January 2026

Powerlink 2027-32 Revenue Proposal

Appendix 4.10

2026 Network Investment Outlook

DISCLAIMER:

This document provides indicative future investment planning information based on current assumptions and scenarios.

It does not represent a commitment to specific investments and is subject to change in response to market developments, external environment, and regulatory requirements.

Version Control

Version	Date	Sections	Comment
1.0	22/12/2025	All	Issued for approval

Approvals

Authored:	Portfolio Planning and Optimisation	
Endorsed:	Manager PPO	
Approved:	GM Network Portfolio	

Abbreviations

AEMO	Australian Energy Market Operator
BSL	Boyne Smelters Limited
CQ-NQ	Central Queensland to North Queensland
CQ-SQ	Central Queensland to South Queensland
DNSP	Distribution Network Service Provider
EOI	Expression of Interest
EQL	Energy Queensland Limited
ISP	Integrated System Plan
NIO	Network Investment Outlook
PDA	Priority Development Area
RIT-T	Regulatory Investment Test for Transmission
SEQ	South East Queensland
SWQ	South West Queensland
TAPR	Transmission Annual Planning Report
TNF	Transmission Network Forum
TNSP	Transmission Network Service Provider
WAMPAC	Wide Area Monitoring Protection and Control

Executive Summary

The 2026 Network Investment Outlook (NIO) outlines Powerlink's medium to long term strategic plans for the transmission network guiding investment decisions in a rapidly transforming energy landscape. The NIO is grounded in structured adaptive planning taking a holistic view of investment drivers and external market developments to guide optimal investment strategies and support Powerlink's commitment to delivering safe, reliable, and cost-effective transmission services for customers and stakeholders.

The NIO spans a 20-year planning horizon providing Powerlink with a forward-looking view to respond to emerging trends, anticipate future investment needs, and align business activities with broader strategic investment priorities. This approach ensures that shorter term business activities including project approvals, asset management, innovation and new technologies, procurement, and community engagement are aligned with medium to long-term network development objectives. The NIO is reviewed and updated annually to reflect emerging network needs, changes in the external environment, and evolving market conditions.

Powerlink's strategic investment planning process leverages cross divisional expertise, fostering collaboration and identifying synergies to develop optimised investment strategies to delivery cost efficient and reliable transmission services to customers and other stakeholders.

Planning Approach and Value Delivery

A cornerstone of the NIO is the Area Planning process. This process brings together cross divisional expertise to identify emerging network limitations and drivers across an area with inter-related assets, assess potential network and non-network solutions, and explore opportunities for synergies and innovation.

This collaborative approach ensures investment decisions are considered from a holistic viewpoint across different outlooks and scenarios to ensure that benefits and drawbacks of varying investment strategies are robustly evaluated. The Area Planning process considers inputs and factors from a range of perspectives including emerging network capacity drivers, asset condition and obsolescence, external market developments, property and easement considerations, community sensitivities and opportunities, operational factors, and project delivery.

The NIO adopts a staged least-regret and economically efficient approach to future network investments aligning with key external electricity infrastructure plans and strategic frameworks including the Queensland's Government Energy Roadmap and AEMO Integrated System Plan.

These broader market trends including generation developments, electrification, decarbonisation, energy storage, and evolving consumer energy sources, are incorporated into the NIO's planning processes to ensure investment decisions remain aligned with future energy needs.

The NIO ensures that timely and prudent investment decision making remain key to enable network investments to be delivered in a safe, reliable and cost-effective manner to customers and other stakeholders.

Medium to Longer Term Investment Focus

Powerlink's medium to long-term investment plans are focused on maintaining a safe, reliable, and cost-efficient transmission services for Queenslanders. Key investment priorities include:

Asset Reinvestment and Refurbishment: Targeted programs to address emerging condition risks, obsolescence, and compliance across transmission lines, substation equipment, power transformers, and secondary systems.

Network Capacity Developments: Expansion of transmission capacity to maintain reliability of supply to growing residential and commercial areas, development of new industries, support electrification and decarbonisation across Queensland's industrial and mining sectors, and realisation of economic and market benefits.

System Strength and Services: Installation of synchronous condensers and procurement of associated non-network solutions to ensure minimum and efficient levels of system strength, voltage control, and inertia to maintain a secure and reliable transmission network.

Consolidation of Transmission Services: Consolidation or reconfiguration of the transmission system where network needs have evolved over time due to changes in generation and load developments to deliver cost efficiencies.

Aligning Short-Term Actions with Long-Term Vision

The NIO provides a forward-looking plan that aligns shorter term activities with long term strategic objectives. This ensures that near term activities including asset reinvestment and management, regulatory consultations, project approvals, community engagement, and easement works are aligned and consistent with strategic longer term customer needs for the transmission network.

This approach maintains alignment across the business and more broadly with external stakeholders and the market to deliver value and cost-efficient transmission services.

1. Introduction

1.1 Purpose

The 2026 Network Investment Outlook (NIO) provides a medium to long term strategic view of Powerlink's transmission network. It supports internal planning, stakeholder engagement, and regulatory processes by: highlighting future network requirements, prioritising investment needs, guiding asset management, and identifying innovation and non-network opportunities.

The NIO is a point-in-time plan which is updated annually to respond to changing market dynamics and external developments.

1.2 Delivering Value for Customers

The NIO adopts a staged least regret and economically efficient approach to future development of the transmission network. This strategic investment planning process examines broader trends in the external environment including generation developments, industry electrification and decarbonisation, establishment of new industries, regional and urban expansion, and new technologies.

This ensures that future network needs are considered holistically to develop optimised, co-ordinated and cost efficient investment plans. The identification of optimal investment strategies across a range of scenarios ensures that preparatory works and prudent investment decisions can be made with sufficient lead time to align with longer term network strategies delivering value and cost efficiencies for Powerlink's customers.

1.3 Developing a Fit-for-Purpose Investment Outlook

A cornerstone of investment planning is the Area Planning process which brings together cross-divisional subject matter experts to assess emerging network needs. This collaborative approach draws insights from across the organisation and external stakeholders, identifies synergies and interdependencies, and develops optimised investment strategies for related parts of the network.

This holistic approach ensures that inputs from diverse perspectives are considered in a balanced manner and identified early in the investment lifecycle process enabling least regret preparatory activities to progress in a prudent, and timely manner. The area planning process is conducted annually to ensure investment strategies are applicable and fit for purpose, and reflect latest market developments.

The NIO is unique in holistically identifying future investment drivers and synergies to develop optimised investment strategies to guide and provide alignment across the business, and more broadly externally to Powerlink's customers and other stakeholders as appropriate.

1.4 Stakeholder and Customer Engagement

The NIO informs future investment strategies for a range of external engagement and publications including the Transmission Annual Planning Report (TAPR), Regulatory Investment Test for Transmission (RIT-T), Expression of Interest (EOI), Powerlink's Revenue Reset, and Transmission Network Forum (TNF).

Future networks are expected to increasingly rely on non-network solutions to address power system capacity, performance and security issues. The NIO provides guidance on non-network opportunities that could potential meet future network needs through the TAPR and other engagement activities.

Powerlink actively engages with customers and other stakeholders to identify external opportunities to optimise network investment decision-making through a range of structured consultation and engagement activities.

The NIO also informs innovation opportunities and other business initiatives that could potentially realise cost efficiencies so these can be progressed and implemented in a timely manner.

2. Investment Planning Framework & Methodology

Powerlink's approach to medium to longer term network investment planning within the NIO is grounded in structured and adaptive approaches which examines drivers and considerations holistically to develop optimal network investment strategies.

2.1 Planning Horizon

The Network Investment Outlook (NIO) spans a 20-year planning horizon consistent with timeframes used within other strategic jurisdictional and national plans including the Queensland Government's Energy Roadmap and AEMO's Integrated System Plan (ISP).

This medium to longer term view enables Powerlink to anticipate future network needs and develop economic investment strategies so that shorter term preparatory activities can be progressed in timely manner to optimise investments over the longer term. This process enables Powerlink to maintain optionality and minimise regret for future investments.

Area Planning Process

Area Planning is a structured and collaborative process for shaping network investment strategies within regions that have interdependent assets and investment drivers. This approach ensures decisions are not made in isolation but rather interdependencies for network assets within an area are assessed holistically over the investment lifecycle to identify optimal investment pathways.

The process draws heavily on insights from SMEs across the business including Asset Strategies, Network Planning, Operations, Market Modelling, Property, Project Engagement, Engineering Design, and Project Delivery teams. Strategic inputs from the Queensland Government's Energy Roadmap, ISP, and joint planning with other network service providers also provide important inputs to the process.

High level summaries of Powerlink's medium to longer term transmission investment strategies are presented as area plan diagrams in Appendix A. These diagrams illustrate how the network may evolve over time based on current information and planning assumptions. Each area plan summary is supported by detailed Area Planning reports that provide regional context, outline key investment drivers and considerations, and assessments of potential strategies and options.

Powerlink applies established governance processes to oversee investment strategies and area planning. Medium to longer term investment pathways progressively transition into detailed scoping, regulatory consultation, and approvals as projects move closer to implementation.

3. Future Transmission System Requirements

Powerlink's transmission network is entering a period of significant transformation. Over the next two decades and beyond, the energy system is expected to face complex and evolving requirements driven by the changing generation and storage mix, increased electrification and decarbonisation, growth in consumer energy resources, and integration of advanced technologies.

The scale and pace of change means that holistic and robust investment strategies are increasingly important, and that forward looking views under different scenarios are essential to ensure early preparatory activities are progressed in a time manner. Key investment drivers and considerations in the strategy development process are outlined below.

3.1 Emerging Condition Risk, Obsolescence, and Compliance

Managing asset condition, obsolescence, and compliance remains a cornerstone of Powerlink's capital investment and operational refurbishment strategy. These drivers are assessed holistically alongside network capacity drivers and enduring network needs to develop optimised investment pathways.

3.2 Capacity and Economic Upgrades

Increasing the power transfer capability of Queensland's transmission network will become a significant component of future investment. This need is driven by multiple factors including continued residential, commercial and infrastructure growth, electrification and decarbonisation of the industrial sector, expansion of industries, rise of energy intensive industries (such as data centres), and evaluation of economic and market benefits.

Increases in power transfer capability across Powerlink's key transmission corridors are also anticipated to deliver net market benefits and efficient market outcomes associated with an evolving energy landscape.

Joint planning with AEMO, Energy Queensland (EQL), Essential Energy, TransGrid, and other network service providers remains central to identifying optimal strategies that extend beyond individual asset boundaries.

3.3 Emerging System Services Requirements

The transition to renewable energy and the growing share of inverter-based resources is reshaping system security requirements. Targeted investment in technologies that address emerging system services requirements including system strength, inertia, and voltage control and management will be critical.

Powerlink's recent investment planning and regulatory consultation activities have identified a mix of network and non-network solutions, including synchronous condensers and potential non-network solutions which include contracted services with grid forming battery energy storage systems, and synchronous generating plant.

Further investments in both network and non-network solutions will be required to meet emerging system security needs with continued changes to the energy system. These investment needs are also highlighted in AEMO's 2025 Transition Plan for System Security report.

3.4 Opportunities for Non-Network Solutions

Non-network solutions are expected to play an increasingly important role in meeting future transmission network needs. Powerlink has already recently implemented non-network initiatives for voltage control and system strength. Non-network services with large scale battery energy storage systems, pumped hydro energy systems, distributed energy resources, generating plant, and flexible operation of industrial loads will be key parts of the future transmission investment mix.

Powerlink will continue to explore opportunities to incorporate non-network solutions to meet future network needs through transparent market engagement processes.

3.5 Advanced Technologies and Devices

The implementation of advanced technologies will enhance the capability, utilisation, performance, and resilience of the transmission network.

Powerlink is currently implementing advanced conductor technologies to increase thermal ratings for new transmission developments. The implementation of Real Time Ratings offers the ability to dynamically adjust thermal line ratings depending on prevailing weather conditions. Thermal line rating increases may correlate with higher renewable generation output (particularly for wind) thereby enabling increased power transfers.

Power flow control devices are also anticipated to play an important role in optimising network performance and utilisation. These devices allow power flows across meshed circuits to be more effectively shared thereby increasing power transfer capability and reducing network congestion.

Powerlink is progressing with deployment of the Wide Area Monitoring Performance and Control (WAMPAC) platform to maximise the capability of the network and provide an additional layer of security and resilience to system disturbances and events. WAMPAC schemes rapidly detect specific conditions over geographically diverse transmission assets and initiate appropriate action to rapidly respond to changed power system conditions.

WAMPAC has been implemented for system protection services across the Central to South Queensland grid section to enhance the resilience and security of the network and is scheduled to be rolled out in a range of additional areas.

3.6 Innovation and New Technologies

Innovation has been central to Powerlink's ability to deliver a reliable and efficient transmission network in a rapidly changing energy landscape. Powerlink is actively progressing a range of innovation initiatives aimed at enhancing network performance, asset management, network monitoring, and increasing power transfer capability across the network.

3.7 Network Resilience and Climate Adaptation

Increasingly severe weather events including storms, floods, and bushfires are expected to pose growing risks to transmission network assets. Powerlink's investment approach actively considers resilience within network investment strategies including route selection and diversification.

3.8 Community and Social Licence

The NIO actively considers a range of reputational and social licence to operate factors within future investment plans. Powerlink is committed to effective and targeted engagement with landholders, Traditional Owner groups, the community and other stakeholders such as government representatives and customers to share information on potential activities and use feedback received to improve investment decision making.

4. Regional Investment Outlook

4.1 North Queensland

North Queensland Overview

The North Queensland transmission network spans a diverse range of environments and climatic conditions from wet humid rainforests in Far North Queensland to dry inland mining areas further southwest. The transmission network services key residential, commercial and tourism hubs including Cairns, Townsville, Bowen and Mackay, as well as inland mining hubs in the northern Bowen Basin. Each area presents unique characteristics that influence the performance, resilience, and future capacity requirements of the transmission network.

Population Growth and Emerging Demand (Cairns & Townsville Area Plans)

Population growth in key regional centres particularly Cairns and Townsville is expected to drive medium to long-term transmission investments to meet emerging capacity needs. In particular, the greater Cairns area is experiencing new residential and commercial development. Powerlink will require the establishment of a new substation south of Cairns in coming years to support this load growth and maintain reliability of supply.

Transmission Investment Outlook

The outlook for transmission reinvestments in North Queensland includes targeted line works to address asset condition, obsolescence, and compliance risks, as well as network augmentations to support residential growth, industrial expansion, and commercial and infrastructure development.

CopperString and Industrial Development (CQ-NQ Area Plan)

The Queensland Government's Energy Roadmap has confirmed that the Queensland Investment Corporation (QIC) will deliver the Eastern Link (Townsville to Hughenden) of CopperString with major construction commencing by 2028 and commercial operations by 2032 (subject to approvals). QIC is also beginning work to deliver the Western Link. In the immediate term, QIC will partner with the private sector to support local generation and storage solutions enabling affordable and reliable energy for the North West Power System.

