

Final Decision

Powerlink Queensland Transmission Determination 2022 to 2027

(1 July 2022 to 30 June 2027)

April 2022

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Note

This document forms the AER's final decision on Powerlink Queensland's electricity transmission revenue proposal for the 2022–27 regulatory control period, starting 1 July 2022 to 30 June 2027.

As all key issues were settled at the draft decision stage, we have not prepared any attachments to this final decision document.

This document should be read with all other parts of the draft decision as our draft decision reasons form the respective parts of this final decision.

Executive summary

The Australian Energy Regulator (AER) exists to ensure energy consumers are better off, now and in the future. Consumers are at the heart of our work, and we focus on ensuring a secure, reliable and affordable energy future for Australia. We regulate electricity networks in all Australian jurisdictions, except Western Australia. The regulatory framework governing electricity networks is the National Electricity Law and Rules (NEL and NER). Our work is guided by the National Electricity Objective (NEO).

A regulated network business must periodically apply to us to determine the maximum allowed revenue it can recover from consumers for using its network. We use our insights and expertise to determine how much revenue it can recover. We have done this for Powerlink Queensland¹ (Powerlink) for the 2022–27 regulatory control period, starting 1 July 2022 to 30 June 2027 (2022–27 period).² This decision completes our revenue determination process for Powerlink.

Our final decision approves a total revenue of \$3,804.2 million (nominal, smoothed) for Powerlink for the 2022–27 period. This is \$152.0 million (4.2%) higher than our draft decision³ of \$3,652.2 million.

In our draft decision, we accepted all major aspects of Powerlink’s initial proposal⁴ as we considered it capable of acceptance. Our draft decision was based on indicative base interest rates and estimates of inflation. As required, we have made this final decision based on more recent market data. In this case, base interest rates and estimates of inflation have increased between our draft and final decisions, leading to a higher total revenue amount than our draft decision.

The positive variation in revenue means that, while holding constant all other component costs that make up the electricity bill, consumers will see a small increase in bills over the coming five years, rather than a small decrease as indicated by our preliminary, qualified estimates in our draft decision.

We received one, supportive submission on our draft decision and Powerlink’s revised proposal.⁵

Powerlink is a licensed, regulated operator of the monopoly high voltage electricity transmission network in Queensland, running from Cairns to the New South Wales border. It designs, constructs, operates and maintains a network servicing five million

¹ Powerlink Queensland is the registered business name of Queensland Electricity Transmission Corporation Ltd.

² Powerlink, *2023–27 Revised revenue proposal*, November 2021.

³ AER, *Powerlink Queensland transmission determination, draft decision, 2022–27*, September 2021.

⁴ Powerlink, *2023–27 Revenue proposal*, January 2021.

⁵ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022.

Queenslanders, which includes poles, wires and transformers that are used for transporting electricity from remote generators to population centres.

Powerlink recovers revenue from its consumers via transmission network charges. While our final decision will influence the revenue that Powerlink can recover, we do not set network charges for each consumer. The transmission network cost is one of a number of components of the overall retail electricity bill that end-consumers pay. Hence, the estimated consumer bill impacts that we outline in this decision are indicative only. Our role in revenue determinations is to review Powerlink's proposal to ensure that it covers only what is needed and is reasonable. It is the role of retailers to set electricity prices in Queensland, which include the costs associated with generation (29%), transmission (9%), distribution (40%), environmental schemes (12%) and retail (10%).⁶

In this final decision, we estimate that the transmission component of average annual electricity bills (\$ nominal) for Powerlink's consumers would:

- decrease by \$3 (0.2%) for residential consumers,⁷ \$4 (0.2%) for low-usage small business consumers,⁸ and \$12 (0.2%) for high-usage small business consumers,⁹ in the first year of the 2022–27 period¹⁰
- increase by \$3 (0.2%) for residential consumers, \$5 (0.2%) for low-usage small business consumers, and \$13 (0.2%) for high-usage small business consumers, on average in each of the next four years of the 2022–27 period.¹¹

By the end of the 2022–27 period, we estimate that electricity bills for residential consumers, low-usage small business consumers, and high-usage small business consumers, will have increased by \$10 (0.7%), \$15 (0.7%), and \$39 (0.7%), respectively.¹²

This final decision recognises the collaborative efforts of Powerlink and its stakeholders, particularly Powerlink's Customer Panel and its Revenue Proposal Reference Group (RPRG), who worked together constructively in developing Powerlink's proposal over almost three years for the long term interests of consumers.

Powerlink put forward a well-informed initial proposal, underpinned by significant consumer engagement and its overarching goal of lodging a proposal that is acceptable to Powerlink, its consumers and the AER. This allowed us to undertake a targeted review of the proposal, focussing on the key areas of concern raised by stakeholders and our own assessments. This led us to determine that the proposal

⁶ Powerlink, *2023–27 Revenue proposal*, January 2021, pp. 4-5. Retail includes costs associated with retail, metering, losses and supply chain rounding errors, excluding retail margin.

⁷ Based on typical electricity consumption of 4,600 kWh per annum for a residential consumer in Queensland.

⁸ Small businesses consuming 6,443 kWh per annum; representative of small business consumers in regional Queensland supplied by Ergon Energy Retailer.

⁹ Small businesses consuming 20,000 kWh per annum; representative of small business consumers in South East Queensland supplied by retailers in the Energex distribution network region.

¹⁰ As at 30 June 2023.

¹¹ As at 30 June of each of the last four years of the 2022–27 period.

¹² Compares 30 June 2027 (for the 2022–27 period) to 30 June 2022 (for the 2017–22 period).

was capable of acceptance at the draft decision stage of this revenue determination process.

The high-quality nature of Powerlink's initial proposal has meant that the final stage of this process, where we assessed Powerlink's revised proposal, has been non-contentious and a more efficient regulatory process for all stakeholders, including Powerlink, consumers and the AER. It is worth noting that Powerlink's revised proposal was lodged two weeks early, allowing stakeholders extra time to consider the proposal and Powerlink staff to resume their focus on network operations.

In making this final decision, we have had regard to a range of sources over the entirety of this revenue determination process, including Powerlink's initial and revised proposals, stakeholders' submissions, our draft decision and additional analysis undertaken by us. Three key themes stand out:

- ensuring consumers pay no more than necessary for safe, secure and reliable electricity services
- Powerlink's strong consumer engagement approach
- Powerlink's network asset reinvestment review has commenced.

In its revised proposal, Powerlink sought total revenue of \$3,680.2 million (nominal, smoothed) for the 2022–27 period. This is \$215.1 million (5.5%) less than what we approved for the 2017–22 period, and \$186.8 million (4.8%) less than actual/estimated revenue for the same period.¹³ It is also \$28.0 million (0.8%) higher than our draft decision, mainly reflecting the incorporation of updated inflation data which has been driven by underlying economic conditions, such as the economic recovery from COVID-19, a tightening labour market, and international supply disruptions to a range of commodities. The offsetting impacts on total approved unsmoothed revenue from the higher WACC (which increased revenue) and higher expected inflation (which decreased revenue) largely explains the \$125.0 million increase in revenue between our final decision and Powerlink's revised proposal.

As our draft decision accepted all major aspects of Powerlink's initial proposal, including forecasts for key expenditure items such as operating expenditure (opex) and capital expenditure (capex), there were few areas for resolution in this final decision.

One area for resolution was consideration of further information from Powerlink on its proposal that the demand management innovation allowance mechanism (DMIAM) is not applied to it in the 2022–27 period. Instead, Powerlink proposes to fund research and development of demand management projects that have the potential to reduce long-term network costs as part of its business-as-usual activities.¹⁴ Our draft decision considered it essential that Powerlink's proposal is publicly consulted on and discussed

¹³ In real terms (\$2021–22), revised proposed revenue is \$565.4 million (14.2%) lower than approved revenue, and \$614.1 million (15.2%) lower than actual/estimated revenue, for 2017–22.

¹⁴ See section 3.1.4.

with stakeholders, including how innovation on demand management initiatives would be assimilated into Powerlink's operations, before we make a final decision. Powerlink's revised DMIAM proposal was supported by its Customer Panel which said it undertook its own independent analysis,¹⁵ and our Consumer Challenge Panel (CCP23). We have considered the purpose of the DMIAM, CCP23's submission,¹⁶ as well as the additional information provided by Powerlink on the views of its Customer Panel who were empowered to consider the issue further and recommend the position that Powerlink should include in its revised proposal. Our final decision is not to apply the DMIAM to Powerlink in the 2022–27 period. We are satisfied with Powerlink's additional consultation on the matter, the governance arrangements it will establish to identify and deploy projects with demand management potential as part of its business-as-usual operations, and its approach to sharing learnings with Australian and international stakeholders.

In response to CCP23's submission, we have also clarified in this final decision certain aspects of our draft decision to approve Powerlink's proposed capex forecast, given that we had identified the potential for further improvement in how Powerlink undertakes capital replacement expenditure (repex).¹⁷ Further information is provided in the final section of this executive summary.

This final decision also clarifies the operation of the market impact component of the service target performance incentive scheme (STPIS), and how exclusion criteria should be interpreted and applied. This is to ensure incentives under the scheme continue to target intervals where Powerlink can influence the impact of occurrence and/or duration of outages and the potential price effect on consumers. Powerlink accepted our draft decision, but considered that application of the market impact component needed review.

Overall, we are confident that our final decision on Powerlink's 2022–27 proposal is in the long term interests of consumers, and consumers will be better off, now and in the future.

Ensuring consumers pay no more than necessary for safe, secure and reliable electricity services

Ensuring consumers pay no more than necessary over multiple regulatory control periods for safe, secure and reliable electricity services is a cornerstone of the regulatory determination process. This involves us assessing whether Powerlink's 2022–27 revenue proposal represents a reasonable and realistic forecast of how much money it needs for the safe and reliable operation of its electricity transmission network. It also requires us to incentivise and promote better consumer outcomes over

¹⁵ Powerlink, *2023–27 Revised revenue proposal*, Appendix 3.01 – Customer Panel statement on capable of acceptance, November 2021, p. 1.

¹⁶ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022.

¹⁷ Ibid.

multiple regulatory control periods. In this review, we engaged closely with Powerlink to better inform our considerations of the more critical and contentious aspects of its proposal, such as its capex asset management practices.

At the start of this review, Powerlink told us that: the cost of electricity remained a key concern for its consumers; its directly-connected consumers wanted price signals that better reflect the cost of the network at different times and locations; and its consumers wanted a greater say in how they access, use and pay for electricity as the energy system transitions, including tailored services.¹⁸

Powerlink responded to these concerns by putting forward a proposal that adjusted pricing to provide clearer locational charges for consumers. The proposal also included estimated bill reductions for consumers in the first year of the 2022–27 period, followed by small increases over the remainder of the period. Powerlink has maintained this pricing profile in its revised proposal, although downward revisions to forecast electricity demand have reduced the estimated bill savings to consumers.

Key aggregates and proposed expenditures for the 2022–27 period in the revised proposal continue to move in a direction that will benefit consumers. Compared to the 2017–22 period (making no allowance for the impact of inflation), Powerlink’s revised proposal incorporates a lower return on capital (down \$707.6 million or 32.5%), a lower opening regulatory asset base (down \$655.4 million or 8.4%), lower tax (down \$73.6 million or 66.7%), lower capex (down \$29.1 million or 3.2%), and lower opex (down \$5.7 million or 0.5%).¹⁹ Consumers also benefit from Powerlink’s overall network performance which is significantly better than most transmission businesses in terms of outage durations and generally in line with its peers in terms of outage rates, although the network is younger.

Stakeholders considered that Powerlink’s revised proposal is capable of acceptance.

CCP23 noted:²⁰

“We have no doubt that Powerlink’s initial proposal, as lodged, has been generally accepted as capable of acceptance, accepting that some modest adjustments will be necessary between the initial and revised proposals...The revised proposal is strongly in line with the original proposal and the AER’s draft decision, and so remains capable of acceptance, pending the AER’s final assessments.”

Powerlink’s Customer Panel noted:²¹

“In May 2021...the Panel stated that ‘Powerlink’s regulatory proposal does not represent an ambit claim’...The Customer Panel felt that, before the AER had carried out its technical analysis, we were not in a position to determine whether the proposal was ‘capable of acceptance’...[Following the AER’s draft decision] the Panel now accepts that Powerlink’s proposal is prudent and efficient...We

¹⁸ Powerlink, *2023–27 Revenue proposal*, January 2021, p. iii.

¹⁹ Ibid, p. viii.

²⁰ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, p. 7.

²¹ Powerlink, *2023–27 Revised revenue proposal, Appendix 3.01 – Customer Panel statement on capable of acceptance*, November 2021, pp. 1-2.

consider that, based on the information that has been provided to the Customer Panel, the revised revenue proposal is capable of acceptance.”

Our final decision accepts Powerlink’s revised total opex forecast of \$1,071.4 million (\$2021–22) for the 2022–27 period, which is \$15.7 million (1.4%) lower than our alternative opex estimate of \$1,087.1 million. Powerlink’s revised opex forecast is \$25.0 million (2.4%) higher than its initial proposal of \$1,046.4 million, which we accepted in the draft decision, due to the incorporation of more recent inflation data and a slightly higher annual productivity growth forecast to maintain its no real growth in opex target. Our higher alternative estimate results from the incorporation of a more recent and higher inflation forecast for the year to June 2022, a more recent and higher wage price index forecast, offset by a slightly lower annual productivity growth forecast based on the industry average. The annual productivity growth forecast we have used in our alternative estimate is based on findings from our *2021 Annual Benchmarking Report*.²² We consider this figure is based on a robust forecasting approach reflecting the most recent industry information. Powerlink’s annual productivity growth forecast is a result of its ‘no real growth’ opex target. In this case, the fact we have accepted Powerlink’s total opex forecast implies that its forecast productivity growth is reasonable.

In terms of capex, our final decision accepts Powerlink’s revised total net capex forecast of \$882.4 million (\$2021–22)²³ for the 2022–27 period, which is founded on a significantly improved forecasting methodology since our 2017–22 decision.²⁴ Powerlink’s revised capex forecast is \$18.4 million (2.1%) higher than its initial proposal of \$863.9 million, which we accepted in our draft decision, due to the incorporation of actual inflation for 2020–21, and updated inflation forecasts for the 2022–27 period. Our final decision is \$29.1 million (3.2%) lower than actual/estimated total net capex of \$911.5 million for the 2017–22 period, which itself is \$4.8 million (0.5%) lower than we approved for the same period.²⁵

We have assessed Powerlink’s proposal at the component level to satisfy ourselves of the robustness of proposed expenditures, as well as more holistically to confirm its alignment with Powerlink’s business priorities over the near and longer term. Overall, we consider that Powerlink’s proposal achieves positive long term outcomes for consumers.

Powerlink’s strong consumer engagement approach

Consumer engagement helps businesses determine how best to provide services that align with consumers’ long term interests. Consumer engagement in this context is about Powerlink working openly and collaboratively with consumers and providing

²² AER, *2021 Annual Benchmarking Report, Electricity transmission network service providers*, November 2021 and Economic Insights, *Economic Benchmarking Results for the Australian Energy Regulator’s 2021 TNSP Annual Benchmarking Report*, 12 November 2021, p. 60.

²³ This figure reflects forecast net capex before adjustments have been made for the estimated movements in capitalised provisions.

²⁴ Powerlink, *2023–27 Revenue proposal*, January 2021, p. viii.

²⁵ Ibid, p. iii.

opportunities for their views and preferences to be heard and to influence Powerlink's decisions.

Our framework for considering consumer engagement in network revenue determinations is set out in the Better Resets Handbook.²⁶ Used in conjunction with our technical analysis, the framework for our regulatory decision-making allows us to place weight on the outcomes of the engagement activities undertaken by a business to assist in providing an overall assessment of a proposal.

Powerlink's engagement plan for its 2022–27 proposal was developed through a co-design process – involving consumers, stakeholders, and Powerlink representatives up to Board level – to gain insights into the engagement approach, scope, techniques, sequencing, evaluation and communications.²⁷ Powerlink's engagement activities can be traced back to a co-design workshop held in May 2019, right through to the development of its revised proposal.²⁸ Powerlink has consistently demonstrated its commitment to understanding consumers' key interest areas, including basing stakeholder meeting agendas on those areas, throughout this revenue determination process.

CCP23 noted:²⁹

“Powerlink has developed through co-design, and has delivered, a responsive consumer engagement program. Powerlink has engaged closely with a Revenue Proposal Reference Group (RPRG) that was drawn from Powerlink's Customer Panel, to engage directly with its regulatory proposal. An iterative approach has been applied, with Powerlink presenting latest thinking about key expenditure areas to the RPRG and Customer Panel, and workshopping areas for improvement. The approach was recognised with Powerlink being awarded the 2021 ENA/ECA Consumer Engagement Reward. The engagement process throughout was genuinely two-way with significant dedication and energy provided by members of the Customer Panel and RPRG.”

Powerlink's Customer Panel noted:³⁰

“During the period prior to the AER draft decision, and also post the draft decision, Powerlink has continued to engage meaningfully and openly with the Customer Panel and the Revenue Proposal Reference Group while also developing its revised revenue proposal. Powerlink briefed the Customer Panel on its intended position on each of the aspects of the AER draft decision at a Customer Panel meeting on 22 October [2021], and provided an opportunity for Panel members to interrogate the proposed approach.”

Powerlink's consumer engagement approach performs strongly against the range of considerations set out in the Better Resets Handbook. In particular, we note that:

²⁶ AER, *Better Resets Handbook– Towards consumer centric network proposals*, December 2021.

²⁷ Powerlink, *2023–27 Revenue proposal – Appendix 3.01, Engagement plan*, January 2021, p. 3.

²⁸ Powerlink, *2023–27 Revenue proposal*, January 2021, pp. 27–28.

²⁹ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, p. 1.

³⁰ Powerlink, *2023–27 Revised revenue proposal, Appendix 3.01 – Customer Panel statement on capable of acceptance*, November 2021, p. 1.

- the nature of Powerlink’s engagement was driven by an early co-design process that was implemented in full over the course of this revenue determination process
- the breadth and depth of Powerlink’s engagement was developed with regard to the International Association for Public Participation (IAP2) Spectrum to help it select the appropriate level of participation in its engagement program
- Powerlink has clearly evidenced the link between its consumer research and engagement, the way it has represented the outcomes desired by its consumers, and how its proposal gives effect to those outcomes.

Based on our assessment of Powerlink’s 2022–27 initial and revised proposals, stakeholder submissions received, attendance at regular Powerlink meetings with consumer representatives, and regular interaction with Powerlink staff over the course of this revenue determination process, we are confident that Powerlink is committed to putting consumers at the centre of its business and in ensuring stakeholders’ views are reflected in its proposals to us.

Powerlink network asset reinvestment review has commenced

Powerlink has progressively improved its capex governance and forecasting practices, and these reflect well in our top-down and benchmarking analysis. In response to specific concerns set out in our draft decision, and to capitalise on the improvements Powerlink has made to its asset management practices since our 2017–22 decision, on 11 March 2022 Powerlink commenced a review of its approach to network asset reinvestment to ensure it continues to support the provision of safe, secure, reliable and cost effective electricity transmission services.³¹

Our draft decision set out our expectations for Powerlink’s network asset reinvestment review. In it, we said that Powerlink’s capex forecasting methodology is a significant improvement on the methodology used for the 2017–22 period and considered Powerlink’s models to be well developed.³² We noted that stakeholders had been positive about Powerlink’s engagement on its proposed capex program.³³ We also noted that we undertook an extensive review of Powerlink’s 2022–27 capex forecast, which included numerous workshops with Powerlink’s subject matter experts and detailed assessments of responses to our information requests. We concluded that while overall the capex proposal appears reasonable, there may be potential for further improvement in repex asset management for transmission lines projects. We expect Powerlink will fully explore this opportunity with its stakeholders. If improvements can be identified, Powerlink has committed to implementing them for the benefit of its consumers.

CCP23 endorsed the direction and intent of Powerlink’s revised proposal, but expressed some unease about our draft decision’s acceptance of Powerlink’s total

³¹ See [Powerlink letter to AER – Review of Powerlink’s approach to network asset reinvestments](#), 8 September 2021.

³² AER, *Powerlink transmission determination, draft decision, 2022–27*, Attachment 5, September 2021, p. 5.

³³ Ibid, p. 6.

capex proposal.³⁴ CCP23 sought clarification on our draft decision and Powerlink's network asset reinvestment review:

- the draft decision to accept Powerlink's capex forecast leaves little room for consumers and their representatives to engage meaningfully with the issues raised by the AER prior to the final decision
- the AER risks setting a precedent for its decisions on other networks' proposals by accepting the capex proposal and Powerlink's proposed review of its asset management practices
- the AER's reasoning for accepting the total capex forecast despite its concerns with the repex costs
- consumers expect the AER to determine the most efficient cost to achieve the services that they want
- in relation to Powerlink's network asset reinvestment review, criteria about when and why the AER would accept such an 'ex-post agreement', the processes to monitor and enforce such an agreement, reporting on ex-post process outcomes, and the remedies consumers would have if the agreement is not followed to their satisfaction.

We acknowledge CCP23's concerns and recognise that it is our role to determine the efficiency and prudence of expenditure under the Rules. Based on our extensive review of Powerlink's capex proposal, we were satisfied that it met the requirements of the Rules. Further, it was supported by Powerlink's Customer Panel.

Nevertheless, we identified there may be an opportunity for Powerlink to further improve its efficiency. Powerlink's network asset reinvestment review is in addition to our decision to accept its capex proposal. The purpose of the review is for Powerlink to explore this opportunity with its consumers. We consider Powerlink's review, in which we are participating, provides a further opportunity to inform the efficiency of network asset reinvestment, noting the potential for trade-offs between capex and opex and consumer prices. We consider the review initiative to be specific to Powerlink's proposal where it was considered that Powerlink would benefit from further examination of its transmission lines asset management practices. We are not proposing a formal process to be applied more broadly to our revenue determinations, but recognise Powerlink's initiative to continue to work with its stakeholders in the provision of services customers want.

We expect Powerlink to consider our decision findings as part of its review, and the review will likely benefit consumers in identifying better ways of delivering safe and reliable services. We also expect Powerlink to publicly report on the findings of the review and the implications for its capex forecast. We have communicated our expectations for the review to Powerlink and they have agreed.

³⁴ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, pp. 1-2.

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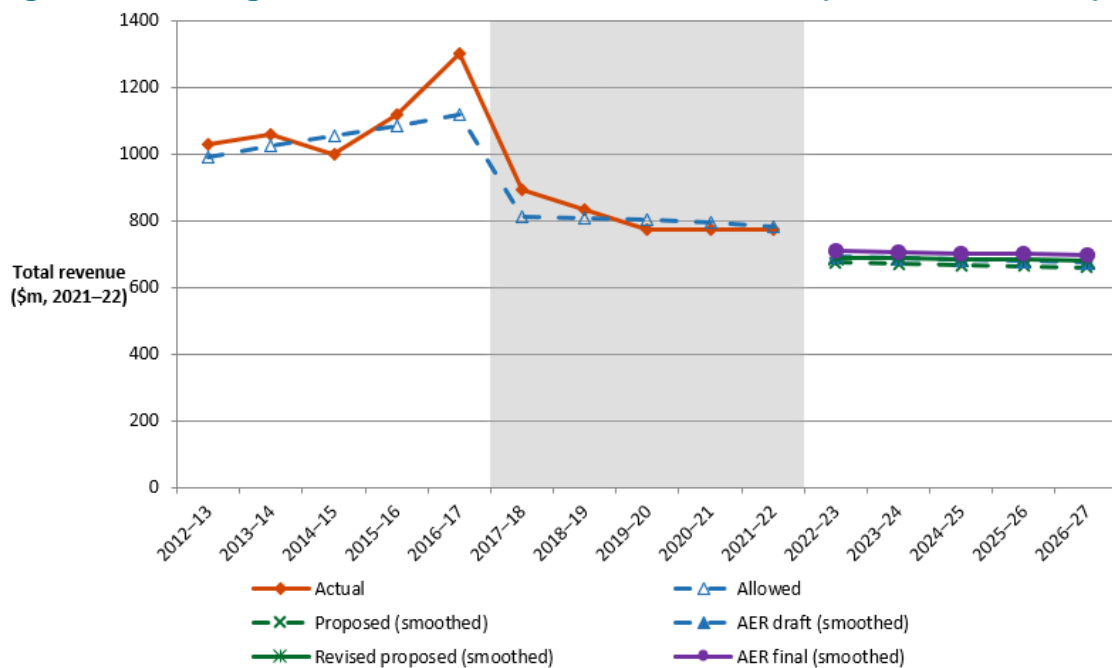
1 Our final decision

This section outlines what is driving Powerlink’s revenue, the key differences between our final decision revenue of \$3,804.2 million (nominal, smoothed) compared to the revised proposal of \$3,680.2 million and draft decision of \$3,652.2 million, and the estimated impact on consumer bills.

