4 Capital Expenditure

4.1 Introduction

This chapter provides an overview of Powerlink's performance against the Australian Energy Regulator's (AER's) allowances for capital expenditure during the current 2022-27 and preceding 2017-22 regulatory period and outlines our forecast capital expenditure in the 2027-32 regulatory period[42].

Key highlights:

2022-27 regulatory period

- We forecast capital expenditure for the 2022-27 regulatory period of $1,504.5 million ($ real, 2026/27). This is $423.5 million (39%) higher than the AER's allowance of $1,081.0 million ($ real, 2026/27).
- We have exceeded our capital expenditure allowance in the capital expenditure ex post review period by 6.3%. Powerlink does not consider this a significant overspend within the context of the operating environment.

2027-32 regulatory period

- Our forecast capital expenditure for the 2027-32 regulatory period is $2,499.5 million ($ real, 2026/27) which is $995.0 million (66%) higher than actual/forecast capital expenditure for the 2022-27 regulatory period.
- The key drivers that underpin our forecast for the 2027-32 regulatory period are:
    - reinvestment in the transmission network to maintain the safety, security and reliability of supply as our assets continue to age
    - our response to the changing use of electricity and the impact on our transmission network
    - critical investment in the redevelopment of our Virginia complex and the development of a facility in Gladstone as we grow our regional workforce
    - investment in easements to support new load-driven connections and upgraded transmission infrastructure identified in the Queensland Government's Energy Roadmap 2025, and
    - investment in physical and cyber security to manage evolving threats to our infrastructure.
- The majority of our forecast capital expenditure is non load-driven network capital expenditure of $1,939.3 million ($ real, 2026/27).
- Our hybrid forecasting approach integrates top-down and bottom-up forecast methods, with project-specific justification provided for over 90% of our forecast capital expenditure.
- We have proposed nine contingent projects which will only be activated within-period subject to AER verification of pre-identified triggers, need and costs.
- We completed a deliverability assessment of the forecast capital expenditure which is provided in Appendix 4.09.

[42] The capital expenditure forecast in this chapter excludes expenditure associated with Priority Transmission Investment projects and contingent projects subject to a contingent project application in the current regulatory period, as these are subject to regulatory mechanisms outside the revenue determination process. The impact of these works on the deliverability of the capital expenditure forecast in this Revenue Proposal is considered in Appendix 4.09 Deliverability Assessment, while the potential pricing impact of these works are modelled in Appendix 10.01 Pricing Impact Scenarios.

4.2 Regulatory requirements

The National Electricity Rules (Rules)[43] require that our Revenue Proposal provides information on our capital expenditure for each year of the previous and current regulatory periods. The Rules[44] also require that the Australian Energy Regulator (AER) has regard to this expenditure when it considers our forecast capital expenditure.

Prior to the submission of our Revenue Proposal, we are required to propose a methodology for the development of our capital and operating expenditure forecasts[45] (included as Appendix 4.03). This methodology, and our forecasts, must also have regard to the AER's Expenditure Forecast Assessment Guideline for Electricity Transmission[46].

We must submit our forecast capital expenditure for the 2027-32 regulatory period based on the requirements set out in the Rules[47].

Specifically, the Rules require that we include a total forecast capital expenditure which achieves the *capital expenditure objectives*, reflects the *capital expenditure criteria* and has regard to the *capital expenditure factors*. In Section 4.3.1 we explain how our capital expenditure forecast achieves the *capital expenditure objectives* while we explain how our capital expenditure forecast reflects the *capital expenditure criteria* and has regard to the *capital expenditure factors* in Appendix 4.01.

4.3 Historical capital expenditure

This section summarises our historical capital expenditure, consistent with the requirements of the Rules[48].

4.3.1 Historical capital expenditure summary

Table 4.1 shows our capital expenditure for the previous 2017-22 and current 2022-27 regulatory periods by expenditure category. Expenditure for the 2018 to 2025 financial years is based on actual expenditure, while the 2026 and 2027 financial years are based on our current expenditure forecasts.

[43] National Electricity Rules, Schedule 6A.1, clause S6A.1.1.
[44] National Electricity Rules, clause 6A.6.7(e)(5).
[45] National Electricity Rules, clause 6A.10.1B.
[46] Expenditure Forecast Assessment Guideline for Electricity Transmission, Australian Energy Regulator, October 2024.
[47] National Electricity Rules, clause 6A.6.7.
[48] National Electricity Rules, Schedule 6A.1, clause S6A.1.1(6).

Table 4.1 - Capital expenditure - actual/forecast ($million real, 2026/27)

	2017-22 regulatory period						2022-27 regulatory period					
	2018	2019	2020	2021	2022	Total	2023	2024	2025	2026 forecast	2027 forecast	Total
Network load driven capital expenditure												
Augmentations	1.7	7.0	4.8	5.7	26.5	**45.7**	10.0	15.4	8.8	15.0	10.5	**59.6**
Connections	-	0.1	-	-	-	**0.1**	-	-	-	-	-	**-**
Easements	(0.2)	1.0	2.5	0.4	2.1	**5.9**	0.4	1.6	0.6	16.0	14.6	**33.2**
Total load-driven	**1.4**	**8.1**	**7.4**	**6.1**	**28.5**	**51.6**	**10.5**	**17.0**	**9.4**	**31.0**	**25.0**	**92.9**
Network non-load driven capital expenditure												
Reinvestments	150.8	180.7	170.0	171.2	168.4	**841.0**	185.2	195.4	151.8	261.1	295.2	**1,088.8**
System Services	-	-	-	-	-	**-**	6.1	2.2	7.7	0.1	-	**16.1**
Security/Compliance	25.7	2.7	1.6	13.5	2.6	**46.1**	8.9	9.0	5.8	14.8	17.4	**55.9**
Other	(0.3)	1.2	4.1	7.5	14.4	**26.8**	13.4	6.1	16.6	25.3	8.3	**69.7**
Total non-load driven	**176.1**	**184.6**	**175.8**	**192.1**	**185.4**	**913.9**	**213.7**	**212.7**	**181.9**	**301.3**	**320.9**	**1,230.5**
Total Network	**177.5**	**192.7**	**183.2**	**198.2**	**213.9**	**965.5**	**224.1**	**229.7**	**191.3**	**332.3**	**345.9**	**1,323.4**
Non-network capital expenditure												
Business IT	14.8	15.8	25.2	21.7	16.8	**94.4**	19.0	23.6	22.2	16.9	16.0	**97.7**
Support the Business	5.8	10.1	7.1	8.9	16.4	**48.2**	8.9	20.4	8.4	21.5	24.3	**83.4**
Total Non-network	**20.6**	**25.8**	**32.4**	**30.6**	**33.2**	**142.6**	**27.9**	**44.0**	**30.6**	**38.4**	**40.3**	**181.1**
TOTAL CAPITAL EXPENDITURE [1,2]	**198.1**	**218.5**	**215.5**	**228.8**	**247.1**	**1,108.1**	**252.0**	**273.7**	**221.9**	**370.7**	**386.2**	**1,504.5**

(1) All figures are net of disposals and reflect the recast numbers accounting for the adjustments made in FY2025.
(2) Actual/forecast expenditure reported above does not include any margins paid or expected to be paid to related parties.

4.3.2 Overall performance against allowance

In determining the Maximum Allowed Revenue (MAR) that Powerlink can recover during a regulatory period, the AER provides an allowance for the prudent and efficient capital expenditure needed to achieve the capital expenditure objectives.

For our current 2022-27 regulatory period, this was based on Powerlink's forecast in January 2021. In its September 2021 Draft Decision, the AER determined Powerlink's Revenue Proposal was capable of acceptance in all material respects. As a result, we did not re-forecast our capital expenditure, apart from applying an administrative update to reflect the latest inflation figures.

We did not apply a cost estimation risk factor, and we did not anticipate the significant global factors that have subsequently impacted the cost of transmission works. The AER's original allowance for the 2022-27 regulatory period was $1,081.0 million, restated in real 2026/27 prices.

At this time, we forecast our total capital expenditure for the 2022-27 regulatory period to be $423.5 million (39%) more than the AER's restated capital expenditure allowance. Table 4.2 summarises our total capital expenditure compared to the AER's allowance for the current 2022-27 regulatory period[49]. Expenditure for the 2026 to 2027 financial years is based on our current forecast.

Table 4.2 - Capital expenditure - allowance vs actual/forecast ($million real, 2026/27)

	2023	2024	2025	2026 forecast	2027 forecast	Total
AER Allowance	237.8	261.9	197.2	191.0	193.1	**1,081.0**
Actual/forecast	252.0	273.7	221.9	370.7	386.2	**1,504.5**
Difference	14.2	11.7	24.8	179.6	193.2	**423.5**
Difference (%)	6%	4%	13%	94%	100%	**39%**

Powerlink considers the additional capital expenditure within the 2022-27 regulatory period was necessary to continue to provide safe and reliable prescribed transmission services. As described in Chapter 2 Operating Environment, the current 2022-27 regulatory period has been challenging for all network businesses in Australia and abroad due primarily to global events, outside of individual businesses' control.

We understand the long-term impact on customer bills arising from additional capital expenditure, as well as the financial penalties to Powerlink. We have proactively sought to address the inflationary pressures where possible, and actively deferred work where it has been safe and efficient to do so. This has involved application of the outcomes of our Asset Reinvestment Review[50] to transmission line refit works, and accepting slightly higher risks to reduce secondary systems replacement needs within the current period.