The Energy Roadmap notes that the Eastern Link will enable the connection of new generation in the Flinders region. Eastern Link will be constructed at 330kV incorporating the new Reid River 330/275kV substation connecting to Powerlink's existing 275kV transmission network between Strathmore and Ross Substations. In the immediate term, the Queensland Government North West Energy Fund will support local generation and storage solutions in partnership with the private sector across Mount Isa, Cloncurry, Julia Creek and Richmond.

The hosting capacity for new generation within the Flinders region together with further generation development in northern Queensland has the potential to significantly increase power transfers from northern to central Queensland.

Another major development within north Queensland is the Lansdown Eco-Industrial Precinct (LEIP) located south of Townsville. Designated by the Queensland Government as future industrial development, LEIP has the potential to shape future network capacity needs across the Powerlink backbone network over the medium to longer term.

Central to North Queensland Backbone Transmission Network (CQ-NQ Area Plan)

The main 275 kV transmission backbone linking Central and North Queensland via key nodes including Bouldercombe, Stanwell, Broadsound, Nebo, and Ross is critical for the bulk transfer of power between regions.

Market modelling undertaken by Powerlink indicates that increasing the capacity of the 275 kV transmission network backbone between Central and North Queensland delivers net market benefits. The rebuild of existing single circuit transmission lines reaching end of life between Bouldercombe and Nebo (via Stanwell and Broadsound Substations) and strengthening the connection to the substation at Reid River by turning in the third

275kV circuit between Strathmore and Ross Substation have been identified as priority investments in the Queensland Government's Energy Roadmap with implementation in the 2030 to 2035 time frame.

The associated easement projects for these works have been included in the ex-ante capital forecast of Powerlink's Revenue Proposal to ensure timely delivery of these investments. Transmission construction works to facilitate the connection of Reid River into Powerlink's 275kV network have been included as a contingent project.

Northern Bowen Basin Electrification (NBB Area Plan)

Powerlink has received strong interest from customers within the Northern Bowen Basin seeking electrification and expansions of existing mining operations.

Should these developments proceed, electricity demand will significantly exceed the capability of the existing 132kV transmission network requiring transmission augmentations to maintain reliability of supply. A contingent project has been included within Powerlink's Revenue Proposal for these transmission works should electrification and expansion of mining operations progress.

Non-Network Solutions and Emerging Technologies

Non-network solutions are expected to play an increasingly important role in supporting the transmission network particularly in the areas of voltage control, system strength, and addressing future network capacity needs.

4.2 Central Queensland

Central Queensland Overview

Central Queensland is a diverse and economically significant region home to major mineral and mining precincts, heavy industry, critical metal processing facilities, large scale power stations, and thriving agricultural, residential, and tourism sectors.

This mix of industries underpins the importance of a resilient and secure transmission network for the area.

Rockhampton and Surrounding Areas (Rockhampton Area Plan)

Continued population and tourism growth within the greater Rockhampton area, particularly around the northern and southern urban fringes and coastal tourism areas, is expected to drive the need for capacity increases in the medium to longer term.

Central West Network Consolidation (Moura Area Plan)

The inland central west transmission network encompassing key 132kV substations at Moura, Blackwater, and Lilyvale was developed in the 1970s to support the expanding inland mining industry. Several existing 132kV single circuit transmission lines, substation equipment and secondary systems have emerging condition and obsolescence risks in the short to medium term.

Transmission needs within the inland central west mining area have evolved over time since original construction of the 132kV transmission network. This change in network needs, coupled with aged condition of overhead lines and substation plant may present future opportunities to reconfigure or consolidate the existing network to deliver cost savings while maintaining a reliable transmission network.

Gladstone Generation Changes and Industrial Developments (Gladstone & Wurdong Area Plans)

The Gladstone area is a major industrial hub incorporating critical metals processing facilities, industrial processes, generating facilities, and major export port terminals powering Queensland's economic growth. As part of decarbonisation initiatives, AEMO has been formally notified of the potential retirement of the Gladstone Power Station in March 2029.

Powerlink has been undertaking consultation for the Gladstone Priority Transmission Investment (PTI) which involves development of new transmission network and substation plant to maintain reliable transmission supply to the Gladstone area following the anticipated closure of the power station.

The development of new industry and processing facilities, expansion of existing infrastructure and electrification of existing processes will require additional transmission investment to the Gladstone area to maintain reliable and secure supply. The scale and pace of required transmission infrastructure will be dependent on industry and market developments.

A contingent project has been included in Powerlink's Revenue Proposal for transmission works within the Gladstone zone should electrification, expansion or new loads emerge. These transmission works include construction of new double circuit 275kV lines between Larcom Creek and Calliope River Substations, and between Calliope River and Wurdong Substations. The need for these augmentations would be to meet reliability obligations and/or efficient market outcomes.

An easement project to enable the rebuild of the single circuit transmission lines between Calliope River and Wurdong Substations has been included in Powerlink's ex-ante capital forecast. This project is required to secure land for the staged rebuilds within the shared transmission corridor between Calliope River and Wurdong Substations to maintain on-going reliability of supply and efficient market outcomes.

Non-Network Solutions and Emerging Technologies

Non-network solutions including large scale battery systems, generating stations, and flexible operation of industrial processes are expected to play an important role in addressing future emerging capacity and system security needs in the future.

4.3 Southern Queensland

South Queensland Overview

Southern Queensland spans a diverse landscape from the energy-rich hub and agricultural heartland within South West Queensland to the vibrant urban, residential, commercial, and tourism centres within the Sunshine Coast, Brisbane, and Gold Coast.

The South East Queensland area is not only Queensland's most populous area but also its largest load centre accounting for around half of the State total electricity demand.

The Brisbane 2032 Olympic Games is expected to drive significant infrastructure development and increased energy demand within south east Queensland. The specific impacts on the EQL network and subsequent implications for Powerlink's transmission system are currently being assessed through joint planning activities.

Population Growth and Emerging Loads (Brisbane & Gold Coast Area Plans)

Strong population growth supported by the designation of multiple Priority Development Areas (PDAs) for future residential and commercial development are expected to require new substations and capacity upgrades within south east Queensland.

New and expanding housing estates along the Brisbane to Gold Coast corridor including Coomera, Ormeau, Pimpama and Cades County together with the Yarrabilba PDA will require a new 275kV substation in the Logan South area between Powerlink's existing Loganlea and Molendinar Substations to support load growth and maintain reliability of supply. Development of this site is anticipated in the mid 2030s, and Powerlink has included a site acquisition project within its 2027-32 Revenue Proposal to secure the necessary land in this evolving land use and development area.

The establishment of new energy intensive loads, including digital and data centres and industrial processing facilities are anticipated to emerge potentially driving additional demand and requiring capacity upgrades within the transmission network.

Powerlink has received interest in the connection of new digital technology block loads within north Brisbane which would significantly exceed the capacity of the existing 110kV transmission network to Nudgee should these proceed. Powerlink has included a contingent project within its Revenue Proposal for augmentation works should these block loads materialise.

Further review and joint planning following the 2025/26 summer period may identify the need for additional investments in South East Queensland during the 2027–32 period to maintain reliability of supply. Any updates will be reflected in Powerlink's revised Revenue Proposal.

South West Queensland: A Growing Energy Hub (Western Downs Area Plan)

Powerlink continues to experience strong interest in new generation development within the South West Queensland region which is expected to expand as a major energy hub. This growth in generation capacity coupled with increasing demand within Central and South east Queensland drives the need for coordinated strategic investment to ensure reliable and efficient transmission services.

Potential augmentation options to increase power transfer capacity from this rich energy hub include transformer upgrades and development of new backbone transmission systems to ensure to maintain secure and reliable supply within in an evolving energy landscape.

The proposed Auburn River Substation located midway between the existing Halys and Calvale Substations along the inland Central to Southern Queensland transmission corridor together with transmission line development to the proposed Bungaban Wind Farm will deliver net market benefits by unlocking renewable energy from South West Queensland. This project aligns with priority investments outlined in the Queensland Government's Energy Roadmap. Powerlink has included a contingent project for this transmission line and substation work within its Revenue Proposal.

Current Network Works and Condition Risks

Powerlink will progress a targeted program of asset reinvestment works to address emerging condition risks, obsolescence, and compliance to maintain reliability of supply.

Future Capacity Drivers and Investment Pathways (CQ-SQ Area Plan)

Transmission augmentation needs across the coastal 275kV transmission network between Central and Southern Queensland will be dependent on a range of factors including changing generation patterns across the State, large scale energy storage, and development of loads within Central and South East Queensland.

With increasing energy flows from the growing South West Queensland energy area toward load centres within central and South East Queensland, there may be benefits associated with an upgrade of the coastal Central to South Queensland transmission network over the over the medium to longer term to ensure reliability of supply and provide efficient market outcomes. The scale and pace of these transmission investments will depend on external market developments.

QNI Connect

An upgrade of the Queensland and NSW interconnection (QNI Connect) has been designated as an actionable project within the AEMO 2024 Integrated System Plan. Powerlink and TransGrid have jointly commenced planning activities for this investment. Further updates to the status and timing of this project are anticipated to be published within the AEMO 2026 Integrated System Plan.

Opportunities for Non-Network Solutions

Future investments are also expected to be required to address system service needs including system strength and voltage management. Powerlink is exploring options such as synchronous condensers while non-network solutions including battery energy storage systems (BESS), generating stations, and demand-side flexibility are expected to play an increasingly important role in the future investment mix.

5. Alignment of Short-Term Activities with Long-Term Vision

The 2026 Network Investment Outlook (NIO) provides a 20-year strategic investment plan that ensures shorter term activities, such as project approvals, regulatory consultations, Revenue Proposals, and customer and community engagement, are aligned and optimised with Powerlink's medium to longer term investment needs.

The NIO adopts a staged least regret economic approach to identifying future investment needs that holistically consider external market developments, emerging investment drivers, cross divisional expertise, joint planning outcomes, and potential non-network solutions.

These medium to longer term investment strategies underpin shorter term activities and guide external market developments to deliver safe, reliable and cost-efficient transmission services.

6. Area Plans and Powerlink's Revenue Proposal

The medium to longer term investment strategies for Powerlink's transmission network are outlined within the Area Plan diagrams presented in Appendix A. These plans indicate how development of the transmission network could potentially unfold based on currently known information.

The Area Plans present network developments across differing timeframes. Short term generally refers to investments anticipated to be implemented across a five year timeframe. Medium term denotes potential investments within a five to ten year time span whereas longer term denotes investments across a 10 to 20 year (and possibly beyond) outlook period.

It is important to note that medium and longer term investments represent indicative plans at this stage and are subject to detailed scoping, cost estimation, options analysis, economic assessment, and regulatory consultation as investments move closer to implementation. The alignment of these plans with Powerlink's 2027-32 Revenue Proposal has also been shown on these diagrams, with proposed capital expenditures included within Powerlink's ex-ante forecast highlighted in yellow and contingent projects marked in orange.

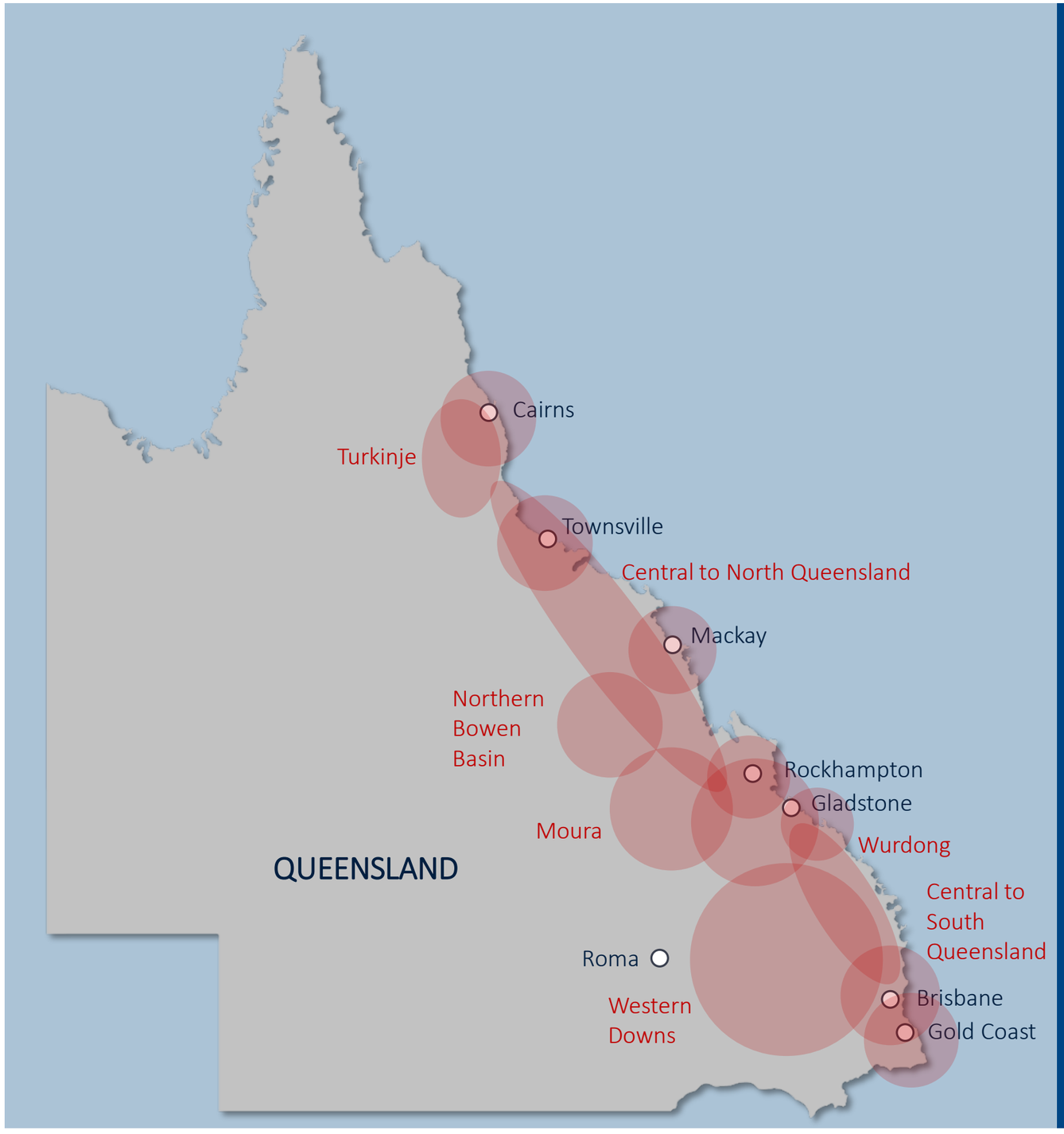
Although these diagrams represent the majority of Powerlink's transmission system, it has not been possible to comprehensively depict every part of the network due to clarity and fidelity factors. As a result, a small number of projects included within Powerlink's ex-ante capital forecasts have not been shown. Similarly transmission line refit programs that span multiple areas are also not shown due to practicality and clarity purposes.

