

Introduction

Powerlink Queensland owns, develops, operates and maintains Queensland's high voltage electricity transmission network. The network extends from Cairns to the New South Wales (NSW) border and comprises 15,559 circuit kilometres of lines and 154 substations and provides electricity to more than five million Queenslanders and 241,000 businesses.

Powerlink connects large generators to end-use customers through the distribution networks owned by Energex and Ergon Energy (part of the Energy Queensland Group), and Essential Energy in northern NSW, and provides electricity directly to large industrial customers such as rail companies, mines and mineral processing facilities and to NSW via interconnectors.

About the Transmission Annual Planning Report

Powerlink undertakes an annual planning review in accordance with the National Electricity Rules (NER) and publishes the findings of this review in the Transmission Annual Planning Report (TAPR) and associated templates available in the TAPR Portal.

Powerlink conducts an annual TAPR survey to seek insights from market participants and stakeholders about how the quality and presentation of information in the TAPR can be improved. In response to this year's survey, Powerlink has made a number of enhancements to the TAPR document and TAPR Portal, including:

- consolidated visuals and discussion of potential future investments, including strategic projects, by region
- one-page overviews of zone and grid performance on our website
- improved user experience and navigation on the TAPR Portal
- addition of historical feeder flow data in the TAPR Portal
- a new network capability and performance data workbook.

Queensland Energy Roadmap

Powerlink's role as Queensland's Transmission Network Service Provider is central to the implementation of the Queensland Government's Energy Roadmap released in October 2025. The Queensland Energy Roadmap provides clear direction for Powerlink's planning and investment decisions by focusing on the transmission network required to support future generation, energy storage, industrial growth and private sector investment. The Queensland Energy Roadmap is a foundational plan that informs our TAPR, with each of the Powerlink projects outlined in the Roadmap included in our 10-year investment plan.

Network connections

Since 2017, Powerlink has completed connection of 41 new generation and battery energy storage system (BESS) projects in Queensland, adding 9,242 megawatts (MW) of generation and storage capacity to the grid. During the 2025/26 TAPR reporting period, 3,506MW of semi-scheduled generation and storage capacity has been committed in Queensland.

A Connections Guarantee was introduced for Powerlink in July 2026, which focuses on connection application performance for large-scale generation, storage and loads. As Queensland's energy system continues to evolve, new generation, storage and load will need to be connected to ensure a safe, reliable and cost-effective supply of electricity.

As part of the Connections Guarantee, Powerlink will report against four key metrics:

- **Response to Connection Enquiry:** Powerlink will target 100% achievement for NER connection enquiry timeframes of 40 business days for Designated Network Asset (DNA) connections and 30 business days for non-DNA connections.
- **Performance Standard Package Assessment:** Powerlink will target a 75% response rate to performance standard packages provided by a proponent within 30 business days.
- **Negotiated Access Standards Decision:** Powerlink will assess all proposed negotiated access standards for a connection within 30 business days of receiving all required information.
- **Connections Delivered On-Time:** Powerlink will target a 90% rate for connections delivered on-time as per the executed agreement.

Powerlink will report performance against these targets on an annual basis. More information on the Connections Guarantee is on our [website](#).

Energy and demand projections

Queensland's maximum transmission-delivered demand for 2025/26 was 9,462MW, on Thursday, 12 February 2026. This maximum demand occurred at 6.30pm and was 512MW lower than the record maximum delivered demand set in January 2025.

Powerlink's Central scenario forecasts an average annual increase in transmission-delivered maximum demand of 2.7% per annum over the next 10 years. The Central scenario forecast includes a modest amount of data centre load growth, while the High scenario incorporates a higher outlook on potential data centre developments based on early engagement with proponents. As project certainty increases, data centre load is expected to be progressively incorporated into future forecasts.

To support this emerging sector, Powerlink has prepared guidance (see Appendix B) on network and connection considerations to support prospective developers to make informed decisions during the early stages of project development. The guidance provides practical information on site selection, connection pathways and the technical and planning considerations associated with connecting large-scale data centre loads to Queensland's transmission network. It complements, but does not replace, the connection process prescribed under Chapter 5 of the NER.