1.1 What is driving revenue

Over time, inflation impacts the spending power of money. To compare revenue from one period to the next on a like-for-like basis, we use ‘real’ values based on a common year (2021–22) that have been adjusted for the impact of inflation.³⁵ In real terms, the total revenue we have approved for Powerlink in this final decision is \$478.7 million (12.0%) lower than approved for the 2017–22 period.³⁶ Figure 1 shows real revenues decreasing from 2021–22 levels by 8.4% in 2022–23, followed by decreases of 0.3% per annum over the remaining years.

Figure 1 Change in transmission revenue over time (\$2021–22, million)



Source: AER analysis; Powerlink regulatory accounts 2012–13 to 2019–20 and RIN workbook 1 January 2021; AER Final decision PTRM for the 2012–17 and 2017–22 periods; Powerlink Regulatory Proposal and revised proposal PTRM for the 2022–27 period; AER draft and final decision PTRM for the 2022–27 period.

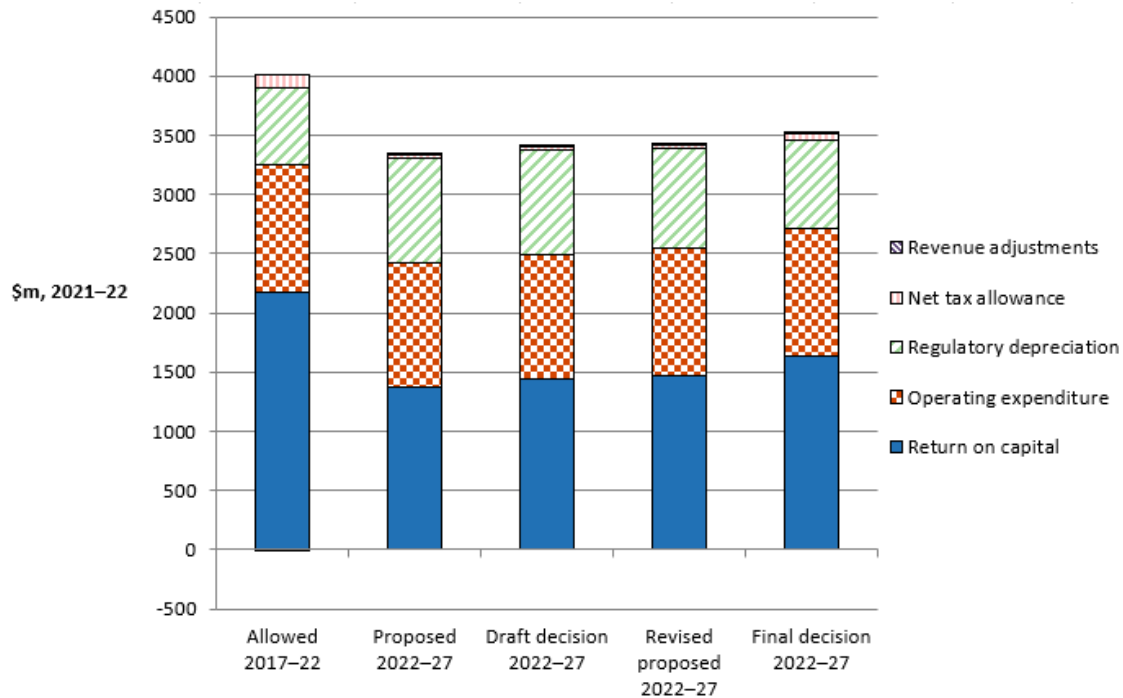
Note: Actual revenue shown in this figure includes revenue from Inter- and Intra-Regional Settlements Residue collections and may not fully reflect revenue recovered from end-user transmission charges.

³⁵ That is, 30 June 2022 dollar terms based on Powerlink’s estimated actual revenue for 2021–22.

³⁶ The comparison of total revenue between the 2022–27 and 2017–22 periods is based on smoothed revenue. In nominal dollar terms, 2022–27 final decision total revenue is \$91.1 million (2.3%) lower than approved for the 2017–22 period.

Figure 2 compares Powerlink’s approved 2017–22 revenue against proposed and approved revenues for the 2022–27 period. It provides insights into the revenue impact of a rising WACC (a higher return on capital) and higher expected inflation (lower regulatory depreciation) over the course of the 2022–27 revenue determination process given changing economic conditions.

Figure 2 Total revenue by building block components over time (\$million, 2021–22)



Source: AER analysis.

Figure 2 also highlights the key drivers of the decrease in Powerlink’s allowed revenue from the 2017–22 period compared to what we expect in the 2022–27 period. Our 2022–27 final decision provides for reductions in the building blocks for:

- return on capital – which is \$541.1 million (24.8%) lower than the 2017–22 period, driven largely by a lower rate of return applied in the 2022–27 period
- net tax allowance – which is \$64.9 million (58.8%) lower than the 2017–22 period, mainly due to our new regulatory tax approach following the 2018 tax review, as well as a lower return on equity and higher imputation credits value (gamma)
- opex – which is \$5.7 million (0.5%) lower than the 2017–22 period

This is partially offset by an increase in the building blocks for:

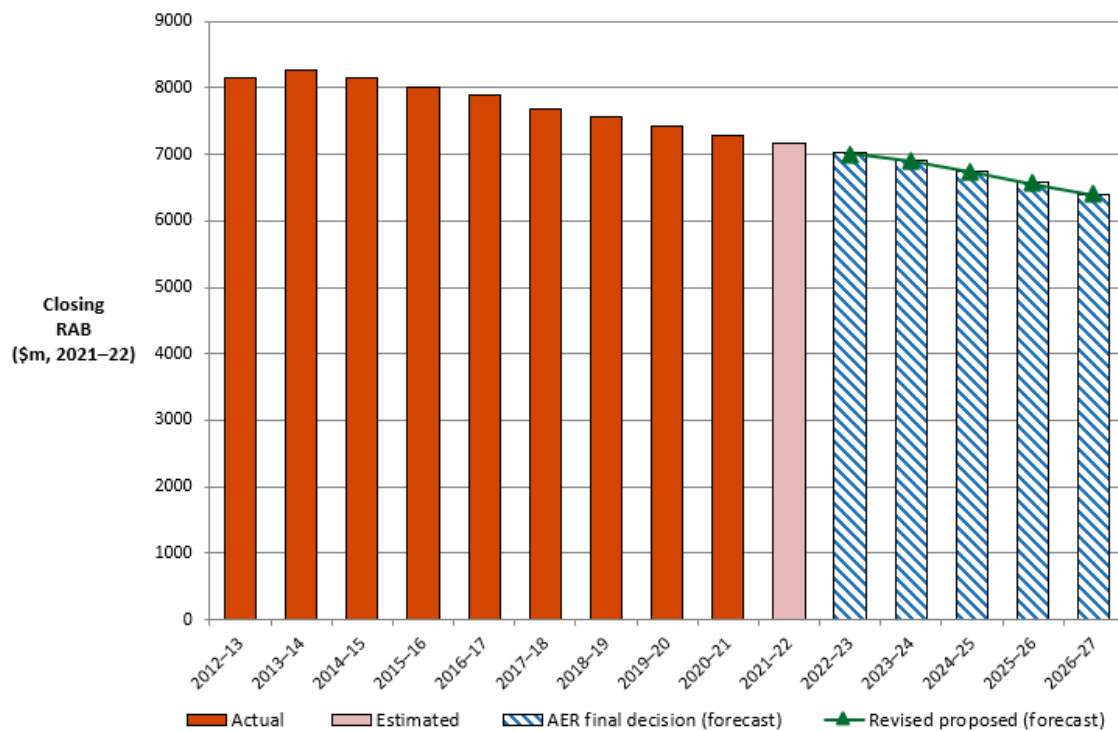
- regulatory depreciation – which is \$115.1 million (18.0%) higher than the 2017–22 period, driven by the move to apply year-by-year tracking of depreciation and a lower indexation of the regulatory asset base (RAB)³⁷

³⁷ RAB indexation is lower due a lower average RAB in 2022–27 versus 2017–22. However, the lower RAB indexation is partially offset by a higher expected inflation in the 2022–27 final decision compared to 2017–22.

- revenue adjustments – which are in total \$14.4 million higher than the 2017–22 period, due to positive amounts for the efficiency benefit sharing scheme (EBSS) which more than offsets negative amounts for the capital expenditure sharing scheme (CESS).

Figure 3 shows the value of Powerlink’s RAB overtime. RAB growth is a key issue for many stakeholders because the RAB value substantially impacts Powerlink’s revenue requirement, and the price consumers ultimately pay, potentially over several regulatory periods. Other things being equal, a higher RAB would increase both the return on capital and depreciation (return of capital) components of the revenue determination. As shown below, our final decision results in a declining RAB over the 2022–27 period. It is the lowest closing RAB value compared to the previous two regulatory periods.

Figure 3 Value of Powerlink’s RAB over time – Actual, revised proposal forecast, and final decision RAB value (\$2021–22, million)



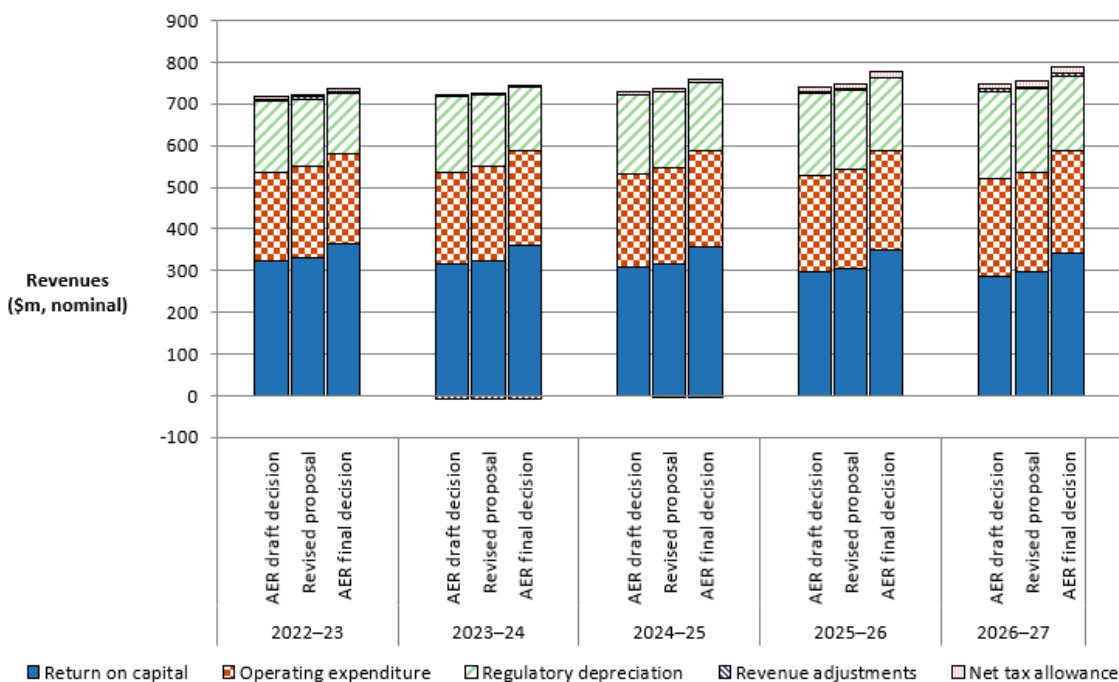
Source: AER analysis.

1.2 Key differences between our final decision and the revised proposal

For this final decision, we determine a total annual building block revenue requirement of \$3,802.9 million (\$ nominal) for Powerlink for the 2022–27 period. This is \$125.0 million (3.4%) higher than Powerlink’s revised proposal of \$3,677.9 million.

Figure 4 compares the building block revenue requirements across the draft decision, revised proposal, and final decision, for each regulatory year of the 2022–27 period.

Figure 4 AER's draft and final decisions, and Powerlink's revised proposed, annual building block revenue requirement (\$million, nominal)



Source: AER analysis; Powerlink, *Revised Revenue Proposal 2022–27, Post-tax revenue model*, 19 November 2021.

Note: Final decision revenue adjustments include EBSS and CESS. Opex includes debt raising costs.

Figure 4 shows the revenue increase between our final decision and the revised proposal is mainly driven by a higher return on capital building block due to updated market data.

- Our final decision increases the return on capital by \$193.2 million (12.3%). This is driven by the higher rate of return we have used, reflecting updated market data as required by the binding 2018 Rate of Return Instrument (Instrument).³⁸ The

³⁸ AER, *Rate of Return Instrument*, December 2018.

updated data resulted in a higher rate of return on both equity and debt (section 2.3).

- This is partially offset by our final decision to reduce regulatory depreciation by \$88.0 million (9.7%). This is due to a higher expected inflation rate, leading to greater indexation of the RAB removed from straight-line depreciation (section 2.4).

Outcomes of our final decision on other building blocks remain largely in line with Powerlink's revised proposal, which include:

- an increase in the opex forecast of \$9.5 million (0.8%), driven by the higher expected inflation rate (section 2.6)³⁹
- an increase in the cost of corporate income tax of \$9.9 million (24.7%). This is mainly driven by the higher return on equity, which increases taxable income and, therefore, results in higher income tax payable (section 2.8)
- an increase to revenue adjustments from schemes of \$0.5 million (7.6%).

1.3 Expected impact of our final decision on electricity bills

Figure 5 shows the electricity supply chain components that contribute to the annual electricity bill for Queensland consumers, including generation, transmission, distribution, metering and retail costs. Each of these costs contributes to the retail prices charged to consumers by their chosen electricity retailer.

Powerlink's transmission charges, on average, represent approximately 9% of the annual electricity bill for Queensland residential and small business consumers.⁴⁰

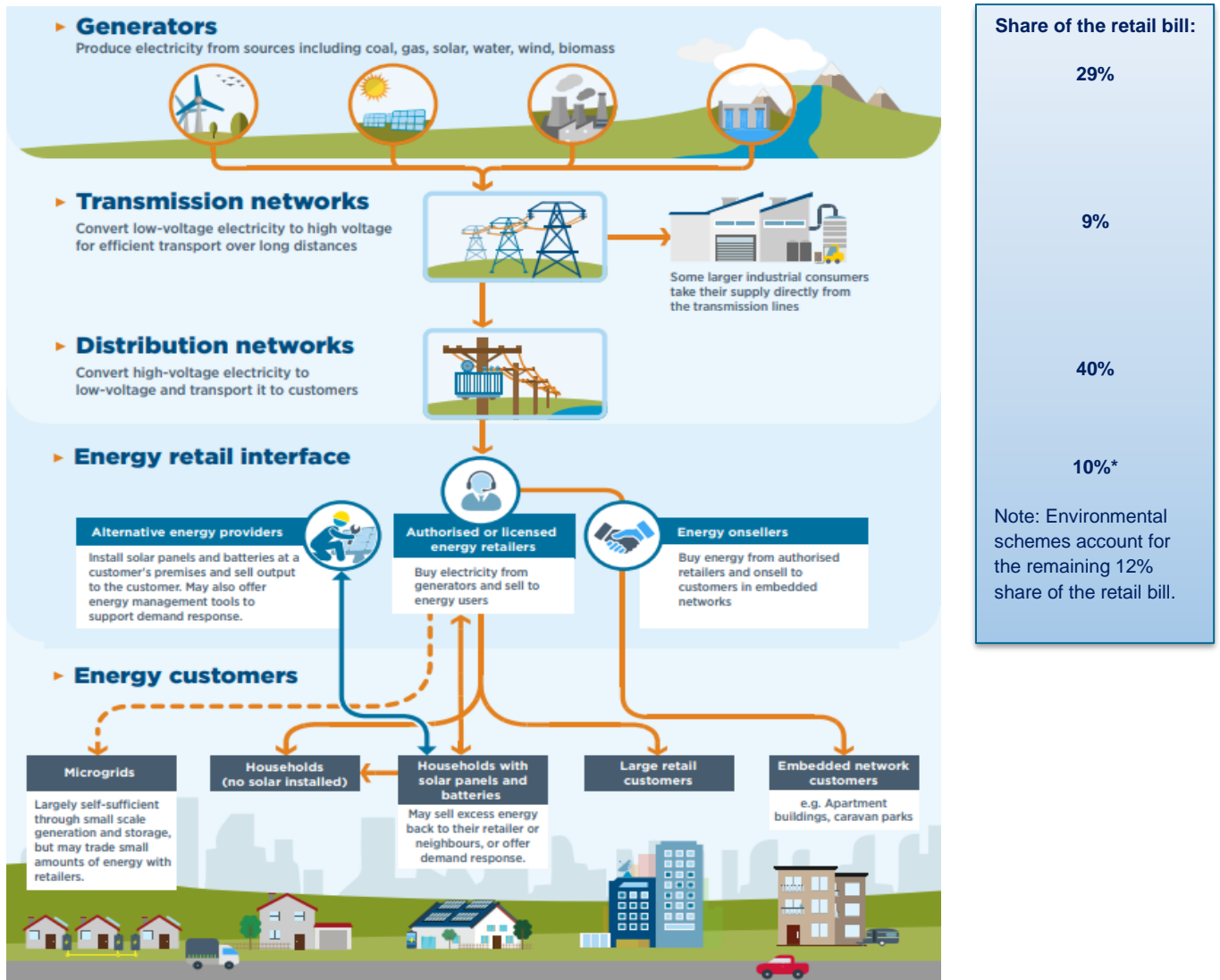
We estimate the impact on bills by varying Powerlink's transmission charges in accordance with our final decision, while holding constant all other component costs that make up the electricity bill. This approach isolates the effect of our decision on electricity prices, but does not imply that other components will remain unchanged across the regulatory period.⁴¹

³⁹ We have accepted Powerlink's revised proposed opex. Any difference between our final decision and Powerlink's revised proposed opex building block in nominal terms is due to our final decision update for expected inflation.

⁴⁰ Powerlink, *TRP 2023-27 - RIN Workbook 7 – Indicative bill impacts*, January 2021. Transmission component of the annual electricity bill calculated from Figure 2.4 in AEMC, *Final report residential electricity price trends 2021*, November 2021, p. 8.

⁴¹ It also assumes that actual energy consumption will equal the forecast adopted in our final decision. Since Powerlink operates under a revenue cap, changes in energy consumption will also affect annual electricity bills across the 2022–27 period.

Figure 5 The electricity supply chain



Source: AER, *State of the Energy Market*, July 2020, p. 25; AEMC, *Final report residential electricity price trends 2020*, December 2020, p. 7.

Notes: * Includes costs associated with retail (excluding retail margin), metering, losses and errors in the estimated value of all other supply chain cost components. Powerlink, *2023–27 Revenue proposal*, January 2021, pp. 4-5.

1.3.1 Transmission charges

There are several steps required to translate our revenue decision into indicative transmission charges, and then to estimated consumer bill impacts.

Since we regulate Powerlink's prescribed transmission services under a revenue cap, changes in the consumption of electricity will affect the transmission charges ultimately paid by consumers. We estimate the indicative effect of our final decision on forecast average transmission charges in Queensland by:

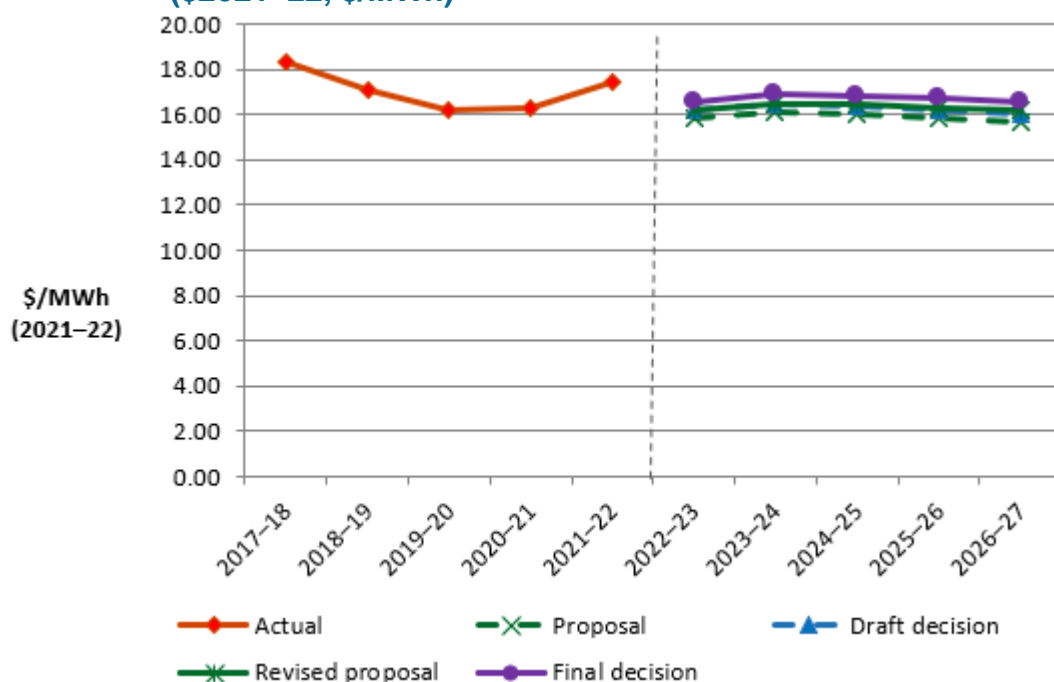
- taking Powerlink's annual expected maximum allowable revenue (MAR) determined in this final decision
- then dividing it by forecast annual energy delivered in Queensland, as published by the Australian Energy Market Operator (AEMO), after adjusting for certain energy

components, such as energy losses and energy delivered by embedded generators directly connected to distribution networks.⁴²

Based on our approach, we estimate that this final decision will result in an increase in average annual transmission charges from 2021–22 to 2026–27.⁴³

Figure 6 shows indicative average transmission charges over the 2017–18 to 2026–27 time interval (\$2021–22). Average transmission charges are expected to reduce from around \$17.5 per MWh in 2021–22⁴⁴ to \$16.6 per MWh in 2026–27.

Figure 6 Indicative transmission price path for Powerlink (\$2021–22, \$/MWh)



Source: AER analysis.

Notes: The price path for the transmission network is based on actual (2017–18 to 2020–21) and forecast (2021–22 to 2026–27) energy throughput amounts for Powerlink's transmission network across Queensland. Revenue used to calculate the 'Actual' indicative price path includes revenue from Inter- and Intra-Regional Settlements Residue collections and may not fully reflect price path experienced by end-users.

⁴² AEMO, Publication: ESOO 2021 (Electricity Statement of Opportunities - electricity and consumption forecast), Version: 28/09/2021, Category: operational (sent out). See: [AEMO data](#); Component adjustments prepared by AEMO with net forecast total energy delivered as reported in table 3.4 in Powerlink, *2021 Transmission Annual Planning Report*, October 2021, p. 57. Powerlink confirms this net forecast energy delivered is consistent with the 2021 AEMO ESOO. See Powerlink, *Revised revenue proposal 2022–27*, November 2021, p. 26.

⁴³ On average, the final decision transmission revenues will increase by 0.6% (\$ nominal) per annum from 2021–22 to 2026–27. The forecast energy delivered in Queensland will decrease by an average of 1.0% per annum across that period. As a result, the indicative transmission charge will increase by 1.6% (\$ nominal) per annum from 2021–22 to 2026–27.

⁴⁴ Transmission charges for 2017–18 to 2020–21 are based on actual revenue, while 2021–22 transmission charges are based on estimated revenue.

1.3.2 Potential bill impact

As set out in Table 1, compared to the current total bill level,⁴⁵ we estimate that under our final decision, the transmission component of average annual electricity bills (\$ nominal) for Powerlink's consumers would:

- decrease by \$3 (0.2%) for residential consumers,⁴⁶ \$4 (0.2%) for low-usage small business consumers,⁴⁷ and \$12 (0.2%) for high-usage small business consumers,⁴⁸ in the first year of the 2022–27 period^{49, 50}
- increase by \$3 (0.2%) for residential consumers, \$5 (0.2%) for low-usage small business consumers, and \$13 (0.2%) for high-usage small business consumers, on average in each of the next four years of the 2022–27 period.⁵¹

By the end of the 2022–27 period, we estimate that electricity bills for residential consumers, low-usage small business consumers, and high-usage small business consumers, will have increased by \$10 (0.7%), \$15 (0.7%), and \$39 (0.7%), respectively.⁵²

⁴⁵ As at 30 June 2022.