Additional shading is used to indicate future medium to longer term investments that are not part of Powerlink's ex-ante proposal. Green shading represents potential future augmentations whilst red shading highlights transmission developments associated with Gladstone Priority Transmission Investment (PTI) activities. Grey shading identifies transmission line projects currently designated as Actionable under AEMO's Integrated System Plan.

For visual clarity, projects already in delivery and condition-related reinvestments for the medium to long term have not been displayed.

Appendix A – Area Plans

This appendix provides Area Plans for different parts of Queensland's transmission network. Each plan outlines shorter term investments through to medium to longer term strategies for the transmission system in a particular part of the network.



Area Plans

North Queensland

- Cairns
- Turkinje
- Townsville
- Mackay
- Northern Bowen Basin
- Central to North Queensland

Central Queensland

- Rockhampton
- Moura
- Gladstone
- Wurdong

South Queensland

- Central to South Queensland
- Western Downs
- Brisbane
- Gold Coast

Legend

330kV Substation

330kV Transmission Line

Potential New 330kV Transmission Line

275kV Substation

275kV Transmission Line (or Circuit)

Potential 275kV Transmission Line New Build/Rebuild

132kV or 110kV Substation

132kV or 110kV Transmission Line (or Circuit)

Potential 132kV or 110kV Line New Build/Rebuild

Coal Fired Station

Gas Fired Generation

Hydro Generation

Wind Generation

Solar Generation

Existing or New Large Customer

2027-32 Revenue Proposal ex-ante capex

2027-32 Revenue Proposal contingent project

Future transmission augmentation

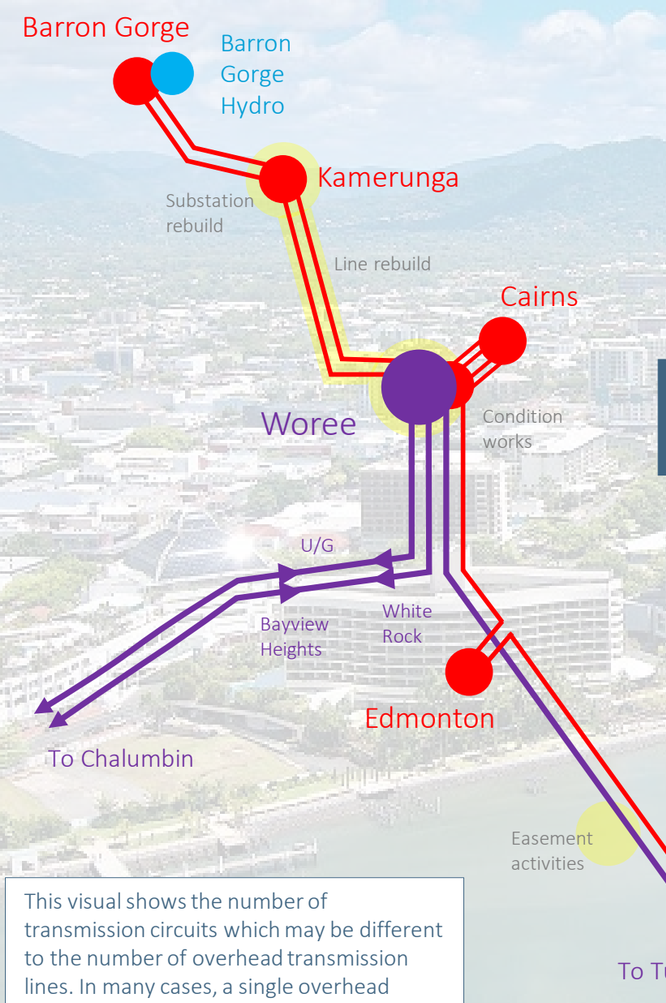
New build associated with Gladstone PTI

AEMO 2024 ISP Actionable Project

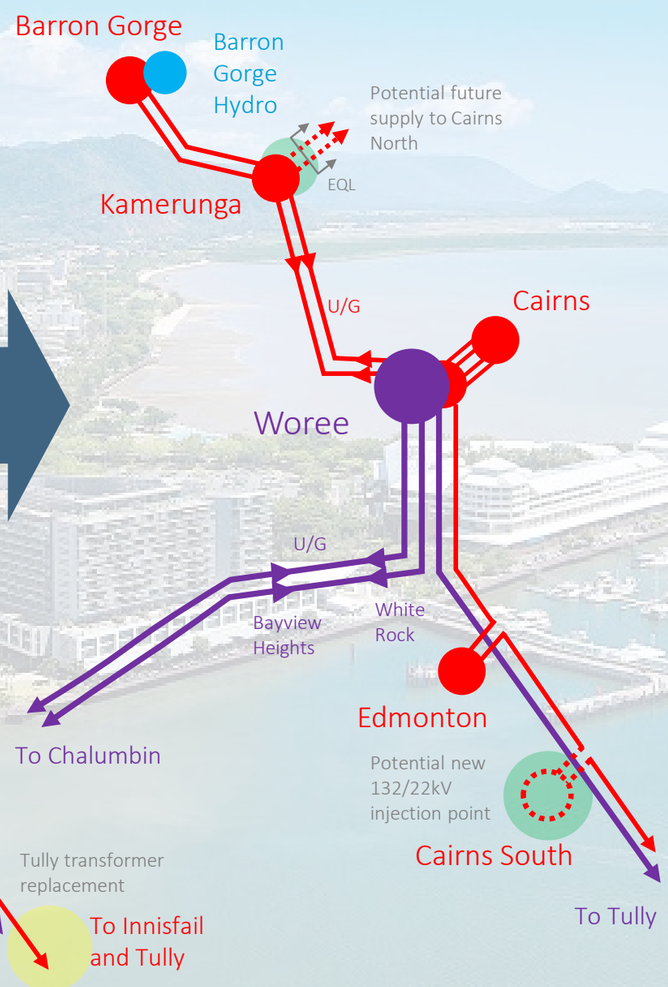
Cairns

The proposed strategy involves network reinvestment and capacity upgrades over the short to medium term to maintain reliability of supply to this key residential, commercial and tourism hub

Short Term



Medium to Long Term



This visual shows the number of transmission circuits which may be different to the number of overhead transmission lines. In many cases, a single overhead transmission line contains two circuits.

Background

- Cairns is located within Far North Queensland being a premier tourist destination and gateway to the Great Barrier Reef.
- The Barron Gorge Power Station is a run of river hydro generation station located at the very far north of the Powerlink transmission network.
- The greater Cairns region is experiencing population and residential growth especially to the north and south of the city centre.
- Parts of the Powerlink 132kV transmission network were constructed in the 1970s with emerging condition risks in the short to medium term.

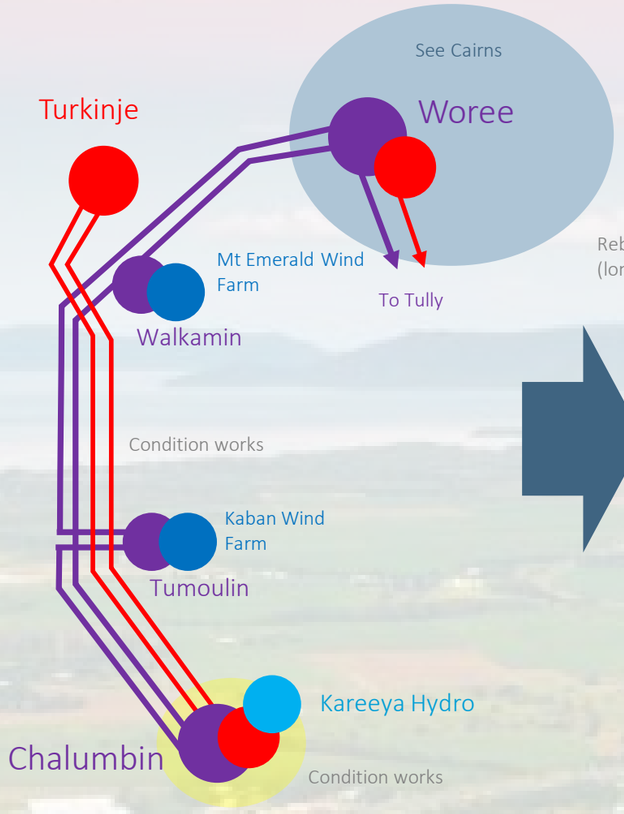
Investment Strategy

- The proposed investment strategy comprises line, substation and secondary system reinvestments to maintain reliability of supply to this key regional hub.
- Residential development within the greater Cairns areas are likely to require augmentation to the existing 132kV transmission network to address capacity needs over the medium to longer term.

Turkinje

This investment strategy maintains reliability of supply to this key agricultural and tourism hub while addressing condition risks and enabling new generation in Far North Queensland

Short Term



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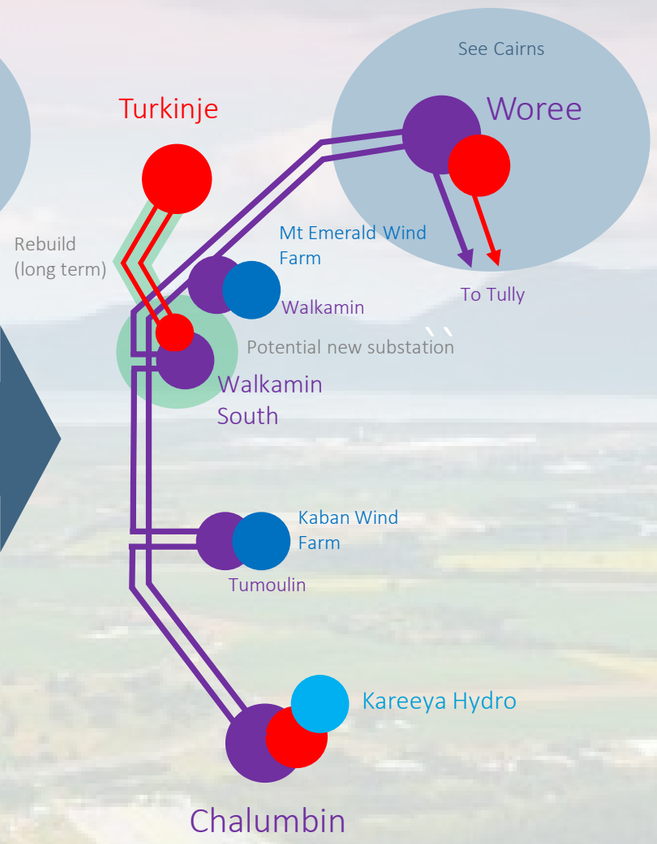
Medium to Long Term



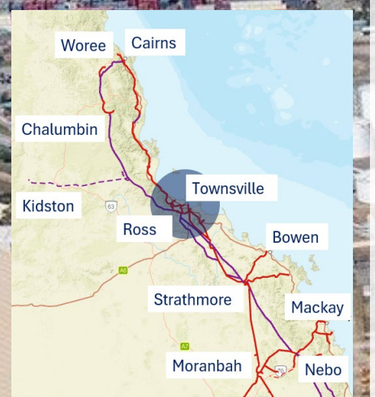
Background

- Turkinje is located on the Atherton Tablelands in Far North Queensland having tropical rainforest environment.
- The area is comprised primarily of residential, agricultural and tourism loads with very limited backup through the Energy Queensland distribution network.
- Turkinje is supplied from Chalumbin Substation via an overhead 132kV double circuit transmission line constructed in the 1980s.
- This line is forecast to experience emerging conditions risks due to the wet tropical environment. There are also emerging condition, obsolescence and compliance risks at Chalumbin substation.

Investment Strategy

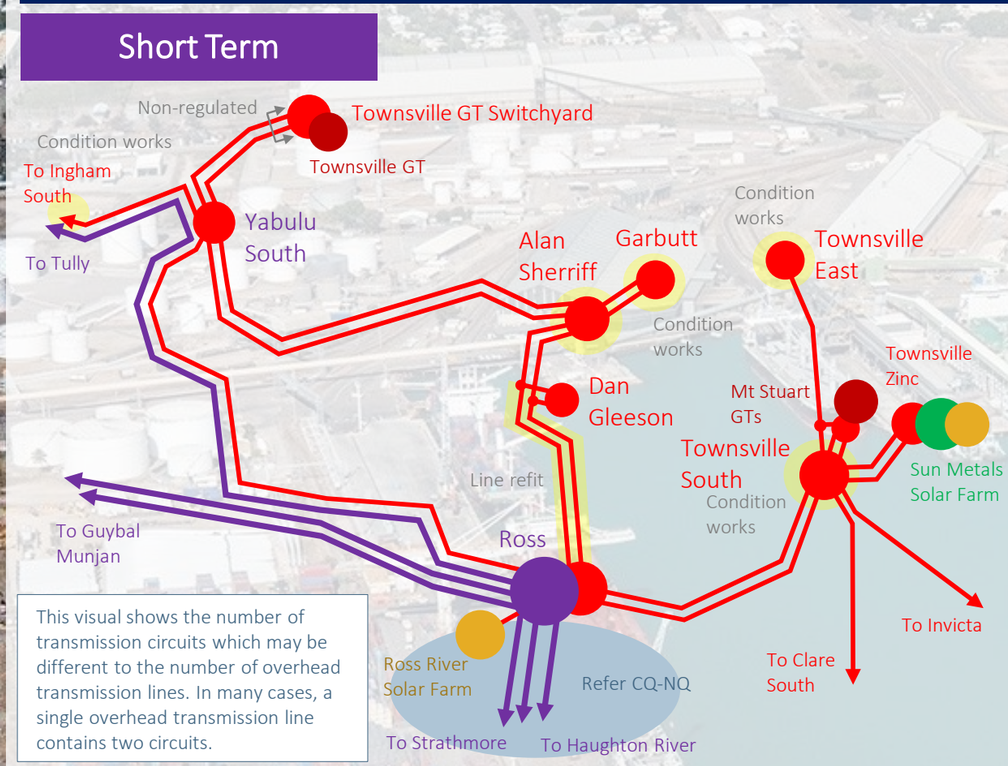
- The proposed short term investment strategy comprises of undertaking condition related overhead line and substation works to maintain reliability of supply.
- However over the medium to longer term it may be cost effective to establish a new 275/132kV substation closer to the existing Turkinje load centre.
- This strategy would enable Powerlink to retire the southern portion of the ageing 132kV transmission line to Chalumbin delivering cost efficiencies whilst maintaining reliability of supply.