Queensland's minimum transmission-delivered demand for 2026 was 2,077MW, on Saturday, 19 September 2026. This minimum demand occurred at 11:30am and was 162MW lower than the previous record minimum delivered demand set in August 2025. The previous decline in transmission-delivered minimum demand is expected to moderate over the next 10 years, with minimum demand forecast to grow at an average annual rate of 2.0%, primarily driven by new data centre consumption, and residential and transmission-connected BESS.

Powerlink's forecast for electric vehicle uptake has been revised upward in 2026 to reflect stronger than expected market growth. The future charging behaviour of electric vehicle owners remains a key source of forecasting uncertainty. If charging is unmanaged, owners might charge during peak evening hours and add strain to the grid, whereas smart charging via time-of-use tariffs will move charging away from evening peaks.

System security planning

Queensland's power system has historically comprised synchronous generation such as coal-fired power stations, gas turbines and hydro-electric plants. These large generators provide various system security services, such as voltage regulation, inertia and system strength, as an inherent characteristic of their energy dispatch, supporting stable and reliable power system operation.

The increased contribution of inverter-based resources (IBR), particularly solar and wind, can reduce the availability of system security services in the National Electricity Market (NEM), prompting the need for new approaches to the planning and delivery of these services.

Under the NER, Powerlink is the System Strength Service Provider and Inertia Service Provider for Queensland. Our strategy to discharge our responsibilities to plan for and make system security services available includes:

- pursuing a complementary mix of different technologies to address requirements, as outlined in Powerlink's System Strength Regulatory Investment Test for Transmission (RIT-T)
- timely and efficient investment in solutions to anticipate withdrawal of synchronous generation, while preserving flexibility to invest in or procure further solutions (including non-network solutions) over time
- working with the Australian Energy Market Operator (AEMO) and Energy Queensland (as owner of the Energex and Ergon Energy distribution networks) to explore ways to enhance Queensland's operational tools and investigate new technologies to maintain system security during periods of low operational demand.

Powerlink has progressed several activities to meet system strength and inertia requirements since publishing the 2025 TAPR:

- In addition to the existing agreement with Ratch Australia for the provision of system strength services at the Townsville Power Station, in December 2025 we finalised an agreement for system strength services from Pacific Hydro's synchronous condenser located at its Haughton Solar Farm Stage 1 site in Northern Queensland.
- In March 2026, we signed an agreement with Hitachi Energy to supply and install four synchronous condensers to deliver system strength in Central Queensland and maintain voltage stability and inertia. Two of the units will be installed at the Calliope River Substation, with one each at the Nebo and Stanwell substations.
- We will continue to assess the need for and monitor potential network and non-network solutions for future system strength requirements in Southern, Central and Northern Queensland.
- We are progressing studies to examine the technical feasibility and capability of grid-forming BESS to deliver minimum system strength.

Most IBR projects in Queensland are choosing to self-remediate their system strength impact. Powerlink continues to monitor the need for efficient level system strength services, using AEMO's 10-year forecast of IBR connections as a starting point. As indicated in the System Strength RIT-T, Powerlink will engage with industry at the appropriate time should a need to procure efficient level system strength services emerge.

Non-network solutions

Powerlink considers potential network, non-network and operational responses to identified needs, including combinations of these approaches. Where suitable, a non-network option can address all or part of an identified need, make more effective use of existing network capability, or influence the form, scale, timing or staging of network investment.

Through our annual planning review, Powerlink identifies emerging transmission network and power system needs across the 10-year outlook. The TAPR provides early visibility of where non-network capabilities may be relevant, including available information on the location, nature and indicative timing of potential or emerging needs and, where available, indicative service requirements. Supporting information is provided through the TAPR Templates, TAPR Portal and published consultation documents.

The regulatory consultation and assessment pathway for an identified need depends on the nature and timing of the need and the relevant regulatory or legislative framework. Depending on the circumstances, non-network options can be considered through processes including:

- a RIT-T
- an expression of interest or another applicable process for a power system security requirement
- the consultation and assessment arrangements for an actionable Integrated System Plan (ISP) project
- consultation and assessment arrangements applying under Queensland's Priority Transmission Investment (PTI) framework.

The TAPR identifies the indicative service requirement and potential non-network solution for all potential network investments over the 10-year outlook.