We are continuing to test and challenge the need, timing and deliverability of our capital works in the normal course of business in an effort to reduce cost impacts to customers.

[49] Final Decision Powerlink Queensland Transmission Determination 2022 to 2027, Australian Energy Regulator, April 2022, page 45.
[50] Asset Reinvestment Review Working Group Report, Powerlink, June 2023.

4.3.3 Category specific performance against AER allowance

This section compares the actual/forecast capital expenditure to the AER allowance by category.

Under the regulatory framework, the AER's capital expenditure allowance is provided as a single, aggregate funding envelope rather than project-specific allocations. Powerlink is responsible for managing and deploying the allowance in a prudent and efficient manner within the regulatory period.

Table 4.3 - Capital expenditure - allowance vs actual/forecast ($million real, 2026/27)

	AER Allowance 2022-27	Actual/forecast 2022-27	Variance
Network load driven capital expenditure			
Augmentations	8.2	59.6	51.4
Connections	2.9	-	(2.8)
Easements	26.4	33.2	6.8
Total load driven	**37.5**	**92.9**	**55.4**
Network non-load driven capital expenditure			
Reinvestments	843.6	1,088.8	245.2
System Services	28.2	16.1	(12.1)
Security/Compliance	18.1	55.9	37.8
Other	18.0	69.7	51.7
Total non-load driven	**908.0**	**1,230.5**	**322.6**
Total Network	**945.5**	**1,323.4**	**377.9**
Non-network capital expenditure			
Business IT	74.4	97.7	23.3
Support the Business	61.1	83.4	22.3
Total Non-network	**135.5**	**181.1**	**45.6**
TOTAL CAPITAL EXPENDITURE	**1,081.0**	**1,504.5**	**423.5**

4.3.3.1 Network load driven capital expenditure

We forecast our load-driven capital expenditure for the 2022-27 regulatory period will be $55.4 million higher than the AER's allowance.

The main driver of the additional expenditure is augmentations, comprising targeted works on selected transmission lines within a defined geographic program to address specific area-based reliability requirements. These works increase the capability of the transmission network by increasing the rating of existing overhead transmission lines without the need to rebuild or establish additional lines. This is achieved by improving physical clearances to the transmission lines.

An increased volume of these works was undertaken to address emerging power transfer limitations in the period. The cost of the works also significantly increased due to inflationary pressures and additional project scope, as the specific activity to address the limitation was developed after detailed design was completed.

The underspend in connections relates to the deferral of one project, at Goodna Substation, included in the allowance for the current period. We are continuing to evaluate the need timing as part of joint planning with Energy Queensland, considering a special protection scheme and load transfers to defer the project further. This project is not included in our forecast for the 2027-32 regulatory period.

Expenditure on easements is forecast to be $6.8 million higher than the AER's allowance for the regulatory period. This is primarily due to easements for a new transmission line route between Woree and Kamerunga substations to support ongoing reliability of supply in the area.

4.3.3.2 Network non-load driven capital expenditure

We currently forecast that we will invest $322.6 million more than the AER's allowance for network non-load driven capital expenditure.

Reinvestments

We expect a total reinvestment expenditure of $1,088.8 million in the 2022-27 regulatory period, which is $245.2 million higher than the AER's allowance. The additional reinvestment expenditure is primarily due to the increased cost of our Next Generation Network Operations (NGNO) program to replace our Energy Management System (EMS) and associated infrastructure and systems.

Our network operations are central to navigating the challenges of the energy transition, and core to this is our EMS. The EMS provides visibility and situational awareness of an increasingly complex power system and is crucial to maintain a safe and reliable electricity supply. Our current EMS has reached end-of-life, exceeding its original design life and extended vendor support period, and is therefore being replaced. When we submitted our previous Revenue Proposal in January 2021, we expected this replacement to be largely completed within the 2017-22 regulatory period with final testing and commissioning to occur early in the current regulatory period. As the AER accepted all key elements of the Revenue Proposal in its Draft Decision (September 2021), no further material amendments were put forward in our revised Revenue Proposal submitted in November 2021.

However, delivery of the project was constrained significantly by the long-tail impacts of COVID-19, which was not apparent at the time, while subsequent detailed design identified much greater complexity in the architecture and interoperability with other systems. Over the life of the EMS, Powerlink implemented unique customisations to the existing EMS to extend its life and ability to support the energy transition for the benefit of customers. However, this has created additional challenges in moving to a new, contemporary system. Consequently, we had underestimated the true cost to replace the EMS and the scale of the supporting works necessary. The increased complexity of replacing this system, combined with the industry-specific inflationary pressures discussed in Chapter 2 Operating Environment, has resulted in an additional $206.3 million network reinvestment capital expenditure on NGNO related projects within the current 2022-27 regulatory period.

We also increased reinvestment capital expenditure on substation primary plant. A key driver of this increased expenditure is the need to replace 430 oil-filled current transformers at 23 substation sites due to significant safety concerns. This safety risk was unforeseen, as the age of these current transformers is approximately half of their original expected design life. The current transformer replacement program has further impacted the delivery of the portfolio of works due to the need to restrict access to substations with these specific current transformers or, where necessary, implement additional safeguards to gain access to the substations. Prioritisation of the unforeseen primary plant reinvestment, and the consequential resource and safe-access impacts, also resulted in lower than planned expenditure on secondary systems replacements.

Both substation primary and secondary reinvestment have also been impacted by the significant cost increases arising from industry-specific inflationary pressures. We reduced expenditure on transmission line reinvestment as we implemented the findings of our Asset Reinvestment Review[51].

This enabled us to efficiently defer expenditure by prioritising works, balancing reduced expenditure against incremental network risk. As part of this review, we committed to return any windfall gains made under the Capital Expenditure Sharing Scheme (CESS). However, increased costs and complexity in the delivery of transmission works mean that there is no windfall gain. The approach has however allowed us to prioritise capital expenditure within the period to mitigate the overall increase in capital expenditure.

System Services

We currently forecast that we will invest $12.1 million less than the AER's allowance for system services. This underspend relates to the use of a more efficient non-network alternative for the provision of voltage support services in South-East Queensland.

In October 2021, the Australian Energy Market Commission (AEMC) introduced the Efficient Management of System Strength on the Power System Rule change. From December 2025, Powerlink as the System Strength Service Provider in Queensland is required to plan, procure and make available system strength services. Consequently, Powerlink completed a Regulatory Investment Test for Transmission (RIT-T) for System Strength in July 2025[52], recommending investment in up to nine synchronous condensers across Central and Southern Queensland by June 2034.

The 2021 Rule change contains a transitional provision, allowing Powerlink to make a contingent project application (CPA) to the AER requesting an amended revenue determination for the current regulatory period, incorporating the capital and operating expenditure arising from the preferred option identified in the RIT-T. The system services actual and forecast capital expenditure in this Revenue Proposal does not include investment in synchronous condensers to address system strength requirements. These will be treated as part of Powerlink's CPA to be submitted in accordance with the Rules[53] in the current regulatory period.

Security and Compliance

Powerlink has exceeded the AER allowance in this category by $37.8 million, driven largely by two key requirements.

Security investments arising from Powerlink's obligations as a responsible entity under the *Security of Critical Infrastructure Act 2018* (SOCI) and a step change in cyber security requirements have been a major factor. Security threats for the energy sector have escalated rapidly and significantly in recent years. These threats required substantial additional investment to improve operational technology (OT) cyber security and physical security of operational sites, resulting in a total of $16.3 million of investments in both physical and cyber security in the current period.

Increasing system complexity driven by the rapid shift in the mix of generation connected to the transmission network together with the significant change in the network demand, both in scale and usage, has altered the

[51] Asset Reinvestment Review Working Group Report, Powerlink, June 2023.
[52] Addressing System Strength Requirements in Queensland from December 2025 – Project Assessment Conclusions Report, Powerlink, June 2025.
[53] National Electricity Rules, Schedule 6A.8 clause 6A.8.2

performance characteristics of the transmission network. These changes have required Powerlink to develop and implement new control and protection schemes to maintain system stability in accordance with the Rules[54].

Wide Area Monitoring Protection and Control (WAMPAC) is a new secondary system platform that Powerlink has implemented, which rapidly detects specified conditions on the grid and coordinates appropriate responses across the state-wide network. This approach avoids the need for more expensive network augmentation and flow-on cost impacts to customers. In the current period we forecast capital expenditure of $11.7 million on several WAMPAC schemes across the state to drive further value for our customers.

Other

We currently forecast that we will overspend the AER allowance in this category by $51.7 million.

In June 2022, AEMO identified critical locations in the Queensland network where high-speed streaming of power system data is required. AEMO issued a notice under the Rules, which requires Powerlink to install and configure phasor measurement units (PMUs) at 23 locations[55]. In the current period we forecast $16.6 million will be invested on installation of PMUs that was not included in capital expenditure allowance for the current regulatory period.

The majority of the balance of the expenditure in this category is due to a major investment to establish a new Business Continuity Site (BCS) to meet evolving cyber and physical security requirements. This included the necessary infrastructure to support the new AEMS at the BCS. Additionally, we have also enhanced field delivery technologies within the current regulatory period.

4.3.3.3 Non-network capital expenditure

Our current forecast is that we will invest $45.6 million more than the AER's allowance for non-network capital expenditure in the 2022-27 regulatory period.

Business Information Technology (IT)

Additional investment in cyber security was necessary to meet Australian Energy Sector Cyber Security Framework (AESCSF) standards as well as expenditure on specific cyber risk mitigation. These additional requirements, in addition to cost escalation for IT services, equipment and software, means that we currently forecast capital expenditure of $23.3 million over the AER allowance.