Townsville



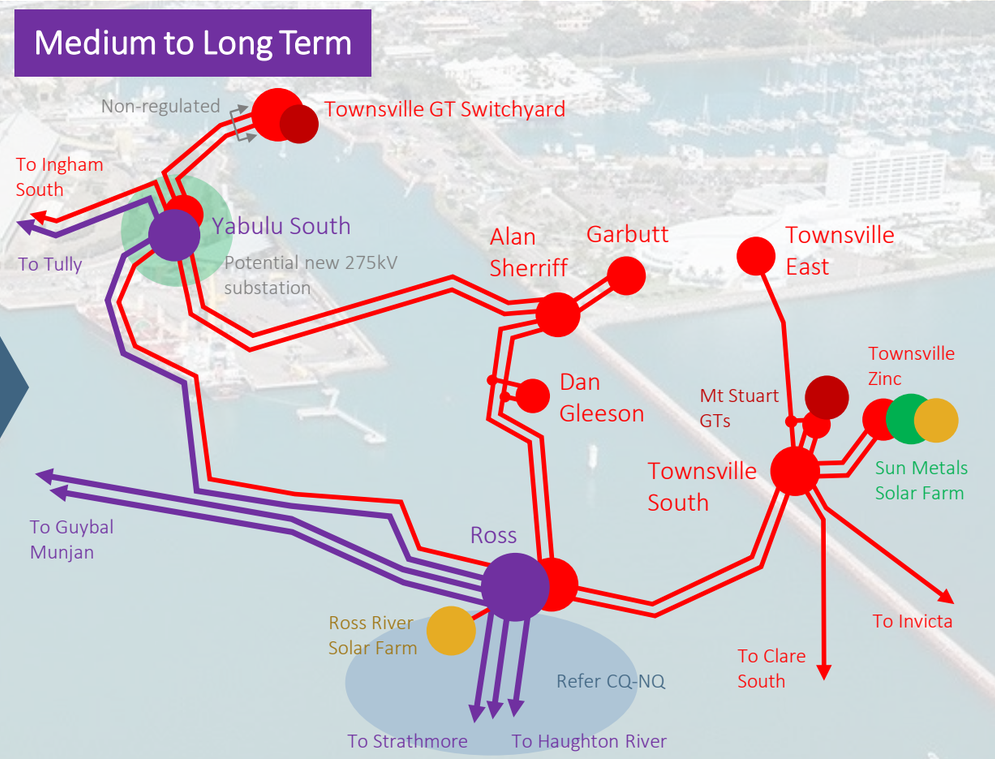
The proposed investment strategy incorporates condition related works, network capacity upgrades and utilisation of non-network solutions to maintain reliability of supply to this key regional centre

Short Term



This visual shows the number of transmission circuits which may be different to the number of overhead transmission lines. In many cases, a single overhead transmission line contains two circuits.

Medium to Long Term



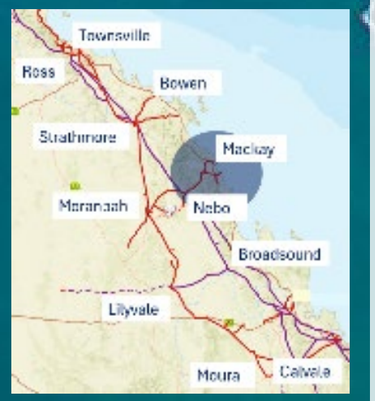
Background

- Townsville is a major regional city in North Queensland known for its deep-water port that supports significant export facilities for minerals and agricultural products, and hosts key metal processing industries including copper, zinc and nickel.
- The Townsville area is supplied by a 132kV sub-transmission system underpinned by a strong Energy Queensland 66kV distribution system progressively developed since the 1970s.
- There are emerging condition, obsolescence and compliance risks within the 132kV transmission network over the short to medium term.

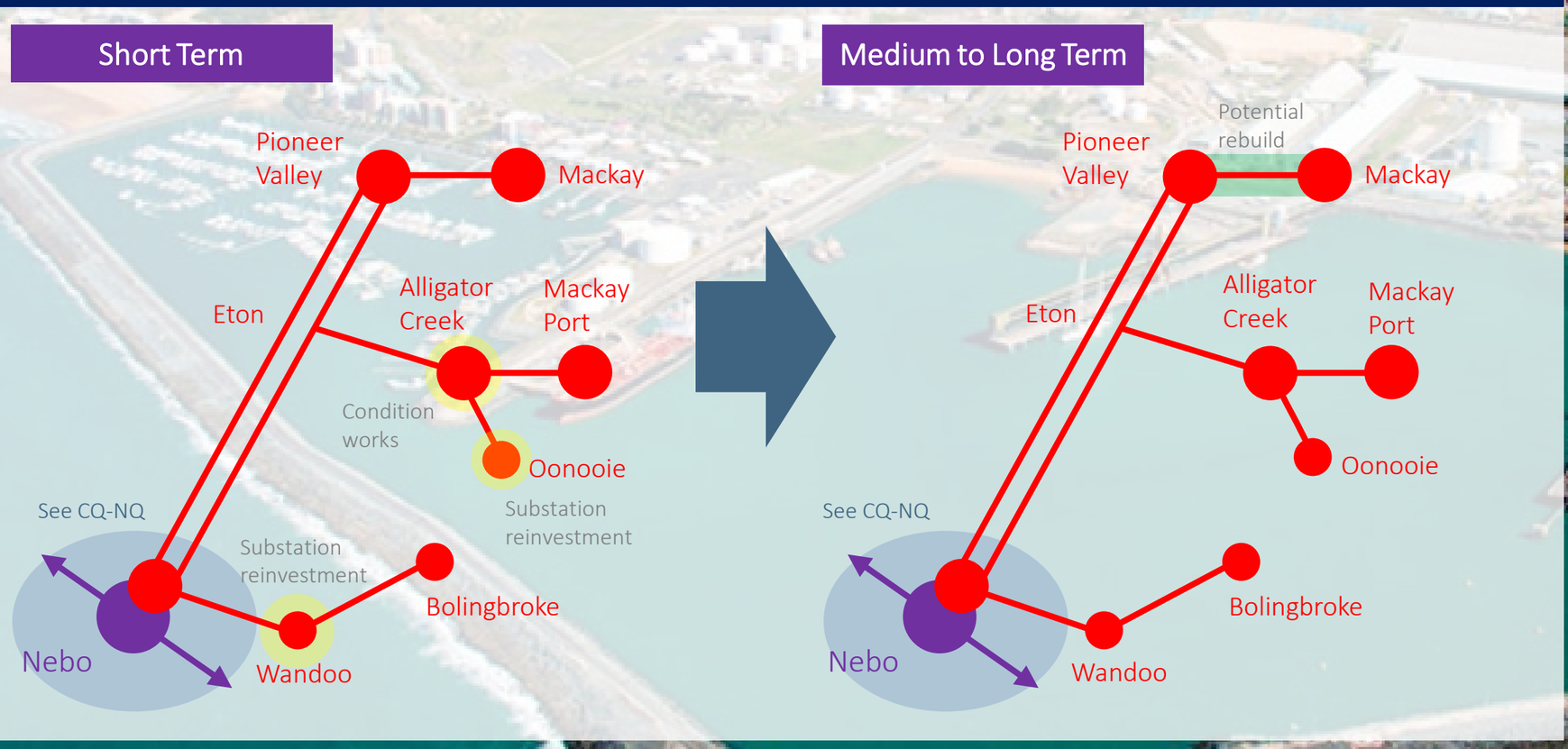
Investment Strategy

- Reinvestments are currently under delivery within the area to address condition and ageing risks on overhead lines, substation plant and secondary systems to maintain reliability of supply to this key regional hub.
- Further reinvestments will be required over the medium to longer term to address condition risks to ensure reliability of supply.
- Residential development within the north-western parts of Townsville may require substation capacity upgrades over the medium to longer term. They may be opportunities for non-network solutions to address these emerging capacity needs.

Mackay



The proposed investment strategy comprises a targeted approach to address asset condition to maintain reliability of supply to this key agricultural, tourism and mining services area



Background

- Mackay has a strong sugar and beef agricultural industry, and is a popular destination for tourism. It also is an export gateway and logistics support centre for the inland Queensland mining sector.
- The 132kV transmission network supplies electricity to residential, commercial, business, agricultural and Mackay ports export infrastructure.
- Parts of Powerlink's 132kV network were constructed in the 1970s and there are emerging condition risks require works to maintain supply of reliability.

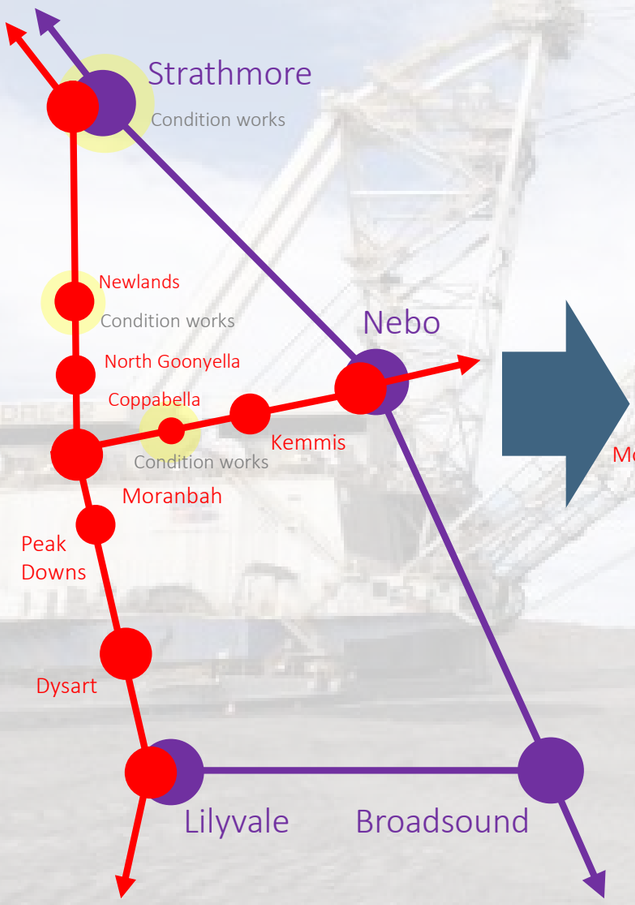
Investment Strategy

- The proposed investment strategy comprises of targeted refit and substation works to maintain reliability of supply to this important regional centre.
- The northern parts of the 132kV network around the coastal areas are prone to coastal winds and there may be a need to rebuild section of the 132kV transmission line in the longer term.
- The capacity of the existing network is sufficient to load growth based on existing demand forecasts and there are no capacity works anticipated in the medium term.

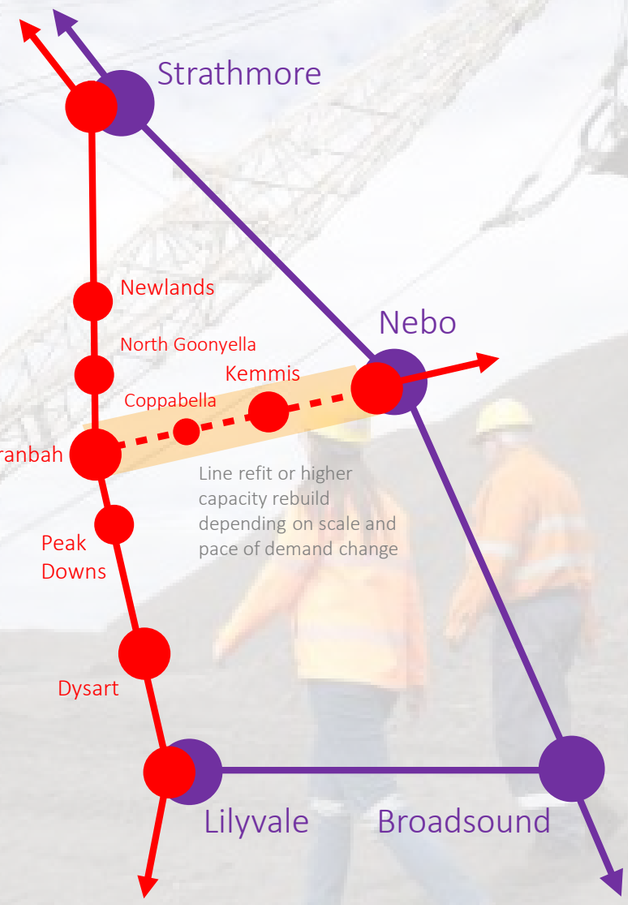
Northern Bowen Basin

This investment strategy provides an optimal balance between network reliability and cost to one of Australia's foremost mineral resources and mining regions

Short Term



Medium to Long Term



Background

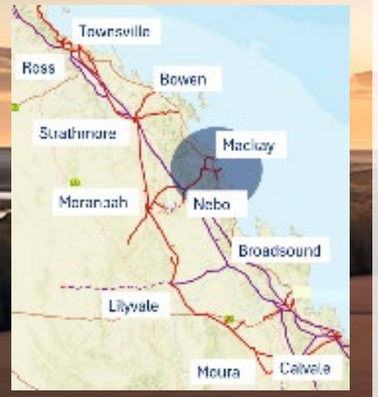
- The Northern Bowen Basin is one of Queensland's richest mining and resource regional centres.
- Powerlink's north west inland 132kV transmission network plays a critical role in the supply of mining operations, local townships, and supporting infrastructure.
- There is strong interest from customers within the Northern Bowen Basin area to electrify existing mining operations as part of decarbonisation initiatives.
- These developments could significantly increase electrical demand in the area requiring transmission capacity upgrades.