To support meaningful early market consideration, the following near-term voltage support and transformer reinvestment or augmentation needs are included in the TAPR:

- maintain voltage levels and transfer capability in North Queensland, refer to Section 6.7.4 (NQ-11)
- maintain power transfer capability and reliability of supply at Tully, refer to Section 6.5.4 (FNQ-03)
- maintain reliability of supply and transfer capability at South Pine, refer to Section 8.9.4 (MZ-06)
- maintain reliability of supply at Goodna, refer to Section 8.9.4 (MZ-03)
- address reliability of supply to the southern Gold Coast and Tweed area, refer to Section 8.10.4 (GCZ-02).

Interested parties can contact NetworkAssessments@powerlink.com.au to:

- discuss whether and how a capability may contribute to a potential or identified need, either as a standalone response, through aggregation or as part of an integrated response
- seek clarification or provide information on published needs, service capabilities, locations and development timeframes
- request inclusion on the Non-network Engagement Stakeholder Register to receive relevant updates, including notifications when RIT-T consultation reports are published.

Network development, programs and consultations

Since the release of last year's TAPR, we have completed or commenced several regulated investment consultation processes, with additional consultations planned over the coming year. Investment planning is also evolving to enable the Queensland Energy Roadmap, support Powerlink's 2027-32 Revenue Proposal, align with AEMO's 2026 ISP and to deliver a range of important programs of work.

The 2026 TAPR does not include any specific augmentations for the Brisbane 2032 Olympics. Powerlink is a member of the Games Energy Council and continues to work closely with the Queensland Government and Energy Queensland in preparation for the Olympics. There may be consequential impacts on the transmission network and Powerlink is engaging with load proponents seeking to connect to the transmission network to enable their connection in a timely manner.

Powerlink submitted our Revenue Proposal to the Australian Energy Regulator (AER) in January 2026. The investment outlook presented in the TAPR reflects the proposed capital expenditure program and Contingent Projects included in the Revenue Proposal and is current as of 31 August 2026. Any changes arising from the AER's Final Determination in April 2027 will be reflected in future planning assessments and subsequent TAPRs.

AEMO's 2026 ISP included two new actionable ISP projects for Queensland; Central to North Queensland Reinforcement (Stage 1), and Brisbane Area 275 kilovolt (kV) Reinforcement. These projects aim to increase transmission network capability and enable new generation to connect to the network. Project Assessment Draft Reports for both needs are due in June 2028. Through the RIT-Ts, Powerlink will assess AEMO's candidate developments alongside other credible network and non-network options to identify the option that maximises net market benefits.

The TAPR also includes details of our geographical line refit programs, and lines approaching the end of technical service life in the 10-year outlook period, and in the 10-20 year period.

Northern Region Development Outlook

The Northern Region remains a key focus area for future transmission investment, driven by asset renewal requirements, integration of the CopperString Project, industrial electrification, mining growth, and changing power flow patterns.

The Central Queensland to North Queensland (CQ-NQ) transmission backbone continues to play a critical role in supporting bulk power transfers between Central, North and Far North Queensland, with several future opportunities identified to maintain network reliability and support the efficient and economic operation of the NEM. Key investment opportunities in the next five years for the CQ-NQ backbone include:

- Ross to Chalumbin 275kV refit
- Reid River 275kV Network integration
- Central to North Queensland Reinforcement (Stage 1).

Central Region Development Outlook

The Central Region hosts Queensland's largest concentration of heavy industrial electricity demand and is expected to experience changing power transfer patterns associated with generation developments, industrial growth and major customer connections.

The Gladstone Project progressing under the PTI framework remains the defining near-term network investment in the region and is intended to establish the baseline network capability required to maintain reliable and secure supply following the potential closure of Gladstone Power Station in March 2029. The project comprises two stages of work:

- Stage 1: Calvale to Calliope River Reinforcement Project – involves construction of a new 275kV line from Calvale to Gladstone West to Calliope River and is to be completed by March 2029.
- Stage 2: Gladstone West Substation and Bouldercombe to Gladstone West transmission line – involves establishing a new Gladstone West Substation by June 2029 and construction of a new 275kV line from Bouldercombe to Gladstone West by August 2030.

The June 2025 PTI assessment included construction of a Gladstone West to Larcom Creek transmission line as part of the proposed Gladstone Project PTI scope. This line is no longer included in the PTI project scope. This change reflects the Gladstone Project's investment time horizons and updated demand forecasts which saw a reduction in demand projections for Larcom Creek Substation.