⁴⁶ Based on typical electricity consumption of 4,600 kWh per annum for a residential consumer in Queensland; representative of residential customers in South East Queensland supplied by retailers in the Energex distribution network region. See AER, *Final determination - Default market offer prices 2021–22*, 27 April 2021, p. 21.

⁴⁷ Small businesses consuming 6,443 kWh per annum; representative of small business consumers in regional Queensland supplied by Ergon Energy Retailer. See QCA, *Technical appendices final determination - Regulated electricity prices for 2021–22*, June 2021, p. 49.

⁴⁸ Small businesses consuming 20,000 kWh per annum; representative of small business consumers in South East Queensland supplied by retailers in the Energex distribution network region. See AER, *Final determination - Default market offer prices 2021–22*, 27 April 2021, p. 21.

⁴⁹ As at 30 June 2023.

⁵⁰ As estimated bill impact is based on the typical annual electricity usage of each customer category, customers with different usage will experience different changes in their bills. We also note that there are other factors, such as metering, wholesale and retail costs, which affect electricity bills.

⁵¹ As at 30 June of each of the last four years of the 2022–27 period.

⁵² Compares 30 June 2027 (for the 2022–27 period) to 30 June 2022 (for the 2017–22 period).

Table 1 Estimated impact of the revised proposal and final decision on average annual electricity bills for the 2022–27 period (\$ nominal)

	2021–22	2022–23	2023–24	2024–25	2025–26	2026–27
AER final decision						
Residential annual electricity bill	1,455 ^a	1,452	1,457	1,460	1,463	1,465
Annual change ^c		–3 (–0.2%)	6 (0.4%)	3 (0.2%)	2 (0.1%)	3 (0.2%)
Small business with 6,443 kWh consumption annual bill	2,085 ^b	2,081	2,089	2,093	2,096	2,100
Annual change ^c		–4 (–0.2%)	8 (0.4%)	4 (0.2%)	3 (0.1%)	4 (0.2%)
Small business with 20,000 kWh consumption annual bill	5,517 ^a	5,505	5,526	5,538	5,546	5,556
Annual change ^c		–12 (–0.2%)	21 (0.4%)	11 (0.2%)	8 (0.1%)	10 (0.2%)
Powerlink revised proposal						
Residential annual electricity bill	1,455 ^a	1,449	1,454	1,456	1,458	1,460
Annual change ^c		–6 (–0.4%)	5 (0.4%)	3 (0.2%)	2 (0.1%)	2 (0.1%)
Small business with 6,443 kWh consumption annual bill	2,085 ^b	2,076	2,083	2,087	2,089	2,092
Annual change ^c		–9 (–0.4%)	7 (0.4%)	4 (0.2%)	3 (0.1%)	3 (0.1%)
Small business with 20,000 kWh consumption annual bill	5,517 ^a	5,493	5,512	5,522	5,528	5,536
Annual change ^c		–24 (–0.4%)	19 (0.4%)	10 (0.2%)	7 (0.1%)	8 (0.1%)

Source: AER analysis; Powerlink, *Revised Revenue Proposal 2022–27, Post-tax revenue model*, 19 November 2021.

(a) AER, *Final determination - Default market offer prices 2021–22*, 27 April 2021, p. 21.

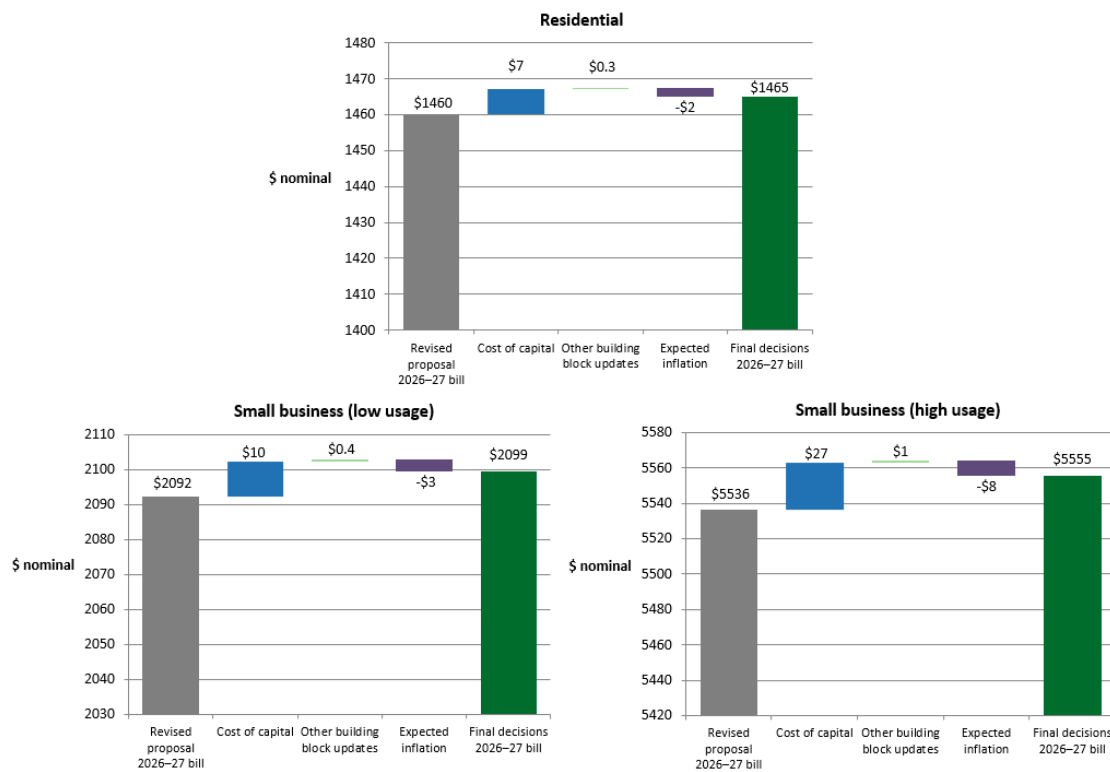
(b) QCA, *Final determination - Regulated retail electricity prices for 2021–22*, June 2021, p. 6.

(c) Annual change amounts and percentages are indicative. They are derived by varying the transmission component of 2021–22 bill amounts in proportion to yearly expected revenue divided by Powerlink's forecast energy. Actual bill impacts will vary depending on electricity consumption and tariff class.

Figure 7 shows what variables are driving the higher expected 2026–27 retail electricity bills in our final decision compared to Powerlink's revised proposal. This increase in estimated bills for all consumer categories is largely influenced by a higher total revenue (nominal, smoothed), reflecting updates to market data as required by the binding 2018 Instrument⁵³ for the 2022–27 period. This bill impact is partially offset by a higher expected inflation rate and its effect on various building block components.

⁵³ AER, *Rate of Return Instrument*, December 2018.

Figure 7 Drivers of residential and small business consumers' bills between the revised proposal and final decision in 2026–27 (\$ nominal)



Source: AER analysis.

Note: Bill impact drivers reflect net aggregate changes to the total smoothed revenues which may contain impacts on more than one building block. They are based on final decision updates to each PTRM inputs.

1.4 Powerlink's consumer engagement

The AER's framework for considering consumer engagement in network revenue determinations at the time of Powerlink's initial and revised proposals was first developed for the 2021–26 revenue determinations for the Victorian electricity distribution networks.⁵⁴ That consumer engagement framework is now reflected in the AER's Better Resets Handbook.⁵⁵

In a rapidly changing environment, consumer preferences should drive outcomes throughout the network revenue determination process. We want consumers to be partners in forming network revenue proposals, rather than simply being asked for feedback on a proposal. We look for genuine commitment from network businesses, extending down from their Boards and Executives, to giving effect to consumer preferences and for openness to new ideas and a willingness to change.

⁵⁴ This framework, sometimes referred to as 'Table 7' was considered in: AER, *Powerlink transmission determination, draft decision, 2022–27 – Overview, Appendix D*, September 2021, p. 45.

⁵⁵ AER, *Better Resets Handbook*, December 2021.

Consumer engagement should be a continuous business-as-usual process, not a one-off initiative in developing revenue proposals. It's about letting consumers set the agenda and engaging openly on the outcomes that matter to them.

Based on our assessment, observations, and submissions received, we are confident that Powerlink is committed to putting consumers at the centre of its business and in ensuring that stakeholders' views have been reflected in its 2022–27 proposal.

Early engagement and consumer-driven engagement plans have a clear impact on the success of an initial proposal. In our draft decision, we said:⁵⁶

“We can see Powerlink’s efforts reflected in the views expressed in the submissions we received, in terms of Powerlink’s consumer engagement approach and its proposed expenditures. As a result, we consider that Powerlink’s [initial] proposal is capable of acceptance, and we have accepted all major aspects of it in our draft decision.”

Consultation with consumers throughout the revenue determination process can deliver benefits to the quality of a proposal and decision outcomes. We agree with CCP23’s observation that Powerlink invested thoughtfully in consumer engagement and nurtured stakeholder capability, and that achieving capability of acceptance of its proposal was founded on trust and enduring relationships:⁵⁷

“Powerlink has been the most forthright of any network business from the beginning of the process in stating that it wanted a proposal that was capable of acceptance...The Powerlink Customer Panel and Revenue Proposal Reference Group comprise a well-established, informed and dedicated group of people as any in the nation and so are a valuable group with whom to engage. Powerlink’s process to build and support this capability over years is worth noting by other Australian network businesses.”

1.4.1 Nature of engagement

The nature of engagement undertaken by Powerlink on its 2022–27 proposal was driven by the co-design process it applied to developing its Engagement Plan. This process – involving consumers, stakeholders and members of Powerlink’s Board, Executive and Senior Leadership Team – enabled Powerlink to gain insights into the engagement approach, scope, techniques, sequencing, evaluation and supporting communications for its proposal.⁵⁸ Engagement activities were based on feedback obtained at a co-design workshop held in May 2019 (some 20 months before its proposal was due to us).⁵⁹

⁵⁶ AER, *Powerlink transmission determination, draft decision, 2022-27 – Overview*, September 2021, p. 5.

⁵⁷ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, pp. 2 and 6.

⁵⁸ Powerlink, *2023–27 Revenue proposal – Appendix 3.01, Engagement plan*, January 2021, p. 3.

⁵⁹ Powerlink, *2023–27 Revenue proposal*, January 2021, pp. 26–27.

Acting on the feedback it received, Powerlink deployed the following key engagement activities to develop its 2022–27 proposal:⁶⁰

- Powerlink Customer Panel⁶¹ meetings – comprised of representatives from several industry and consumer organisations, the Panel played a key role in engagement on a range of aspects in the development of Powerlink’s proposal
- Revenue Proposal Reference Group⁶² (RPRG) meetings – a sub-group of Powerlink’s Customer Panel, the RPRG enabled Powerlink to engage in more detail, and more regularly, than with its Customer Panel, meeting every four to six weeks between October 2019 to December 2020 for discussions on engagement scope items; post-lodgement, the RPRG continued to engage on matters of ongoing stakeholder interest, such as the DMIAM
- draft revenue proposal and webinar – in response to stakeholder feedback, Powerlink published and invited submissions on a draft 2022–27 proposal in September 2020, supplemented by a stakeholder webinar in October 2020
- Preliminary positions and forecasts paper – Powerlink published this paper in August 2020 to provide stakeholders with a more detailed update on its 2022–27 proposal at that stage of development, including the key drivers of capex and opex
- Transmission Network Forums – an annual key stakeholder engagement event for Powerlink, where in 2019, 2020 and 2021 it promoted and updated stakeholders on the journey of its proposal over the revenue determination process
- Insurance deep dive – held in November 2020, Powerlink presented its approach to managing risk and insurance cost trade-offs, with a focus on the challenges of managing potential insurance premium increases in the 2022–27 period⁶³
- One-on-one briefings – Powerlink’s directly-connected consumers were offered one-on-one briefings, with at least 20 briefings held on pricing and the proposal
- Regional engagement – Powerlink’s master stakeholder list of more than 450 contacts included regional representatives who were sent information and invited to participate in engagement, including contact being made with key regional representatives and briefings provided to 20 local governments
- Digital engagement – Powerlink established a dedicated section on its website as a central point of information on its proposal and to facilitate interactive feedback

⁶⁰ Ibid, pp. 27-28.

⁶¹ Powerlink’s Customer Panel includes: Aurizon Network, BHP, Council on the Ageing, CS Energy, Commonwealth Scientific and Industrial Research Organisation, Edify Energy, Energy Consumers Australia (up to August 2020), Energy Queensland, Energy Users Association of Australia, Queensland Farmers’ Federation, Queensland Resources Council, Shell and St Vincent de Paul. Invitees included AER staff and CCP23.

⁶² Powerlink’s RPRG members include: CS Energy, Energy Users Association of Australia, Queensland Farmers’ Federation, Shell, Energy Consumers Australia (up to June 2020) and Council on the Ageing (from July 2020). Invitees included AER staff and CCP23.

⁶³ A summary of the insurance deep dive is published on Powerlink’s website.

- Formal research – Powerlink sought consumer and stakeholder feedback insights through its annual Stakeholder Perception Survey, and utilised the Queensland Household Energy Survey on consumption patterns, uptake of solar/new technology and sentiment towards energy companies to inform network planning
- Informal discussions and feedback – throughout its proposal’s development, Powerlink sought regular informal feedback and responded to questions/emails from consumers, stakeholders, CCP23, and the AER.

Through this engagement, Powerlink identified three consumer drivers that, in turn, influenced the development of its 2022–27 proposal.⁶⁴

- affordability – the cost of electricity remains a key concern for consumers
- price signals – directly-connected consumers want price signals that better reflect the cost of the network at different times and locations
- customer choice – consumers want a greater say in how they access, use and pay for electricity as the energy system transitions; a ‘one size fits all’ model is not appropriate.

In its revised proposal, Powerlink states that it undertook significant consumer and stakeholder engagement in the development of its initial and revised proposals, and that placing consumers at the centre of its business is an integral part of its operations.⁶⁵ Powerlink considers that it engaged early, often and deeply on key issues with consumers, stakeholders and the AER to meet its capability of acceptance objective, as is evidenced by:⁶⁶

- co-designing an engagement approach with consumers and stakeholders
- engaging early with the AER on key positions and model inputs before lodgement
- publishing a draft revenue proposal for stakeholder input and feedback
- inclusion of a Statement on Engagement from its Customer Panel as part of its revenue proposal.

1.4.2 Breadth and depth of engagement

Powerlink developed its proposal with regard to the International Association for Public Participation (IAP2) Spectrum to help it select the appropriate level of participation in its engagement program. Under this approach, Powerlink demonstrated a willingness to deviate from its original September 2019 Engagement Plan and engage further in response to stakeholder interest areas, such as the approaches to depreciation and insurance in the proposal.⁶⁷

⁶⁴ Powerlink, *2023–27 Revenue proposal*, January 2021, pp. 4-6.

⁶⁵ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 6.

⁶⁶ Ibid.

⁶⁷ Powerlink, *2023–27 Revenue proposal*, January 2021, p. 23.

In its revised proposal, Powerlink said its engagement following our draft decision was targeted as Powerlink largely accepted the AER's draft decision (which largely accepted Powerlink's initial proposal).⁶⁸ Powerlink submitted that given the significant engagement undertaken in the development of its initial proposal, and the short timeframe available between publication of the draft decision and lodgement of its revised proposal, post-lodgement engagement focussed primarily on its Customer Panel, RPRG, CCP23, and the AER.⁶⁹ Powerlink also offered engagement opportunities to directly-connected consumers on its revised pricing methodology.

CCP23 observed:⁷⁰

"Our observations suggest that the commitment to engagement clearly demonstrated by Powerlink up to the lodgement of its initial proposal has continued and that the levels of interest from customer groups has been maintained, through appropriately, somewhat more focussed during 2021."

Powerlink developed, engaged on and published a post-lodgement Engagement Plan between August–November 2021.⁷¹ This included an updated list of engagement activities undertaken between February–November 2021, such as:

- facilitation of seven meetings of its Customer Panel and RPRG
- participation in two AER public forums
- publishing a response to stakeholders' submissions on the initial proposal to ensure Powerlink's summary of their views was accurate
- promoting the 2022–27 revenue determination process and Powerlink's revised positions at its 2021 Transmission Network Forum
- holding one-on-one briefings with submitting stakeholders, including directly-connected consumers on the revised pricing methodology
- monthly check-in meetings with AER staff and CCP23 on Powerlink's developing positions and stakeholder engagement.

CCP23 submitted:⁷²

"CCP23 is able to ratify that this list of activities and topics is a fair summary of the engagement that CCP members were able to observe. The engagement occurred throughout the year, and we gained a strong sense that the engagement was 'business as usual' and hence embedded in the culture and practice of Powerlink."

⁶⁸ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 8.

⁶⁹ Ibid, p. 6.

⁷⁰ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, p. 8.

⁷¹ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 7.

⁷² CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, p. 5.

Powerlink stated that it genuinely considered all input and feedback from consumers and stakeholders in the development of its revised proposal, including:⁷³

- requesting its Customer Panel to consider providing a Statement on Capable of Acceptance⁷⁴ for lodgement with the revised proposal
- providing its Customer Panel with an overview of the AER's draft decision and Powerlink's preliminary positions for the revised proposal (e.g. capex, opex, and its revised pricing methodology)
- empowering its Customer Panel to decide whether Powerlink should seek to apply, or not apply, the DMIAM in its revised proposal.⁷⁵

1.4.3 Clearly evidenced impact

There needs to be a clear link between consumer research and engagement, a network business' representation of the outcomes desired by consumers, and how the proposal gives effect to those outcomes.⁷⁶

Powerlink's 2022–27 proposal was refined through an iterative process with consumers, who were engaged on the progressive development of five sets of expenditure and revenue forecasts prior to lodgement of the proposal, which included consultation on a draft proposal.

Our draft and final decisions accepted Powerlink's proposed capex and opex forecasts for the 2022–27 period. We note that Powerlink's proposal included:

- a lower capex forecast compared to actual/estimated capex for the 2017–22 period
- a lower opex forecast than our alternative opex estimate, including no real growth compared to actual/estimated opex for the 2017–22 period.

1.4.4 Opportunities for even greater consumer engagement

Although Powerlink's consumer engagement was strong throughout the 2022–27 revenue determination process, CCP23 observed:⁷⁷

“We provided feedback to Powerlink, agreeing with members of the Customer Panel, that engagement with regional consumers and their interests could potentially have been improved...We understand that regional Board meetings with local engagement are planned to be at least annual occurrences, as a means by which Powerlink decision makers can maintain a regional perspective.”

⁷³ Powerlink, *2023–27 Revised revenue proposal*, November 2021, pp. 8-9.

⁷⁴ Powerlink, *2023–27 Revised revenue proposal*, Appendix 3.01 – Customer Panel statement on capable of acceptance, November 2021, pp. 1-2.

⁷⁵ Powerlink adopted the Customer Panel's recommendation to it to not apply the DMIAM in its revised proposal. See section 3.1.4.

⁷⁶ AER, *Draft Better Resets Handbook – Towards consumer centric network proposals*, September 2021, p. 15.

⁷⁷ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, pp. 5-6.

Powerlink responded swiftly to this feedback. In its revised proposal, in the context of future direction and continuous improvement on engagement, Powerlink observes the following key learnings for its business from its engagement approach in this revenue determination:⁷⁸

- clarify the criteria for capable of acceptance up-front through further engagement, which includes having regard to the AER's Better Resets Handbook and good practice engagement from other network businesses
- progress its current review of the terms of reference and representation on its Customer Panel, with a focus on regional representation and the need to provide further support to consumers
- hold more face-to-face engagement activities with stakeholders and consumers across Queensland to discuss current and future projects, including consumer forums in Cairns, Townsville and Gladstone.

We congratulate Powerlink on its engagement approach in this revenue determination process, and its commitment to further improve its future engagement approach. It leads us to conclude that our final decision on Powerlink's 2022–27 revenue proposal is in the long term interests of consumers, who will be better off now and in the future.

⁷⁸ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 9.

2 Key components of our final decision on revenue

The total revenue Powerlink has proposed reflects its forecast of the efficient cost of providing transmission network services over the 2022–27 period. Powerlink's proposal, and our assessment of it under the National Electricity Law (NEL) and National Electricity Rules (NER), are based on a 'building block' approach to determine a total revenue allowance which looks at five cost components (Figure 8):

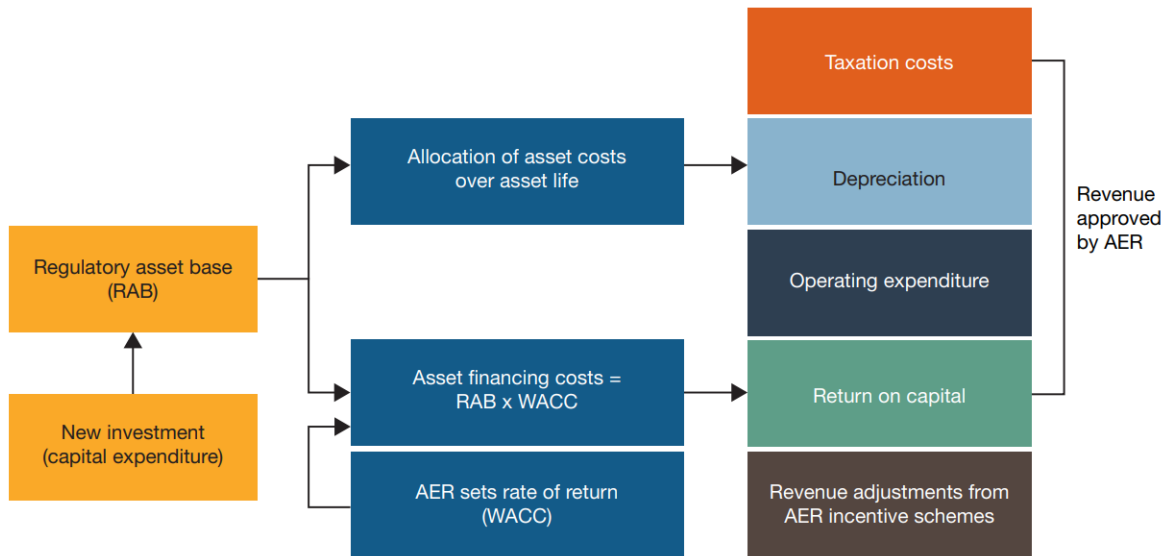
- return on the RAB – or return on capital, to compensate investors for the opportunity cost of funds invested in the business (section 2.3)
- depreciation of the RAB – or return of capital, to return the initial investment to investors over time (section 2.4)
- forecast opex – the operating, maintenance and other non-capital expenses, incurred in the provision of network services (section 2.6)
- revenue increments/decrements – resulting from the application of incentive schemes and allowances, such as for opex, capex and demand management innovation (section 2.7)
- estimated cost of corporate income tax (section 2.8).

Our assessment breaks these costs down further. For example:

- capex – the capital costs and expenditure incurred in the provision of network services, which mostly relates to assets with long lives, the costs of which are recovered over several regulatory periods. The forecast capex approved in our decisions directly affects the size of the RAB and, therefore, the revenue generated from the return on capital and depreciation building blocks (section 2.5)
- RAB value – the RAB accounts for the value of regulated assets over time. To set revenue for a new regulatory period, we take the opening RAB value from the end of the last period, and roll it forward year-by-year by indexing it for inflation, adding new capex and subtracting depreciation and other possible factors (such as disposals or consumer contributions).⁷⁹ This gives us a closing RAB value at the end of each year of the regulatory period. The RAB value is used to determine the return on capital and depreciation building blocks (section 2.2).

⁷⁹ The term 'rolled forward' means the process of carrying over the value of the RAB from one regulatory year to the next. This is reflected in the AER's roll forward model (RFM).

Figure 8 The building block model to forecast network revenue



Source: AER, *State of the Energy Market 2021*, June 2020, p. 134.

We use an incentive approach where, once regulated revenues are set for a five-year period, networks who keep actual costs below the regulatory forecast of costs retain part of the benefit. This benchmark incentive framework is a foundation of the regulatory framework which aims to promote the NEO. Service providers have an incentive to become more efficient over time because they retain part of the financial benefit from improved efficiency. Consumers also benefit when efficient costs are revealed and a lower cost benchmark is set in subsequent regulatory periods.

2.1 Maximum allowable revenue

We determine a total annual building block revenue requirement of \$3,802.9 million (\$ nominal, unsmoothed) for Powerlink for the 2022–27 regulatory control period. This is an increase of \$125.0 million or 3.4% to Powerlink’s revised proposal and reflects the impact of our final decisions on the various building block costs.