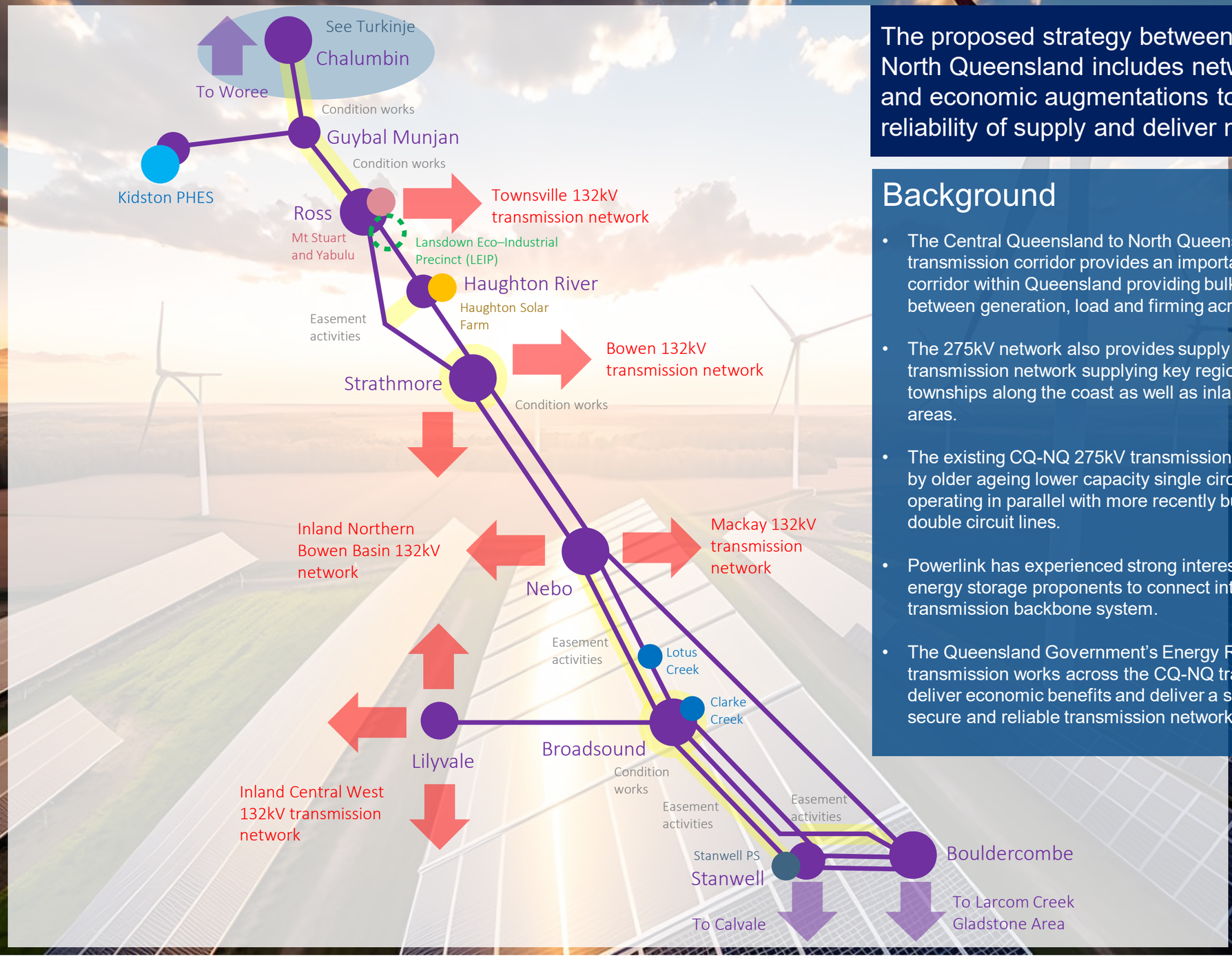
Investment Strategy

- Under scenarios of significant demand growth within the Northern Bowen Basin, the proposed network strategy is the rebuild of the existing Nebo to Moranbah 132kV transmission lines to higher capacity.
- For steady or more modest load increases, the proposed approach is to life extend the existing aged Nebo to Moranbah 132kV line combined with incremental capacity works including installation of power flow control equipment.
- Non-network solutions including downstream generation and battery energy systems could potentially play an important role in addressing future transmission capacity needs.

Central to North Queensland

Short Term





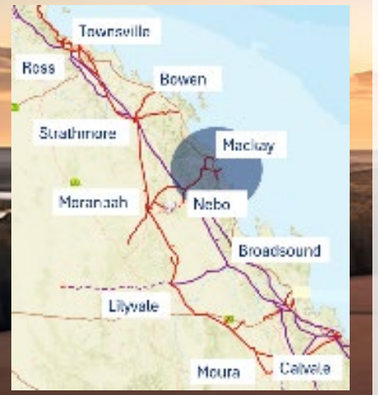
The proposed strategy between Central and North Queensland includes network reinvestment and economic augmentations to maintain reliability of supply and deliver market benefits

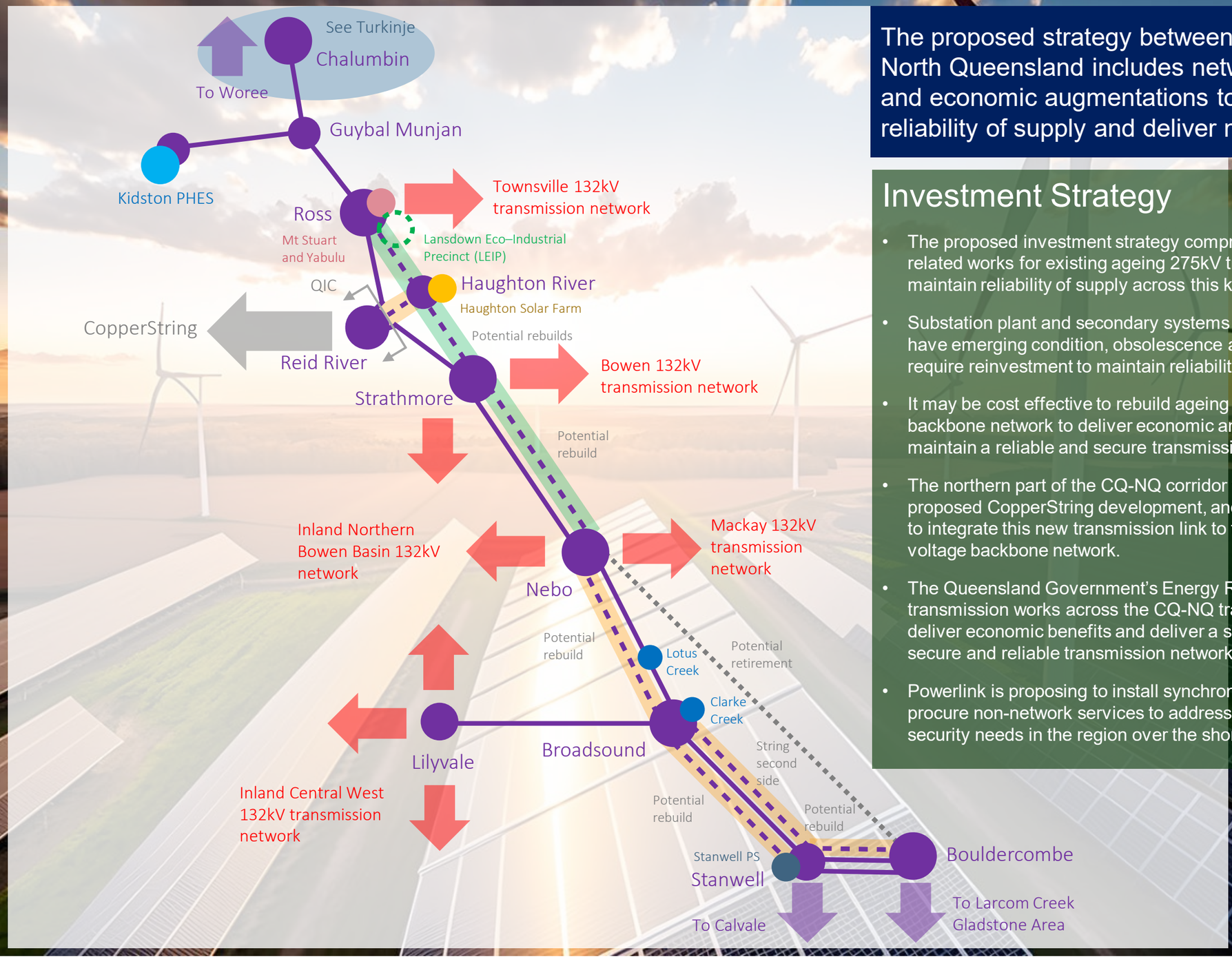
Background

- The Central Queensland to North Queensland (CQ-NQ) 275kV transmission corridor provides an important power transfer corridor within Queensland providing bulk transfer capability between generation, load and firming across the areas.
- The 275kV network also provides supply to the 132kV transmission network supplying key regional and agricultural townships along the coast as well as inland mining and mineral areas.
- The existing CQ-NQ 275kV transmission network is characterised by older ageing lower capacity single circuit transmission lines operating in parallel with more recently built higher capacity double circuit lines.
- Powerlink has experienced strong interest from generation and energy storage proponents to connect into the 275kV transmission backbone system.
- The Queensland Government's Energy Roadmap has prioritised transmission works across the CQ-NQ transmission corridor to deliver economic benefits and deliver a sustainable, cost effective, secure and reliable transmission network.

Central to North Queensland

Medium to Long Term



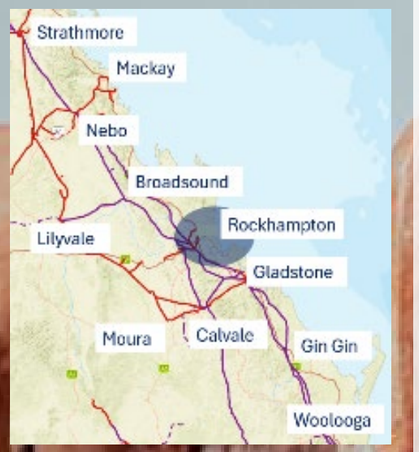


The proposed strategy between Central and North Queensland includes network reinvestment and economic augmentations to maintain reliability of supply and deliver market benefits

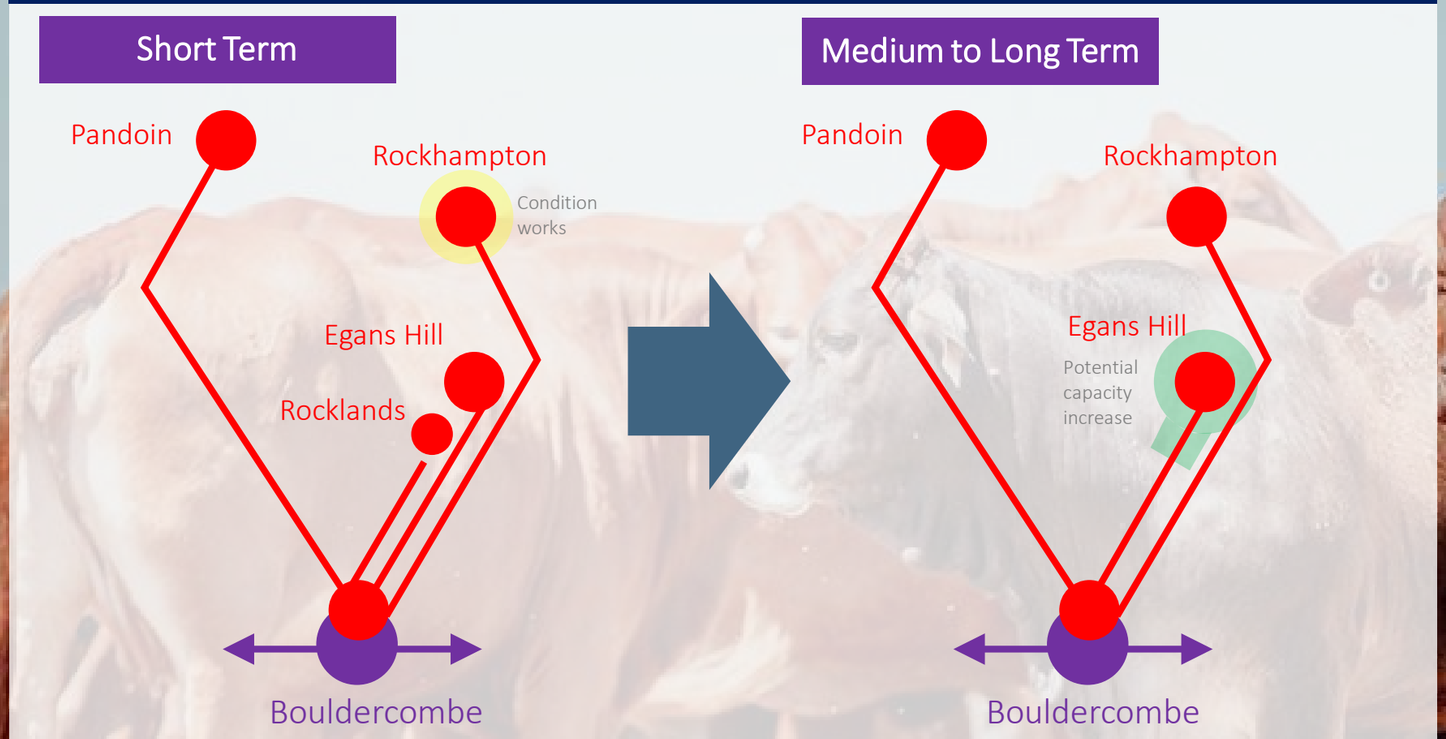
Investment Strategy

- The proposed investment strategy comprises targeted condition related works for existing ageing 275kV transmission lines to maintain reliability of supply across this key transmission corridor.
- Substation plant and secondary systems at several sites also have emerging condition, obsolescence and compliance risks and require reinvestment to maintain reliability of supply.
- It may be cost effective to rebuild ageing sections of the 275kV backbone network to deliver economic and market benefits, and maintain a reliable and secure transmission network.
- The northern part of the CQ-NQ corridor will connect to the proposed CopperString development, and works will be required to integrate this new transmission link to the Powerlink high voltage backbone network.
- The Queensland Government's Energy Roadmap has prioritised transmission works across the CQ-NQ transmission corridor to deliver economic benefits and deliver a sustainable, cost effective, secure and reliable transmission network.
- Powerlink is proposing to install synchronous condensers and procure non-network services to address emerging system security needs in the region over the short to medium term.

Rockhampton



This investment strategy comprises targeted condition works and potential future capacity increases to maintain reliability of supply to this key regional area



Background

- Rockhampton is known as the 'Beef Capital' of Australia having strong cattle, meat processing, and horticultural agricultural industry.
- The Powerlink 132kV transmission network provides supply to key regional agricultural, commercial, residential, and recreational areas within the greater Rockhampton area. The existing Powerlink network is underpinned by Energy Queensland's 66kV distribution system.
- Residential and tourism development may require network augmentations over the medium to longer term to address emerging capacity needs.

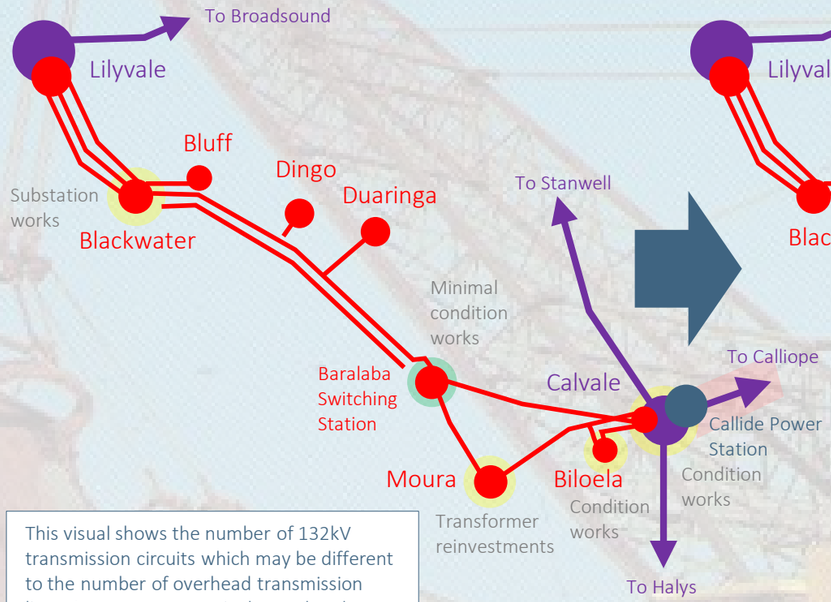
Investment Strategy

- The proposed investment strategy comprises a program of targeted refit and condition related works over the short to medium term to maintain reliability of supply.
- Over the medium to longer term, augmentation of the transmission network may be required over the medium to longer term to address residential, tourism and commercial demand growth. Joint planning with Energy Queensland is continuing to identify optimal and cost efficient network strategies.
- There may be opportunities for non-network solutions to address future capacity needs.