Construction of the line remains within Powerlink's future network investment plans and is one of the potential network solutions identified in Powerlink's proposed Gladstone Area Augmentation Contingent Project. The future investment would also be subject to additional planning, regulatory assessment and approval processes if the relevant trigger event(s) occur.

Further investment in the Central Region will depend on the scale, location and timing of new industrial loads, generation and storage developments.

Southern Region Development Outlook

The Southern Region contains Queensland's largest concentration of electricity demand and is one of the state's most significant generation, firming and storage development regions. Future transmission requirements will be shaped by population and demand growth, major customer connections, changing generation and storage patterns, power transfer requirements and the condition of existing network assets.

Two strategic intra-regional transmission corridors are central to the future development of the Southern Region network:

- the Central Queensland to South Queensland (CQ-SQ) corridor, supporting transfers between Central Queensland, Wide Bay, the Sunshine Coast, South West Queensland and South East Queensland.
- the South West Queensland to South East Queensland (SWQ-SEQ) corridor, which is expected to play an increasingly important role in transferring energy from generation, firming and storage developments in the Surat Basin, Darling Downs and Southern Downs to major load centres in South East Queensland and the broader NEM.

Key investment opportunities in the next five years include:

- Brisbane Area 275kV Reinforcement
- Wide Area Monitoring Protection and Control (WAMPAC) Tranche 2
- line refit works on the 275kV transmission line between Woollooga and South Pine substations
- the proposed South West Queensland Augmentation and Surat Basin Area Network Development Contingent Projects.

Across the three regions, the investment outlook reflects different combinations of asset condition, reliability, customer and economic development, changing power transfers and system security requirements. The timing and scope of many future investments will depend on how these needs develop, with Powerlink continuing to stage planning and investment decisions to maintain reliability while preserving flexibility.

Engagement

Powerlink is committed to effective early engagement with customers, communities, First Nations Peoples and other stakeholders to share information and use feedback to improve decision-making. Maintaining and building social licence and giving regional communities who host transmission infrastructure a voice is fundamental to delivering safe, reliable and cost-effective electricity. More than 500 stakeholders attended Powerlink's annual Transmission Network Forum in November 2025, and over 200 people attended our second regional Transmission Network Forum in Gladstone in August 2026. These forums provide valuable opportunities for Powerlink to exchange insights with industry, government and community stakeholders to improve our planning of the network.

By strengthening and increasing the capacity of our transmission network, Powerlink is ensuring a resilient supply of electricity to deliver wider economic benefits, meet future industrial energy needs and attract new businesses to Queensland.

Powerlink is actively working with customers and stakeholders in response to new planning laws, introduced by the Queensland Government in 2025. The new requirements make solar and wind farms impact assessable, create a stronger role and decision-making for local government in the assessment process and strengthen social licence across energy developments, ensuring communities affected by projects have a meaningful say.

Network capability and performance

The rapid growth of new generation, battery storage and hybrid developments continues to alter the location, timing and direction of electricity flows across the transmission network, while declining minimum demand is creating new operational and planning challenges. Powerlink continues to maximise network capability and maintain system security through advanced network monitoring and control schemes, real-time transmission line rating trials and initiatives to manage priority power system risks.

Maximum demand across Queensland's transmission zones remained broadly unchanged during 2025/26; however, seven of Powerlink's 11 zones recorded new minimum demand records, continuing the trend of declining daytime transmission-delivered demand.

The Queensland to New South Wales Interconnector (QNI) Minor project is complete, resulting in increased transfer capability in both northerly and southerly directions. Final testing activities are ongoing at these high transfer levels.

Network constraint performance in 2025/26 remained broadly consistent with historical levels. The Gladstone grid section experienced approximately 500 hours of constrained operation due to thermal limitations, while constrained operation in the Gold Coast and Tarong grid sections was primarily associated with maintenance activities.

Commissioned and Committed Network Developments

During 2025/26, Powerlink's delivery efforts remained predominantly directed towards connecting generation and reinvestment in transmission lines and substations across Powerlink's network.

Since publication of the 2025 TAPR, Powerlink has completed one network and 12 reinvestment projects, and seven connection projects have been completed including four BESS connections.