Support the Business

We have spent an additional $22.3 million compared to the AER allowance in the Support the Business category. The principal drivers for this overspend were fleet, at $16.1 million, and tools and equipment, at $7.9 million.

The additional fleet expenditure is due to a targeted approach to enhance Powerlink's operational capability in the Gladstone and Townsville regions. Previously, short-term rentals and leases had been utilised to support project and maintenance work in these regions. With the expansion of Powerlink's regional presence in both Gladstone and Townville, a more efficient approach in the long-term was to purchase vehicles for those resources based in these regions.

Similar to fleet, the additional tools and equipment expenditure is primarily due to the expansion of Powerlink's regional presence, and the need to fit-out vehicles and supply technicians with the required tools and equipment for constructing and maintaining critical network assets.

[54] National Electricity Rules, Schedule 5.1, clause S5.1.8.
[55] Notice issued by AEMO to Powerlink on 27 June 2022 under clauses 4.11.1(d) and (e) of the National Electricity Rules.

4.3.4 Projects deferred from current period into next period

As part of ongoing project monitoring, certain projects identified in the 2023-27 Revenue Proposal were not commenced in the current period and are proposed for inclusion in the 2027-32 regulatory period.

Table 4.4 includes a list of projects deferred from the current regulatory period, and the rationale for their deferral, in line with the requirements of the Reset RIN.

Table 4.4 - Projects deferred from current regulatory period to next

Project	Rationale for Deferral
Molendinar Secondary System Replacement	Reprioritisation of capital program taking into account deliverability and acceptance of a slightly greater level of risk
Murarrie Secondary System Replacement	
Middle Ridge Secondary System Replacement	
Goodna Secondary System Replacement	
Calvale Primary Plant Replacement	Reprioritisation of capital program taking into account deliverability and acceptance of a slightly greater level of risk
South Pine Transformer Replacement	
Tully Transformer Replacement	
Ross to Chalumbin Transmission Line Refit	Project deferred arising from implementation of the Asset Reinvestment Review
Telecoms Network Consolidation Stage 3	Strategy for these projects has not materially changed but implementation of the first stage encountered technology challenges which has delayed the subsequent stages
Telecoms Network Consolidation Stage 4	
OpsWAN Replacement Stage 3	
OpsWAN Replacement Stage 4	

4.3.5 Ex post review period

The AER may undertake a review of past capital expenditure where the capital expenditure within a defined review period exceeds the AER's respective capital expenditure allowance[56]. The purpose of the review is to assess any capital expenditure over the allowance and exclude any additional capital expenditure that is not deemed prudent and efficient from being included in the Regulatory Asset Base (RAB). The AER describes the ex post review process in its Capital Expenditure Incentive Guideline[57].

[56] National Electricity Rules, Schedule 6A.2, clause S6A.2.2A.
[57] Capital Expenditure Incentive Guideline for Electricity Network Service Providers, Australian Energy Regulator, August 2025, pages 18-21.

For Powerlink's 2027-32 revenue determination, the review period is from 1 July 2020 to 30 June 2025. Our capital expenditure within the review period compared to the AER allowance is shown in Table 4.5.

Table 4.5 - Capital Expenditure – ex post review period ($million, nominal)

	2021	2022	2023	2024	2025	Total
AER Allowance	185.5	179.7	209.3	239.9	184.9	**999.4**
Actual	180.5	201.7	221.8	250.6	208.2	**1,062.8**
Difference	(5.1)	22.0	12.5	10.7	23.2	**63.4**
Difference (%)	(3%)	12%	6%	4%	13%	**6.3%**

During the period from 2021, like all other network businesses in Australia, Powerlink experienced unprecedented increases in the costs of major plant items, materials and skilled resources (refer Chapter 2 Operating Environment). This led to increases in capital expenditure that were well outside our control.

Nevertheless, we have actively managed our capital expenditure and proactively sought to address these inflationary pressures where possible, and deferred work where it has been safe and efficient to do so. This has included application of the outcomes of our Asset Reinvestment Review to transmission line refit works and accepting slightly higher risks to reduce secondary systems replacement needs within the current period.

These actions resulted in an overspend in the review period of 6.3%. Powerlink does not consider this a significant overspend within the context of the operating environment.

4.4 Forecast capital expenditure

Our total forecast capital expenditure is $2,499.5 million ($ real, 2026/27). The majority of this is non-load driven network expenditure of $1,939.3 million to replace ageing or obsolete assets.

Our forecast expenditure by category is shown in Table 4.6.

Table 4.6 - Forecast capital expenditure by category ($million real, 2026/27)

Category	2028	2029	2030	2031	2032	Total
Network load driven capital expenditure						
Augmentations	5.8	-	-	-	-	**5.8**
Connections	-	-	-	-	-	**-**
Easements	26.5	40.9	56.3	83.8	87.5	**295.1**
Total Network – load-driven	**32.3**	**40.9**	**56.3**	**83.8**	**87.5**	**300.9**
Network non-load driven capital expenditure						
Reinvestments	394.5	315.1	259.8	367.2	337.6	**1,674.3**
System Services	-	-	-	-	-	**-**
Security/Compliance	13.4	22.3	34.6	47.8	48.7	**166.8**
Other	11.2	27.3	20.9	16.7	22.1	**98.3**
Total Network – non-load driven	**419.2**	**364.8**	**315.3**	**431.7**	**408.5**	**1,939.3**
Total Network	**451.5**	**405.7**	**371.6**	**515.5**	**496.0**	**2,240.2**
Non-network capital expenditure						
Business IT	4.9	5.9	6.4	5.3	4.9	**27.4**
Support the Business	59.9	92.0	50.3	14.6	15.1	**231.9**
Total Non-network	**64.8**	**97.9**	**56.7**	**19.9**	**20.0**	**259.2**
TOTAL CAPITAL EXPENDITURE	**516.3**	**503.5**	**428.3**	**535.4**	**516.0**	**2,499.5**

4.4.1 Capital expenditure objectives

We consider that our forecast capital expenditure achieves the capital expenditure objectives set out in clause 6A.6.7(a) of the Rules. This is summarised in Table 4.7 and discussed in detail in Appendix 4.01 Operating and Capital Expenditure Criteria and Factors.

Table 4.7 - How we meet the capital objectives

Capital expenditure objective	How our proposal meets this objective
Meet or manage the expected demand for prescribed transmission services over the period	Demand from our 2025 Transmission Annual Planning Report (TAPR) forecast shows steady average annual growth over the forecast horizon. The main driver for this is the magnitude and pace of electrification. In addition to meeting customer demand, Powerlink must also meet forecast increase in the demand for prescribed system services such as inertia and system strength, as set out in the Australian Energy Market Operator's (AEMO) 2025 Transition Plan for System Security[58].

[58] 2025 Transition Plan for System Security, Australian Energy Market Operator, December 2025.

Capital expenditure objective	How our proposal meets this objective
Comply with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services	We are subject to regulatory obligations as the holder of a Transmission Authority under the *Electricity Act 1994 (Qld)* and as a registered Transmission Network Service Provider (TNSP) in the National Electricity Market (NEM). As a corporation, we are also subject to various environmental, cultural heritage, planning, industrial, Workplace Health & Safety, security of critical infrastructure, industrial, financial and other regulations. Our compliance with these regulatory obligations and requirements is encompassed in our Strategic Asset Management Plan, policies and procedures, which provide the foundation for our capital expenditure activities and is provided as supporting information with our Revenue Proposal.
Maintain the quality, reliability and security of supply of prescribed transmission services and maintain the safety, reliability and security of the transmission system through the supply of prescribed transmission services	Our capital expenditure forecasts include prudent provision to maintain the safety, reliability and security of the transmission system and deliver mandated quality, reliability and security of supply to our customers. An appropriate balance of operating and capital expenditure has been proposed within our 2027-32 Revenue Proposal to ensure network assets deliver the required quality, reliability, and security of supply in the most prudent and efficient manner.
Contribute to achieving emissions reduction targets through the supply of prescribed transmission services	Powerlink plays a pivotal role in Queensland's energy transition through its transmission infrastructure. As Queensland's System Strength Service Provider, Powerlink is investigating network and non-network solutions for provision of system strength services. Powerlink's investment in the transmission network ensures the continued provision of prescribed services necessary to support the connection of new generation. Contingent projects proposed in Section 4.5 support connection of new generation, electrification of existing load and provision of system strength services all of which may contribute to achieving emissions reduction in the 2027-32 regulatory period.

4.4.2 Changes from draft Revenue Proposal

Our draft Revenue Proposal included total forecast capital expenditure of $2,796.7 million ($ real, 2026/27). Since publishing our draft Revenue Proposal in September 2025, we have made several changes that in aggregate reduced our overall capital expenditure forecast by $297.2 million ($ real, 2026/27) and also resulted in changed totals at a category level.

These changes arose from engagement with the Revenue Proposal Reference Group (RPRG), and our ongoing test and challenge internally of the needs and a deliverability assessment resulting in:

- removal of synchronous condenser expenditure from the System Services category as this expenditure will be assessed by the AER as part of a contingent project application which we intend to lodge during 2026
- changes to total Reinvestment capital expenditure and the spend profile, arising from continued review of needs and deliverability and finalisation of detailed estimates
- reclassification of security program as Security/Compliance from Reinvestment
- increasing spend in Easements, primarily to progress acquisition to support new load driven connections to Energy Queensland, forecast to occur in the 2032-37 period and to support the future development of the transmission network described in the Queensland Energy Roadmap, and

- scope and timing of investment in the Virginia complex have been modified and we have included an asset transfer in relation to this project (refer Section 7.6) in the closing RAB at 30 June 2027, reducing the overall capital expenditure in the Support the Business category in the 2027-32 regulatory period.