Moura

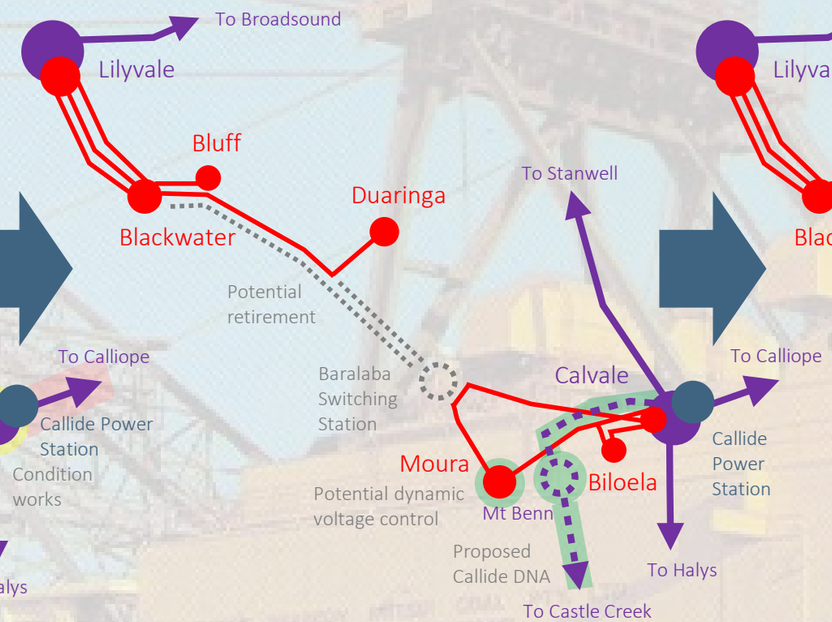
The proposed investment strategy incorporates reinvestment and reconfiguration of the existing 132kV transmission network to maintain reliability of supply and deliver cost efficiencies

Short Term

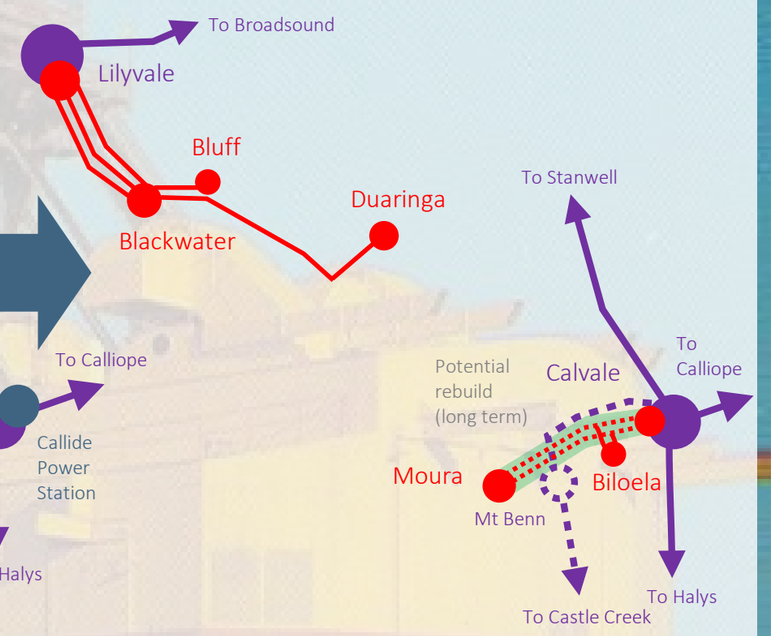


This visual shows the number of 132kV transmission circuits which may be different to the number of overhead transmission lines. In many cases, a single overhead transmission line contains two circuits.

Medium to Long Term



Long Term



Background

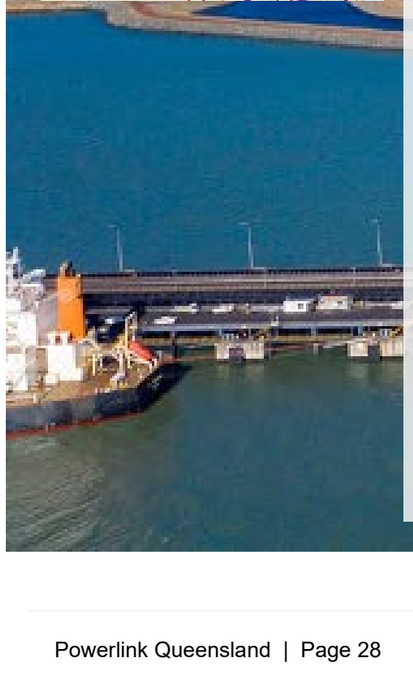
- Moura and Biloela are key regional areas located within central inland Queensland encompassing vibrant mining, minerals and agricultural industries.
- The area is supplied by the Powerlink 132kV transmission network constructed in the 1970s. A number of these transmission circuits are single overhead lines with emerging condition risks requiring significant future works.
- There have been changes to generation and loads within the area over time, and there are opportunities to optimise the configuration of the transmission network.

Investment Strategy

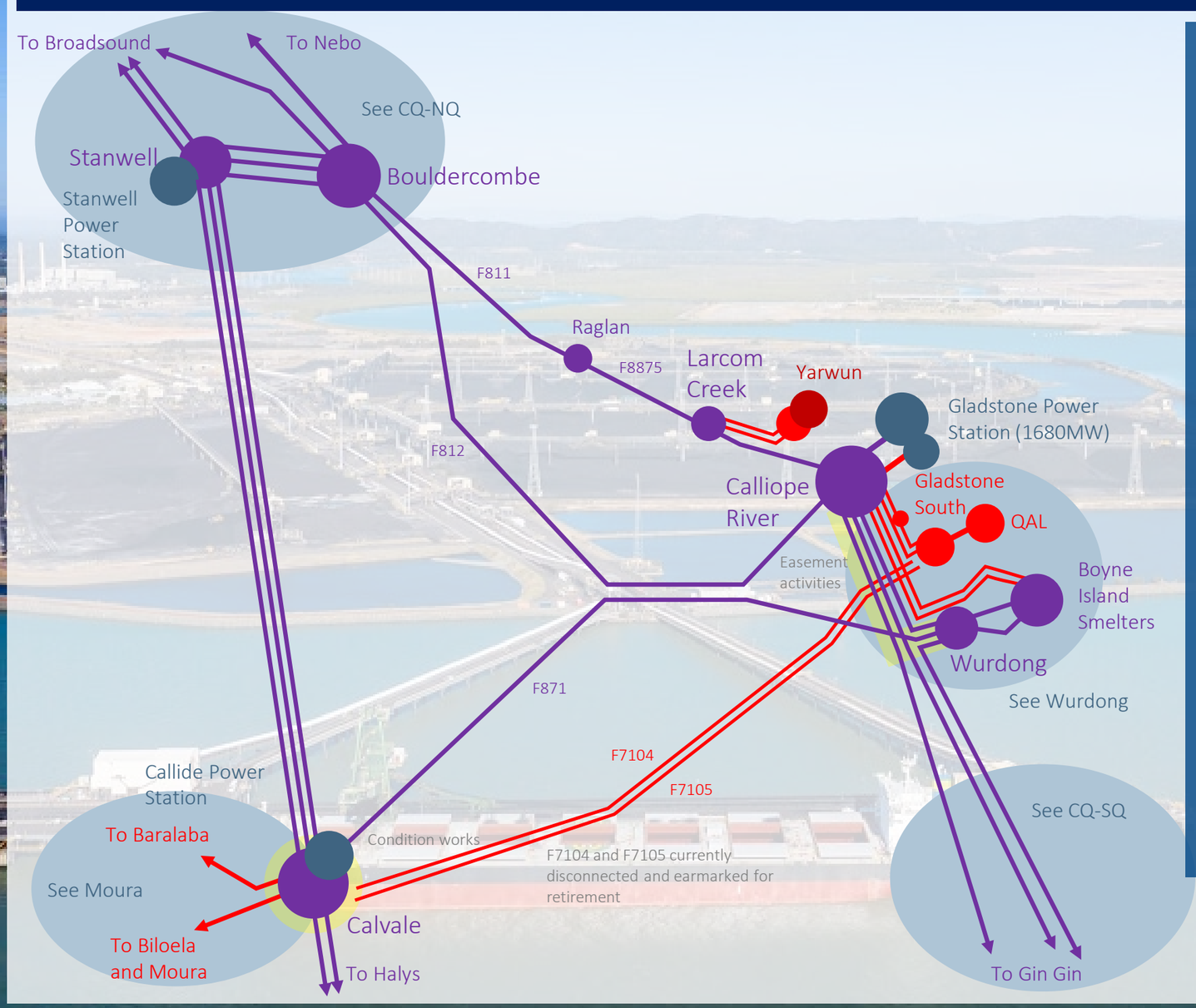
- The proposed investment strategy involves reconfiguration and consolidation of the existing 132kV transmission network to optimise the network and deliver cost efficiencies whilst maintaining reliability of supply.
- The proposed Callide DNA connecting into 275kV Calvale Substation will enable the development of new generation within the area.
- Reinvestment works within the existing 132kV network will be required in the shorter term to maintain reliability of supply.
- There are likely to be opportunities for non-network solutions including embedded generation and battery systems to play a role in the future investment mix.

Gladstone

Short Term



The proposed strategy comprises development of new transmission infrastructure to maintain reliability of supply to this key industry and export hub ahead of the pending retirement of Gladstone Power Station

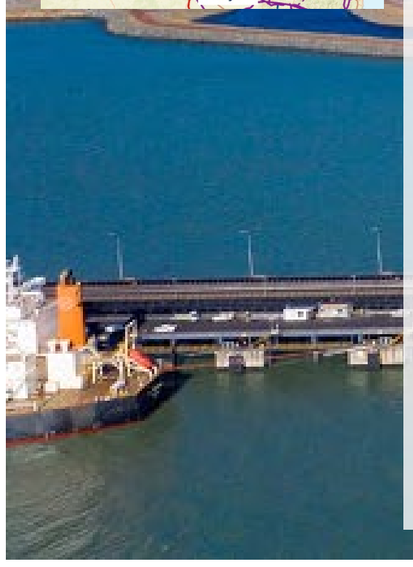


Background

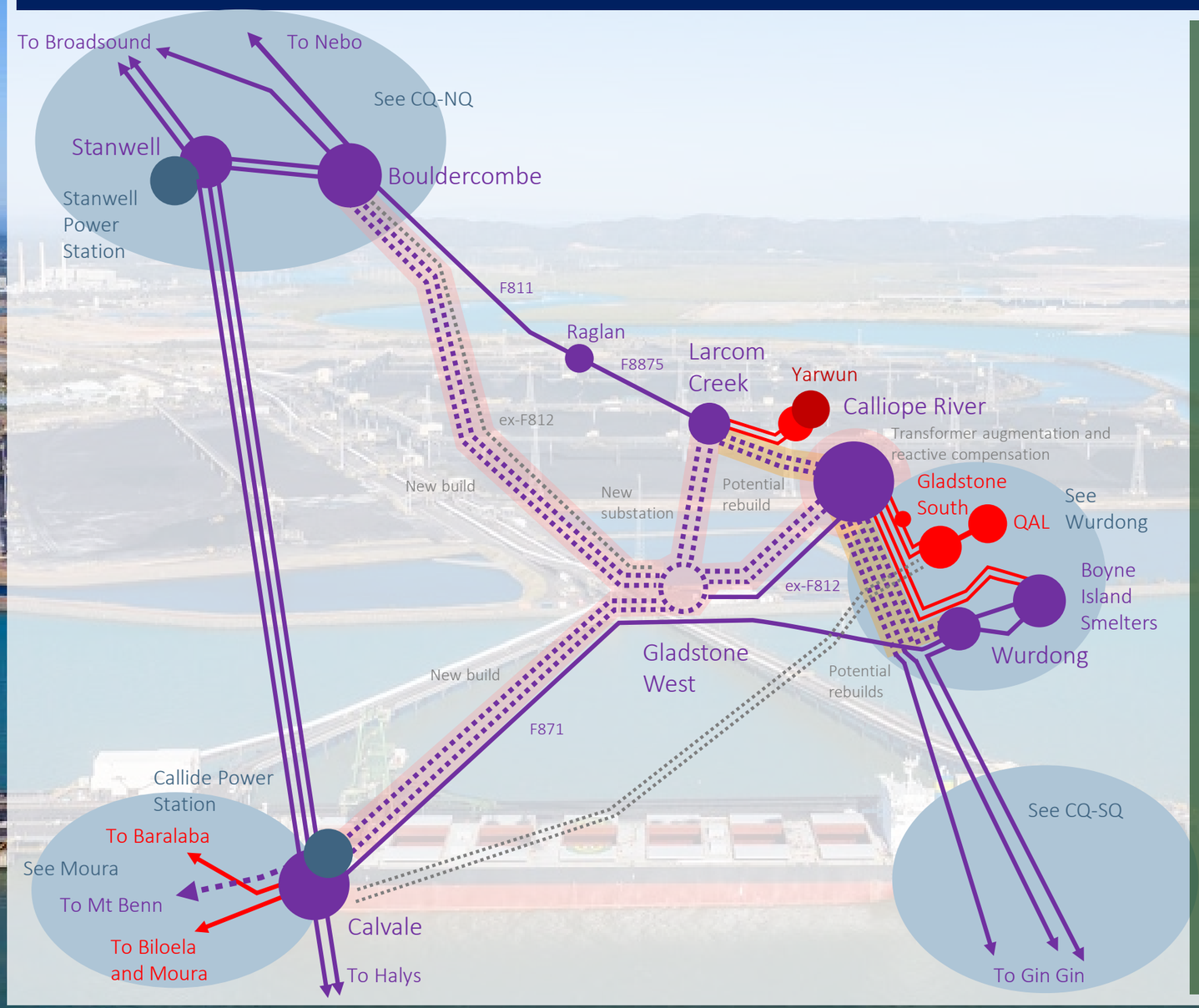
- The Gladstone area is a major industrial hub in Queensland, home to significant manufacturing industries including Boyne Island aluminium smelter (BSL) and the Queensland Alumina Limited (QAL) refinery.
- Gladstone Port is Queensland's largest multi-commodity port exporting aluminium, liquified natural gas, metal ore, and critical minerals to global markets.
- Central Queensland hosts large-scale generation including Gladstone, Stanwell and Callide Power Stations.
- Gladstone is a strategic location for the development and expansion of new industry. A number of existing industrial processes are exploring electrification and decarbonisation initiatives.
- AEMO has been formally notified of the potential retirement of Gladstone Power Station for March 2029.
- Powerlink has undertaken consultation works relating to Gladstone Priority Transmission Investment (PTI) for new transmission development to maintain reliability of supply following closure of Gladstone Power Station.

