds (\$M, Real 2022-23)

AER Decision First year MAR	5% of MAR	Contingent Project Threshold	Pass / Fail
897.8 ⁶⁵	44.9	44.9	Pass (as capex > \$44.9 million)

Notes: NER clause 6a.8.1(b)(2)(iii) requires that expected capex is higher than the greater of \$30 million or 5% of MAR. The threshold is \$44.9 million (being 5% of MAR).

⁶⁵ AER, Final Decision – TransGrid – Post-tax Revenue Model for the 2023–28 period – April 2023, Revenue Summary.

5. Forecast Revenue and impact on customers' bills

This chapter sets out the incremental revenue forecast for our Stage 1 (Part 2) activities, our updated MAR and the indicative impact on the transmission component of customers' bills.

As discussed above, this Application seeks the AER's approval to amend the forecast capex allowances for the 2018–23 and 2023–28 periods as well as the revenue requirements and MAR in its 2023-28 Revenue Determination based on this Application. We are not seeking any adjustment to our 2018-23 MAR.

We have determined our incremental revenue forecast using the same assumptions and approaches recently adopted by the AER in its 2023-28 Revenue Determination. Table 9 summarises the incremental revenue forecast of \$131.7 million (\$Nominal) over the 2023–28 regulatory period for both CPA-1 Part 1 and CPA-1 Part 2, broken down by building block component, and briefly explains how we have calculated each component. Further detail is provided in Appendix A.

This shows that the incremental revenue we are seeking over the 2023–28 regulatory period is modest because:

- we are not seeking to adjust our current opex allowance as part of this Application, other than adjusting our allowance for debt raising cost as a consequence of the revised capex allowance, and
- our capex is not expected to be commissioned until June 2025 when the early works have been completed.

Table 9 – 2023-28 incremental revenue forecast from Stage 1 (early works) (\$M, Nominal)

Building block	\$ Million, Nominal	\$ Million, Real 2022-23	Approach
Return on capital	164.9	149.9	Calculated by multiplying the forecast opening capital base (updated to include expenditure on Stage 1 (early works) for a given year by the allowed rate of return adopted by the AER.
Return of capital	(39.0)	(36.0)	Calculated as forecast straight line depreciation for each asset class less indexation of the capital base. The value is negative because indexation is higher than depreciation over the 2023–28 regulatory period.
Opex	1.4	1.3	We are not seeking to adjust our current opex allowance as part of this Application, other than adjusting our allowance for debt raising cost as a consequence of the revised capex allowance. Debt raising costs have been calculated using the AER's standard approach.
Revenue adjustments	5.1	5.0	Updated to include the incremental building blocks revenue from the 2018–23 regulatory period that we were not able to include in the MAR for that period (due to the timing of this Stage 1 (Part 2) Application).

Building block	\$ Million, Nominal	\$ Million, Real 2022-23	Approach
Corporate income tax	(3.7)	(3.3)	Calculated as forecast pre-tax income multiplied by the corporate tax rate, less the assumed value of imputation credits.
Annual revenue requirement (i.e., unsmoothed)	128.7	116.9	
Impact of smoothing	1.5	0.7	Calculated by resolving the year 2 X-factor so that the NPV of the MAR for the 2023–28 regulatory period matched that of the forecast annual revenue requirement for the same period.
Maximum allowed revenue (i.e., smoothed)	131.7	117.6	

Table 10 details the 2023–28 incremental revenue forecast of our Stage 1 (Part 2) Application by year.

Table 10: – Incremental revenue forecast (smoothed) (\$M, Nominal)

MAR (Smoothed Revenue)	2023-24	2024-25	2025-26	2026-27	2027-28	Total
AER 2023-28 Final Decision	924.0	930.0	963.7	998.7	1,034.9	4,851.3
Impact of CPA-1 Part 1	-	21.7	22.5	23.3	24.2	91.7
Impact of CPA-1 Part 2	-	9.1	9.4	9.8	10.1	38.5
Updated MAR	924.0	960.9	995.7	1,031.8	1,069.2	4,981.5

Table 11 shows the indicative customer bill impact is an increase of approximately \$1.50 per annum for residential customers and an increase of \$5.62 per annum for small business customers, commencing 2024-25.