Table 4.8 summarises the difference in total forecast capital expenditure between our draft Revenue Proposal and our Revenue Proposal.

Table 4.8 - Forecast capital expenditure comparison ($million real, 2026/27)

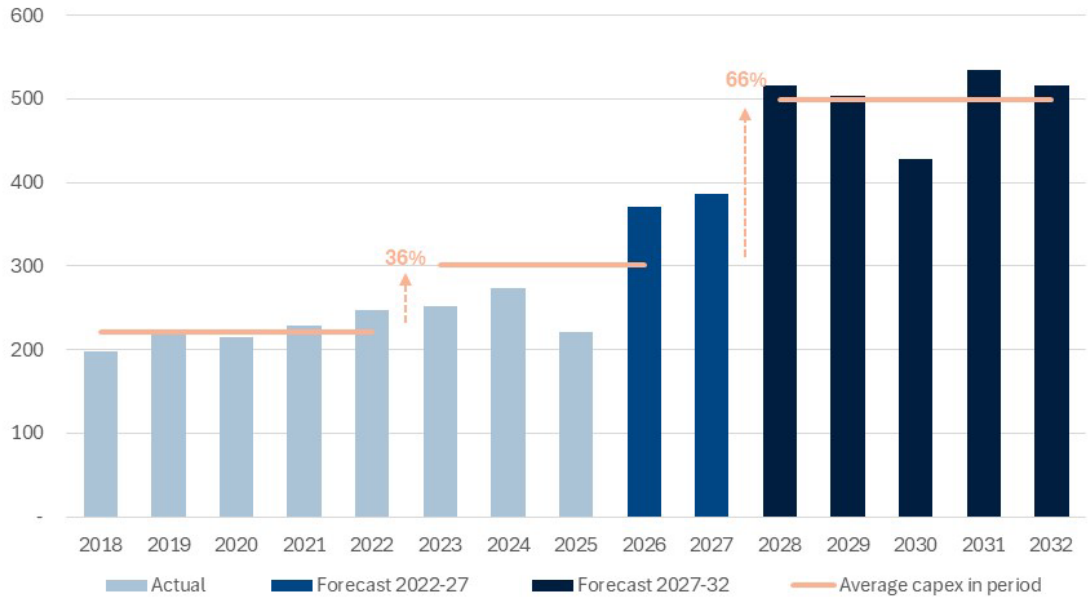
	2028	2029	2030	2031	2032	Total
Draft Revenue Proposal	795.3	619.1	589.6	483.3	324.4	**2,796.7**
Revenue Proposal	516.3	503.5	428.3	535.4	516.0	**2,499.5**
Difference	(279.0)	(115.6)	(161.3)	67.0	191.6	**(297.2)**
Difference (%)	(35%)	(19%)	(27%)	14%	59%	**(11%)**

4.4.3 Overview of forecast capital expenditure by category

Our forecast capital expenditure of $2,499.5 million for the 2027-32 regulatory period is $995.0 million higher than the actual/forecast expenditure in the current regulatory period. The capital expenditure forecast reflects the significant increase in the cost of major plant items and skilled resources that we experienced during the 2022-27 regulatory period.

Our 2027-32 forecast capital expenditure is compared to the current (2022-27) and previous (2017-22) regulatory periods in Figure 4.1.

Figure 4.1 - Capital expenditure ($million real, 2026/27)



A comparison by category of our forecast capital expenditure for the 2027-32 regulatory period with the actual/forecast capital expenditure in the current regulatory period is shown in Table 4.9.

Table 4.9 - Capital expenditure - comparison of 2027-32 forecast to 2022-27 actual/forecast ($million real, 2026/27)

	Actual/Forecast 2022-27	Forecast 2027-32	Variance
Network load driven capital expenditure			
Augmentations	59.6	5.8	(53.8)
Connections	-	-	-
Easements	33.2	295.1	261.9
Total load driven	**92.9**	**300.9**	**208.0**
Network non-load driven capital expenditure			
Reinvestments	1,088.8	1,674.3	585.4
System Services	16.1	-	(16.1)
Security/Compliance	55.9	166.8	110.9
Other	69.7	98.3	28.6
Total non-load driven	**1,230.5**	**1,939.3**	**708.8**
Total Network	**1,323.4**	**2,240.2**	**916.9**
Non-network capital expenditure			
Business IT	97.7	27.4	(70.3)
Support the Business	83.4	231.9	148.4
Total Non-network	**181.1**	**259.2**	**78.1**
TOTAL CAPITAL EXPENDITURE	**1,504.5**	**2,499.5**	**995.0**

4.4.3.1 Network load driven capital expenditure

Our total forecast load-driven expenditure of $300.9 million, which is $208.0 million higher than the actual/forecast expenditure in the current regulatory period.

There is a reduction in the regulated capital expenditure on load driven augmentations and an increase in easements expenditure. The reduction in augmentation related capital expenditure is due to the substantial augmentation capital expenditure being progressed under the Priority Transmission Investment (PTI) framework.

The significant investment in easements capital expenditure for the 2027-32 period is necessary to support the construction of new load driven connections to Energy Queensland and rebuild several transmission lines in the North Queensland and Gladstone regions, forecast to be required in the 2032-37 regulatory period. The forecast of $295.1 million for easements reflects a fundamental shift in the scale and complexity of future transmission development in Queensland, driven by changes to State and national policy, legislative frameworks, stakeholder expectations and benefits, and regulatory requirements.

The combined effect of these changes is that securing easements requires much longer lead times, greater levels of technical assessment, higher community and Traditional Owner involvement and a more resource intensive engagement program. Commencing easement activities during the 2027-32 regulatory period is a prudent and

efficient way of ensuring Powerlink can meet the State's energy objectives, provide greater delivery certainty for future projects and comply with our regulatory obligations.

4.4.3.2 Network non-load driven capital expenditure

Non-load driven expenditure is the most significant contributor to our forecast capital expenditure for the 2027-32 regulatory period. Our forecast expenditure of $1,939.3 million is $708.8 million higher than the actual/forecast expenditure in the current regulatory period.

Most of the expenditure is in the reinvestments category. A large amount of this investment (approximately $370.7 million) relates to several large projects/programs of work, namely the substation and transmission line reinvestment at Kamerunga, and the physical security uplift program. Other non-load driven expenditure continues to follow the historical trend, once adjusted for the industry-specific inflation highlighted in Chapter 2 Operating Environment.

Reinvestments – transmission line refit

During the revenue determination process for our 2022-27 regulatory period, we committed to undertake a review of our approach to network asset reinvestment, particularly for overhead transmission lines. This review included representatives of customers, the AER and Powerlink subject matter experts, and concluded in June 2023 with the publication of the Asset Reinvestment Review Working Group Report[59]. The Asset Reinvestment Review concluded that Powerlink should:

- retain its existing definition of transmission line assets
- limit compliance upgrades to only those structures already undergoing condition-based works, and
- evaluate both single-stage and bundled multi-stage reinvestment options since no single approach is optimal in all circumstances.

These recommendations aim to deliver more targeted, risk-based and cost-effective reinvestment decisions aligned with network need and RIT-T principles. In preparing our 2027-32 Revenue Proposal we have implemented the key recommendations of the Asset Reinvestment Review. In addition, we identified further improvements to deliver a more cost-effective approach, which has substantially reduced the number of towers requiring intervention in the 2027-32 regulatory period.

Reinvestments – secondary systems and telecommunications

A significant driver of asset reinvestment expenditure is the need to renew our fleet of digital secondary systems and telecommunications assets. Our total forecast secondary systems capital expenditure of $534.9 million is $299.4 million more than the actual/forecast expenditure for the current regulatory period.

The nature of these digital technologies is such that obsolescence and lack of vendor support for discontinued devices are the primary drivers for reinvestment. Once a device is no longer available, its replacement is operationally and technically more complex due to issues such as:

- interoperability and protocol difference between other devices on site, and at adjacent substations
- the need to develop and test new configurations and settings
- physical differences with the mounting and installation, including cabling and connectivity, and
- legislative requirements for professional engineering certification[60].

[59] Asset Reinvestment Review Working Group Report, Powerlink, June 2023.
[60] *Professional Engineers Act 2002 (Qld),* section 115.

In the event of failure of an unsupported device, the return to service time increases considerably. In addition to the impacts of obsolescence at any one site, it is also important to note the compounding impact of equipment obsolescence that may occur across the fleet of secondary systems assets installed in the network. When a particular equipment type or model is no longer supported by the manufacturer, and limited spares are available to service the fleet of assets, an attempt to run multiple secondary systems to failure across the network would increase the likelihood of concurrent systemic faults. This would likely overwhelm our capacity to undertake corrective maintenance or replacement projects and potentially leave us in breach of the Rules[61], AEMO standards[62] and our jurisdictional obligations[63]. A coordinated and timely replacement program is essential to manage this risk.

In addition, the growing cyber threat landscape affecting the electricity sector means the timely deployment of software updates has become a critical component of maintaining appropriate cyber security standards. Sustained vendor support to ensure the availability and integrity of these updates is essential to safeguarding operational systems and meeting regulatory expectations for cyber resilience. For these reasons, it is critical to address the fleet of assets, such that the number of obsolete and unsupported devices in service on the network is managed effectively.