Gladstone

Short to Medium Term



The proposed strategy comprises development of new transmission infrastructure to maintain reliability of supply to this key industry and export hub ahead of the pending retirement of Gladstone Power Station



Investment Strategy

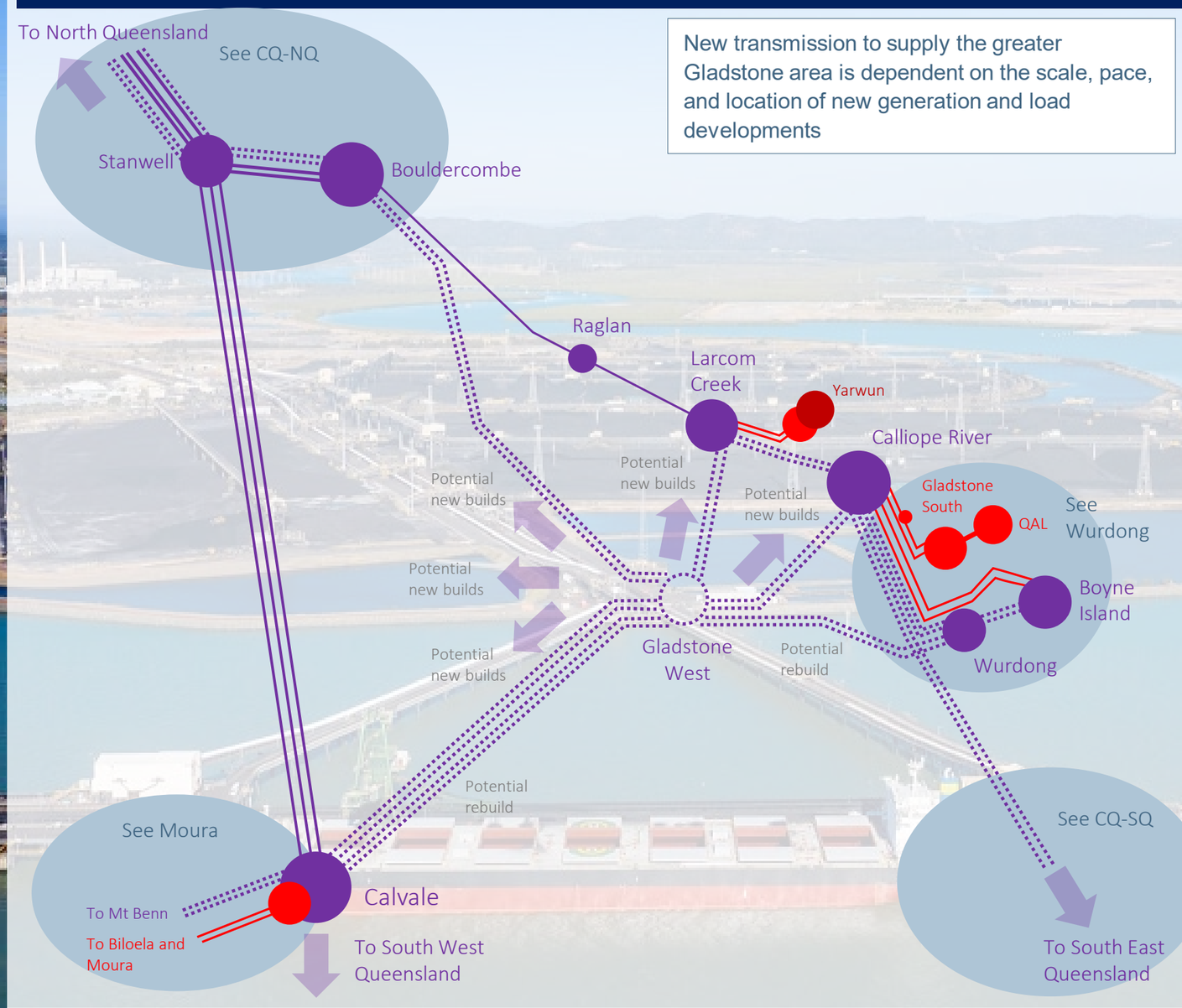
- The Gladstone Project is a Priority Transmission Investment (PTI) designed to reinforce the transmission network in Central Queensland.
- The primary drivers of the Gladstone Project are maintaining reliability and security of supply following closure of the Gladstone Power Station.
- The proposed scope is planned to be delivered in stages that include development of new high capacity transmission lines, substation plant, transformers, and reactive compensation.
- In addition to capacity upgrades, synchronous condensers and other system security investments are needed to maintain voltage stability and grid resilience in the region.
- There are emerging condition and obsolescence risks on existing network assets which will need to be addressed to maintain reliability of supply and compliance.
- Drivers for further network investment in the medium to longer term within Central Queensland include decarbonisation and electrification of existing industrial and minerals processing facilities, and potential expansion and development of new industries and loads.
- These works collectively form part of Powerlink's broader approach to ensure reliability of supply to support decarbonisation, development of new industries, and economically integrate changes in generation to power Queensland economic growth.

Gladstone

Medium to Long Term

The proposed strategy comprises development of new transmission infrastructure to maintain reliability of supply to this key industry and export hub ahead of the pending retirement of Gladstone Power Station

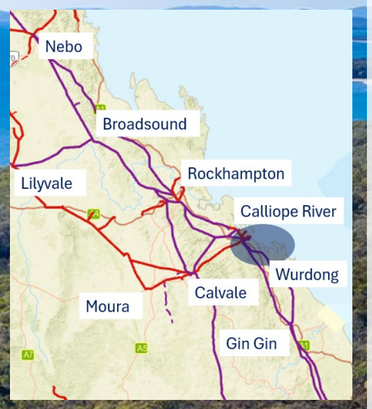
New transmission to supply the greater Gladstone area is dependent on the scale, pace, and location of new generation and load developments



Future Developments

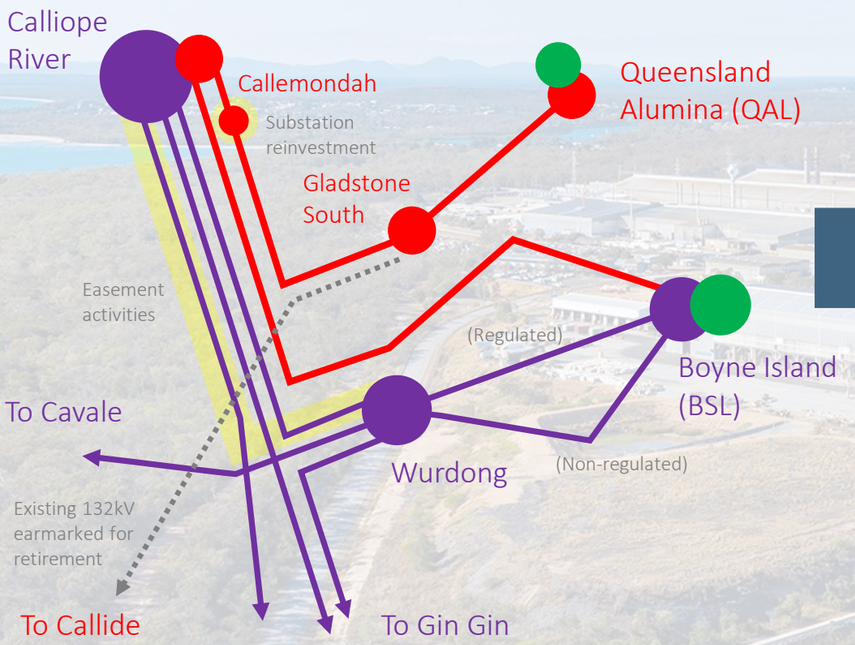
- There is the potential for significant future development and expansion of existing and new industry within the wider Gladstone area.
- Potential electrification of existing processes including metal smelting and compressor infrastructure will result in significant increases to electrical load demand.
- Significant new transmission capacity is expected to be required for the bulk transfer of energy from rich energy hubs in the South West Queensland and North Queensland areas.
- The scale, pace and timing of new transmission developments to maintain reliability of supply to the greater Gladstone area will be dependent on a range of factors including expansion and development of new loads, and the location of both local and remote generation capacity and energy firming.
- Powerlink will continue to monitor changes in the external environment to ensure that transmission developments and non-network solutions are progressed in a prudent, timely and cost-efficient manner to maintain a reliable, secure and resilient transmission system.

Wurdong

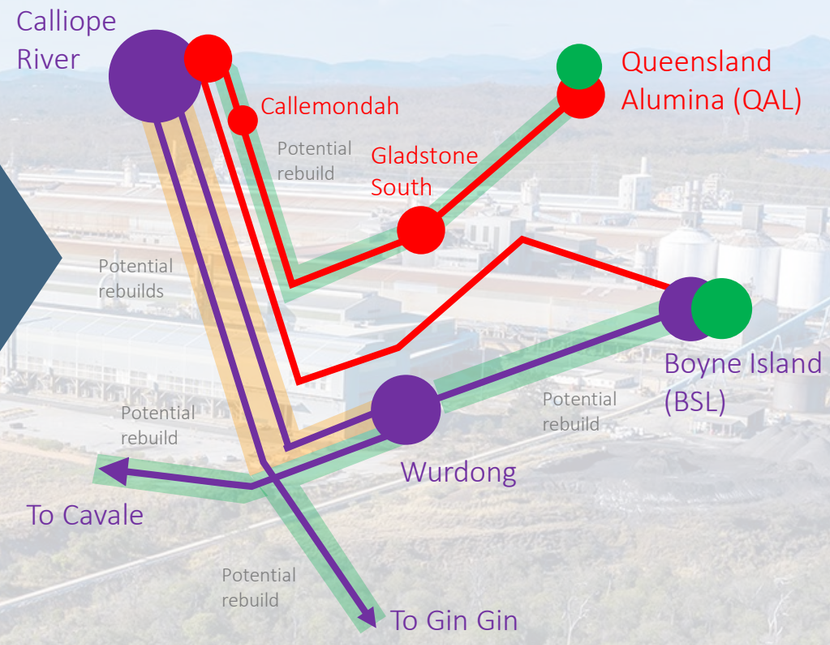


The proposed strategy comprises works to address emerging condition risks to maintain reliability of supply to this critical metals manufacturing hub

Short to Medium Term



Medium to Long Term



Background

- The Wurdong area contains critical sensitive mineral smelter and processing loads including Boyne Island Smelter (BSL) and Queensland Alumina Smelter (QAL).
- The area is supplied by overhead 275kV and 132kV transmission lines linking wider generation facilities to this load centre.
- The existing transmission network has been progressively built from the 1960s through to the 1990s.
- There are emerging condition risks on a number of 275kV and 132kV network assets which will require works in the short to medium term.

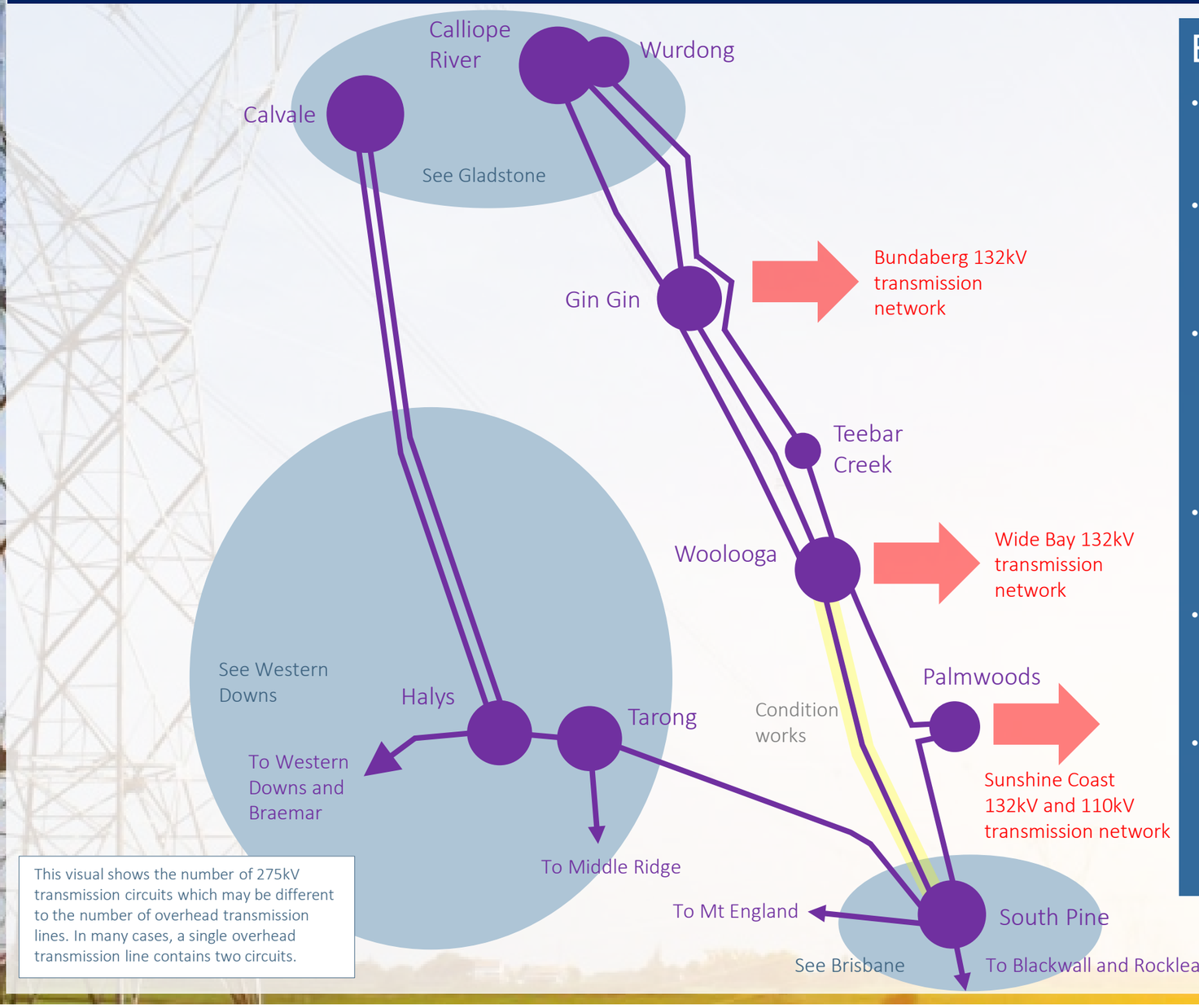
Investment Strategy

- The proposed investment strategy involves targeted refit works to the existing 275kV and 132kV overhead lines to maintain reliability of supply.
- Due to network reconfiguration, the existing Gladstone South to Callide 132kV transmission line is currently disconnected and is earmarked for retirement.
- Potential expansion of metals processing facilities may require capacity upgrades to the existing 275kV and 132kV transmission network in the medium to longer term.
- Powerlink will continue to assess investment strategies for the area to align with industrial customer development plans and potential non-network solutions.