We determine the annual expected MAR (smoothed) and X factor for each regulatory year of the 2022–27 period by smoothing the annual building block revenue requirement. Our final decision approves an estimated total revenue cap (which is the sum of the annual expected MAR) of \$3,804.2 million (\$ nominal) for Powerlink for the 2022–27 period. Our approved X factor for 2023–24 to 2026–27 is 0.33% per annum.⁸⁰

Our final decision on Powerlink’s transmission revenues for the 2022–27 period is set out in Table 2.

⁸⁰ Powerlink is not required to apply an X factor for 2022–23 because we set the 2022–23 MAR in this decision.

Table 2 Final decision on Powerlink’s annual building block revenue requirement, annual expected MAR, estimated total revenue cap and X factor (\$ million, nominal)

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
Return on capital	363.4	359.2	355.6	348.9	341.8	1,768.9
Regulatory depreciation ^a	142.9	155.0	164.9	174.1	181.0	817.8
Operating expenditure ^b	218.4	226.8	231.9	238.2	244.4	1,159.7
Revenue adjustments ^c	5.1	–6.5	–0.3	2.2	6.2	6.6
Net tax amount	5.8	4.9	8.7	15.5	15.0	49.9
Annual building block revenue requirement (unsmoothed)	735.5	739.4	760.8	778.9	788.3	3,802.9
Annual expected MAR (smoothed)	726.5	743.3	760.4	778.0	796.0	3,804.2^d
X factor (%) ^e	n/a ^f	0.33%	0.33%	0.33%	0.33%	n/a

Source: AER analysis.

- (a) Regulatory depreciation is straight-line depreciation net of the inflation indexation on the opening RAB.
- (b) Includes debt raising costs.
- (c) Includes revenue adjustments from the EBSS and CESS.
- (d) The estimated total revenue cap is equal to the total annual expected MAR.
- (e) The X factors will be revised to reflect the annual return on debt update. Under the CPI–X framework, the X factor measures the real rate of change in annual expected smoothed revenue from one year to the next. A negative X factor represents a real increase in revenue. Conversely, a positive X factor represents a real decrease in revenue.
- (f) Powerlink is not required to apply an X factor for 2022–23 because we set the 2022–23 MAR in this decision. The MAR for 2022–23 is around 8.4% lower than the approved MAR for 2021–22 in real terms, or 5.9% lower in nominal terms.

2.1.1 Annual revenue adjustment process

Appendix D sets out the annual revenue adjustment process that is applied to Powerlink’s MAR from the second year of the 2022–27 period.

2.1.2 X factor, annual expected MAR and estimated total revenue cap

This final decision determines an X factor for Powerlink of 0.33% per annum for the four years of the regulatory period from 2023–24 to 2026–27.⁸¹ The net present value (NPV) of the annual building block revenue requirement is \$3,291.6 million as at 1 July 2022.⁸² Based on this NPV and applying the CPI–X method, we determine that the annual expected MAR (smoothed) for Powerlink is \$726.5 million in 2022–23,

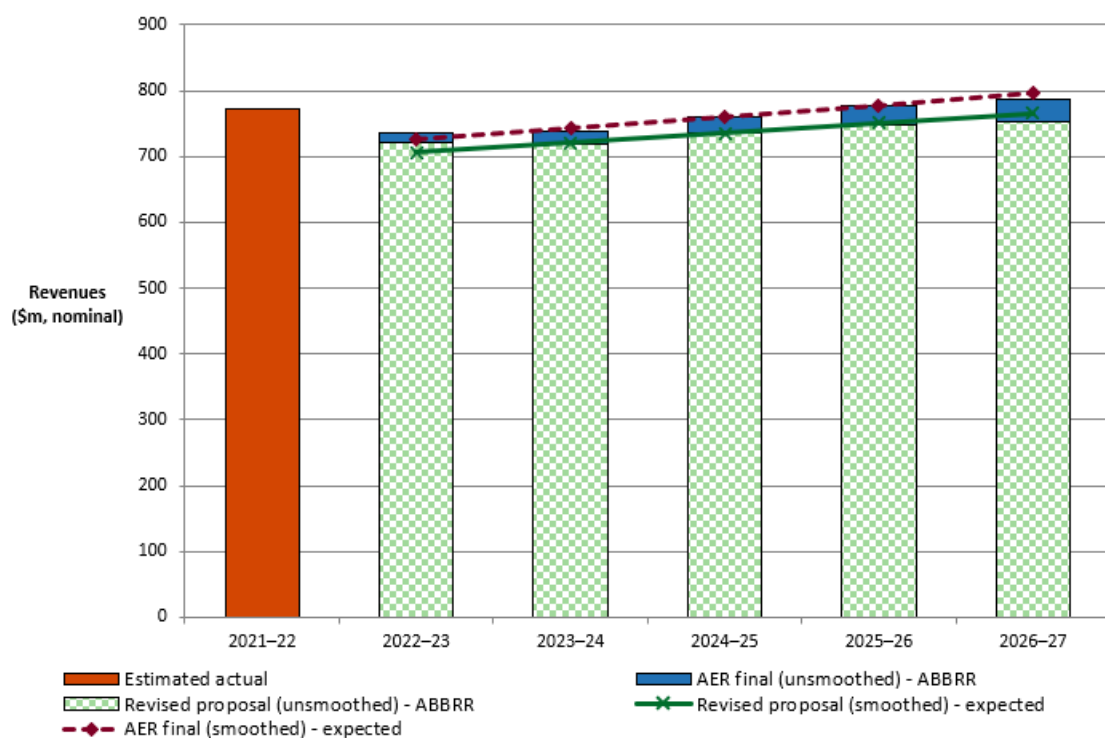
⁸¹ Powerlink is not required to apply an X factor for 2022–23 because we set the 2022–23 MAR in this decision.

⁸² The PTRM must be such that the expected MAR for each year of the regulatory control period is equal to the NPV of the annual building block revenue requirement. NER, cl. 6A.5.3(c)(1).

increasing to \$796.0 million in 2026–27 (\$ nominal). The resulting estimated total revenue cap for Powerlink is \$3,804.2 million for the 2022–27 period.

Figure 9 shows our final decision on Powerlink’s annual expected MAR (smoothed revenue) and the annual building block revenue requirement (unsmoothed revenue) for the 2022–27 period.

Figure 9 Final decision on Powerlink’s revenue for the 2022–27 period (\$ million, nominal)



Source: AER analysis.

Note: Annual building block revenue requirement (ABBRR).

To determine the expected MAR for Powerlink, we have set the MAR for the first regulatory year at \$726.5 million (\$ nominal), which is \$9.0 million lower than the annual building block revenue requirement. We then apply an expected inflation rate of 2.65% per annum and an X factor of 0.33% per annum to determine the expected MAR in subsequent years.⁸³ We consider that our profile of X factors results in an expected MAR in the last year of the regulatory control period that is as close as reasonably possible to the annual building block revenue requirement for that year.⁸⁴

⁸³ NER, cl. 6A.5.3(c)(3).

⁸⁴ NER, cl. 6A.6.8(c)(2). We consider a divergence of up to 3% between the expected MAR and annual building block revenue requirement for the last year of the regulatory control period is appropriate, if this can achieve smoother price changes for users over the regulatory control period. In the present circumstances, based on the X factors we have determined for Powerlink, this divergence is around 0.98%.

Our final decision results in an average increase of 0.6% per annum (\$ nominal) in the expected MAR over the 2022–27 period.⁸⁵ This consists of an initial decrease of 5.9% from 2021–22 to 2022–23, followed by average annual increases of 2.3% during the remainder of the 2022–27 period.⁸⁶

2.2 Regulatory asset base

Our revenue determination includes Powerlink’s opening RAB value as at 1 July 2022 and the projected RAB value for the 2022–27 period.⁸⁷ The RAB value substantially impacts Powerlink’s revenue requirement, and the price consumers ultimately pay. Other things being equal, a higher RAB would increase both the return on, and of (depreciation), capital components of the revenue determination.⁸⁸

2.2.1 Opening RAB as at 1 July 2022

Our final decision is to determine an opening RAB value of \$7,157.9 million (\$ nominal) as at 1 July 2022 for Powerlink. This is \$17.7 million (0.2%) higher than Powerlink’s revised proposal of \$7,140.2 million.⁸⁹ The increase is largely due to updating the actual consumer price index (CPI) input for 2021–22 in the roll forward model (RFM) that has become available since Powerlink submitted its revised proposal. Our final decision is \$174.5 million (2.5%) higher than our draft decision of \$6,983.4 million.⁹⁰

To determine the opening RAB as at 1 July 2022, we have rolled forward the RAB over the 2017–22 period to arrive at a closing RAB value at 30 June 2022, in accordance with our RFM. This includes an adjustment at the end of the 2017–22 period to account for the difference between actual 2016–17 capex and the estimate approved in the 2017–22 determination.⁹¹ All other adjustments are applied as part of the final year adjustments at 30 June 2022 to establish the opening RAB value at 1 July 2022.⁹²

⁸⁵ In real 2021–22 dollar terms, our approved expected MAR for Powerlink results in an average decrease of 2.0% per annum over the 2022–27 period.

⁸⁶ In real 2021–22 dollar terms, this consists an initial decrease of 8.4% from 2021–22 to 2022–23, followed by annual decrease of 0.3% during the remainder of the 2022–27 regulatory control period.

⁸⁷ NER, cl. 6A.14.1(5D).

⁸⁸ The size of the RAB also impacts the benchmark debt raising cost allowance. However, this amount is usually relatively small and therefore not a significant determinant of revenues overall.

⁸⁹ Powerlink, *Revised revenue proposal 2022–27*, November 2021, p. 18.

⁹⁰ This is mainly driven by higher indexation of the RAB because the updated 2021–22 actual inflation (3.5%) used in the final decision RFM is higher than the inflation estimate (1.0%) used in the draft decision

⁹¹ The end of period adjustment will be positive (negative) if actual capex is higher (lower) than the estimate approved at the 2017–22 determination.

⁹² These end of period adjustments are applied at the end of the final year of the roll forward period which in this case is 30 June 2022. For Powerlink this includes an asset transfer of a portion of land and easement assets into the RAB which was accepted in our draft decision. Our final decision makes an update to these assets for actual 2021–22 CPI.

Table 3 sets out our final decision on the roll forward of Powerlink's RAB for 2017–22.

Table 3 Final decision on Powerlink's RAB for the 2017–22 period (\$ million, nominal)

	2017–18	2018–19	2019–20	2020–21	2021–22 ^a
Opening RAB	7,069.4	7,094.5	7,105.5	7,103.2	7,030.1
Capital expenditure ^b	151.4	170.5	170.1	180.2	203.5
Inflation indexation on opening RAB	135.0	126.6	130.8	61.1	245.9
Less: straight-line depreciation ^c	261.3	286.1	303.2	314.5	317.7
Interim closing RAB	7,094.5	7,105.5	7,103.2	7,030.1	7,161.8
Difference between estimated and actual capex in 2016–17					–4.5
Return on difference for 2016–17 capex					–1.4
Final year asset adjustment ^d					2.0
Closing RAB as at 30 June 2022					7,157.9

Source: AER analysis.

- (a) Based on estimated capex provided by Powerlink. We will true-up the RAB for actual capex at the next reset.
- (b) As-incurred, net of disposals, and adjusted for actual CPI and half-year WACC.
- (c) Adjusted for actual CPI. Based on forecast as-commissioned capex.
- (d) Roll-in of assets at 30 June 2022 that provide prescribed services.

Our draft decision accepted Powerlink's proposal for the RAB roll forward to include final year asset adjustments for the roll-in of a portion of land and easement assets and disposal of substation and easement assets from the opening RAB as at 1 July 2022.⁹³ These amendments reflected the net movement of assets used for providing prescribed transmission services from 1 July 2022. Our draft decision also made several revisions to the inputs in the RFM resulting in an increase to Powerlink's proposed opening RAB as at 1 July 2022. We noted the roll forward of Powerlink's RAB included estimated capex for 2020–21 and 2021–22, and estimated inflation for 2021–22, because these actual values were not yet available.⁹⁴

Powerlink's revised proposal adopted our draft decision changes.⁹⁵ In addition, Powerlink updated 2020–21 estimated capex with actuals, and revised 2021–22 capex estimates with the latest figures.⁹⁶ Powerlink also updated the negative net movement

⁹³ AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 2 – Regulatory asset base*, September 2021, pp. 14–16.

⁹⁴ Ibid, pp. 14–15.

⁹⁵ Powerlink, *Revised revenue proposal 2022–27*, November 2021, p. 18; Powerlink, *Revised Revenue Proposal 2022–27, Roll-forward model*, 19 November 2021.

⁹⁶ Powerlink, *Revised revenue proposal 2022–27*, November 2021, p. 18.

of assets, valued at \$2.5 million (\$2021–22) as at 1 July 2022, using its 2021–22 CPI placeholder estimate.⁹⁷

We accept Powerlink’s updated 2020–21 actual capex values in the revised proposal as they reconcile with the values presented in Powerlink’s annual regulatory accounts for that year. We also accept Powerlink’s revision to the 2021–22 net capex estimate, which we have updated in this decision to reflect more recent data and results in a net capex estimate of \$203.5 million (\$ nominal).⁹⁸ This is \$1.4 million lower than our draft decision. The financial impact of any difference between actual and estimated capex for 2021–22 will be accounted for at the next revenue determination.

Our final decision updates the estimated inflation input for 2021–22 in the RFM with actual CPI of 3.5%, based on the Australian Bureau of Statistics’ (ABS) December 2021 CPI which became available after Powerlink submitted its revised proposal. We also updated the negative net movement of asset value as at 1 July 2022 to apply this actual 2021–22 CPI instead of an estimate.⁹⁹

We have considered the extent to which our roll forward of the RAB to 1 July 2022 contributes to the achievement of the capex incentive objective.¹⁰⁰ As discussed in the draft decision, the review period of past capex for this determination applies to 2015–20 capex.¹⁰¹ Powerlink’s actual capex incurred for 2015–16 to 2019–20 is below the forecast amount set in our previous determinations for Powerlink. Therefore, the overspending requirement for an efficiency review of past capex has not been satisfied.¹⁰² Given this, we consider the amounts incurred in those years are consistent with the capex criteria and can therefore be included in the RAB.¹⁰³

For this final decision, we have included Powerlink’s actual capex for 2020–21 and estimated capex for 2021–22 in the RAB roll forward to 1 July 2022. In the revenue determination for the 2027–32 period, 2020–21 and 2021–22 actual capex will form part of the review period for assessing whether past capex should be excluded for inefficiency reasons.¹⁰⁴ Our RAB roll forward applies the incentive framework approved in the 2017–22 revenue determination, which included the use of a forecast

⁹⁷ Powerlink, *Revised Revenue Proposal 2022–27, Roll-forward model*, 19 November 2021.

⁹⁸ This amount is on an as-incurred basis and includes a half-year WACC allowance to compensate for the six-month period before capex is added to the RAB. Our final decision updates Powerlink’s revised 2021–22 net capex estimate for final decision WACC and inflation in the RFM.

⁹⁹ This resulted in a small increase of less than \$6,000 to Powerlink’s revised proposed assets to be removed from the opening RAB, in net terms, of \$2.5 million (\$ 2021–22).

¹⁰⁰ NER, cl. 6A.14.2(b) and 6A.5A(a).

¹⁰¹ AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 2 – Regulatory asset base*, September 2021, pp. 16–17.

¹⁰² NER, cl. S6A.2.2A(c).

¹⁰³ NER, cl. S6A.2.2A(c).

¹⁰⁴ Here, ‘inefficiency’ of past capex refers to three specific assessments (labelled the overspending, margin and capitalisation requirements) detailed in NER, cl. S6A.2.2A(b). The details of our ex-post assessment approach for capex are set out in AER, *Capital expenditure incentive guideline*, November 2013, pp. 13–20.

depreciation approach in combination with the application of the CESS.¹⁰⁵ As such, we consider that the 2017–22 RAB roll forward contributes to an opening RAB (as at 1 July 2022) that includes capex that reflects prudent and efficient costs, in accordance with the capex criteria.¹⁰⁶

2.2.2 Forecast closing RAB as at 30 June 2027

Once we have determined the opening RAB as at 1 July 2022, we roll it forward by adding forecast capex and inflation, and reduce it by depreciation, to arrive at a forecast closing value as at the end of the 2022–27 period.¹⁰⁷

Our final decision determines a forecast closing RAB value at 30 June 2027 of \$7,296.2 million (\$ nominal) for Powerlink. This is \$114.1 million (1.6%) higher than Powerlink’s revised proposal of \$7,182.1 million. Our final decision on the forecast closing RAB reflects the amended opening RAB as at 1 July 2022, and our final decisions on the expected inflation rate (section 2.3), forecast depreciation (section 2.4) and forecast capex (section 2.5).¹⁰⁸

Table 4 sets out our final decision on the forecast RAB for Powerlink over 2022–27.

Table 4 Final decision on Powerlink’s RAB for the 2022–27 period (\$ million, nominal)

	2022–23	2023–24	2024–25	2025–26	2026–27
Opening RAB	7,157.9	7,215.5	7,287.3	7,297.3	7,297.0
Capital expenditure ^a	200.5	226.8	174.8	173.8	180.2
Inflation indexation on opening RAB	189.7	191.2	193.1	193.4	193.4
Less: straight-line depreciation ^b	332.6	346.2	358.0	367.4	374.3
Closing RAB	7,215.5	7,287.3	7,297.3	7,297.0	7,296.2

Source: AER analysis.

- (a) As-incurred, and net of forecast disposals. In accordance with the timing assumptions of the PTRM, the capex includes a half-year WACC allowance to compensate for the six-month period before capex is added to the RAB for revenue modelling.
- (b) Based on as-commissioned capex.

Figure 10 shows that in nominal terms, the closing RAB at the end of the 2022–27 period is forecast to be 1.9% higher than the opening RAB at the start of the period.

¹⁰⁵ AER, *Powerlink transmission determination, final decision, 2017–22 – Attachment 2 – Regulatory asset base*, April 2017, p. 23.

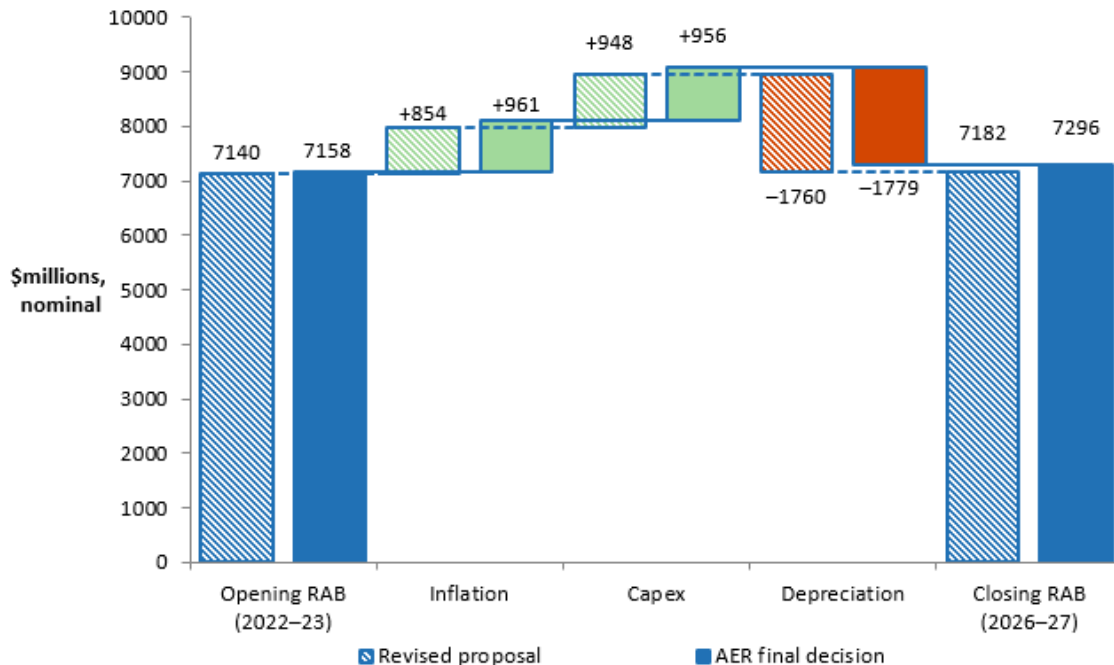
¹⁰⁶ NER, cl. 6A.5A(a), 6A.6.7(c) and 6A.14.2(b).

¹⁰⁷ NER, cl. S6A.2.4.

¹⁰⁸ Capex enters the RAB net of forecast disposals. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Therefore, our final decision on the forecast RAB also reflects our amendments to the rate of return for the 2022–27 period (section 2.3).

Approved forecast net capex and expected inflation increase the RAB by 13.4% and 13.4%, respectively, while forecast depreciation reduces the RAB by 24.8%.

Figure 10 Key drivers of changes in the RAB – comparing the revised proposal with the final decision (\$ million, nominal)



Source: AER analysis.

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

Forecast net capex is a significant driver of the increase in the RAB. Our final decision accepts Powerlink’s revised proposed forecast capex of \$877.3 million (\$2021–22)¹⁰⁹ for the 2022–27 period as we are satisfied that it reasonably reflects the capex criteria.¹¹⁰

2.2.3 Application of depreciation approach in RAB roll forward for the 2027–32 revenue determination

When we roll forward Powerlink’s RAB for the 2022–27 period at the next (2027–32) revenue determination, we must adjust for depreciation. Our final decision is to roll forward the RAB to establish Powerlink’s opening RAB at the commencement of the 2027–32 period using depreciation schedules (straight-line) based on forecast capex at the asset class level approved for the 2022–27 period.¹¹¹ This approach is consistent with our draft decision.

¹⁰⁹ This amount is on an as-incurred basis, net of disposals and excludes the half-year WACC adjustment.

¹¹⁰ See section 2.5 for the discussion on forecast capex.

¹¹¹ NER, cl. 6A.14.1(5E).

As discussed in section 3.1.2, we will also apply the CESS to Powerlink for the 2022-27 period. We consider that the CESS will provide sufficient incentives for Powerlink to achieve capex efficiency gains over that period. We are satisfied that the use of a forecast depreciation approach in combination with the application of the CESS and our other ex post capex measures are sufficient to achieve the capex incentive objective.¹¹² Further, this approach is consistent with our *Framework and Approach* paper for Powerlink.¹¹³

2.2.4 Change in service classification of assets

In the draft decision, we noted that the use of Powerlink's network can change over time and the classification of its assets may also change. We indicated that we were seeking additional information from Powerlink in relation to the use of some of its assets.¹¹⁴

We have assessed the information provided by Powerlink against the requirements of the NER and the NEO. Our final decision is to not make any adjustments to Powerlink's RAB for the assets in question, which remain confidential. We have set out our final decision on this matter for Powerlink in confidential Appendix I.

2.3 Rate of return and value of imputation credits

The return each business is to receive on its RAB (return on capital) is a key driver of proposed revenues. We calculate the regulated return on capital by applying a rate of return to the value of the RAB.

We estimate the rate of return by combining the returns of the two sources of funds for investment: debt and equity. The allowed rate of return provides the business with a return on capital to service the interest on its loans and give a return on equity to investors.

The estimate of the rate of return is important for promoting efficient prices in the long term interests of consumers. If the rate of return is set too low, the network business may not be able to attract sufficient funds to be able to make the required investments in the network and reliability may decline. Conversely, if the rate of return is set too high, the network business may seek to spend too much and consumers will pay inefficiently high tariffs.

¹¹² Our ex-post capex measures are set out in the capex incentives guideline, AER, *Capital expenditure incentive guideline for electricity network service providers*, November 2013, pp. 13–22. The guideline also sets out how all our capex incentive measures are consistent with the capex incentive objective.

¹¹³ AER, *Final Framework and Approach for Powerlink – Regulatory control period commencing 1 July 2022*, July 2020, p. 20.

¹¹⁴ AER, *Powerlink transmission determination, draft decision, 2022-27, Attachment 2 – Regulatory asset base*, September 2021, p. 20.

The NEL requires us to apply the 2018 Instrument¹¹⁵ to estimate the rate of return for Powerlink. Powerlink's revised proposal adopted the 2018 Instrument.¹¹⁶ The 5.08% (nominal vanilla) rate of return in this final decision is higher than the 4.65% placeholder in the revised proposed, principally due to an increase in interest rates.

Table 5 sets our calculated rate of return that will apply to the first year of the 2022–27 period. A different rate of return will apply for the remaining regulatory years of the period. This is because we will update the return on debt component of the rate of return each year in accordance with the 2018 Instrument to use a 10-year trailing average portfolio return on debt that is rolled forward each year. Hence, 10 per cent of the return on debt is calculated from the most recent averaging period, with 90 per cent from prior periods.