The typical product lifespan for our secondary systems assets is around 20 years. The expansion of our network during the 2000s and early 2010s in response to growth in customer demand means there is a greater volume of secondary systems assets requiring reinvestment in the 2027-32 regulatory period. This volume will continue to increase in subsequent regulatory periods and as such it is essential that the projects proposed for the 2027-32 regulatory period progress as planned to avoid the potential consequences of multiple secondary systems exceeding their useful life.

To address the challenges of managing an ageing fleet of assets, we have commenced a trial of in-situ replacement of secondary systems panels. This approach is enabled by the generation of digital secondary systems requiring replacement. We expect this trial to result in reduced costs, support shorter network outage times and enhance our capability in replacement techniques. This replacement approach comes with a trade-off of placing more pressure on scarce highly skilled resources necessary to undertake the work. The outcome of the trial will inform our approach to secondary systems reinvestment projects.

There have been rapid changes in the technology of telecommunications equipment, which enables the control and operation of the high voltage network. As telecommunications service providers look to remain competitive through adoption of new technologies to provide more features, the investment in legacy technology is reduced, resulting in shorter product support periods. This rapidly advancing environment is a key driver behind increased investment in telecommunications in the 2027-32 regulatory period.

Security and Compliance

Our total forecast Security and Compliance capital expenditure is $166.8 million. This is $110.9 million higher than the actual/forecast expenditure in the current regulatory period.

As part of our security strategy to protect business-critical assets, we have developed an investment case for future physical security uplift of our operational sites. This is currently based on a standardised approach to each site, based on its comparative size and criticality. A targeted risk assessment will be conducted to confirm the criticality and vulnerability of each site and works tailored to specific site requirements. This process will ensure

[61] National Electricity Rules, Schedule 5.1, clause S5.1.2.1(d), clause S5.1.9(c).
[62] Power System Operating Procedure (SO_OP_3715), AEMO and Power System Security Guidelines, AEMO.
[63] *Electricity Act 1994 (Qld),* section 34(1)(a) and Powerlink's Transmission Authority T01/98.

that implemented security controls are proportionate, effective, and aligned with our obligations under the *Security of Critical Infrastructure (SOCI) Act 2018*. This requirement will drive significant capital expenditure where existing security systems are replaced and enhanced in the 2027-32 regulatory period improving the physical security of existing operational sites.

Other

Our total forecast Other capital expenditure of $98.3 million is $28.6 million higher than the actual/forecast expenditure for the current regulatory period. This is predominantly driven by the Future Grid Operational Technology program, for which we have provided an investment case.

The increasing number of new generation and storage resources being integrated into the Queensland network is changing the behaviour of the power system. Combined with the challenging transmission network investment conditions and unbundling of system services (system strength, inertia, etc.), this results in greater variability and complexity for power system operators. In this evolving environment, there is a clear and urgent need to strengthen real time situational awareness and decision making to ensure operators can effectively monitor the network and respond swiftly to contingency events.

Additionally, the changing system dynamics are making network outage planning increasingly complex. To address these challenges, Powerlink is initiating a series of targeted work packages aimed at enhancing control room operations. These include improvements in forecasting and data analytics to leverage the NGNO program and support operational decisions, advanced tools for situational awareness, and operational capability to support the deployment of WAMPAC systems.

Collectively, these initiatives are designed not only to support more informed and agile operational responses but also to enable Powerlink to operate the network at higher risk tolerances. This will lead to improved network utilisation and reduced curtailment of generation, achieving system security and reliability outcomes at a lower cost to customers.

4.4.3.3 Non-network expenditure

Our total forecast non-network capital expenditure of $259.2 million is $78.1 million greater than the actual/ forecast expenditure for the current regulatory period.

The largest component of this expenditure relates to the need to substantially redevelop our Virginia complex to continue to efficiently provide prescribed transmission services. As highlighted in our 2023-27 Revenue Proposal it remains important that we provide facilities for contemporary work practices. Due to aged facilities, organisational growth, and the requirement to provide new and extended operational services, the Virginia complex will no longer be able to efficiently meet our business needs.

Further analysis of options during the current regulatory period has identified that it is not efficient to continue to reinvest in our existing facilities where the underlying infrastructure is over 60 years old. Consequently, we propose a more substantial investment in our Virginia complex as the most efficient solution to meet our long-term needs.

We extended our regional presence in Gladstone, to more efficiently provide support to the critical works to maintain safe, reliable and cost-effective supply in Central Queensland. While we achieved this in the current period with the establishment of an interim resource hub in Gladstone, we propose investment in a new facility in Gladstone. This is necessary to meet future regulatory, operational and system security obligations by enhancing local workforce capacity, reducing emergency and fault response times and improving deployment efficiency.

Our Business IT capital expenditure forecast for the 2027-32 period is $27.4 million. This is $70.3 million less than the actual/forecast expenditure for the current regulatory period. The decrease is due to the increased adoption of cloud-based services (or Software-as-a-Service). In April 2021, the International Accounting Standards Board clarified its definition of intangible assets which led to most Software-as-a-Service (SaaS) costs no longer meeting that definition. The International Financial Reporting Standards guidance suggested that these costs should be expensed (operating expenditure) rather than capitalised (capital expenditure), shifting the approach taken in the past in relation to cloud-based solutions.

Given the continuing maturity of SaaS offerings by leading technology companies, and the move by those companies to only offer SaaS solutions in the future, Powerlink has determined, in line with the Australian Accounting Standards, that most of the future IT investment will need to be treated as an operating expense rather than a capital asset.

4.5 Contingent projects

Contingent projects are investments that may be needed during the regulatory period should certain trigger events occur. As the need for investment during the regulatory period is not certain, or the costs associated with addressing the need for investment are not sufficiently certain, contingent projects do not form part of the ex-ante capital expenditure allowance[64]. If a contingent project trigger event occurs during the regulatory period, we can apply to the AER to amend the Revenue Determination to include the revenue required to undertake the contingent project. Before it amends the Revenue Determination the AER will assess the prudency and efficiency of the proposed additional expenditure[65].

Generally, contingent projects are significant network augmentation projects that are reasonably required to achieve the capital expenditure objectives set out in the Rules. Such projects are often linked to unique investment drivers, such as commitment of new large loads or retirement of generation, rather than general investment drivers such as expectations of load growth in a region.

We have considered potential contingent projects under two categories of drivers.

4.5.1 Local demand increase and/or generation reduction

Our TAPR identifies potential load developments and generation retirements that could trigger significant expenditure to augment the network to continue to meet our mandated reliability of supply standard. For these projects we propose contingent project triggers that identify the level of additional demand or reduction in generating capacity that will lead to failure to meet our mandated reliability of supply standards.

4.5.2 Market benefit

AEMO's 2024 Integrated System Plan (ISP)[66] identified significant network augmentations that could deliver net market benefits and are part of the optimal development path across the NEM. AEMO declared one of these projects, QNI Connect (Queensland – New South Wales Interconnector), to be actionable and requires that Powerlink and Transgrid commence the RIT-T assessment and publish a Project Assessment Draft Report (PADR).

[64] National Electricity Rules, clause 6A.8.1.
[65] National Electricity Rules, clause 6A.8.2.
[66] 2024 Integrated System Plan (ISP), Australian Energy Marker Operator, June 2024.

In the subsequent draft 2026 ISP[67], AEMO identifies one other Queensland project, the Gladstone Project, that would ordinarily have been declared as 'actionable' under the Rules but is instead flagged to be progressed under Queensland's PTI framework[68].

Beyond these ISP and PTI projects the Queensland Government, through its Energy Roadmap published in October 2025[69], has identified additional significant network augmentations that could deliver net market benefits during the 2027-32 regulatory period. A number of these projects have also been identified by AEMO in the draft 2026 ISP. However, as the final 2026 ISP will not be published until June 2026, we have included all the projects identified in the Energy Roadmap as contingent projects in our Revenue Proposal.

Central Queensland to South Queensland Reinforcement is not identified in the Energy Roadmap but has been identified by AEMO in the draft 2026 ISP as a future ISP project. The Rules provide that where an ISP identified project is declared actionable, it is automatically treated as a contingent project even if it was not identified as such in the relevant TNSPs' Revenue Proposal[70]. While we are not formally proposing Central Queensland to South Queensland Reinforcement as a contingent project, we have listed it below to aid transparency around the process and ensure customers are informed.

Our proposed contingent projects and their indicative costs are summarised in Table 4.10. We provide further detail on our proposed contingent projects and their triggers in Appendix 4.04.

Table 4.10 - Proposed contingent projects ($million real, 2026/27)

Project name	Type of trigger	Indicative total capital cost
Central to North Queensland Reinforcement	Market benefit/Energy Roadmap	209.0 to 1,788.0
Northern Bowen Basin Reinforcement	Additional customer demand	442.3
Gladstone Area Augmentation	Market benefit/Energy Roadmap	76.0 to 374.5
Central Queensland System Strength	Generation closure/minimum demand	450.0
Southern Queensland System Strength	Generation closure/minimum demand	225.0
South West Queensland Augmentation	Market benefit/Energy Roadmap	79.0
North Brisbane Area Network Development	Additional customer demand	247.9
Brisbane Area Transfer Capacity	Market benefit/Energy Roadmap	64.6
Surat Basin Area Network Development	Market benefit/Energy Roadmap	643.7

Actionable and future ISP projects identified in AEMO's draft 2026 ISP[71] and their indicative costs are summarised in Table 4.11.