We have applied the same approach to estimating the indicative impact on customer bills over the 2023–28 period that the AER used in its Project EnergyConnect Determination. We converted our proposed MAR into indicative household and small business bills using forecast energy throughput and typical household and small business bill information, such as the typical bill size and the share of NSW residential and small business bills attributed to transmission charges. We are currently consulting with the AER on our approach to cross-period smoothing of allowed revenue.⁶⁶

⁶⁶ To smooth allowed revenue across period we have taken the difference between the MAR for the 2018-23 period and the unsmoothed annual building blocks revenue requirement (ABBRR) in NPV terms and added it to the allowed revenues for the 2023-28 period.

Table 11: Impact of Stage 1 on the transmission component of customers' bills (\$ per customer per year, Real 2022-23)

	2023-24	2024-25	2025-26	2026-27	2027-28
Residential bills					
AER 2023-28 Final Decision	1,769.59	1,765.75	1,765.24	1,765.28	1,766.20
Impact of CPA-1 Part 1	-	3.59	3.57	3.57	3.60
Impact of CPA-1 Part 2	-	1.51	1.50	1.50	1.51
Updated typical residential customer bill	1,769.59	1,770.84	1,770.32	1,770.35	1,771.30
Small business bills					
AER 2023-28 Final Decision	7,547.01	7,532.67	7,530.78	7,530.91	7,534.34
Impact of CPA-1 Part 1	-	13.40	13.35	13.36	13.44
Impact of CPA-1 Part 2	-	5.62	5.61	5.61	5.64
Updated typical small business bill	7,547.01	7,551.69	7,549.74	7,549.87	7,553.42

5.1. Commercial viability of the Project

We consider that HumeLink is in the long-term interests of customers because it is integral to achieving AEMO's ODP. However, no matter how beneficial HumeLink and other major transmission projects will be to customers, they must be commercially viable in order to proceed. There are two elements to commercial viability:

- The allowed return must be reasonable – it must match the market (risk reflective) cost of capital, and
- The regulatory allowance must be provided in a way that enables network businesses to support the benchmark credit rating (BBB+ under the 2022 RoRI) at the benchmark level of gearing (60% under the 2022 RoRI), while funding network augmentation projects. That is, the regulated cash flows associated with a major project such as HumeLink must be sufficient to ensure the financeability of that project.

No business could be reasonably expected to pursue a project that:

- is forecast to generate less than the return that investors in the market would reasonably require, given the risks associated with that project, and / or
- is expected to generate regulated cash flows that are insufficient to support the AER's benchmark credit rating at the benchmark level of gearing.

We consider that a clear, objective, predictable and formulaic process to assessing the financeability of major transmission projects such as HumeLink, and for addressing any financeability concerns identified, is required to give investors the confidence to commit to such projects. We intend to engage with the AEMC via a rule change process to seek an amendment to the existing NER that would introduce a formal requirement to assess the financeability of Actionable ISP projects.

6. Guide to compliance

Table 12 lists the NER requirements for a CPA, and where we have addresses these in our Application.