Our final decision accepts Powerlink's proposed risk free rate¹¹⁷ and debt averaging periods because they satisfied the 2018 Instrument.¹¹⁸

Table 5 Final decision on Powerlink's rate of return (nominal %)

	AER draft decision (2022–27)	Powerlink revised proposal (2022–27)	AER final decision (2022–27)	Allowed return over regulatory control period
Nominal risk free rate	1.53% ^a	1.53%	2.50% ^b	
Market risk premium	6.1%	6.1%	6.1%	
Equity beta	0.6	0.6	0.6	
Return on equity (nominal post-tax)	5.19%	5.19%	6.16%	Constant (%)
Return on debt (nominal pre-tax)	4.29% ^a	4.29%	4.35% ^c	Updated annually
Gearing	60%	60%	60%	Constant (60%)
Nominal vanilla WACC	4.65%	4.65%	5.08%	Updated annually for return on debt
Expected inflation	2.25%	2.37%	2.65%	Constant (%)

Source: AER analysis; Powerlink Queensland, *2023–27 Powerlink Queensland revised revenue proposal*, November 2021, p.21.

(a) Calculated using a placeholder averaging period of 20 business days ending 30 June 2021.

(b) Calculated using an averaging period of 28 February 2022 to 31 March 2022.

(c) Final decision return on debt is calculated using the proposed and accepted debt averaging period.

¹¹⁵ AER, *Rate of return instrument*, December 2018. See [Rate of Return Instrument](#)

¹¹⁶ Powerlink, *Revenue Proposal 2023-27*, January 2021, p. 116.

¹¹⁷ This is also known as the return on equity averaging period.

¹¹⁸ AER, *Rate of return instrument*, December 2018, clauses 7–8, 23–25, 36.

2.3.1 Debt and equity raising costs

In addition to providing for the required rate of return on debt and equity, we provide an allowance for the transaction costs associated with raising debt and equity. We include debt raising costs in the opex forecast because these are regular and ongoing costs, and equity raising costs in the capex forecast because these costs are incurred once and would be associated with funding the particular capital investments.

Powerlink proposes to adopt our approach for estimating equity raising costs, and used a distribution rate of 0.9 (set in the 2018 Instrument).¹¹⁹ We have updated our estimate for the 2022–27 period based on the benchmark approach using updated inputs. This results in zero equity raising costs.

Our final decision accepts Powerlink’s proposal for estimating debt raising costs, which uses an annual rate of 8.50 basis points per annum.¹²⁰ Powerlink’s proposed value is from an accompanying report by Incenta which supported and applied our current approach for estimate debt raising costs.¹²¹

2.3.2 Imputation credits

Our final decision applies an imputation credits value (gamma) of 0.585 as per the binding 2018 Instrument.¹²² Powerlink’s initial and revised proposals adopted the 2018 Instrument for gamma.¹²³

2.3.3 Expected inflation

As set out in Table 6, our estimate of expected inflation is 2.65%. It is an estimate of the average annual rate of inflation expected over a five-year period based on the outcome of our 2020 inflation review.¹²⁴

Powerlink’s initial proposal adopted our previous approach for estimating expected inflation.¹²⁵ This was because its initial proposal was prepared before our final position paper on the regulatory treatment of inflation was released. We have adopted our revised inflation approach in this revenue determination.

¹¹⁹ Powerlink, *Post-Tax Revenue Model*, January 2021.

¹²⁰ Powerlink, *Revenue Proposal 2023-27*, January 2021, p. 103.

¹²¹ Incenta, *Benchmark debt and equity raising costs*, November 2020.

¹²² AER, *Rate of return instrument*, December 2018, clause 27.

¹²³ Powerlink, *Revenue Proposal 2023-27*, January 2021, p. 118.

¹²⁴ AER, *Final position, Regulatory treatment of inflation*, December 2020.

¹²⁵ Powerlink, *2023–27 Revenue Proposal*, January 2021, p. 119.

Table 6 Final decision on Powerlink's expected inflation (%)

	Year 1	Year 2	Year 3	Year 4	Year 5	Geometric average
Expected inflation	2.75	2.75	2.67	2.58	2.50	2.65

Source: AER analysis; *RBA Statement on Monetary policy*, February 2022.

Our final decision uses the Reserve Bank of Australia's (RBA) February 2022 Statement of Monetary Policy (SMP) which contains a consumer price index (CPI) forecast for the year-ending June 2024. This means the first two years of the 2022–27 period are based on RBA forecasts and, thereafter, a linear glide-path from year three to the mid-point of the RBA's inflation target band of 2.5% in year five.

Our previous approach to estimating expected inflation used a 10-year average of the RBA's headline rate forecasts for 1 and 2 years ahead, and the mid-point of the RBA's target band for years 3 to 10. The period of 10 years matches the term of the rate of return.

Our inflation review considered that this should be augmented by:¹²⁶

- shortening the target inflation horizon from 10 years to a term that matches the regulatory control period (typically five years)
- applying a linear glide-path from the RBA's forecasts of inflation for year 2 to the mid-point of the inflation target band in year 5.

2.4 Regulatory depreciation

Depreciation is the amount provided so capital investors recover their investment over the economic life of the asset (return of capital). In deciding whether to approve the depreciation schedules submitted by Powerlink, we make determinations on the indexation of the RAB and depreciation building blocks for Powerlink's 2022–27 period.¹²⁷

Our final decision is to determine a regulatory depreciation amount of \$817.8 million (\$ nominal) for Powerlink for the 2022–27 period. This is \$88.0 million (9.7%) lower than Powerlink's revised proposal of \$905.8 million.¹²⁸ The key reason for this decrease is due to the higher expected inflation rate that resulted from our updated calculation in the post-tax revenue model (PTRM). Our final decision is \$128.7 million (13.6%) lower than our draft decision of \$946.5 million.

The regulatory depreciation amount is the net total of the straight-line depreciation, less the inflation indexation of the RAB. Straight-line depreciation is impacted by our

¹²⁶ AER, *Final position, Regulatory treatment of inflation*, December 2020, p. 6.

¹²⁷ NER, cl. 6A 5.4(a)(1) and (3).

¹²⁸ Powerlink, *2023–27 Revised revenue proposal, Post-Tax Revenue Model*, 19 November 2021.

decision on Powerlink's opening RAB as at 1 July 2022¹²⁹, forecast capex¹³⁰ and asset lives. Our final decision straight-line depreciation for Powerlink is \$18.3 million higher than its revised proposal.

RAB indexation is impacted by our decision on Powerlink's opening RAB¹³¹, forecast capex¹³² and the expected inflation rate¹³³. Our final decision indexation on Powerlink's forecast RAB is \$106.4 million higher than its revised proposal, largely due to applying a higher expected inflation rate of 2.65% per annum for this final decision compared with the 2.37% per annum used in Powerlink's revised proposal. The higher indexation has more than offset the small increase in straight-line depreciation (since indexation is deducted from the straight-line depreciation), which has resulted in a lower regulatory depreciation amount compared to the revised proposal.

In coming to this final decision on Powerlink's regulatory depreciation, we accept the revised proposal on the following elements which are consistent with our draft decision:

- straight-line method to calculate the regulatory depreciation
- application of the year-by-year tracking approach to implement straight-line depreciation of existing assets
- asset classes and standard asset lives, including the extension of the remaining asset life for the existing value of assets in the 'Substations secondary systems' asset class from 4.8 years to 6 years as at 1 July 2022.

Table 7 sets out our final decision on the forecast regulatory depreciation amount for Powerlink over the 2022–27 period.

Table 7 Final decision on Powerlink's regulatory depreciation for the 2022–27 period (\$million, nominal)

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
Straight-line depreciation	332.6	346.2	358.0	367.4	374.3	1,778.5
Less: inflation indexation on opening RAB	189.7	191.2	193.1	193.4	193.4	960.7
Regulatory depreciation	142.9	155.0	164.9	174.1	181.0	817.8

Source: AER analysis.

¹²⁹ See section 2.2.

¹³⁰ See section 2.5.

¹³¹ See section 2.2.

¹³² See section 2.5.

¹³³ See section 2.3.

2.4.1 Year-by-year tracking approach

This final decision confirms our draft decision to accept Powerlink's change in approach from the weighted average remaining life approach (approved for the 2017-22 period) to the year-by-year tracking approach going forward. The year-by-year tracking approach meets the requirements of the NER.¹³⁴

Powerlink's revised proposal adopted all our draft decision minor modelling input changes in the year-by-year tracking depreciation module used for implementing straight-line depreciation.¹³⁵ Our final decision also makes standard input updates to the depreciation module, consistent with our RFM amendments to the RAB as discussed in section 2.1.¹³⁶

2.4.2 Standard asset lives

This final decision accepts Powerlink's revised proposed standard asset lives in respect of forecast capex for the 2022–27 period. We also accept the revised proposed extension of the remaining life for the existing 'Substations secondary systems' asset class from 4.8 years to 6 years, consistent with our draft decision.

Table F.1 of Appendix F sets out the standard asset lives for the 2022–27 period. We are satisfied that:¹³⁷

- the standard asset lives and depreciation approach more broadly would lead to a depreciation schedule that reflects the nature of the assets over the economic lives of the asset classes, and
- the sum of the real value of the depreciation attributable to the assets is equivalent to the value at which the assets were first included in the RAB for Powerlink.

2.5 Capital expenditure

Capital expenditure (capex) refers to the investment made in the transmission network to provide prescribed transmission services. This investment mostly relates to assets with long lives (30-50 years is typical) and these costs are recovered over several regulatory periods.

On an annual basis, the financing and depreciation costs associated with these assets are recovered (return of, and on, capital) as part of the building blocks that form Powerlink's total revenue requirement.¹³⁸

¹³⁴ NER, cl. 6A.6.3(b).

¹³⁵ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 22.

¹³⁶ Amendments include updates for actual 2021–22 CPI and rate of return inputs.

¹³⁷ NER, cll. 6A.6.3(b)(1) and (2).

¹³⁸ NER, cl. 6A.5.4(a).

Having regard to the capex expenditure factors,¹³⁹ our final decision is to accept the forecast capex of \$882.4 million (\$2021–22) in Powerlink’s revised proposal for the 2022–27 period.¹⁴⁰ This is \$18.4 million (2.1%) higher than our draft decision.

The increase in capex is being driven by an increase in inflation. We have allowed Powerlink to update its capex forecast for actual 2020–21 inflation, revise its forecast inflation for 2021–22, and update its forecast inflation for the 2022–27 period.¹⁴¹

Table 8 outlines Powerlink’s forecast annual capex for the 2022–27 period.

Table 8 Final decision on Powerlink’s forecast capex for the 2022–27 period (\$2021–22, million)

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
Final Decision	194.1	213.8	160.9	155.9	157.6	882.4

Source: Powerlink, *Revised revenue proposal 2023–27*, November 2021, p. 12, and AER analysis.

Note: Numbers may not add up due to rounding.

We do not approve a particular category of capex or specific projects, but rather an overall amount. This is consistent with our ex-ante incentive-based regulatory framework and is often referred to as the ‘capex bucket’. However, as part of our assessment, we do review categories of expenditure and particular projects to test whether Powerlink’s proposed total capex reasonably reflects the capex criteria.

We received one submission from the CCP23 on our draft decision and Powerlink’s revised proposal, who supported the outcome, but raised some concerns with components of the capex draft decision.¹⁴²

2.5.1 Powerlink’s revised proposal

In its revised proposal, Powerlink proposed a total forecast capex of \$882.4 million (\$2021–22) for the 2022–27 period. This is \$18.4 million (2.1%) more than our draft decision. It is also \$29.1 million (3.2%) lower than the \$911.5 million actual/estimated capex over the 2017–22 period.

Figure 11 shows Powerlink’s historical capex trend, its revised proposed forecast for the 2022–27 period, and our draft and final decisions.

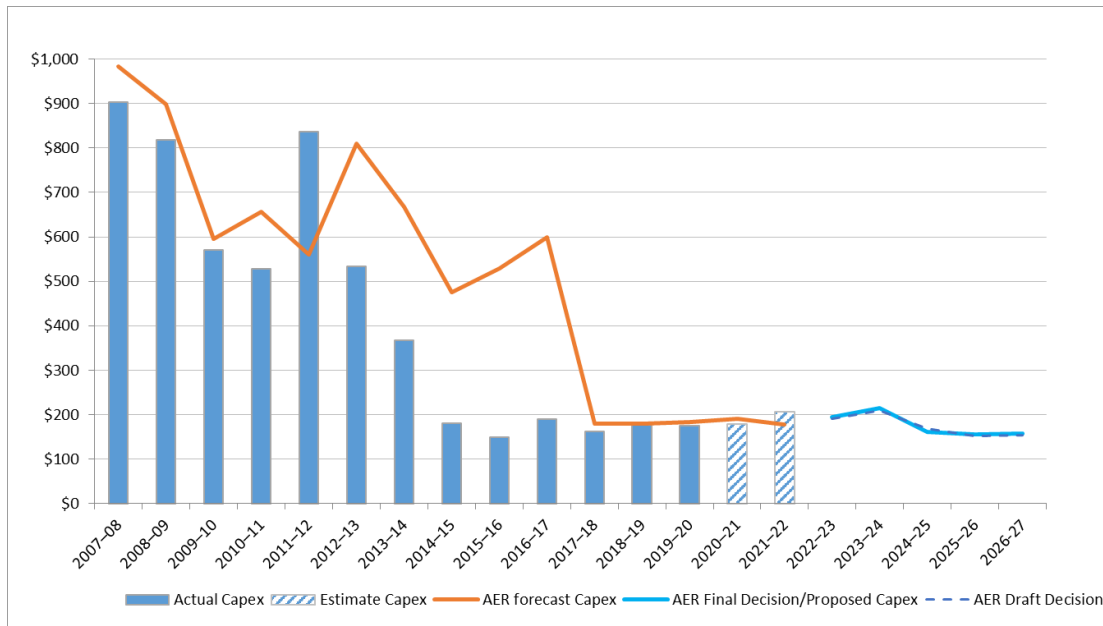
¹³⁹ NER, cl. 6A.6.7(e).

¹⁴⁰ Powerlink, *Revised revenue proposal 2023–27*, November 2021, p. 11.

¹⁴¹ We update the expected inflation for the final decision based on the outcome of our Inflation Review. See section 2.3.3.

¹⁴² CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022.

Figure 11 Comparison of Powerlink's past and forecast capex (\$2021–22, million)



Source: AER, *Final decision, Powerlink transmission determination 2017–22*, PTRM, April 2017; Powerlink, *2023–27 Revised Revenue proposal, Post-tax revenue model*, November 2021.

2.5.2 Reasons for our final decision

Based on our assessment of the information available, we are satisfied that Powerlink's revised total capex forecast of \$882.4 million (\$2021–22) reasonably reflects the capex criteria.¹⁴³ We consider this provides Powerlink with a reasonable opportunity to recover at least the efficient costs it incurs in providing direct control network services.¹⁴⁴

We have also accepted Powerlink's proposed contingent project for the Central to North Queensland Reinforcement, at an estimated capex of \$52.3 million.

In our draft decision:

- we found that Powerlink's capex forecasting methodology is a significant improvement on the methodology it used for the 2017–22 period and considered Powerlink's models to be well developed¹⁴⁵
- we considered that Powerlink had undertaken excellent consumer engagement, and stakeholders had been positive about the engagement Powerlink had undertaken on its proposed capex program¹⁴⁶

¹⁴³ NER, cl. 6A.6.7(c).

¹⁴⁴ NEL, ss. 7A(2) and 16.

¹⁴⁵ AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 5 – Capital expenditure*, September 2021, p. 5.

¹⁴⁶ Ibid, p. 6.

- we undertook an extensive review of Powerlink’s capex forecast for the 2022–27 period, including numerous workshops with Powerlink’s subject matter experts and detailed assessment of Powerlink’s responses to our information requests¹⁴⁷
- while we considered Powerlink’s asset replacement practices could be improved, we were satisfied that the overall capex proposal was reasonable and consistent with the capex criteria taking into account Powerlink’s proposed total capex and its revenue proposal, underpinned by meaningful consumer engagement
- we did not support the use of the replacement capex (repex) model for transmission repex forecasts. We consider the repex model is not suited to transmission network service provider (TNSP) repex forecasts because it relies on the implied statistical condition of assets within a large population of homogenous assets as revealed by a significant volume of historical replacements.¹⁴⁸ We consider that these conditions are not met in the context of a TNSP. Powerlink is the only TNSP to use the repex model to forecast a proportion of its capex requirements.

In response to our draft decision, which recognised potential improvements in asset management practices, Powerlink initiated a review of its approach to network asset reinvestment in 2022–23 to ensure it continues to support the provision of safe, secure, reliable and cost-effective electricity transmission services.¹⁴⁹

CCP23 endorsed the direction and intent of Powerlink’s revised proposal but expressed some unease about the AER’s willingness to accept Powerlink’s total capex proposal at the draft decision stage.¹⁵⁰ CCP23 raised questions concerning two key aspects: firstly, the basis upon which the AER made its decision on the capex forecast; and secondly, Powerlink’s proposed review of its asset reinvestment category of capex.

We acknowledge CCP23’s concerns and recognise that it is the AER’s role to determine the efficiency and prudence of expenditure under the Rules. Having applied the Rules, considered Powerlink’s proposed capex and submissions from stakeholders, we have accepted Powerlink’s proposed capex.

The basis for the decision and Powerlink’s review are addressed in turn below.

2.5.2.1 Basis for the decision

CCP23 was generally supportive of Powerlink’s proposed capex, and its engagement with consumers on the proposal. CCP23 also appreciated Powerlink’s willingness to accept the AER’s draft decision, including the decision on external labour costs.¹⁵¹

¹⁴⁷ Ibid..

¹⁴⁸ Ibid, p. 20.

¹⁴⁹ Powerlink, *Letter to AER, Review of Powerlink’s approach to network asset reinvestments*, 8 September 2021.

¹⁵⁰ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, pp. 1–2.

¹⁵¹ Ibid, p. 27.

However, CCP23 expressed some concerns regarding the draft decision, including:¹⁵²

- the draft decision to accept the capex forecast leaves little room for consumers and their representatives to engage meaningfully with the issues raised by the AER prior to the final decision
- the AER risks setting a precedent for its decisions on other networks' proposals by accepting the capex proposal and Powerlink's proposed review of its asset management practices
- the AER's reasoning for accepting the total capex forecast despite its concerns with the repex costs
- consumers expect the AER to determine the most efficient cost to achieve the services that they want.

We assessed the prudence and efficiency of Powerlink's capex forecast, including the forecasting methodology, inputs and assumptions. This included a series of information requests and workshops to engage with Powerlink's subject matter experts and test our understanding of Powerlink's capex proposal. Overall, we were satisfied that the overall capex proposal was reasonable and consistent with the capex criteria.

However, in the context of our assessment, we identified scope for further improvement in repex asset management for transmission lines projects. Our draft decision for Powerlink outlined the further improvements we considered could be made, including our concerns with the use of the repex model for transmission. Stakeholders have had the opportunity to engage on our draft decision and Powerlink's revised proposal. We consider, having observed the consumer engagement during the review process and taking into account submissions, there is support from stakeholders for Powerlink's capex proposal.

We do not consider the approach adopted in response to Powerlink's capex proposal risks setting a precedent. The approach is specific to Powerlink given the nature of the proposal¹⁵³ and the management practices that Powerlink has also recognised as part of its review into its network asset reinvestment (discussed further below).¹⁵⁴ There is also a positive precedent value in signalling our decision on the efficiency of Powerlink's total capex earlier in the reset process. We consider Powerlink's review to be a positive further step in improving Powerlink's asset management practices that is

¹⁵² Ibid, pp. 24–25.

¹⁵³ Powerlink's key aggregates and proposed expenditures for the 2022–27 period are moving in a direction that will benefit consumers. For example, compared to the 2017–22 period, Powerlink's proposal incorporates a lower return on capital (down \$748.7 million or 35.2%), a lower opening regulatory asset base (down \$649.1 million or 8.5%), lower tax (down \$83.9 million or 77.9%), lower capex (down \$27.4 million or 3.1%), and lower opex (down \$4.6 million or 0.4%); AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 5 – Capital expenditure*, September 2021, p. 8.

¹⁵⁴ Powerlink, *Letter to AER, Review of Powerlink's approach to network asset reinvestments*, 8 September 2021, p. 2; Powerlink noted that the methodologies presented in the AER's non-binding Industry Practice Application Note for Asset Replacement Planning, together with the insights Powerlink have gained through the current AER review of our capital expenditure forecast, will be valuable input.

in the long term interests of consumers. We are participating in the review, together with past and present members of our Consumer Challenge Panel and other stakeholders.

2.5.2.2 Powerlink's asset reinvestment review

In September 2021, Powerlink made a commitment to undertake a review of its approach to network asset reinvestment in 2022–23 and to implement the results of this review over the remainder of the 2022–27 period.¹⁵⁵ The review is intended to include:

- the role of deterministic criteria in the economic assessment framework
- maintenance of social license to operate over the asset life
- treatment of uncertainty, both in costs and benefits
- management of input quality (e.g. skilled labour) in assessing prudence, including appropriate investment timing and the inclusion of compliance elements within project scope
- the extent to which an economic risk-based framework informs network asset reinvestment decisions, including the identification of the efficient scope of works for reinvestment projects and of bundling works to achieve efficient delivery
- trade-offs between the ongoing costs of improved asset management systems and the available benefits that may result.

In its submission, CCP23 stated that it:

- believes Powerlink will conduct a genuine review process and will do so in discussion with its consumer representatives¹⁵⁶
- supports the principle behind the post-revenue engagement plan¹⁵⁷
- has no doubts about Powerlink's intent, commitments, and capacity to engage on delivering the process to which they have committed.¹⁵⁸

However, CCP23 had a few questions around how the review would operate. Specifically, CCP23 asked the AER to address:¹⁵⁹

- specific, general application, criteria about when and why it [AER] would accept such an 'ex-post agreement'
- the processes it would employ to monitor and enforce such agreement during the forecast period

¹⁵⁵ Ibid, p. 2.

¹⁵⁶ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, p. 27.

¹⁵⁷ Ibid, p. 29.

¹⁵⁸ Ibid, p. 29.

¹⁵⁹ Ibid, p. 28.

- reporting on ex-post process outcomes
- the remedies consumers would have if the agreement is not followed to their satisfaction.

Powerlink's review is in addition to our decision to accept Powerlink's capex proposal.

We consider this review initiative to be specific to Powerlink's proposal where it was considered that Powerlink would benefit from further examination of its transmission lines asset management practices. We are not proposing a formal process to be applied more broadly to our revenue determinations but recognise Powerlink's initiative to continue to work with its stakeholders in the provision of services customers want.

We expect Powerlink to consider our decision findings as part of its review, and the review will likely benefit consumers in identifying better ways of delivering safe and reliable services. Powerlink has advanced its review project plan in conjunction with consumers and established an Asset Reinvestment Review (ARR) Working Group to examine Powerlink's approach and criteria to asset management practices for its reinvestment category of expenditure. Powerlink has made a strong commitment to the review and its outcomes, and will be passing on any windfall savings that result from the review to consumers.¹⁶⁰ AER staff are participating in the review, which commenced in March 2022, and we are confident that Powerlink will run a good process, based on its consumer engagement to date.

We expect Powerlink to publicly report on the findings of the review and the implications for next period's capex forecast. We have communicated our expectations for the review to Powerlink and they have agreed. Minutes of the ARR meetings will be made available on Powerlink's website, allowing interested parties to follow the review.¹⁶¹ The AER will consider the outcomes of the review at the next determination for Powerlink.

The AER is committed to improving businesses efficiency by encouraging improved asset management practices in line with our industry practice application note for asset replacement planning,¹⁶² which seeks to drive good industry practice for asset replacement in the long term interests of consumers.

We continue to encourage networks to better engage with its stakeholders and allow consumer preferences to drive the development of regulatory proposals. This is in line with our *Better Reset Handbook*.¹⁶³ The Handbook sets out the way we want to undertake our revenue determinations going forward, placing greater emphasis on high quality consumer engagement with the overarching aim of creating a more efficient process that is better for consumers in the long term. The Handbook outlines our expectations on how the businesses should develop its proposal in the key areas of

¹⁶⁰ Powerlink, *Letter to the AER, Review of Powerlink's approach to network asset reinvestments*, 8 September 2021.

¹⁶¹ Powerlink, *Asset reinvestment review working group, Terms of reference*, February 2022, p. 4.

¹⁶² AER, *Industry practice application note – Asset replacement planning*, 25 January 2019.

¹⁶³ AER, *Better Resets Handbook - Towards consumer-centric network proposals*, December 2021.

tariffs, forecast expenditure, including capex proposals and depreciation. It also outlines what genuine consumer engagement looks like in a review process and how it can lead to well-justified revenue proposals.