[67] Draft 2026 Integrated System Plan (ISP), Australian Energy Marker Operator, December 2025.
[68] *Energy (Infrastructure Facilitation) Act 2024 (Qld),* Part 5.
[69] Energy Roadmap 2025, Queensland Government, October 2025.
[70] National Electricity Rules, clause 6A.8.2(a)(2).
[71] Draft 2026 Integrated System Plan (ISP) – Australian Energy Marker Operator, December 2025.

Table 4.11 - Actionable and Future ISP projects ($million real, 2026/27)

Project name	Type of trigger	Indicative total capital cost
QNI Connect	Market benefit/actionable ISP project	1,500 (1)
Central Queensland to South Queensland Reinforcement	Market benefit/future ISP project	1,500

(1) Cost shown is for Queensland component of project only.

Should any of these triggers occur, or should a project be declared an actionable ISP project, we will undertake the required regulatory processes, including RIT-T engagement. Further, should a CPA be made which offsets capital expenditure already identified in the ex-ante forecast (for example, the rebuild of a transmission line which results in refit works no longer being required), we will reduce the CPA by the appropriate amount.

4.6 Network Support/Non-Network Alternatives

We use network support as an alternative to network investment when it is economic to do so. We have well established processes for engaging with parties who are interested in the provision of non-network services. This includes our Non-Network Engagement Stakeholder Register where non-network solution providers can register to receive the details of potential non-network solution opportunities. We have also published a Network Support Contracting Framework, available on our website[72], as a general guide to assist potential non-network solution providers understand the key contracting principles that underpin our network support agreements.

For any given network limitation, the viability and specification of non-network solutions are first introduced in the TAPR. Further opportunities are then explored during the consultation and stakeholder engagement undertaken as part of any subsequent RIT-T. These established processes have been expanded to include requirements for inertia services and system strength services. In its 2025 Transition Plan for System Security, AEMO identified emerging system strength need in Queensland from 2027-28 with solutions underway. Further, AEMO identified two emerging inertia needs with remedial measures underway[73].

If any fault level or inertia shortfalls occur, we will consider the use of network support arrangements as alternatives to investment in new network assets. Table 4.12 identifies non-network alternative arrangements which commenced in the 2022-27 regulatory period.

Table 4.12 - Non-network alternative arrangements commencing in the 2022-27 regulatory period

RIT-T	Nature of Service	Commencement Date	Completion Date
Managing Voltages in South East Queensland RIT-T	Voltage Support Services	March 2023	November 2025
Addressing System Strength Requirements in Queensland from December 2025	System Strength Services	December 2025	December 2030
Addressing System Strength Requirements in Queensland from December 2025	System Strength Services	December 2025	December 2035

[72] Refer https://www.powerlink.com.au/non-network-solutions.
[73] 2025 Transition Plan for System Security, Australian Energy Market Operator, December 2025.

4.7 Deliverability of future expenditure

When developing this capital expenditure forecast, we have predominantly used a bottom-up approach. The resulting forecast was subsequently tested and adjusted using top-down methods that considered our historical capital expenditure trends over the last 10 years.

We have a proven ability to deliver capital projects to meet the needs of Queensland customers for a safe, reliable and cost-effective supply of electricity. Our forecast capital expenditure is more than 60% higher than the actual/forecast expenditure for the current regulatory period and as a result we have taken several significant steps in the current period to ensure we have the capability to deliver this quantum of work going forward.

- We enhanced our portfolio risk management approach to support structured reinvestment planning across asset classes and help optimise project timing to manage overall network risk.
- We expanded our regional workforce capacity in response to forecast increases in workload across central and northern Queensland.
- We are consolidating our transmission lines and substations outsourcing arrangements under a newly established panel agreement with contractors to support the efficient delivery of construction works.
- We have leveraged our positive relationships with suppliers to secure new manufacturing capability to reduce lead times and procurement costs.

In addition to these steps, we have assessed the deliverability of the capital expenditure forecast included in this Revenue Proposal, specifically considering the network capital program. Our deliverability assessment, included as Appendix 4.09, considered a range of challenges that impact the deliverability of our network capital expenditure program, including resource capacity and capability, land access and approvals, supply chain capacity, and network constraints and outage availability.

The assessment reviewed our business as usual approach to portfolio management and extended this to 2027-32 capital expenditure forecast. The assessment also considered the deliverability within the context of Powerlink's broader capital expenditure programs, not covered by the revenue determination process, such as the Gladstone Project and non-regulated customer connection works. Powerlink considers that our assessment demonstrates that our capital expenditure forecast for the 2027-32 regulatory period is deliverable.

4.8 Capital expenditure forecasting methodology

We have developed our capital expenditure forecast consistent with the requirements of the Rules[74] and our Expenditure Forecasting Methodology, which was provided to the AER in June 2025 (refer Appendix 4.03). We have also had regard to the AER's 2024 Industry Practice Application Note for Asset Replacement Planning[75].

Information on proposed transmission investments within a 10-year outlook is published in our TAPR[76] and related material. We also refer to AEMO's 2024 ISP. These longer-term plans are particularly relevant to identify contingent projects, which are discussed in Section 4.5.

As we developed our methodology and forecasts for the 2027-32 regulatory period, we engaged with our customers and stakeholders (refer Chapter 3 Customer Engagement). We also regularly engage with our

[74] National Electricity Rules, clause 6A.6.7.
[75] Industry practice application note - Asset replacement planning, Australian Energy Regulator, July 2024.
[76] 2025 Transmission Annual Planning Report, Powerlink, October 2025.

customers and stakeholders on planning and other business-related matters in the normal course of business, including at our annual Transmission Network Forum[77].

4.8.1 Capital expenditure categories

We applied the same categories of capital expenditure drivers for our forecast capital expenditure that were applied in our 2023-27 Revenue Proposal. Capital expenditure categories, and the prescribed transmission services they relate to, are shown in Table 4.13.

Table 4.13 - Powerlink's capital expenditure categories

Capital expenditure category	Definition	Prescribed transmission service
Network load driven		
Augmentations	Relates to augmentations defined under the Rules. Typically, these include projects such as the construction of new lines, substation establishments and reinforcements or extensions of the existing network.	Transmission Use of System (TUOS) services and exit services
Connections	Works to facilitate additional connection point capability between Powerlink and Distribution Network Service Providers (DNSPs) or other TNSPs. Associated works are identified through joint planning with the relevant Network Service Provider.	Exit services
Easements	The acquisition of tenure, including easements for transmission lines and freehold land for substations and communication sites, to facilitate the projected expansion and reinforcement of, and reinvestment in, the transmission network. Activities may include obtaining primary approvals, addressing cultural heritage and native title rights, and managing community engagement and social performance considerations.	Common services, TUOS services and exit services
Network non-load driven		
Reinvestments	Relates to reinvestment to meet the expected demand for prescribed transmission services. Expenditure is primarily undertaken due to end of asset life, asset obsolescence, asset reliability or safety requirements. A range of options is considered for asset reinvestments, including removing assets without replacement, non-network alternatives, life extension to extend technical life or replacing assets with assets of a different type, configuration or capacity. Each option is considered in the context of future capacity needs accounting for forecast demand.	Common services, TUOS services and entry/exit services
System Services	Investments to meet overall power system performance standards and support the secure operation of the power system. This includes the provision of system strength services and inertia services.	Common services
Security / Compliance	Expenditure undertaken to ensure compliance with amendments to various technical, safety or environmental legislation. In addition, expenditure is required to ensure the physical security (as opposed to network security) of Powerlink's assets.	Common services, TUOS services and entry/exit services

[77] Refer https://www.powerlink.com.au/engagement-forums.

Capital expenditure category	Definition	Prescribed transmission service
Other	All other expenditure associated with the network which provides prescribed transmission services, such as communications system enhancements, improvements to network switching functionality and insurance spares.	Common services
Non-network		
Business Information Technology (IT)	Expenditure to maintain IT capability, replace or improve business system functionality, assist in meeting regulatory requirements, enhance productivity, and improve cyber security of business systems.	Common services
Support the Business	Expenditure to replace or improve business requirements including the areas of commercial property, vehicles and moveable plant, for instance to address safety.	Common services

4.8.2 Our hybrid forecasting approach

We continue to evolve a hybrid approach to developing our capital expenditure forecasts, which integrates top-down and bottom-up methods.

We have built on the experience, input and feedback gained during our previous revenue determination process and have further refined and improved this approach for the 2027-32 regulatory period. As part of this improvement, we targeted development of project-specific supporting justification for at least 80% of our total forecast capital expenditure. Depending on the type and stage of development of the project, this may include asset condition assessment reports, applicable asset strategies, project scopes, project estimates, network planning assessments and risk-cost quantification. For lower dollar value replacement capital expenditure projects our forecasting approach will be based on a bottom-up view of project needs developed using forecast asset-specific health indices and informed assumptions in respect of the option presented.

This approach provides several advantages in that it:

- reduces the resources needed to prepare our Revenue Proposal compared to an entirely bottom-up approach
- balances the desire of stakeholders to understand the technical and economic justification for significant forecast investments, while recognising the uncertainty of forecasting capital expenditure needs many years in advance when the technical demands on the transmission network are rapidly changing
- assists the AER and stakeholders in terms of the time, effort and cost to review and assess our Revenue Proposal, and
- addresses concerns expressed by the AER over the use of its Repex Model in our 2023-27 Revenue Proposal.