Table 12: Compliance with NER requirements

NER, clause 6A.8.2(b) requirements	Reference in Application
(1) an explanation that substantiates the occurrence of the trigger event	Chapter 3
(2) a forecast of the total capex for the contingent project	Chapter 4
(3) a forecast of the capital and incremental opex, for each remaining regulatory year which the Transmission Network Service Provider considers is reasonably required for the purpose of undertaking the contingent project	Chapter 4
(4) how the forecast of the total capex for the contingent project meets the threshold as referred to in clause 6A.8.1(b)(2)(iii)	Chapter 4
(5) the intended date for commencing the contingent project (which must be during the regulatory control period)	Chapter 3
(6) the anticipated date for completing the contingent project (which may be after the end of the regulatory control period) and	Chapter 3
<p>(7) an estimate of the incremental revenue which the Transmission Network Service Provider considers is likely to be required to be earned in each remaining regulatory year of the regulatory control period as a result of the contingent project being undertaken as described in subparagraph (3), which must be calculated:</p> <ul style="list-style-type: none"> (i) in accordance with the requirements of the post-tax revenue model referred to in clause 6A.5.2 (ii) in accordance with the requirements of the roll forward model referred to in clause 6A.6.1(b) (iii) using the allowed rate of return for that Transmission Network Service Provider for the regulatory control period as determined in accordance with clause 6A.6.2 (iv) in accordance with the requirements for depreciation referred to in clause 6A.6.3, and (v) on the basis of the capex and incremental opex referred to in subparagraph (b)(3). 	Chapter 5 and Appendix A

Table 13 lists the CPA requirements in the AER's Guidance Note and where we have addressed these in our Stage 1 Application.

Table 13: Compliance to AER Guidelines

AER Guideline requirement	Reference in Application
Stakeholder engagement (section 2.2)	
Overview of stakeholder engagement approach and feedback received	Chapter 3.
Project governance (section 2.4)	
Project governance framework and processes, including key roles, accountabilities and responsibilities	Our project governance framework has been provided in previous CPAs and is principally unchanged.
Project (including risk) reporting, monitoring and evaluation arrangements	
Any supporting assurance arrangements	
Project Plans (section 2.4.2)	
High level delivery schedule, with key milestones and timeframes	Our capex forecast model provides a high-level delivery schedule, with key milestones and timeframes for LLE.
Key dependencies and decision points for the project	
Project resourcing and capability arrangements	
Risk management framework and plan (see also section 2.6.3 - 'Risk management')	
Established arrangements for post completion project review	
Procurement strategy, processes, and outcomes (section 2.5)	
Overview of procurement strategy, including scope of work packages	Our procurement process is outlined in our Procurement Strategy for conductor, transformers and reactors, which are provided as Attachments to this Application.
Tender Evaluation Plan(s), including roles and responsibilities of the evaluation team	
Overview of procurement process(es), including summary of activities and timeline	
Outcomes of procurement activities	
Tender Evaluation and Probity Report(s)	
Risk assessment (section 2.6)	
Detailed risk register containing identifiable projects risks, and	The risk assessments will be developed and included in our Stage 2 Application.
A summary of the efficient mitigation steps taken for the relevant risks	
An assessment for each residual risk	
Assessment of the risks captured in contractors' scopes of work	

Appendix A Revenue Application

This Appendix A sets out our incremental revenue forecast for the Stage 1 (Part 2) activities, having regard for clause 6A.8.2(b)(9) of the NER. It also describes (in section A.8) the approach used to calculate those revenues.

Table 14 sets out the incremental MAR for our Stage 1 (Part 2) activities for the 2023-28 regulatory period. This has been calculated using the AER's 2023–28 Decision PTRM.⁶⁷

Table 14 – Incremental MAR (\$M, Nominal)

MAR (Smoothed Revenue)	2023-24	2024-25	2025-26	2026-27	2027-28	Total
AER 2023-28 Final Decision	924.0	930.0	963.7	998.7	1,034.9	4,851.3
Impact of CPA-1 Part 1	-	21.7	22.5	23.3	24.2	91.7
Impact of CPA-1 Part 2	-	9.1	9.4	9.8	10.1	38.5
Updated MAR	924.0	960.9	995.7	1,031.8	1,069.2	4,981.5

The rest of this Appendix A:

- identifies the weighted average cost of capital (WACC) and standard asset life assumptions adopted for the 2023–28 regulatory period
- sets out projected regulatory depreciation, tax allowance, debt and equity raising costs, smoothed revenue requirements and MAR for the 2023–28 regulatory period, and
- details the potential customer bill impact from the incremental revenue requirements resulting from the Project for the 2023–28 regulatory period.