“The Handbook aims to encourage networks to develop high quality proposals through genuine engagement with consumers and that meet our expectations. This will lead to a number of benefits, including regulatory outcomes that better reflect the long term interests of consumers.

Networks that engage in genuine engagement with consumers are likely to result in better quality proposals being submitted to the AER.

Proposals that reflect consumer preferences, and meet our expectations, are more likely to be largely or wholly accepted at the draft decision stage, creating a more effective and efficient regulatory process for all stakeholders.

By encouraging network businesses to improve their consumer engagement, consumers will be central to the regulatory determination process. This will allow consumers to have a greater influence over the development of regulatory proposals by network businesses and, more importantly, ensure network businesses deliver outcomes valued by consumers.”¹⁶⁴

Consumer engagement is an integral part of the revenue determination process, but this needs to be supported by the way expenditure proposals are developed. The Handbook operates within the regulatory framework set up by the Rules and Law. Our expectations are not in addition to these requirements, but rather our views on how a proposal can be better substantiated to meet the requirements of the Rules.¹⁶⁵

Similarly, although Powerlink’s was not on the Handbook’s early signalling pathway for this review, it made consumer engagement an integral part of its review process and its capex proposal was supported by this.

2.5.3 Ex post statement of efficiency and prudence

We are required to provide a statement on the extent to which the roll forward of the RAB from the previous period contributes to the achievement of the capex incentive objective. The capex incentive objective is to ensure that where the RAB is subject to adjustment in accordance with the Rules, only expenditure that reasonably reflects the capex criteria is included in any increase in value of the RAB.

We have reviewed Powerlink’s capex performance for the 2017–18 to 2020–21 regulatory years. This assessment has considered Powerlink’s out-turn capex relative to our approved capex forecast given the incentive properties of the regulatory regime for a transmission business to minimise costs. Where Powerlink has spent more than the approved capex forecast for these years, we can review the efficiency of this overspend and decide on the capex that should be rolled into the RAB.

¹⁶⁴ Ibid, p. 3.

¹⁶⁵ Ibid, p. 4.

Table 9 shows Powerlink's actual net capex against the approved capex forecast for this period, including the four years of the ex-post review period. This shows that Powerlink spent less than the capex we approved. On this basis, we are satisfied that Powerlink's actual capex should be rolled into the RAB.

Table 9 Powerlink's actual net capex versus capex allowance for the 2017–22 period (\$2021–22, million)

Category	2017–18	2018–19	2019–20	2020–21	2021–22	Total
Total net capex allowance	180.3	180.9	184.2	191.7	179.3	916.3
Total net actual capex	162.8	179.5	177.1	187.1	204.9 (forecast)	911.5 (forecast)
Capex overspend / (underspend)	(17.4)	(1.3)	(7.1)	(4.5)	25.7 (forecast)	(4.8) (forecast)

Source: Powerlink, *Revised revenue proposal 2023–27*, November 2021, p. 10, and AER analysis.

Note: Numbers may not add up due to rounding.

2.6 Operating expenditure

Operating expenditure (opex) is the operating, maintenance and other non-capital expenses incurred in the provision of network services. Forecast opex for prescribed transmission services is one of the building blocks we use to determine a service provider's annual total revenue requirement.

Our final decision is to accept Powerlink's revised total opex forecast of \$1,071.4 million (\$2021–22),¹⁶⁶ including debt raising costs, for the 2022–27 period.

In its revised proposal, Powerlink accepted the AER's approach to estimating opex in the draft decision, other than for productivity. Powerlink revised its opex forecast to be consistent with our draft decision approach, but adjusted our draft decision alternative estimate to include more recent inflation information and a forecast of productivity growth that retained Powerlink's no real growth target.¹⁶⁷

We assessed the revised proposal by applying our 'base–step–trend' forecasting approach to develop an alternative estimate. Our alternative estimate of \$1,087.1 million (\$2021–22) is \$15.7 million (1.5%) higher than Powerlink's revised proposal. Consequently, we are satisfied that Powerlink's revised proposal reasonably reflects the opex criteria and we have accepted it.

¹⁶⁶ Powerlink, *Revised revenue proposal 2023–27*, 19 November 2021, p.14.

¹⁶⁷ Ibid.

The following factors explain the difference between our alternative estimate, and Powerlink’s revised proposal, which we have accepted:

- we used a more recent, and higher, forecast of inflation for the year to June 2022 to convert nominal amounts into real terms
- we used more recent, and higher, wage price index (WPI) forecasts from Deloitte Access Economics¹⁶⁸
- we used a lower productivity growth forecast of 0.5% per year, based on the industry average productivity growth from our 2021 Annual Benchmarking Report for electricity transmission network service providers.¹⁶⁹

Figure 12 shows that our final decision opex forecast (Powerlink’s revised forecast) is:

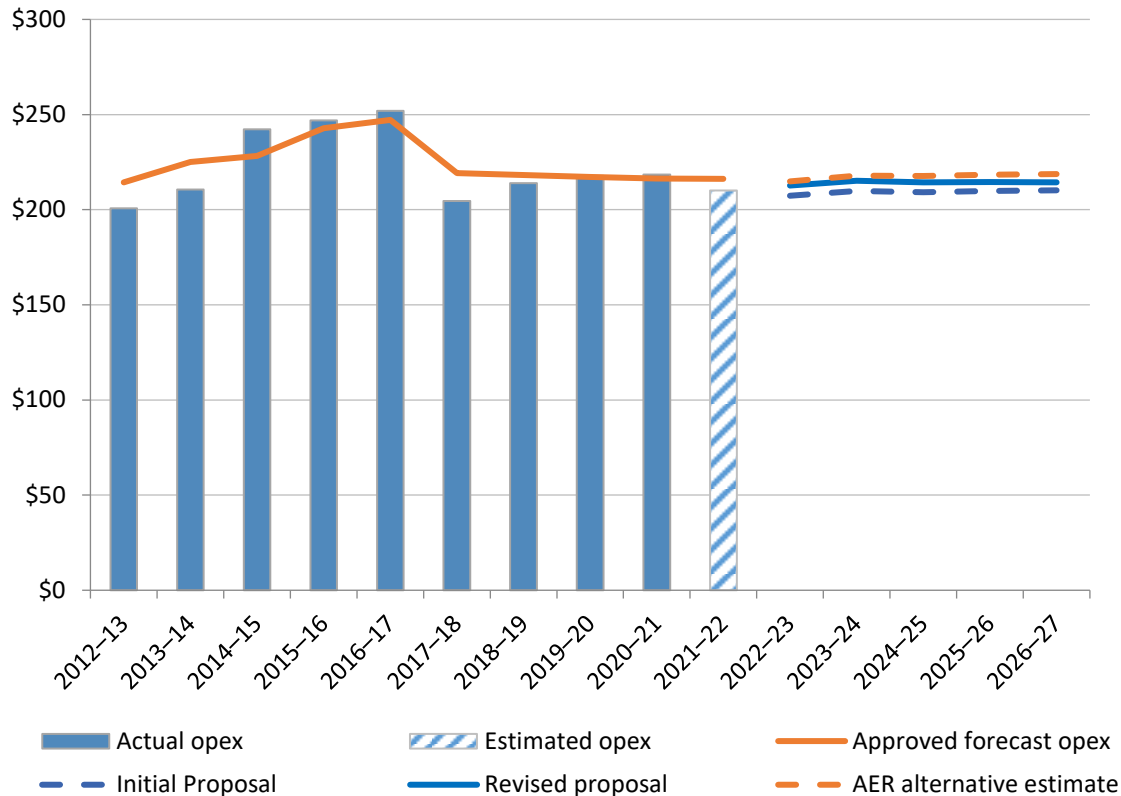
- \$16.1 million (\$2021–22) (1.5%) lower than the opex forecast we approved in our final decision for the 2017–22 period¹⁷⁰
- \$6.2 million (\$2021–22) (0.6%) higher than Powerlink’s actual (and estimated) opex in the 2017–22 period
- \$25 million (\$2021–22) (2.4%) higher than Powerlink’s initial proposal and our draft decision.

¹⁶⁸ Deloitte Access Economics, *Wage Price Index forecasts*, 8 March 2022, p.36.

¹⁶⁹ AER, *2021 Annual Benchmarking Report, Electricity transmission network service providers*, November 2021 and Economic Insights, *Economic Benchmarking Results for the Australian Energy Regulator’s 2021 TNSP Annual Benchmarking Report*, 12 November 2021, p. 60.

¹⁷⁰ The difference is calculated using the opex allowance for the five-year 2017–22 period converted to real 2021–22 dollars using unlagged (June to June) inflation. The difference of \$5.7 million stated in section 1.1 has been calculated using lagged (December to December) inflation.

Figure 12 Historical and forecast opex over time (\$2021–22, million)



Source: Powerlink, 2023–27 Revenue Proposal – Operating expenditure model, January 2021; Powerlink, 2023–27 Revised proposal – Operating expenditure model, November 2021; AER, Powerlink 2012–17 Final decision, April 2012; AER Analysis.
 Note: Includes debt raising costs.

In relation to the lower productivity growth forecast we used in our alternative estimate, CCP23 submitted it would like to better understand why we use the (lower) industry average forecast rather than Powerlink’s higher forecast. CCP23 would prefer we used Powerlink’s forecast in our alternative estimate, recognising Powerlink’s philosophy of ‘constructive discomfort’ and its commitment to a ‘no real growth forecast’.¹⁷¹

We commend Powerlink on its philosophy of ‘constructive discomfort’ in proposing annual productivity growth forecasts that exceed the industry average in both its initial proposal¹⁷² (0.5%) and revised proposal (0.6%).¹⁷³ For the final decision, we have used an annual 0.5% productivity growth rate in our alternative estimate based on findings from our 2021 Annual Benchmarking Report, which we have published since our draft decision.¹⁷⁴

¹⁷¹ CCP23, *Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027*, 14 January 2022, pp. 31–33.

¹⁷² Powerlink, 2023–27 Revenue proposal, 28 January 2021, p. 82.

¹⁷³ Powerlink, 2023–27 Revised revenue proposal, 19 November 2021, p. 15.

¹⁷⁴ AER, 2021 Annual Benchmarking Report, *Electricity transmission network service providers*, November 2021 and Economic Insights, *Economic Benchmarking Results for the Australian Energy Regulator’s 2021 TNSP Annual Benchmarking Report*, 12 November 2021, p. 60.

We consider the annual 0.5% productivity growth figure we have used in our alternative estimate is based on a robust forecasting approach reflecting the most recent information on the productivity growth achieved by the industry. Powerlink's productivity growth forecast is a result of its 'no real growth' target. We do not consider that deriving a productivity growth forecast based on a target opex forecast is a robust method of forecasting productivity growth. While such an approach may yield a reasonable forecast, this will also depend on the reasonableness of the opex forecast. In this case, the fact we have accepted Powerlink's total opex forecast implies that Powerlink's forecast productivity growth is reasonable. This is further supported by the fact that our annual forecast productivity growth rate of 0.5% is not dissimilar to Powerlink's forecast of 0.6%.

As we have accepted Powerlink's opex proposal, we do not consider that our approach to forecasting productivity growth will disincentivise other networks from adopting an opex forecasting approach like Powerlink's and embracing 'constructive discomfort'. Indeed, we would welcome any future proposals that include productivity growth beyond the industry average.

2.7 Revenue adjustments

Our final decision on Powerlink's total revenue for the 2022–27 period includes the adjustments set out below.

2.7.1 Efficiency benefit sharing scheme

The Efficiency benefit sharing scheme (EBSS) provides Powerlink with a continuous incentive to pursue efficiency improvements in opex and provide for a fair sharing of these between Powerlink and network users.

Our final decision is to apply EBSS carryover amounts totalling \$7.2 million (\$2021–22) from the application of the EBSS in the 2017–22 period, as set out in Table 10.¹⁷⁵ This is \$0.2 million higher than Powerlink's revised proposal of \$7 million¹⁷⁶ and \$0.3 million higher than our draft decision.

In our draft decision, we estimated Powerlink's actual opex for 2020–21 to calculate its EBSS carryover amounts.¹⁷⁷ This was because we did not yet have its audited actual amounts for 2020–21. In its revised proposal, Powerlink updated our draft decision EBSS calculations to reflect its audited actual opex for 2020–21 and the latest forecast of inflation available for the year to June 2022.

For this final decision, we have updated Powerlink's revised proposal EBSS calculations to reflect a more recent forecast of inflation for the year to June 2022.

¹⁷⁵ NER, cl. 6A.5.4(a)(5) and 6A.6.5.

¹⁷⁶ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 30.

¹⁷⁷ AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 8 – Efficiency benefit sharing scheme*, September 2021.

**Table 10 Final decision on EBSS carryover amounts
(\$ million, 2021–22)**

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
Powerlink’s revised proposal	5.0	–5.9	–	2.2	5.7	7.0
AER final decision	5.2	–5.9	–	2.2	5.7	7.2

Source: AER analysis.

Note: Numbers may not add up due to rounding. Amounts of ‘0.0’ and ‘–0.0’ represent small non-zero amounts and ‘–’ represents zero.

2.7.2 Capital expenditure sharing scheme

The capital expenditure sharing scheme (CESS) incentivises Powerlink to undertake efficient capex throughout the period by rewarding efficiency gains and penalising efficiency losses, each measured by reference to the difference between forecast and actual capex.

Our final decision is to apply a CESS revenue decrement of \$1.41 million (\$2021–22) from the application of the CESS in the 2017–22 period.¹⁷⁸ In the 2017–22 period, although Powerlink under-spent against our capex forecast, the CESS model adjusted for Powerlink’s deferral of its proposed office building refit project, as well as Powerlink’s share of the financing benefits from its under-spend that it accrued through the regulatory period.

Our calculation of the CESS is in accordance with section 2.3 of version 1 of the capital expenditure incentive guideline.¹⁷⁹ The formulas for calculating the revenue increments are set out in our determination CESS model.¹⁸⁰

The difference between our final decision and Powerlink’s revised proposal is because we have used more recent inflation figures, updated WACC input information, and updated 2021 capex consistent with our roll forward model.

2.7.3 Demand management innovation allowance mechanism

The demand management innovation allowance mechanism (DMIAM) is intended to fund Powerlink for research and development in demand management projects that have the potential to reduce long-term network costs.

Our final decision is not to apply an amount for DMIAM to Powerlink in the 2022–27 period. This amends our draft decision which was to apply an amount of \$3.6 million (\$2021–22). Section 3.1.4 sets out our final decision on DMIAM in detail.

¹⁷⁸ NER, cl. 6A.14.1(5A).

¹⁷⁹ AER, *Capital Expenditure Incentive Guideline*, November 2013, p. 6.

¹⁸⁰ AER, *Powerlink transmission determination, draft decision, 2022–27, CESS model*, September 2021.

2.7.4 Shared assets revenue adjustment

Shared assets are used to provide both the prescribed services we regulate and unregulated services. If the revenue from shared assets is material, 10% of the unregulated revenues that a service provider earns from shared assets will be used to reduce its revenue for prescribed services.¹⁸¹

Our final decision is not to apply a shared asset revenue adjustment to Powerlink's total revenue cap for the 2022–27 period.¹⁸² This is consistent with our draft decision and Powerlink's revised proposal as the materiality threshold of 1% was not met in any year of the 2022–27 period.

2.8 Corporate income tax

Our revenue determination includes the estimated cost of corporate income tax for Powerlink's 2022–27 period.¹⁸³ Under the post-tax framework, the cost of corporate income tax is calculated as part of the building block assessment using our PTRM.

Our final decision on Powerlink's estimated cost of corporate income tax is \$49.9 million (\$ nominal) over the 2022–27 period. This represents an increase of \$9.9 million (24.7%) from Powerlink's revised proposal of \$40.0 million.

The key reasons for this increase are our final decision to:

- increase the rate of return on equity (the largest contributor to the increase)¹⁸⁴
- slightly reduce the opening tax asset base (TAB) value as at 1 July 2022¹⁸⁵
- make a correction in the PTRM to increase the standard tax asset life from 2.5 years to 5 years for the 'In-house software' asset class, which increases the cost of corporate income tax by \$1.9 million.

This increase is partially offset by our final decision to reduce the regulatory depreciation amount.¹⁸⁶

Our final decision accepts Powerlink's revised proposed:

- standard tax asset lives for all asset classes because they are consistent with our draft decision¹⁸⁷

¹⁸¹ AER, *Shared asset guideline*, November 2013, pp. 8–9.

¹⁸² AER, *Powerlink transmission determination, draft decision, 2022-27, Attachment 1 – Maximum allowed revenue*, September 2021, p. 16; Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 29.

¹⁸³ NER, cl. 6A.5.4(a)(4).

¹⁸⁴ See section 2.2. All else being equal, a higher rate of return on equity will increase the cost of corporate income tax because it increases the return on equity, a component of the taxable income.

¹⁸⁵ A reduction to the opening TAB of less than \$10,000. All else being equal, a lower opening TAB value will decrease the tax depreciation, a component of the tax expense, and increase the cost of corporate income tax.

¹⁸⁶ See section 2.4.

¹⁸⁷ However, we have corrected the standard tax asset life for the 'In-house software' asset class to reflect our draft decision. AER, *Powerlink transmission determination, draft decision, 2022-27, Attachment 7 – Corporate income tax*, September 2021, p. 17.

- amount of forecast immediate expensing of capex
- change in approach to use the year-by-year depreciation tracking approach to calculate the forecast tax depreciation of its existing assets, consistent with our draft decision. We are satisfied that the application of this method provides an estimate of the tax depreciation amount for a benchmark efficient service provider, as required by the NER.¹⁸⁸

Table 11 sets out our final decision on the estimated cost of corporate income tax for Powerlink over the 2022–27 period.

Table 11 Final decision on Powerlink’s cost of corporate income tax for the 2022–27 period (\$ million, nominal)

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
Tax payable	13.9	11.8	20.9	37.3	36.2	120.1
Less: value of imputation credits	8.1	6.9	12.2	21.8	21.2	70.3
Net cost of corporate income tax	5.8	4.9	8.7	15.5	15.0	49.9

Source: AER analysis.

In the draft decision, we made the following changes to Powerlink’s modelling of its cost of corporate income tax, which Powerlink adopted in its revised proposal:^{189, 190}

- We made a minor revision to the opening TAB as at 1 July 2022 to reflect our amendments to some inputs in the RFM. These included an update for actual inflation to the proposed values for:
 - the removal of assets from the opening TAB (as at 1 July 2022) as they have been repurposed to no longer provide prescribed services
 - the roll-in of assets into the opening TAB (as at 1 July 2022) that will provide prescribed services.
- We accepted Powerlink’s proposal to use the year-by-year tracking approach for calculating tax depreciation of its existing assets. Under this approach, the capex for each year of a regulatory control period is depreciated individually for tax purposes. However, we made some minor input updates in Powerlink’s depreciation tracking module for implementing year-by-year tracking.

¹⁸⁸ NER, cl. 6A.6.4.

¹⁸⁹ AER, *Powerlink transmission determination, draft decision, 2022-27, Attachment 7 – Corporate income tax*, September 2021, pp. 15–17.

¹⁹⁰ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 20.

2.8.1 Opening tax asset base as at 1 July 2022

Our final decision is to determine an opening TAB value for Powerlink as at 1 July 2022 of \$4,491.8 million, which is slightly lower than Powerlink's revised proposal.¹⁹¹

Our draft decision accepted Powerlink's proposed method to establish the opening TAB as at 1 July 2022. However, we amended some of the proposed inputs used for the TAB roll forward – specifically, we made actual inflation adjustments for the net value of assets being removed from the TAB. We noted that the opening TAB may be updated as part of the final decision to reflect:

- actual capex for 2020–21
- any revised 2021–22 capex estimate.

Powerlink's revised proposal adopted our draft decision changes.¹⁹² It also updated the opening TAB as at 1 July 2022 to reflect the actual capex for 2020–21 and a revised 2021–22 capex estimate.

For the reasons discussed in section 2.2, we accept the actual 2020–21 capex and the updated 2021–22 capex estimate. The 2021–22 capex estimate is higher than what we approved in our draft decision, reflecting more recent data.¹⁹³ We will update 2021–22 estimated capex for actuals at the next revenue determination (2027–32 period).

Table 12 sets out our final decision on the roll forward of Powerlink's TAB values over the 2017–22 period.

Table 12 Final decision on Powerlink's TAB roll forward for the 2017–22 period (\$ million, nominal)

	2017–18	2018–19	2019–20	2020–21	2021–22 ^a
Opening TAB	4,953.6	4,847.3	4,822.2	4,653.1	4,526.3
Capital expenditure ^b	118.5	208.4	73.8	121.4	215.4
Less: Tax depreciation	224.9	233.5	242.9	248.1	251.0
Final year adjustments ^c					1.1
Closing TAB	4,847.3	4,822.2	4,653.1	4,526.3	4,491.8

Source: AER analysis.

(a) Based on estimated capex.

(b) As-commissioned, net of disposals.

(c) Roll-in of assets at 30 June 2022 that provide prescribed services.

¹⁹¹ This is due to the 2021–22 CPI updates to the net value of asset transfers from the TAB. The difference in the opening TAB between the final decision and Powerlink's revised proposal is less than \$10,000.

¹⁹² Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 20.

¹⁹³ On an as-commissioned basis, which is used to roll forward the TAB in the RFM.

2.8.2 Forecast immediate expensing of capex

This final decision determines that \$102.3 million (\$2021–22) of Powerlink’s forecast capex is to be immediately expensed for tax purposes in the 2022–27 period.

Our draft decision accepted Powerlink’s proposed method to calculate its forecast immediate expensing of capex. This approach involves forecasting a certain proportion of capex as immediately expensed. As our draft decision accepted Powerlink’s overall forecast capex, we consequently accepted the proposed amount of forecast immediately expensed capex.¹⁹⁴

Powerlink’s revised proposal applied the same approach accepted in our draft decision to calculate its immediate expensing of forecast capex for tax purposes in the 2022–27 period. However, Powerlink updated its forecast immediate expensing amount to \$102.3 million, to reflect its revised forecast capex.

As discussed in section 2.5 of this final decision document, we have accepted Powerlink’s revised forecast capex for the 2022–27 period. Our final decision is therefore to also accept the revised proposed amount of forecast immediate expensing of capex.

We will collect actual data relating to the immediate expensing of capex in our annual reporting regulatory information notices to further inform our decision for this type of expenditure in the next revenue determination for Powerlink.

2.8.3 Year-by-year tracking approach

This final decision confirms our draft decision to accept Powerlink’s change in approach from the weighted average remaining life approach (approved for the 2017-22 period) to the year-by-year tracking approach going forward. The use of year-by-year tracking means it is no longer necessary to explicitly calculate remaining tax asset lives as at 1 July 2022.

In the draft decision, we required a few minor modelling input adjustments to the depreciation module used for implementing straight-line depreciation.¹⁹⁵ Powerlink’s revised proposal adopted all our draft decision changes.¹⁹⁶ Our final decision also makes standard input updates to the depreciation module, consistent with our RFM amendment to the TAB as discussed above.¹⁹⁷

¹⁹⁴ AER, *Powerlink transmission determination, draft decision, 2022-27, Attachment 7 – Corporate income tax*, September 2021, p. 14.

¹⁹⁵ AER, *Powerlink transmission determination, draft decision, 2022-27, Attachment 7 – Corporate income tax*, September 2021, pp. 16–17.

¹⁹⁶ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 20.

¹⁹⁷ RFM amendments to the TAB include 2020–21 CPI updates for both as-commissioned asset disposals and final year TAB asset adjustments.

2.8.4 Standard tax asset lives

This final decision accepts Powerlink’s revised standard tax asset lives for all asset classes, with the exception of the ‘In-house software’ asset class. This is consistent with our draft decision, and we confirm our position that the standard asset lives are broadly consistent with the values prescribed by the Commissioner of taxation in the Australian Taxation Office Ruling 2021/3 and the *Income Tax Assessment Act 1997* (ITAA).¹⁹⁸

Our final decision makes a correction in the PTRM to the standard tax asset life for the ‘In-house software’ asset class. Our draft decision was to apply a standard tax asset life of 5 years for this asset class consistent with subsection 40.95(7) of the ITAA.¹⁹⁹ However, this was not reflected in our draft decision PTRM and Powerlink’s revised proposal PTRM, which both applied a standard tax asset life of 2.5 years. Our final decision PTRM, therefore, has been amended to apply the standard tax asset life of 5 years for this asset class. This has the impact of increasing the corporate income tax building block by \$1.9 million (\$ nominal) over the 2022–27 period. In its response to our information request, Powerlink agreed to this change.²⁰⁰

Table F.2 in Appendix F sets out our draft decision on the standard tax asset lives for Powerlink. We are satisfied that the standard tax asset lives are appropriate for application over the 2022–27 period. We are also satisfied that the standard tax asset lives provide an estimate of the tax depreciation amount that would be consistent with the tax expenses used to estimate the annual taxable income for a benchmark efficient service provider.²⁰¹

¹⁹⁸ ATO, *Taxation Ruling TR2021/3 – Income tax: effective life of depreciating assets (applicable from 1 July 2021)*, available at [ATO ruling](#); ITAA 1997, Section 40.105.