Some categories of non-network capital expenditure will be forecast using a top-down methodology, whereby the future requirements are based upon a trend of historical expenditure. This will include adjustments to historical capital expenditure where appropriate to remove specific expenditure that does not represent an ongoing trend. Details of the hybrid approach can be found in our Expenditure Forecasting Methodology and a summary is presented in Table 4.14.

Table 4.14 - Summary of Powerlink's hybrid approach

Approach	Capital Expenditure Category	Supporting Information
Bottom-up	Approved projects (all categories) Load driven capital expenditure Reinvestment System Services Security/Compliance – major programs Other – major programs One-off expenditure needs, incl. major non-network capital expenditure Contingent projects (1)	Description of need, preparation of project specific scope, estimate, planning statement and risk-cost assessment. Note: the level of documentation provided will vary depending on the maturity of the project.
Top-down (trend analysis)	Security/Compliance – low value, recurrent items Other – low value, recurrent items Non-network capital expenditure – low value, recurrent items	Use of a forecasting methodology similar to the base-trend-step approach for forecasting operating expenditure.

(1) Contingent projects are not included in the ex-ante capital expenditure forecast.

Regardless of the methodologies used to forecast our capital expenditure for the purpose of this Revenue Proposal, detailed bottom-up analysis continues to be required and prepared to support final investment approval in our normal course of business. Much of our network capital expenditure is also subject to public consultation through the RIT-T process.

4.8.3 Cost estimating methodology

We develop project cost estimates based on a defined scope of work to address an identified investment need.

Depending on the category of project, identified investment needs may be triggered by growth in customer demand exceeding existing network capacity, the condition or obsolescence of existing network assets, the need to enhance building facilities, or the need to upgrade cyber security protection.

We produce our project estimates using a first principles approach, where the estimate is calculated based upon the specific resources and quantities required to complete the defined scope of works (e.g. labour, equipment, materials and subcontracts). We also identify and cost items particular to the project site to account for project-specific site conditions.

Project estimates provide the basis for economic analysis, management decisions, budgets and cost control. Estimates of increasing accuracy may be produced to support these activities as a project progresses, and engagement occurs with external providers.

Network project estimate types

We adopt two formal estimating methodologies for network projects. This reflects a fit-for-purpose approach to estimating based on project complexity, risk and expected cost as detailed below.

- Concept Estimates: produced in response to a high-level project scope requiring the consideration of multiple options, with a wider cost accuracy range these are typically developed for future investment needs or to support the detailed investigation of a confirmed investment need.

- Project Proposals: developed in response to a detailed project scope for a single option, which enables a narrower cost accuracy range, to support the full financial approval of a project consistent with Powerlink's corporate governance framework.

To establish the capital expenditure forecast in our Revenue Proposal, we scoped and estimated a single, most-likely, option using the Concept Estimate approach. All projects will undergo full option analysis as part of business as usual processes, which also includes application of the RIT-T consultation process where appropriate. This will require a new Concept Estimate to compare option costs on a like basis before the preferred option is selected and a Project Proposal completed to provide a more detailed scope and estimate.

Network project estimate classes and accuracy

We produce estimates in line with international recommended practice[78] that are informed by the level of specific project information available at the time the estimate is prepared. The most common class of estimate for Concept Estimates and Project Proposals are class 5 and class 3 respectively.

Table 4.15 provides the typical level of detail required and accuracy of each class of estimate produced.

Table 4.15 - Estimate classes and accuracy (Source: AACE International, Powerlink)

Estimate Class	Maturity of Project Definition	Typical Accuracy Range	Typical Estimate Type
Class 5	0% to 2%	-50% to +100%	Concept Estimate
Class 4	1% to 15%	-30% to +50%	
Class 3	10% to 40%	-20% to +30%	Project Proposal
Class 2	30% to 75%	-15% to +20%	
Class 1	65% to 100%	-10% to +15%	

The estimate classification is derived from the maturity of the data that makes up the project definition, such as the specific items of equipment required, quantities of construction materials, and construction staging. Each project estimate is based upon known quantities where available but will also include assumed quantities based upon recent project examples where necessary.

4.8.4 Capital Expenditure Model

Our Capital Expenditure Model compiles all the project cost estimates that make up our capital expenditure forecast and transforms them to produce the key data necessary to support our Revenue Proposal. This includes:

- forecast capital expenditure inputs to the Post Tax Revenue Model (PTRM), and
- forecast capital expenditure data to be included in the Reset Regulatory Information Notice (RIN) templates.

Depending on where a project is in its lifecycle, its forecast expenditure will be expressed as either:

- $ nominal – where the project is already approved; or
- $ real, 2025/26 – where the project is not approved and an estimate has been prepared for the purposes of the Revenue Proposal.

[78] Association for the Advancement of Cost Estimating (AACE International), Recommended Practice No. 18R-97.

Where forecast expenditure is expressed in $ nominal the expenditure is de-escalated to $ real, 2026/27 using the forecast of inflation from the PTRM. Where forecast expenditure is expressed in $ real, 2025/26 the expenditure is first escalated to a $ nominal basis using the appropriate real price escalators set out in Chapter 6 Escalation Rates. The resulting $ nominal expenditure is then de-escalated to $ real, 2026/27 using the forecast inflation from the PTRM.

Each project is assigned a project type, such as Power Transformer, Secondary Systems, IT – Non-recurrent, etc. The project type specifies the percentage breakdown of expenditure into the categories of direct materials, direct labour, contract costs and other costs. This breakdown allows the appropriate category specific real cost escalation to be applied to each project in the forecast. Each project also includes a percentage breakdown of the forecast expenditure into asset classes.

This process ensures all forecast capital expenditure is expressed on a consistent basis that meets the requirements of the PTRM and supports the reporting for the Reset RIN.

4.8.5 Inputs and assumptions

Powerlink's Board Directors certified the reasonableness of the key assumptions that underlie our capital expenditure forecast (refer Appendix 1.01 Board Certification of Key Assumptions). We have also included the key inputs and assumptions for capital expenditure in Attachment 1.

Table 4.16 describes other inputs and assumptions we applied to develop our forecast capital expenditure for the 2027-32 regulatory period.

Table 4.16 - Inputs and assumptions for our capital expenditure forecast

Input/assumption	Description
Forecast demand and generation	• The electricity demand forecast adopted for our Revenue Proposal is the Central Scenario outlook in Powerlink's 2025 Transmission Annual Planning Report, published in October 2025. • The location and capacity of existing and committed generation in Queensland is sourced from AEMO, unless modified following specific advice from relevant participants. • Information about existing and committed embedded generation and demand management within distribution networks is provided by Distribution Network Service Providers (DNSP).
Transmission reliability of supply standard and Asset Planning Criteria	• Clause 6.2 of our Transmission Authority[79] obligates us to plan and develop the transmission network such that mandated power quality and reliability of supply standards will be met. • This includes a requirement to plan and develop the transmission network to be able to supply the forecast maximum demand, with no more than 50MW or 600MWh of customer supply curtailed, even with the most critical network element out of service. • The Asset Planning Criteria sets out the planning assumptions made when assessing compliance against the required reliability of supply standard.

[79] Transmission Authority Number T01/98 issued by the Queensland Energy Regulator under the Electricity Act 1994 (Qld).

Input/assumption	Description
Integrated System Plan	• AEMO's 2024 ISP sets out a whole-of-system, least-cost development path for the NEM over a 20-year outlook. • Where the ISP identifies future augmentation of a part of Powerlink's transmission network in the optimal development path we will consider reinvestment in existing assets, and future easement requirements in that context.
System Security Reports	• AEMO's 2025 Transition Plan for System Security reports includes forecasts of system security services requirements for system strength, inertia and network support and control ancillary services (NSCAS). Powerlink is required to procure prescribed transmission services (network and/or non-network) to meet these forecast needs in its capacity as System Strength Service Provider (SSSP), Inertia Service Provider, and TNSP respectively.
Asset Reinvestment Criteria	• Defines the methodology used to assess the need and timing for intervention on network assets to ensure that industry compliance obligations are met.
Asset information	• Where required for the purposes of forecasting, we have sourced this information from our Enterprise Resource Planning database SAP.
Cost escalators and risk	• The main input cost components of our capital expenditure forecasts are labour costs (internal and external) and general plant and equipment. • The cost escalators we have applied are outlined in Chapter 6 Escalation Rates.

4.8.5.1 Demand and energy forecast

The demand forecast is developed through a methodology that projects future electricity demand. Historical actual demand and energy data forms the foundation, identifying trends and patterns in consumption. These data points establish a baseline for understanding usage over time.

A further seven additional input datasets are included to form the final forecast projections. These inputs are sourced from AEMO, Energy Queensland and external consultants for market or industry trends. Powerlink also uses internal data, including confidential customer information. The annual forecast process requires all TNSP connected customers to provide a 10-year demand forecast and through this process several existing connections have signalled increases in demand and energy due to decarbonisation ambitions.

The resultant central scenario demand forecast is shown in Figure 4.3 compared with AEMO's 2024 and 2025 Electricity Statement of Opportunities (ESOO) forecasts. The alignment of Powerlink's 2025 forecast with AEMO's 2025 Step Change scenario forecast is significantly closer compared to the 2024 forecasts from both organisations. Powerlink's 10-year forecast is very similar to AEMO's with differences due to the input assumptions used.

Over the 2027-32 regulatory period, Powerlink's 2025 Central scenario coincident maximum delivered demand is forecast to grow by 14.4%. In preparing the 2027-32 capital expenditure forecast Powerlink has used this load

forecast[80] to identify load driven limitations that will require expenditure during the 2027-32 regulatory period. This assessment has been done applying the principles of the Asset Planning Criteria.