A.1 WACC

We have calculated the incremental revenue for the Stage 1 (Part 2) activities using the same WACC assumptions as those adopted by the AER in its 2023-28 Revenue Determination. This is consistent with the requirements of clause 6A.8.2(b)(4)(ii) of the NER.

The WACC parameters are set out in Table 15.

Table 15 – WACC parameters

Parameter	AER Approved Value
Forecast inflation	2.92%
Value of imputation credits	57.00%

⁶⁷ Throughout this Appendix A we refer to the PTRM included with the AER's Final Decision for the 2023–28 regulatory period as the 'AER 2023-28 Decision PTRM or Final Decision. We have also presented any revenue forecasts in end of year nominal terms.

Parameter	AER Approved Value
Gearing	60.00%
Nominal pre-tax return on debt	
2023-24	4.63%
2024-25	4.59%
2025-26	4.72%
2026-27	4.82%
2027-28	4.97%
Nominal post-tax return on equity	7.48%
Nominal vanilla WACC	
2023-24	5.77%
2024-25	5.75%
2025-26	5.82%
2026-27	5.88%
2027-28	5.97%

A.2 Asset lives

We have allocated our forecast capex for Stage 1 (Part 2) activities across the relevant asset classes in the AER's PTRM. Capex is depreciated in the PTRM using the standard asset lives used in the AER's 2023-28 Revenue Determination. The applicable standard asset lives are set out in Table 16.

Table 16 – Asset lives

Asset Category	Standard Life (years)	Explanation
Transmission lines	50.0	As per the AER's 2023-28 Revenue Determination.
Substations	40.0	
Equity raising costs	39.2	As per the AER's 2023-28 Revenue Determination, this is calculated as the weighted average standard life for forecast net commissioned capex.

Note: Only asset classes that attract the Project capex are shown.

A.3 Incremental regulatory depreciation

Table 17 sets out our forecast incremental regulatory depreciation for the 2023-28 regulatory period for our Stage 1 (Part 2) activities, consistent with clause 6A.8.2(b)(7)(iv) of the NER. This forecast has been calculated using the AER's most recent PTRM for the 2023-28 period, projected incremental capex, and the asset lives in section A.2.

Incremental regulatory depreciation is negative over the 2023-28 regulatory period. This is because the long-lived nature of the assets leads to indexation being higher than real straight-line depreciation earlier in the lives of those assets. This relationship will reverse later in the assets' lives, leading to positive regulatory depreciation.

Table 17 – Incremental regulatory depreciation (\$M, Nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
AER 2023-28 Final Decision	98.38	111.74	144.04	172.62	162.86	689.63
Impact of CPA-1 Part 1	(9.23)	(5.30)	(5.27)	(5.22)	(5.17)	(30.20)
Impact of CPA-1 Part 2	0.03	(3.78)	(1.80)	(1.70)	(1.59)	(8.82)
Updated regulatory depreciation	89.19	102.66	136.97	165.69	156.10	650.61

A.4 Tax allowance

Table 18 sets out the incremental forecast net tax allowance for the 2023-28 regulatory period attributed to the Stage 1 (Part 2) activities. This has been calculated using the PTRM and projected incremental capex.

We have not made any other changes to the net tax calculation from that used in the AER's 2023-28 Revenue Determination.

Table 18 – Incremental net tax allowance (\$M, Nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
AER 2023-28 Final Decision	23.39	21.11	17.44	23.56	26.08	111.57
Impact of CPA-1 Part 1	0.78	(0.84)	(0.73)	(0.62)	(0.52)	(1.93)
Impact of CPA-1 Part 2	(0.00)	0.11	(0.71)	(0.62)	(0.54)	(1.77)
Updated net tax allowance	24.17	20.37	16.00	22.31	25.02	109.63

A.5 Debt and equity raising costs

Our forecast incremental revenue includes allowances for debt and equity raising costs, consistent with the AER's 2023-28 Revenue Determination. Both costs are calculated automatically within the PTRM.