¹⁹⁹ AER, *Powerlink transmission determination, draft decision, 2022-27, Attachment 7 – Corporate income tax*, September 2021, pp. 10 and 17.

²⁰⁰ Powerlink, *Response to AER Information request, 24 February 2021*.

²⁰¹ NER, cl. 6A.6.4.

3 Incentive schemes and allowances

Incentive schemes are a component of incentive based regulation and complement our approach to assessing efficient costs. They provide important balancing incentives under network determinations, encouraging businesses to pursue expenditure efficiencies while maintaining the reliability and overall performance of its network.

Incentive schemes and allowances that might apply in our network determinations are:

- **Efficiency benefit sharing scheme (EBSS)** – This provides Powerlink with a continuous incentive to pursue efficiency improvements in opex and provide for a fair sharing of these between Powerlink and network users. Consumers benefit from improved efficiencies through lower opex in regulated revenues for future periods. We have set out further details on how we will apply the EBSS to Powerlink in section 3.1.1 of this document.
- **Capital expenditure sharing scheme (CESS)** – This incentivises Powerlink to undertake efficient capex throughout the period by rewarding efficiency gains and penalising efficiency losses, each measured by reference to the difference between forecast and actual capex. Consumers benefit from improved efficiencies through a lower RAB, which is reflected in regulated revenues for future periods.
- **Service target performance incentive scheme (STPIS)** – This balances Powerlink's incentive to reduce expenditure with the need to maintain or improve service quality. It achieves this by providing financial incentives to maintain and improve service performance where consumers are willing to pay for these improvements. Powerlink can only retain its rewards for sustained and continuous improvements to the reliability of supply and the service level to the National Electricity Market (NEM). Once improvements are made, consumers benefit as the benchmark performance targets will be tightened in future years.
- **Demand management innovation allowance mechanism (DMIAM)** – This funds Powerlink for research and development in demand management projects that have the potential to reduce long-term network costs. Businesses are required to share learnings and insights gained from implementing such projects across industry and consumers. Projects to be funded under the DMIAM must meet approval criteria, as set out in the DMIAM instrument.

Our draft decision was to apply the EBSS, CESS, STPIS and DMIAM to Powerlink for the 2022–27 period.

Once we make our decision on Powerlink's revenue cap, it has an incentive to provide services at the lowest possible cost, because its returns are determined by its actual costs of providing services. Our incentive schemes encourage Powerlink to make efficient decisions, giving it an incentive to pursue efficiency improvements in opex and capex and to share them with consumers. If Powerlink reduces its costs to below our forecast of efficient costs, the savings are shared with its consumers in future regulatory control periods through the EBSS and CESS.

3.1.1 Efficiency benefit sharing scheme

We will continue to apply version 2 of the EBSS to Powerlink in the 2022–27 period.²⁰² We have set out in Table 13 the values for the efficiency benefit sharing scheme (EBSS) parameters that we will apply to Powerlink in the 2022–27 period, subject to adjustments required by the EBSS.

Table 13 Forecast total opex for the EBSS (\$ million, 2021–22)

	2018–19	2021–22	2022–23	2023–24	2024–25	2025–26	2026–27
Forecast total opex	218.3	216.3	212.8	215.3	214.4	214.5	214.4
Less debt raising costs	–4.0	–3.8	–3.5	–3.5	–3.4	–3.3	–3.2
Forecast total opex for the EBSS	214.3	212.5	209.2	211.8	211.0	211.2	211.2

Source: AER, *Powerlink 2022–27 – Final Decision – Post tax revenue model*, April 2022; AER, *Powerlink 2022–27 – Final Decision – EBSS Model*, April 2022; AER analysis.

Note: Numbers may not add up due to rounding. Amounts of '0.0' and '–0.0' represent small non-zero amounts and '–' represents zero.

In calculating EBSS carryover amounts, we will exclude the following costs from the EBSS:

- debt raising costs
- priority projects approved under the network capability component of the service target performance incentive scheme.

In addition to these excluded cost categories we will also:

- adjust forecast opex to add (subtract) any approved revenue increments (decrements) made after the initial regulatory determination, such as approved pass through amounts of opex for contingent projects²⁰³
- adjust reported actual opex for the 2022–27 regulatory control period to reverse any movements in provisions²⁰⁴
- adjust actual opex to add capitalised opex that has been excluded from the regulatory asset base²⁰⁵
- adjust forecast opex and actual opex for inflation²⁰⁶

²⁰² NER, cl. 6.12.1(9); AER, *Efficiency benefit sharing scheme for electricity network service providers*, November 2013.

²⁰³ AER, *Efficiency benefit sharing scheme for electricity network service providers*, November 2013, p.7.

²⁰⁴ Ibid.

²⁰⁵ Ibid.

²⁰⁶ Ibid.

- exclude categories of opex not forecast using a single year revealed cost approach for the next regulatory control period beginning in 2027–28 where doing so better achieves the requirements of clause 6A.6.5 of the NER.²⁰⁷

This final decision is consistent with our draft decision, which sets out our reasons.²⁰⁸

3.1.2 Capital efficiency sharing scheme

The CESS provides financial rewards to network service providers whose capital expenditure becomes more efficient and financial penalties for those that become less efficient. Consumers benefit from improved efficiency through lower regulated prices.

We will apply the CESS as set out in version 1 of the capex incentives guideline to Powerlink in the 2022–27 period.²⁰⁹ The guideline provides for the exclusion from the CESS of capex the service provider incurs in delivering a priority project approved under the network capability component of the STPIS for transmission network service providers.²¹⁰ This is consistent with the proposed approach we set out in our *Framework and Approach* paper²¹¹ and draft decision.²¹²

3.1.3 Service target performance incentive scheme

The service target performance incentive scheme (STPIS) provides a financial incentive to TNSPs to maintain and improve service performance. We will apply current version 5 of the STPIS to Powerlink for the 2022–27 period. Three components are applicable: the service component (SC), network capability component (NCC), and market impact component (MIC).²¹³

3.1.3.1 Service component

The SC is designed to encourage TNSPs to seek to reduce the number of unplanned network outages and to promptly restore the network in the event of unplanned outages that result in supply interruptions. This component is also designed to indicate potential reliability issues. We accept Powerlink’s proposal for the SC because it is consistent with our own calculated values for the floors, caps and targets. The performance targets are shown in Table H.1 of Appendix H.

²⁰⁷ Ibid.

²⁰⁸ AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 8 – Efficiency benefit sharing scheme*, September 2021.

²⁰⁹ AER, *Capital Expenditure Incentive Guideline*, November 2013, pp. 5–9; cl. 6A.6.5A(e) of the NER.

²¹⁰ AER, *Capital Expenditure Incentive Guideline*, November 2013, p. 6.

²¹¹ AER, *Final Framework and Approach for Powerlink 2022–27 – Regulatory control period commencing 1 July 2022*, July 2020.

²¹² AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 9 – Capital expenditure sharing scheme*, September 2021, p. 5.

²¹³ AER, *Final – Service Target Performance Incentive Scheme*, October 2015, cl. 2.2(a).

3.1.3.2 Network capability component

The NCC is designed to encourage TNSPs to develop projects (up to a total of 1% of the proposed MAR per year) in return for a pro-rata incentive payment of up to 1.5% of MAR depending on the successful completion of proposed projects.²¹⁴ This component encourages TNSPs to examine their networks to identify suitable one-off operational and capex projects. These projects are expected to have a high net benefit and a short payback period and deliver improvements in the capability of the transmission network at times when it is most needed.

We accept Powerlink's proposal not to apply for any network capability incentive parameter action plan (NCIPAP) projects for the 2022–27 period. That said, at the time Powerlink submits its annual STPIS compliance report for our review, it may also propose one or more new priority projects as per STPIS clause 5.4(b) for AER approval.

3.1.3.3 Market impact component

The MIC provides an incentive to TNSPs to minimise the impact of transmission outages that can affect wholesale market outcomes. The MIC measures performance against the market impact parameter, which is the number of dispatch intervals where an outage on the TNSP's network results in a network outage constraint²¹⁵ with a marginal value greater than \$10/MWh (MIC count).²¹⁶

Based on its historical measurement approach and the latest 2020 performance results, Powerlink has proposed a performance target of 3,364 dispatch intervals.²¹⁷

While Powerlink accepted our draft decision, it submitted that the application of the MIC needs review. In particular, due to the large number of variable renewable energy (VRE) generators, Powerlink's ability to reasonably forecast when transmission network capacity is of most value to network users, and to plan network outages around these times, is becoming challenging.

Powerlink's concerns are similar to those expressed by AusNet Services in its revised proposal for its 2022–27 revenue determination.²¹⁸

Similar to Powerlink and AusNet Services' observations, we have also identified a number of issues arising from the way semi-dispatch generators bid into the market.

²¹⁴ Ibid, cl. 5.2.

²¹⁵ Network outage constraints are constraint sets that are applied in AEMO's market systems to manage power flows during outages so that the power system remains secure during an outage.

²¹⁶ AER, *Final – Service Target Performance Incentive Scheme*, October 2015, Appendix C.

²¹⁷ Powerlink, *2023-27 Revised revenue proposal, 2023–27, November 2021*, Appendix 15.01 – PUBLIC Setting STPIS Values, p. 17.

²¹⁸ AusNet Services, *Transmission revenue review 2023–27, Revised revenue proposal*, September 2021.

Soon after wind and solar farms first entered the NEM in the early 2000s, the previous market operator, the National Electricity Market Management Company Limited (now AEMO), recommended that there be a central forecasting system.²¹⁹ The Australian Wind Energy Forecasting System and Australian Solar Energy Forecasting System were created for that purpose. These two systems use local solar radiance and wind speed information, amongst other variables, to produce an energy dispatch level. The generator is, therefore, not entirely able to control the level of output that feeds into the dispatch mechanisms.

Consequently, when there is a planned outage on the network that directly or indirectly impacts a generator, the VREs (wind or solar farms) are not in control of the representation of their capacity bidding into the market systems. Most of these participants may typically offer all their capacity at the market price floor to ensure that they get dispatched.

The MIC counts the number of dispatch intervals (5-minute intervals) where a network constraint for a network outage has a marginal value of \$10/MWh or greater.

Where VREs make offers to the NEM in excess of their nominated export level, their output levels will appear as being constrained by a planned outage. We consider that constraints arising from renewable generators not modifying their bids into the market while knowingly aware that a planned network outage is in place, should not be counted because this is outside the control of the TNSPs.

TNSPs cannot control or have influence on semi-dispatch generators offering their maximum potential capacity even though they know that a planned network outage is in place. Therefore, in such situations, we consider that this event would meet the force majeure criteria and should be excluded from the MIC count.

To give effect to this clarification on how the existing exclusion criteria should be applied as outlined in our 2022–27 STPIS final decision for AusNet Services,²²⁰ we requested Powerlink to provide us with:

- a list of the constraint codes that meet our clarification that were previously included in the performance data previously provided to the AER
- a description of each of these constraint codes and why they are outside the reasonable control of Powerlink
- the number of MIC counts under each of the constraint codes for each of the previous seven years relevant for the MIC target setting that met the above consideration.²²¹

²¹⁹ AEMC 2008, *Central Dispatch and Integration of Wind and Other Intermittent Generation*, Rule Determination, 1 May 2008.

²²⁰ AER, *AusNet Services transmission determination, final decision, 2022–27, Attachment 10 – Service target performance incentive scheme*, January 2022.

²²¹ AER, *Information request IR#015 - STPIS - Market Impact Component (MIC) target setting*, 17 February 2022.

Powerlink's response to our information request provided us with revised data by removing:

- events where a semi-dispatch generator offers its maximum potential capacity even though it knows that a planned network outage is in place. This situation can arise when AEMO places a semi-dispatch cap on these generators to match the network configuration at the time, resulting in a binding constraint on the generator
- events that relate to changes in AEMO's approach to managing frequency control, where similar new requirements imposed by AEMO were previously considered by the AER as outside the TNSP's reasonable control.

We reviewed Powerlink's revised data and found the information to be accurate. In reviewing Powerlink's amended MIC data, we identified that the impact of VREs only started to affect Powerlink's operations from 2019. This observation is similar to that identified by AusNet Services due to recent high levels of new VRE in the NEM.

We applied the target setting method under version 5 of the STPIS to set Powerlink's MIC performance target for 2022–27 period, as set out in Table H.3 of Appendix H.

3.1.4 Demand management innovation allowance mechanism

Our final decision is not to apply the demand management innovation allowance mechanism (DMIAM) to Powerlink for the 2022–27 period.

The Rules requires our regulatory determination to specify how the DMIAM is to apply to Powerlink.²²² In May 2021, we published the DMIAM regulatory instrument, after stakeholder consultation, which sets out the design features and operational arrangements of the DMIAM.²²³

We outlined our intention to apply the DMIAM in our Framework & Approach paper for Powerlink.²²⁴ While the paper did not include details of how we would decide on whether, and how, to apply the DMIAM, we consider that the key decision factor is whether the proposed implementation method will deliver the intended outcomes of the DMIAM.

3.1.4.1 Our draft decision

Following its initial proposal request to have the DMIAM applied, Powerlink wrote to the AER in July 2021 requesting us to not apply the DMIAM in the 2022–27 period – two months after our public consultation on the proposal had closed.

²²² NER, cl. 6A.4.2(6A).

²²³ AER, *Demand management innovation allowance mechanism, Electricity transmission network service providers*, May 2021.

²²⁴ AER, *Final Framework and Approach for Powerlink – Regulatory control period commencing 1 July 2022*, July 2020, p. 18.

Our draft decision was to apply the DMIAM to Powerlink for the 2022–27 period, without any modification, because:²²⁵

- Powerlink’s request to not apply DMIAM was submitted after our public consultation process had closed, therefore, not giving all stakeholders the opportunity to consider Powerlink’s amended position prior to our draft decision. In particular, Powerlink did not provide details of its innovation framework on how it would integrate demand management innovation initiatives into its business-as-usual plans.
- While Powerlink’s amended proposal to undertake research and development works in a business-as-usual manner may have merit, we considered it essential that the proposal is publicly consulted on and discussed with stakeholders, including how innovation on demand management initiatives would be assimilated into Powerlink’s operations, before we make a final decision.
- We considered Powerlink’s statement that, “the DMIAM is intended to provide a TNSP with access to funding to research and develop demand management projects that may otherwise be considered inefficient to undertake as part of typical, business-as-usual operation”, may be understating aspects of the DMIAM.
- Powerlink had not proposed an approach to share the learnings of any research and development on demand management initiatives where it undertakes such initiatives as part of its normal course of business.

3.1.4.2 Powerlink’s revised proposal

Powerlink’s revised proposal did not accept our draft decision to apply the DMIAM. It submitted that:²²⁶

- Powerlink recognises that demand management is an important, sector-wide issue, particularly given the trends of increasing maximum demand, decreasing minimum demand and declining energy throughput
- notwithstanding its position, Powerlink will continue to undertake initiatives to respond to these issues and pursue innovation in demand management as part of its normal business operations
- Powerlink will also continue to share knowledge with its industry peers where appropriate to help ensure that customers benefit from these arrangements.

To provide clarity on how it will share the learnings from demand management studies, Powerlink indicated that, where it is able to do so, Powerlink will utilise a range of channels to share the knowledge through:²²⁷

²²⁵ AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 13 – Demand management innovation allowance mechanism*, pp. 6-7.

²²⁶ Powerlink, *2023–27 Revised revenue proposal*, November 2021, p. 37.

²²⁷ Powerlink, *2023–27 Revised revenue proposal, Appendix 17.02 – Powerlink Background Material on DMIAM*, November 2021.

- joint planning with Energy Queensland Limited, AEMO and Transgrid to collaborate in the development of efficient solutions to meet emerging power system needs
- active participation in a number of AEMO-convened information sharing forums, including the Forecasting Reference Group, Planning Reference Group, and Plant Modelling Reference Group
- contribution to the Conseil International des Grands Réseaux Electriques (CIGRE), which is a global community committed to the collaborative development and sharing of power system expertise
- publication of one-off research activities such as Australian Renewable Energy Agency grant research.

3.1.4.3 Reasons for our final decision

We acknowledge that, in addition to general consultation under the revised proposal process, Powerlink has:

- specifically consulted with its Customer Panel on this matter and received their support²²⁸
- provided detailed information in the revised proposal to explain how it will undertake demand management research and development activities for public consultation.²²⁹

We also note that CCP23 supported Powerlink's revised proposal.²³⁰

- CCP23 supported Powerlink's proposed approach to provide additional information to the AER as part of its revised proposal.
- CCP23 supported Powerlink's revised proposal to not have the DMIAM applied in the 2022–27 period, mainly because “engagement with consumer interests, through the Powerlink's Customer Panel, has supported the initial Powerlink proposal of not applying the DMIAM”.

In reaching our final decision to not apply the DMIAM, we have had regard to CCP23's submission and the views of Powerlink's Customer Panel.²³¹ We consider that Powerlink has demonstrated in its revised proposal that:

- it consulted with stakeholders before requesting the AER to not apply the DMIAM to Powerlink in the 2022–27 period

²²⁸ Powerlink, 2023–27 Revised revenue proposal, Appendix 17.01 – Customer Panel statement on DMIAM, November 2021.

²²⁹ Powerlink, 2023–27 Revised revenue proposal, Appendix 17.02 – Powerlink Background Material on DMIAM, November 2021.

²³⁰ CCP23, Advice to the AER on the Powerlink transmission revised regulatory proposal and AER draft determination for the regulatory period 1 July 2022 to 30 July 2027, 14 January 2022.

²³¹ Powerlink, 2023–27 Revised revenue proposal, Appendix 3.01 – Customer Panel statement on capable of acceptance, November 2021.

- it will still undertake alternative technology projects to reduce demand, albeit as part of its business-as-usual processes rather than via the DMIAM
- it will share its learnings with stakeholders, both within and outside of Australia.

In addition, we consider that Powerlink's proposal to undertake research and development activities for improving demand management on a business-as-usual basis is consistent with the long term interests of consumers. This is because when a business' core activity focus also includes demand management, this matter will get better attention from its senior management and will likely deliver good outcomes to consumers.

We note that our final decision on DMIAM applies for the 2022–27 period only, and that Powerlink's Customer Panel has requested they are briefed by Powerlink in around 18 months on the studies undertaken and learnings gained from other transmission businesses participating in the DMIAM. Given Powerlink's strong consumer engagement in this 2022–27 revenue determination, we are confident Powerlink will uphold this request. Further, our future DMIAM position for Powerlink will be informed by Powerlink's 2022–27 demand management performance in terms of projects undertaken and its consumer engagement approach. This will ensure that our DMIAM position for Powerlink continues to be in the long term interests of consumers.

Hence, we consider that Powerlink's proposed approach to undertake research and development activities for demand management as a part of its business-as-usual functions will deliver the intended outcomes of the DMIAM.

4 Pricing methodology

Our final decision is to approve Powerlink's revised pricing methodology.

Powerlink's revised pricing methodology²³² must be adopted by it for the 2022–27 period.

The role of the pricing methodology is to answer the question 'who should pay how much' in order for Powerlink to recover its costs. Powerlink's pricing methodology provides a 'formula, process or approach' that when applied:

- allocates the aggregate annual revenue requirement to the categories of prescribed transmission services that a transmission business provides and to the connection points of network users
- determines the structure of prices that a transmission business may charge for each category of prescribed transmission services.

Powerlink's pricing methodology relates to prescribed transmission services only.

Our draft decision accepted Powerlink's initial pricing methodology, which was largely identical to the pricing methodology approved for the 2017–22 period except for some minor amendments. The key amendment was the demand measure used to derive locational prices. Under the pricing methodology for the 2017–22 period, Powerlink used a combination of peak and average demand to derive locational prices. Powerlink proposed to progressively transition to using peak demand only over the next two regulatory control periods (10 years).

Powerlink's revised proposal accepted our draft decision, but was updated to include amendments to reflect recent changes to Chapter 6A of the NER (as well as minor edits). These proposed amendments reflect the wording of new rules which state that settlement residue adjustments made to non-locational prices should not include amounts that accrue on designated network assets.²³³

We consider these amendments are reasonable as they reflect the NER amendments.

²³² Available here: [Powerlink's revised pricing methodology](#)

²³³ AEMC, *Rule Determination National Electricity Amendment (Connection to Dedicated Connection Assets) Rule 2021*, 8 July 2021.

A National Electricity Law, Rules and Objective

The National Electricity Law (NEL) and National Electricity Rules (NER) provide the regulatory framework governing electricity networks. Our work under this framework is guided by the National Electricity Objective (NEO):²³⁴

“...to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—

- (a) price, quality, safety, reliability and security of supply of electricity; and
- (b) the reliability, safety and security of the national electricity system.”

The NEL requires us to make our decision in a manner that contributes, or is likely to contribute, to achieving the NEO.²³⁵ The focus of the NEO is on promoting efficient investment in, and operation and use of, electricity services (rather than assets) in the long term interests of consumers.²³⁶ This is not delivered by any one of the NEO’s factors in isolation, but rather by balancing them in reaching a regulatory decision.²³⁷

Electricity determinations are complex decisions. In most cases, the provisions of the NER do not point to a single answer, either for our decision as a whole or in respect of particular components. They require us to exercise our regulatory judgement. Where there are choices to be made among several plausible alternatives, we have selected what we are satisfied would result in an overall decision that contributes to the achievement of the NEO to the greatest degree.²³⁸

Our determinations are predicated on a number of constituent decisions that we are required to make (see Appendix B).²³⁹ In coming to a decision that contributes to the achievement of the NEO, we have considered interrelationships of the constituent components of our final decision. Examples include:

- Underlying drivers and context which are likely to affect many constituent components of our decision – For example, forecast demand affects the efficient levels of capital expenditure and operating expenditure in the regulatory control period (see sections 2.5 and 2.6 of this decision).
- Direct mathematical links between different components of a decision – For example, the value of imputation credits (gamma) has an impact on the appropriate tax allowance, and the benchmark efficient entity’s debt to equity ratio has a direct effect on the cost of equity, cost of debt, and overall vanilla rate of return (see sections 2.3 and 2.8 of this decision).

²³⁴ NEL, s. 7.

²³⁵ NEL, section 16(1)(a).

²³⁶ This is also the view of the AEMC. See, for example, AEMC, *Applying the Energy Objectives: A guide for stakeholders*, 1 December 2016, p. 5.

²³⁷ Hansard, *SA House of Assembly*, 26 September 2013, p. 7173. See also AEMC, *Applying the Energy Objectives: A guide for stakeholders*, 1 December 2016, pp. 7-8.

²³⁸ NEL, s. 16(1)(d).

²³⁹ NER, cl. 6A.14.1.

- Trade-offs between different components of revenue – For example, undertaking a particular capital expenditure project may affect the need for operating expenditure, or vice versa (see sections 2.5 and 2.6 of this decision).

In general, we consider that the long term interests of consumers are best served where consumers receive a reasonable level of safe and reliable service that they value at least cost in the long run.²⁴⁰ A decision that places too much emphasis on short term considerations may not lead to the best overall outcomes for consumers once the longer term implications of that decision are taken into account.²⁴¹

There may be a range of economically efficient decisions we could make in a revenue determination, each with different implications for the long term interests of consumers.²⁴² A particular economically efficient outcome may nevertheless not be in the long term interests of consumers, depending on how prices are structured and risks allocated within the market.²⁴³ There are also a range of outcomes that are unlikely to advance the NEO, or advance the NEO to the degree that others would. For example, we consider that:

- The long term interests of consumers would not be advanced if we encourage over-investment that results in prices so high that consumers are unwilling or unable to efficiently use the network.²⁴⁴
- Equally, the long term interests of consumers would not be advanced if allowed revenues result in prices so low that investors do not invest to sufficiently maintain the appropriate quality and level of service, and where consumers are making more use of the network than is sustainable leading to safety, security and reliability concerns.²⁴⁵

²⁴⁰ Hansard, *SA House of Assembly*, 9 February 2005, p. 1452.

²⁴¹ See, for example, the AEMC, *'Applying the Energy Objectives: A guide for stakeholders'*, 1 December 2016, pp. 6-7.