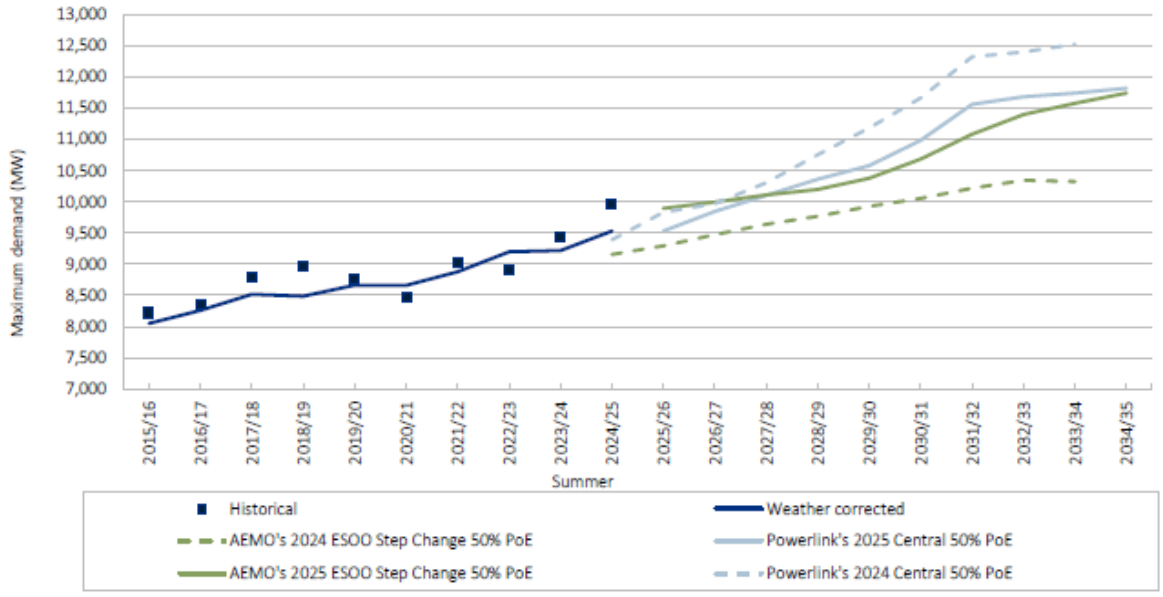
The main contributing factor is the electrification of industry located within the Gladstone region. Network limitations due to this demand growth are being addressed through the current Gladstone Project PTI process.

Other forecast demand growth can generally be accommodated within the existing network capacity. However, there are certain areas where the planning standard is nearing its limit. Joint planning is being undertaken to determine the required timing for augmentation in these areas. These include Goodna, Mudgeeraba and Loganlea substations. In all cases special protection schemes and load transfers are being investigated to defer the respective augmentations. The required timing for any augmentation will also be reassessed post the 2025/26 summer demand forecast update.

The specific demand impacts of the 2032 Olympics, including where any new load may materialise, are still being understood by Energy Queensland. Until these assumptions are confirmed, the resulting impacts on the transmission network cannot yet be assessed.

Pending the outcome of these assessments, the load driven capital expenditure may be updated in the 2027-32 capital expenditure forecast in the Revised Revenue Proposal.

Figure 4.2 - Comparison of the 2025 TAPR demand forecast with AEMO's 2024 and 2025 ESOO demand forecast

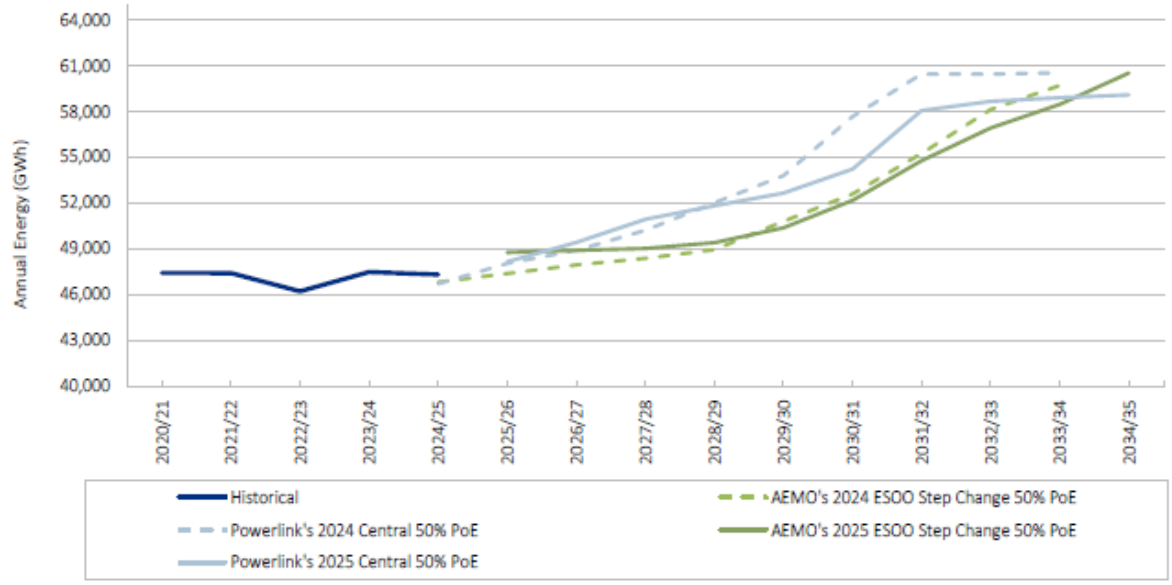


Note: AEMO's 2024 and 2025 ESOO forecast has been converted from 'operational sent-out' to 'transmission delivered' for the purposes of comparison.

The forecast annual energy consumption (Figure 4.4) shows steady average annual growth over the forecast horizon. Over the 2027-32 regulatory period the delivered energy is forecast to grow by approximately 14%.

[80] Powerlink's forecasting process also provides sub regional forecasts at more granular levels. This enables Powerlink to assess demand drivers relevant to the geographical area being assessed

Figure 4.3 - Comparison of the 2025 TAPR energy forecast with AEMO's 2024 and 2025 ESOO consumption forecast



Note: AEMO's 2024 and 2025 ESOO forecast has been converted from 'operational sent-out' to 'transmission delivered' for the purposes of comparison.

4.8.5.2 Asset planning criteria

Powerlink's Transmission Authority requires that we plan and develop the network so that only a limited amount of customer demand and energy is at risk of not being supplied during the most critical single contingency event. These demand and energy limits are set in the Transmission Authority at 50MW and 600MWh.

The Transmission Authority also includes a requirement to apply good electricity industry practice which, in turn, necessitates the use of a range of supporting technical standards. The reliability of supply standard, along with the supporting technical standards, comprises our Asset Planning Criteria Framework. Our Asset Planning Criteria Framework is provided as a supporting document to our Revenue Proposal.

4.8.5.3 Asset reinvestment criteria

Powerlink's Asset Management System ensures assets are managed in a manner consistent with the Asset Management Policy and overall corporate objectives to deliver safe, reliable and cost-effective services. We demonstrate this by adopting a proactive approach to asset management that optimises whole of life-cycle costs, benefits and risks, while ensuring compliance with applicable legislation, regulations, standards, statutory requirements, and other relevant instruments.

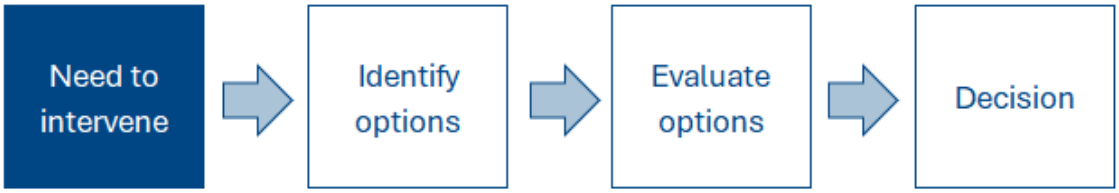
Our Asset Reinvestment Criteria Framework defines the methodology that we use to assess the need and timing for intervention on network assets to ensure that industry compliance obligations are met. The methodology improves transparency and consistency within the asset reinvestment process, enabling our customers and stakeholders to better understand the criteria applied to determine the need and timing for asset intervention.

This framework is relevant where the asset condition changes so it no longer meets its level of service or complies with a regulatory requirement. The reinvestment category is triggered when the existing asset has degraded over time and no longer provides the required standard of service as prescribed within applicable legislation, regulations and standards.

The trigger to intervene needs to be identified early enough to provide an appropriate lead time for the asset reinvestment planning and assessment process. The need and timing for intervention are defined when business as usual activities (including routine inspections, minor condition based and corrective maintenance and operational refurbishment) indicate the network asset is no longer able to meet prescribed standards of service due to deteriorated asset condition.

Our Asset Reinvestment Process, shown in Figure 4.5, enables timely, informed and prudent investment decisions to be made that consider all economic and technically feasible options, including non-network alternatives or opportunities to remove assets where they are no longer required. An assessment of the need and timing for intervention is the first stage of this process.

Figure 4.4 - Asset reinvestment process



The principles set out in the Asset Reinvestment Criteria Framework underpin the timing of specific reinvestment projects in this Revenue Proposal. The Asset Reinvestment Criteria Framework is provided as a supporting document to our Revenue Proposal.