Debt raising costs are included within the opex building block and are calculated as follows:

- projected opening RAB at the start of each regulatory year is multiplied by assumed gearing (of 60%) and the debt raising cost benchmark (of 0.083%).
- Equity raising costs are included within the capex forecast and recovered via the return on and of capital building blocks. These costs are calculated as follows:
 - retained cash flows are projected by subtracting opex, interest payments, revenue adjustments, tax payable, and dividends from projected smoothed (i.e., MAR) revenue

- equity raising is projected by subtracting retained cash flows from the equity funding component of projected capex (assuming 60% gearing), and split between distribution reinvestment and external equity raising sources, and
- equity raising costs are calculated by multiplying the two sources by assumed benchmark equity raising cost rates.

Consistent with the AER’s 2023-28 Revenue Determination, no equity raising costs were projected for the Stage 1 (Part 2) activities.

Table 19 – Incremental debt and equity raising costs (\$M, Real 2022-23)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Debt raising costs						
AER 2023-28 Final Decision	4.51	5.07	5.30	5.37	5.42	25.67
Impact of CPA-1 Part 1	0.16	0.21	0.21	0.21	0.22	1.01
Impact of CPA-1 Part 2	(0.00)	0.05	0.12	0.13	0.13	0.43
Updated debt raising costs	4.67	5.33	5.64	5.71	5.76	27.11
Equity raising costs						
AER 2023-28 Final Decision	-	-	-	-	-	-
Impact of CPA-1 Part 1	-	-	-	-	-	-
Impact of CPA-1 Part 2	-	-	-	-	-	-
Updated equity raising costs	-	-	-	-	-	-

A.6 Incremental revenue requirements for each year to end of period

Table 20 details the incremental 2023-28 ABBRR for Stage 1 (Part 2) activities based on the forecasts provided above and using the PTRM.

Table 20 – Incremental revenue requirements (\$M, Nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
AER 2023-28 Final Decision						
Return on capital	508.42	570.27	603.69	617.59	633.05	2,933.04
Regulatory depreciation	98.38	111.74	144.04	172.62	162.86	689.63
Opex	212.44	234.91	243.43	251.52	259.94	1,202.24
Revenue adjustments	6.40	(9.47)	(20.57)	(20.25)	(27.57)	(71.46)
Net tax allowance	23.39	21.11	17.44	23.56	26.08	111.57
Unsmoothed revenue requirement	849.03	928.55	988.04	1,045.04	1,054.36	4,865.02
Impact of CPA-1 Part 1						
Return on capital	18.43	23.33	23.94	24.50	25.18	115.38

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Regulatory depreciation	(9.23)	(5.30)	(5.27)	(5.22)	(5.17)	(30.20)
Opex allowance	0.16	0.21	0.21	0.21	0.22	1.01
Revenue adjustments	5.13	-	-	-	-	5.13
Net tax allowance	0.78	(0.84)	(0.73)	(0.62)	(0.52)	(1.93)
Unsmoothed revenue requirements	15.29	17.39	18.15	18.87	19.70	89.39
Impact of CPA-1 Part 2						
Return on capital	(0.06)	6.06	14.22	14.47	14.79	49.47
Regulatory depreciation	0.03	(3.78)	(1.80)	(1.70)	(1.59)	(8.82)
Opex allowance	(0.00)	0.05	0.12	0.13	0.13	0.43
Revenue adjustments	-	-	-	-	-	-
Net tax allowance	(0.00)	0.11	(0.71)	(0.62)	(0.54)	(1.77)
Unsmoothed revenue requirements	(0.03)	2.44	11.83	12.28	12.80	39.31
Updated						
Return on capital	526.79	599.65	641.85	656.57	673.02	3,097.89
Regulatory depreciation	89.19	102.66	136.97	165.69	156.10	650.61
Opex allowance	212.60	235.17	243.76	251.86	260.29	1,203.68
Revenue adjustments	11.53	(9.47)	(20.57)	(20.25)	(27.57)	(66.33)
Net tax allowance	24.17	20.37	16.00	22.31	25.02	107.87
Unsmoothed revenue requirements	864.29	948.38	1,018.02	1,076.18	1,086.85	4,993.72

A.7 Amended ABBRR and MAR

The AER's Final Decision on the ABBRR for the 2023-28 regulatory period is set out in Table 21, together with the calculation of the amended revenue required for our Stage 1 (Part 2) activities.