²⁴² *Re Michael: Ex parte Epic Energy* [2002] WASCA 231 at [143].

²⁴³ See, for example, the AEMC, *'Applying the Energy Objectives: A guide for stakeholders'*, 1 December 2016, p. 5.

²⁴⁴ NEL, s. 7A(7).

²⁴⁵ NEL, s. 7A(6).

B Constituent decisions

Our final decision on Powerlink's transmission revenue determination for the 2022–27 regulatory control period includes the following constituent components:

Constituent component

In accordance with clause 6A.14.1(1)(i) of the NER, the AER's decision is not to approve the total revenue cap set out in Powerlink's building block proposal. Our decision on Powerlink's total revenue cap is \$3,804.2 million (\$ nominal, smoothed) for the 2022–27 regulatory control period. Powerlink's proposed total revenue cap was properly calculated using the post-tax revenue model, but we updated it to incorporate more recent values for certain inputs. This decision is discussed in section 2.1 of this document.

In accordance with clause 6A.14.1(1)(ii) of the NER, the AER's decision is not to approve the maximum allowed revenue (MAR) for each regulatory year of the regulatory control period set out in Powerlink's building block proposal. Powerlink's proposed MAR was properly calculated using the post-tax revenue model, but we updated it to incorporate more recent values for certain inputs. Our decision on Powerlink's MAR for each year of the 2022–27 regulatory control period is set out in section 2.1 of this document.

In accordance with clause 6A.14.1(1)(iii) of the NER, the AER's decision is to apply the service component, network capability component and market impact component of Version 5 of the service target performance incentive scheme (STPIS) to Powerlink for the 2022–27 regulatory control period. The values and parameters of the STPIS that are approved by the AER are set out in Appendix H of this document.

In accordance with clause 6A.14.1(1)(iv) of the NER, the AER's decision on the values that are to be attributed to the parameters for the efficiency benefit sharing scheme (EBSS) that will apply to Powerlink in respect of the 2022–27 regulatory control period is set out in section 3.1.1 of this document.

In accordance with clause 6A.14.1(1)(v) of the NER, the AER's decision is to approve the commencement and length of the regulatory control period as Powerlink proposed in its revenue proposal. The regulatory control period will commence on 1 July 2022 and the length of this period is five years, expiring on 30 June 2027.

In accordance with clause 6A.14.1(2)(i) of the NER and acting in accordance with clause 6A.6.7(c), the AER's decision is to accept Powerlink's proposed total forecast capital expenditure of \$882.4 million (\$2021–22). The reasons for our decision are set out in section 2.5 of this document.

In accordance with clause 6A.14.1(3)(i) of the NER and acting in accordance with clause 6A.6.6(c), the AER's decision is to accept Powerlink's proposed total forecast operating expenditure inclusive of debt raising costs of \$1,071.4 million (\$2021–22).

In accordance with clause 6A.14.1(4)(i) of the NER, the AER's decision is that the following project is a contingent project for the purpose of this revenue determination for Powerlink:

- Central to North Queensland Reinforcement contingent project

This is set out in section 2.5 of this document and Attachment 5 of the draft decision.

In accordance with clause 6A.14.1(4)(ii) of the NER, the AER's decision is that it is satisfied that the capital expenditure of \$52.3 million (\$2021–22) for the one contingent project as described in Powerlink's revenue proposal reasonably reflects the capital expenditure criteria, taking into account

the capital expenditure factors. This is set out in section 2.5 of this document and Attachment 5 of the draft decision.

In accordance with clause 6A.14.1(4)(iii) of the NER, the AER's decision on the trigger events for the contingent project is set out in Attachment 5 of the draft decision, and includes an amendment to one of the triggers proposed by Powerlink.

In accordance with clause 6A.14.1(5A) of the NER, the AER's decision is that version 1 of the capital expenditure sharing scheme (CESS) as set out in the Capital Expenditure Incentives Guideline will apply to Powerlink in the 2022–27 regulatory control period. This is set out in section 3.1.2 of this document.

In accordance with clause 6A.14.1(5A) of the NER, the AER's decision is that the demand management innovation allowance mechanism (DMIAM) for electricity transmission networks will not apply to Powerlink in the 2022–27 regulatory control period. This is set out in section 3.1.4 of this document.

In accordance with clause 6A.14.1(5B) and 6A.6.2 of the NER, the AER's decision is that the allowed rate of return for the 2022–23 regulatory year is 5.08 per cent (nominal vanilla), as set out in section 2.3 of this document. The rate of return for the remaining regulatory years 2023–27 will be updated annually because our decision is to apply a trailing average portfolio approach to estimating debt which incorporates annual updating of the allowed return on debt.

In accordance with clause 6A.14.1(5C) of the NER, the AER's decision is that the value of imputation credits as referred to in clause 6A.6.4 is 0.585. This is set out in section 2.3 of this document.

In accordance with clause 6A.14.1(5D) of the NER, the AER's decision, in accordance with clause 6A.6.1 and schedule 6A.2, is that the opening regulatory asset base (RAB) as at the commencement of the 2022–27 regulatory control period, being 1 July 2022, is \$7,157.9 million (\$ nominal). This is set out in section 2.2.1 of this document.

In accordance with clause 6A.14.1(5E) of the NER, the AER's decision is that the depreciation approach based on forecast capex (forecast depreciation) is to be used to establish the RAB at the commencement of Powerlink's regulatory control period as at 1 July 2027. This is set out in section 2.2.3 of this document. We also note that the regulatory depreciation amount that is approved in this decision is \$817.8 million (\$ nominal) for the 2022–27 regulatory control period.

In accordance with clause 6A.14.1(8) of the NER, the AER's decision is to approve Powerlink's proposed pricing methodology. This is set out in section 4 of this document.

In accordance with clause 6A.14.1(9) of the NER, the AER's decision is to apply the following nominated pass through events to Powerlink for the 2022–27 regulatory control period in accordance with clause 6A.7.3(a1)(5):

- Insurance coverage event
- Insurer credit risk event
- Natural disaster event

These events have the definitions set out in Appendix G of this decision.

C List of submissions

We received one submission in response to the AER's draft decision and Powerlink's 2022–27 revised proposal.

Stakeholder	Date
Consumer Challenge Panel, sub-panel 23	14 January 2022

D Annual revenue adjustment process

We use an expected inflation rate in our post-tax revenue model (PTRM) to calculate the expected MAR (as shown in Table 2) in nominal dollar terms. The calculation of the actual annual MAR will therefore require an adjustment for actual inflation. To this end, the actual MAR from the second year onwards is adjusted for actual inflation. As discussed in the *Rate of return instrument*, the MAR is also subject to adjustment to reflect our update of Powerlink's return on debt annually.²⁴⁶ This means the actual MAR from the second year onwards will be adjusted for revised X factors after the annual return on debt update. The method of this annual revenue adjustment process is set out below.

To enable the formula for the annual revenue adjustment process to operate correctly, we will refer to the expected MAR determined in this decision using the building block costs as the allowed revenue (AR). This is because the expected MAR determined using the building block costs does not incorporate performance incentive scheme revenue adjustments and pass through amounts that may apply to each regulatory year.

We determine the 2022–23 AR of \$726.5 million for Powerlink. Powerlink then applies an annual adjustment to determine its AR for each subsequent year of the 2022–27 regulatory control period, based on the previous year's AR and using the CPI–X methodology.²⁴⁷ That is, the subsequent year's AR is determined by adjusting the previous year's AR for actual inflation and the X factor determined after the annual return on debt update:

$$AR_t = AR_{t-1} \times (1 + \Delta CPI) \times (1 - X_t)$$

where:

AR = the allowed revenue

t = time period/financial year (for $t = 2$ (2023–24), 3 (2024–25), 4 (2025–26), 5 (2026–27))

ΔCPI = the annual percentage change in the ABS Consumer price index all groups, weighted average of eight capital cities from December in year $t - 2$ to December in year $t - 1$

X = the smoothing factor determined in accordance with the PTRM as approved in the AER's final decision, and annually revised for the return on debt update in

²⁴⁶ AER, *Rate of return instrument*, December 2018, cl. 24, note 29.

²⁴⁷ In the case of making the annual adjustment for year 2, the previous year's AR would be the same as the approved expected MAR for year 1 as contained in the PTRM.

accordance with the formula specified in the *Rate of return instrument* calculated for the relevant year.²⁴⁸

The MAR used for transmission pricing is determined annually as part of the annual revenue adjustment process in accordance with the National Electricity Rules (NER) by adding to (or deducting from) the allowed revenue:

- the service target performance incentive scheme revenue increment (or revenue decrement)²⁴⁹
- any approved pass through amounts.²⁵⁰

The annual MAR is established according to the following formula:

$$\begin{aligned} \text{MAR}_t &= (\text{allowed revenue}) + (\text{performance incentive}) + (\text{pass through}) \\ &= \text{AR}_t + \left(\left(\text{AR}_{t-2} \times \frac{1}{2} \right) + \left(\text{AR}_{t-1} \times \frac{1}{2} \right) \right) \times S_{ct} + P_t \end{aligned}$$

where:

MAR	=	the maximum allowed revenue
AR	=	the allowed revenue
S	=	the percentage revenue increment or decrement determined in accordance with the service target performance incentive scheme
P	=	the pass through amount (positive or negative) that the AER has determined in accordance with clauses 6A.7.2 and 6A.7.3 of the NER
t	=	time period/financial year (for $t = 2$ (2023–24), 3 (2024–25), 4 (2025–26), 5 (2026–27))
ct	=	time period/calendar year (for $ct = 2$ (2022), 3 (2023), 4 (2024), 5 (2025)).

²⁴⁸ AER, *Rate of return instrument*, December 2018, cl. 9.

²⁴⁹ NER, cl. 6A.7.4.

²⁵⁰ NER, cll. 6A.7.2 and 6A.7.3.

Powerlink may also adjust the MAR for under- or over-recovery amounts.²⁵¹ That is, if the revenue amounts earned from providing prescribed transmission services in previous regulatory years are higher or lower than the sum of the approved MAR for those years, the difference can be included in the subsequent year's MAR. In the case of an under-recovery, the amount is added to the subsequent year's MAR. In the case of an over-recovery, the amount is subtracted from the subsequent year's MAR.

Table D.1 sets out the timing of the annual calculation of the AR and performance incentive.

Table D.1 Timing of the calculation of allowed revenues and the performance incentive for Powerlink

<i>t</i>	Allowed revenue (financial year)	<i>ct</i>	Performance incentive (calendar year)
2	1 July 2023 – 30 June 2024	2	1 January 2022 – 31 December 2022
3	1 July 2024 – 30 June 2025	3	1 January 2023 – 31 December 2023
4	1 July 2025 – 30 June 2026	4	1 January 2024 – 31 December 2024
5	1 July 2026 – 30 June 2027	5	1 January 2025 – 31 December 2025

Note: The performance incentive for 1 January 2021–31 December 2021 is to be applied to the AR determined for 2022–23 (AR₁).

²⁵¹ NER, cl. 6A.23.3(e)(5).

E Rate of return

Certain sections of this appendix are confidential and redacted accordingly. We have provided an unredacted version of this appendix to Powerlink.

We are required to apply the 2018 Rate of Return Instrument (2018 Instrument) to estimate the rate of return for regulated energy businesses. In our 2022–27 draft decision, we noted that the risk free rate²⁵² and return on debt averaging periods proposed by Powerlink complied with the 2018 Instrument and will be used to estimate its rate of return in the final decision. We did not specify the dates of future averaging periods or periods that have commenced (but not ended) because our practice is to keep them confidential.

This appendix specifies all of the averaging periods, with redactions for confidential information. We publish the dates of the risk free rate averaging period after it has expired. We will not publicly disclose the dates of the return on debt averaging periods, even after they have expired.²⁵³

Risk free rate averaging period

As required by the 2018 Instrument, Powerlink has proposed a risk free rate averaging period for the 2022–27 period as set out in its 2022–27 proposal.²⁵⁴ We found this averaging period meets the conditions set out in clauses 7 and 8 of the 2018 Instrument.²⁵⁵ Therefore, it will be used to estimate the risk free rate for Powerlink's upcoming regulatory control period.

Powerlink's risk free rate averaging period is summarised in Table E.1.

Table E.1 Final decision for the 2022–27 period — risk free rate averaging period

Regulatory control period	Powerlink's proposal	Compliance with 2018 Instrument	Period
2022–2027	28 February 2022 to 31 March 2022	Comply	28 February 2022 to 31 March 2022

Source: Powerlink, *2023–27 Revenue proposal, Appendix 9.01 – Nominated Averaging Periods, CONFIDENTIAL*, January 2021.

²⁵² This is also known as the return on equity averaging period.

²⁵³ AER, *Rate of Return Instrument, Explanatory statement*, December 2018, p. 140.

²⁵⁴ Powerlink, *Appendix 9.01, Nominated Averaging Periods, CONFIDENTIAL*, January 2021.

²⁵⁵ AER, *Rate of Return Instrument*, December 2018, clauses 7–8.

Return on debt averaging periods

Powerlink has proposed debt averaging periods for the 2022–27 period as set out in its proposal.²⁵⁶

We found that these averaging periods meet the conditions set out in clauses 23–25 of the 2018 Instrument.²⁵⁷ Therefore, they will be used to estimate the return on debt for Powerlink’s upcoming regulatory control period.

Powerlink’s debt averaging periods are summarised in Table E.2.

Table E.2 Final decision for the 2022–27 period — return on debt averaging periods²⁵⁸

Regulatory year	Powerlink’s proposal	Compliance with 2018 Instrument	Period
2022/2023	[Redacted / confidential]	Comply	[Redacted / confidential]
2023/2024	[Redacted / confidential]	Comply	[Redacted / confidential]
2024/2025	[Redacted / confidential]	Comply	[Redacted / confidential]
2025/2026	[Redacted / confidential]	Comply	[Redacted / confidential]
2026/2027	[Redacted / confidential]	Comply	[Redacted / confidential]

Source: Powerlink, *2023–27 Revenue proposal, Appendix 9.01 – Nominated Averaging Periods*, CONFIDENTIAL, January 2021.

²⁵⁶ Powerlink, *2023–27 Revenue proposal, Appendix 9.01 – Nominated Averaging Periods*, CONFIDENTIAL, January 2021.

²⁵⁷ AER, *Rate of Return Instrument*, December 2018, p. 17.

²⁵⁸ The return on debt is calculated over all business days within the averaging period. For the purposes of calculating the return on debt, a 'business day' is a day that is not a Saturday or Sunday and not a national or New South Wales public holiday. This differs slightly from chapter 10 of the National Electricity Rules, which defines 'business day' as: 'A day that is not: (a) a Saturday or Sunday; or (b) observed on a public holiday on the same day in each of the *participating jurisdictions* (except the Commonwealth)'. We exclude New South Wales public holidays because the independent data service providers (Reserve Bank of Australia and Bloomberg) do not publish data on these days.

F Asset lives

Table F.1 Final decision on Powerlink's standard asset lives for the 2022–27 regulatory control period (years)

Asset class	Standard asset life
Transmission lines - overhead	50.0
Transmission lines - underground	45.0
Transmission lines - refit	30.0
Substations primary plant	40.0
Substations secondary systems	15.0
Communications other assets	15.0
Comms - civil works	40.0
Network switching centres	12.0
Land	n/a
Easements	n/a
Commercial buildings	40.0
Computer equipment	5.0
Office furniture & miscellaneous	7.0
Office machines	7.0
Vehicles	7.0
Moveable plant	7.0
Insurance spares	n/a
Buildings - capital works	40.0
In-house software	5.0

Source: AER analysis.

n/a: not applicable. We have not assigned a standard asset life to the 'Land', 'Easement' and 'Insurance spares' asset classes because these assets are not subject to depreciation.

Table F.2 Final decision on Powerlink's standard tax asset lives for the 2022–27 regulatory control period (years)

Asset class	Standard tax asset life
Transmission lines - overhead	47.5
Transmission lines - underground	45.0
Transmission lines - refit	30.0
Substations primary plant	40.0
Substations secondary systems	12.5
Communications other assets	12.5
Comms - civil works	40.0
Network switching centres	12.0
Land	n/a
Easements	n/a
Commercial buildings	40.0
Computer equipment	2.5
Office furniture & miscellaneous	15.0
Office machines	10.0
Vehicles	7.0
Moveable plant	5.0
Insurance spares	n/a
Buildings - capital works ^a	40.0
In-house software ^a	5.0

Source: AER analysis.

(a) These are the only asset classes used for the straight-line method of tax depreciation for new assets. All new assets for other asset classes used the diminishing value method of tax depreciation.

n/a not applicable. We have not assigned a standard tax asset life to the 'Land', 'Easements' and 'Insurance spares' asset classes because these assets are not subject to depreciation.

G Pass through events

A pass through event is one which entails Powerlink incurring materially lower or higher costs in providing prescribed transmission services than it would have incurred but for that event (a negative or positive change event, respectively).²⁵⁹ Where a pass through event occurs Powerlink may seek our approval to, or we may require Powerlink to, pass those positive or negative amounts through to its users.²⁶⁰

The NER prescribe the following pass through events for all transmission determinations:²⁶¹

- a regulatory change event
- a service standard event
- a tax change event
- an insurance event
- an inertia shortfall event
- a fault level shortfall event.

In addition to these prescribed events, other (nominated) pass through events may be specified in a determination for a regulatory control period.²⁶²

In its revised proposal, Powerlink accepted our draft decision on the nominated pass through events that will apply in the 2022–27 regulatory control period. Accordingly, we accept in this final decision the following as nominated pass through events:

- an insurance coverage event
- an insurer credit risk event
- a natural disaster event.

These events are defined in Table G.1 below. We have set out our reasons in our draft decision.²⁶³

²⁵⁹ NER, Chapter 10 Glossary.

²⁶⁰ NER, clause 6A.7.3(a), (b);

²⁶¹ NER, cl. 6A.7.3(a1)(1)–(4). Each of these prescribed events is defined in Chapter 10 (Glossary) of the NER.

²⁶² NER, cl. 6A.7.3(a1)(5).

²⁶³ AER, *Powerlink transmission determination, draft decision, 2022–27, Attachment 12 – Pass through events*, September 2021.

Table G.1 Nominated pass through event definitions

Event	Definition
Insurance coverage event	<p>An Insurance Coverage Event occurs if:</p> <ol style="list-style-type: none"> 1. Powerlink: <ul style="list-style-type: none"> (a) makes a claim or claims and receives the benefit of a payment or payments under a relevant insurance policy (in whole or in part) or set of insurance policies; or (b) would have been able to make a claim or claims under a relevant insurance policy (in whole or in part) or set of insurance policies but for changed circumstances; and 2. Powerlink incurs costs: <ul style="list-style-type: none"> (a) both within and beyond a relevant policy limit for that policy or set of insurance policies; or (b) that are unrecoverable under that policy or set of insurance policies due to changed circumstances; and <p>The costs referred to in paragraph 2 above materially increase the costs to Powerlink in providing prescribed transmission services.</p> <p>For the purposes of this insurance coverage event:</p> <ul style="list-style-type: none"> • ‘changed circumstances’ means movements in the relevant insurance liability market that are beyond the control of Powerlink, where those movements mean that it is not possible for Powerlink to take out an insurance policy (in whole or in part) or set of insurance policies at all or on reasonable commercial terms that include some or all of the costs referred to in paragraph 2 above, within the scope of that insurance policy or set of insurance policies. • ‘costs’ means the costs that would have been recovered under the insurance policy or set of insurance policies had: <ul style="list-style-type: none"> ○ the claimable component up to the limit not been exhausted; or ○ those costs not been unrecoverable due to changed circumstances. • A relevant insurance policy (in whole or in part) or set of insurance policies is an insurance policy or set of insurance policies held during the regulatory control period or a previous regulatory control period in which Powerlink was regulated; and • Powerlink will be deemed to have made a claim on a relevant insurance policy (in whole or in part) or set of insurance policies if the claim is made by a related party of Powerlink in relation to any aspect of Powerlink’s network or business; and • Powerlink will be deemed to have been able to make a claim on a relevant insurance policy or set of insurance policies if, but for changed circumstances, the claim could have been made by a related party of Powerlink in relation to any aspect of Powerlink’s network or business. <p>Note: In assessing an insurance coverage event through application under Clause 6A.7.3 of the Rules, the AER will have regard to:</p> <ol style="list-style-type: none"> 1. The relevant insurance policy or set of insurance policies for the event; 2. The level of insurance that an efficient and prudent Network Service Provider (NSP) would obtain, or would have sought to obtain, in respect of the event; and 3. Any information provided by Powerlink to the AER about Powerlink’s actions and processes.
Natural disaster event	<p>Natural Disaster event means any natural disaster including but not limited to cyclone, fire, flood or earthquake that occurs during the 2022–27 regulatory control period that increases the costs to Powerlink in providing prescribed transmission services, provided the fire, flood or other event was:</p> <ul style="list-style-type: none"> • a consequence of an act or omission that was necessary for the service provider to comply with a regulatory obligation or requirement or with an applicable regulatory instrument; or • not a consequence of any other act or omission of the service provider.

Event	Definition
	<p>Note: In assessing a natural disaster event pass through application, the AER will have regard to, amongst other things:</p> <ul style="list-style-type: none"> • whether Powerlink has insurance against the event; and • the level of insurance that an efficient and prudent NSP would obtain in respect of the event.
Insurer credit risk event	<p>An Insurer Credit Risk event occurs if an insurer of Powerlink becomes insolvent, and as a result, in respect of an existing or potential claim for a risk that was insured by the insolvent insurer, Powerlink:</p> <ul style="list-style-type: none"> • is subject to a higher or lower claim limit or a higher or lower deductible than would have otherwise applied under the insolvent insurer's policy; or • incurs additional costs associated with funding an insurance claim, which would otherwise have been covered by the insolvent insurer. <p>Note: In assessing an Insurer Credit Risk event pass through application, the AER will have regard to, amongst other things:</p> <ul style="list-style-type: none"> • Powerlink's attempts to mitigate and prevent the event from occurring by reviewing and considering the insurer's track record, size, credit rating and reputation, and • in the event that a claim would have been covered by the insolvent insurer's policy, whether Powerlink had reasonable opportunity to insure the risk with a different provider.

H STPIS performance targets

Table H.1 Final decision – Service component caps, floors and targets for the 2022–27 regulatory control period

Parameter	Distribution	Floor	Target	Cap
Unplanned outage circuit event rate	Weibull	24.99	17.03	8.79
Lines outage rate – fault	Triang	23.94	16.81	5.49
Transformers outage rate – fault	Lognorm	29.04	25.65	22.52
Reactive plant outage rate – fault	Weibull	21.13	17.02	12.15
Lines outage rate – forced	LogLogistic	22.34	14.82	9.37
Transformer outage rate – forced	Weibull	22.79	21.21	19.00
Reactive plant outage rate – forced				
Loss of Supply Event Frequency				
No. of events > 0.05 system minutes	Geometric	6	2	0
No. of events > 0.40 system minutes	Poisson	1	0	0
Average Outage Duration				
Average outage duration (minutes)	Gamma	59.00	33.23	14.06
Proper operation of equipment (number of events)				
Failure of protection system	IntUniform	37	26	16
Material failure of SCADA	Poisson	3	1	0
Incorrect operational isolation of primary or secondary equipment	Poisson	8	4	1

Source: AER analysis.

Table H.2 Final decision – Network capability component for the 2022–27 regulatory control period (\$2020–21)

Project	Proposed cost
No projects proposed	Nil

Source: AER analysis.

Table H.3 Final decision – Market impact component parameter values for the 2022–27 regulatory control period

MIC parameter values	
Performance target	1001
Unplanned outage event limit	171
Dollar per dispatch interval (\$/DI)	\$7,257/DI

Source: AER analysis.

I Regulatory asset base transfer (Confidential)

The appendix is confidential in its entirety. We have provided this confidential appendix to Powerlink.

J Shortened forms

Shortened form	Extended form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Capex	Capital expenditure
CESS	Capital expenditure sharing scheme
CPI	Consumer price index
CCP23	Consumer Challenge Panel, sub-panel 23
DMIAM	Demand management innovation allowance mechanism
EBSS	Efficiency benefit sharing scheme
Gamma	Value of imputation credits
Instrument	2018 Rate of Return Instrument
KWh	Kilowatt hours
MAR	Maximum allowed revenue
MWh	Megawatt hours
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
Opex	Operating expenditure
PTRM	Post-tax revenue model
RAB	Regulatory asset base
RBA	Reserve Bank of Australia
Repex	Replacement expenditure (capex)
RIN	Regulatory information notice
RFM	Roll forward model
STPIS	Service target performance incentive scheme
WACC	Weighted average cost of capital