Table 21 – Amended ABBRR (\$M, Nominal)

ABBRR	2023-24	2024-25	2025-26	2026-27	2027-28	Total
AER 2023-28 Final Decision	849.0	928.6	988.0	1,045.0	1,054.4	4,865.0
Impact of CPA-1 Part 1	15.3	17.4	18.1	18.9	19.7	89.4
Impact of CPA-1 Part 2	(0.0)	2.4	11.8	12.3	12.8	39.3
Updated ABBRR	864.3	948.4	1,018.0	1,076.2	1,086.9	4,993.7

Table 22 sets out the updated MAR for the 2023-28 regulatory period.

Due to the timing of the CPA and the requirements of clause 6A.8.2(n) of the NER, we will only begin to recover incremental revenue approved by the AER in the 2024-25 regulatory year, in accordance with our approved Transmission Pricing Methodology.

Table 22 – Amended MAR for the 2023–28 regulatory period (\$M, Nominal)

MAR (Smoothed Revenue)	2023-24	2024-25	2025-26	2026-27	2027-28	Total
AER 2023-28 Final Decision	924.0	930.0	963.7	998.7	1,034.9	4,851.3
Impact of CPA-1 Part 1	-	21.7	22.5	23.3	24.2	91.7
Impact of CPA-1 Part 2	-	9.1	9.4	9.8	10.1	38.5
Updated MAR	924.0	960.9	995.7	1,031.8	1,069.2	4,981.5

A.8 Modelling approach

We have used a three-step modelling approach to calculate the indicative revenue and bill impacts shown above. This was needed because we first needed to incorporate the AER’s 2022 Decision on our Stage 1 (Part 1) Application to the AER’s 2023-28 Final Decision PTRM before then adding the expenditure from this Stage 1 (Part 2) Application.

The three-step approach is set out in Table 23 and identifies the relevant attachments (i.e., models) that have been updated. All updates made are highlight red within those attachments.

Table 23 – Three-step approach to modelling the revenue impact Stage 1 (Part 2)

Step	Description	Relevant attachments
A	<ul style="list-style-type: none"> Start with the latest version of the PTRM for the 2018–23 period, being those published by the AER with the 2022-23 return on debt update, and add the HumeLink capex allowed by the AER for the 2018–23 period as part of the Stage 1 (Part 1) Application. This is used to estimate the additional building block revenue over the 2018–23 period that was not included in 2018-23 MAR. 	A1.1B
B	<p>Update the AER’s 2023–28 Final Decision PTRM to include the impact of Stage 1 (Part 1) Application. This requires the following three models to be updated:</p> <ul style="list-style-type: none"> The 2023–28 PTRM The roll-forward model, which rolled forward the RAB over the 2018–23 period and also inputs to the PTRM for the 2023–28 period, and The depreciation tracking module, which forecasts depreciation on the opening RAB as at 1 July 2023 and inputs to the PTRM for the 2023–28 period. <p>The unrecovered building block revenue calculated in Step A is input into the PTRM for the 2023–28 period consistent with how this was illustrated in the AER’s decision on the Stage 1 (Part 1) Application.</p>	A.1.1A A.1.1C A.1.1D

Step	Description	Relevant attachments
C	<p>Further update the PTRM from Step B to incorporate the expenditure from the Stage 1 (Part 2) Application.</p> <p>This involved updates to two models:</p> <ul style="list-style-type: none"> • The PTRM from Step 2 • The RFM from Step 2. <p>The expenditure input into both models was sourced from the LLE Capex forecast model.</p>	<p>A.1.2A</p> <p>A.1.2B</p> <p>A.5</p>