Central to South Queensland

Short to Medium Term

The proposed strategy involves a holistic approach to emerging condition and capacity drivers to determine an optimal economic investment approach across this key backbone transmission corridor



This visual shows the number of 275kV transmission circuits which may be different to the number of overhead transmission lines. In many cases, a single overhead transmission line contains two circuits.

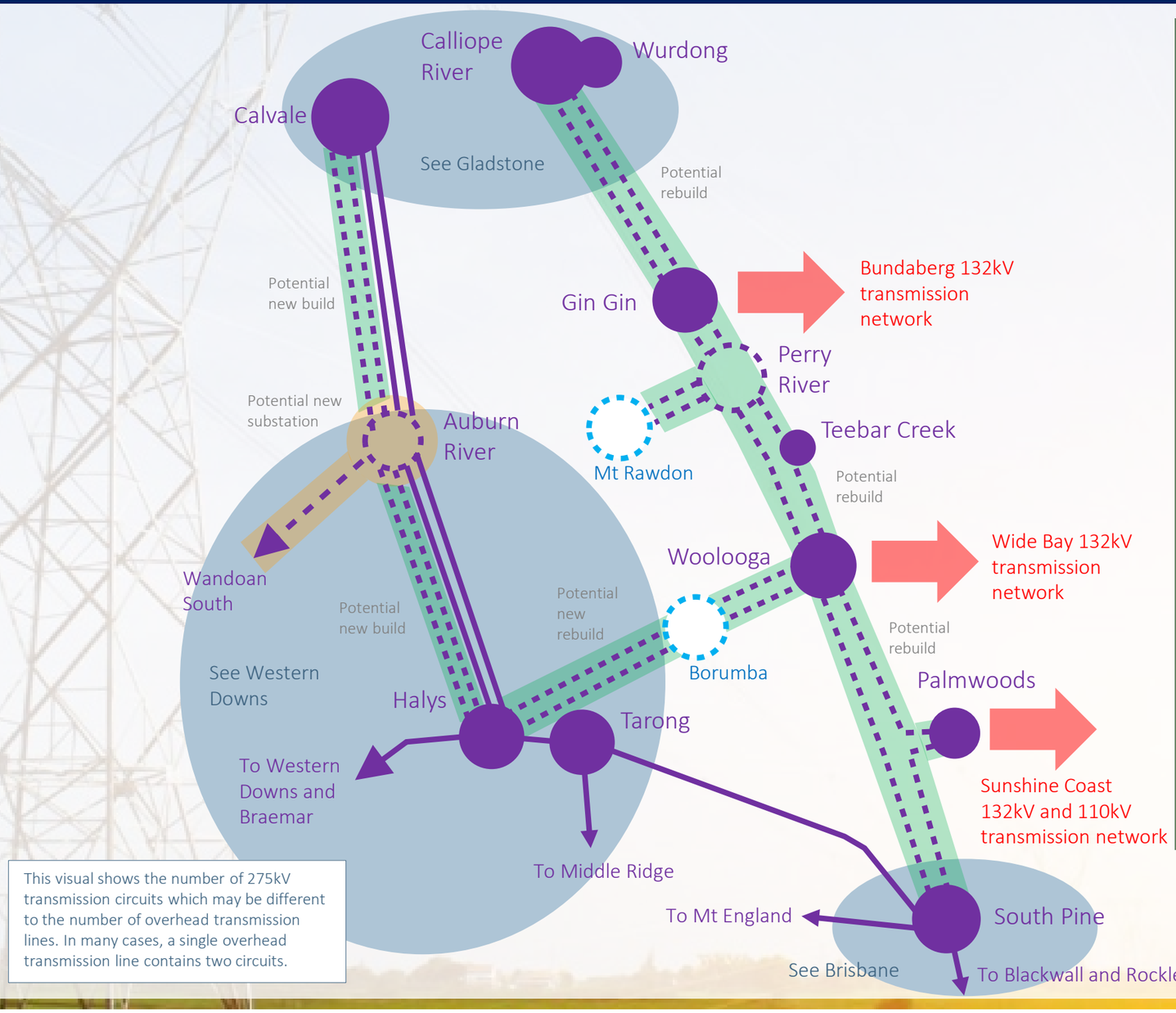
Background

- The eastern Central to South 275kV transmission corridor was constructed in the 1970s aligned with the establishment of Gladstone Power Station.
- This backbone transmission corridor is important or the bulk transfer of power from generating stations within Central and North Queensland to load centres in South East Queensland.
- This backbone grid also supplies Powerlink and Energy Queensland 132kV and 110kV transmission system providing supply to regional residential, commercial, tourism and agricultural areas including Bundaberg, Maryborough, Harvey Bay and the Sunshine Coast.
- Powerlink has experienced significant interest in the connection of new generation and energy storage facilities along this transmission corridor.
- The Borumba and Mt Rawdon Pumped Hydro Energy Storage (PHES) developments are large energy storage facilities being progressed and at advanced stages of assessment.
- The existing overhead transmission lines were constructed in the 1970s as single circuit lines, and sections have emerging condition risks over the short to medium term requiring works to maintain reliability of supply.

Central to South Queensland

Medium to Long Term

The proposed strategy involves a holistic approach to emerging condition and capacity drivers to determine an optimal economic investment approach across this key backbone transmission corridor



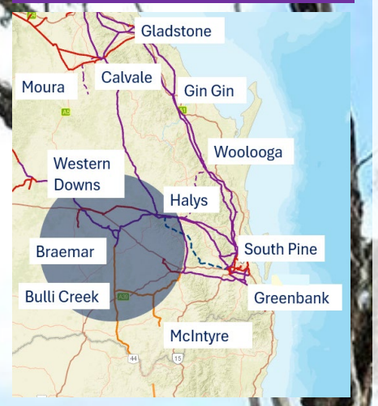
This visual shows the number of 275kV transmission circuits which may be different to the number of overhead transmission lines. In many cases, a single overhead transmission line contains two circuits.

Investment Strategy

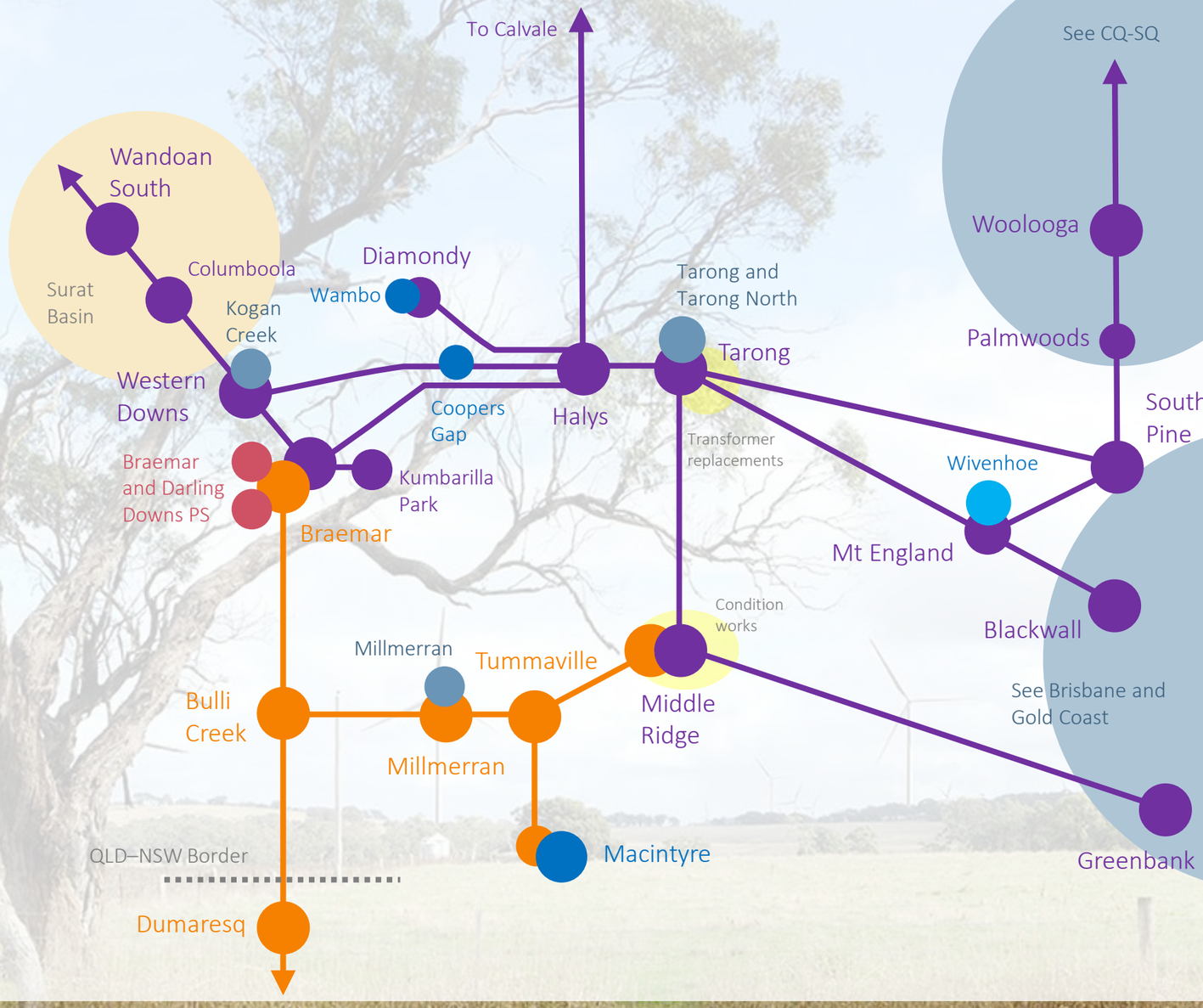
- The proposed investment strategy comprises of condition related works across existing overhead lines, substation plant and secondary systems to address emerging condition risks.
- There may be net market benefits with rebuilding the existing single circuit lines to higher capacity double circuit lines across the coastal CQ-SQ transmission corridor over the medium to longer term.
- There may also be net market benefits and reliability of supply drivers for new transmission builds from the proposed Auburn River Substation to Calvale and Halys Substations along the inland CQ-SQ corridor over the medium to longer term.
- The scale, pace and timings of potential transmission augmentations across Central to South Queensland will depend on generation, market and load developments.
- Powerlink will continue to monitor market developments and the external environment to develop an holistic optimal investment strategy incorporating condition and capacity drivers to deliver economic benefits and maintain a reliable and secure transmission system.

Western Downs

Short Term



The proposed network investment strategy for the South West Queensland area provides a balance between cost and economics for this rich regional energy and farming hub

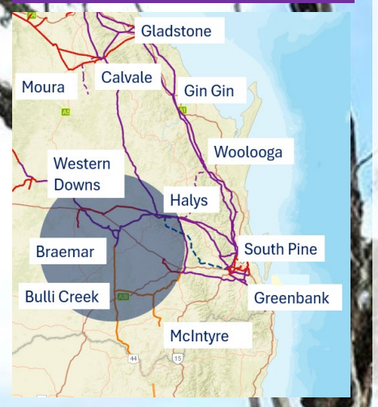


Background

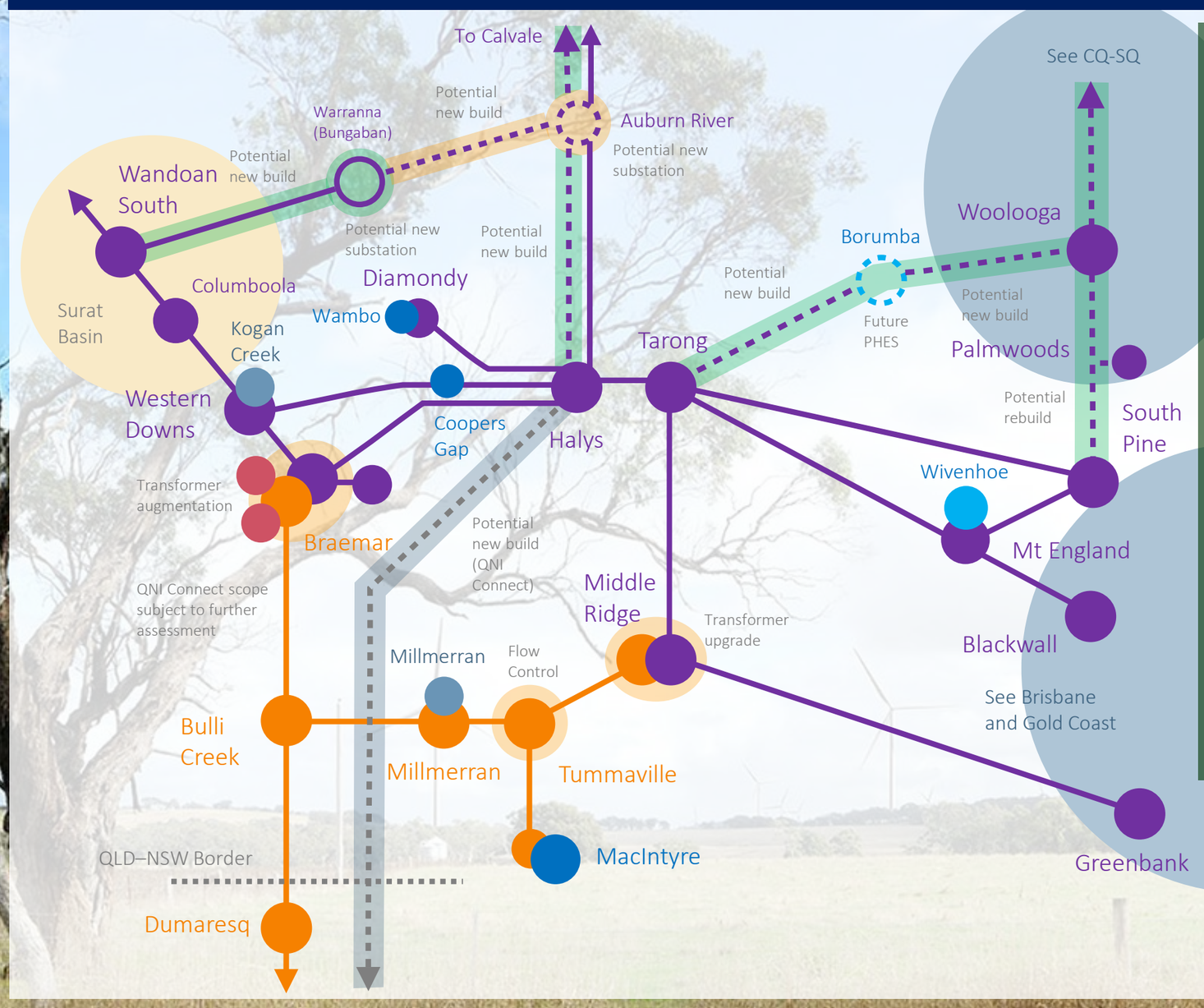
- Western Downs is a key regional area in South West Queensland, known for its vibrant agricultural and farming industry as well as its resource rich energy sector.
- It is a major hub for energy production in Queensland with diversified generation production including coal, gas and more recently renewable generation.
- Powerlink's backbone transmission network transports power from this rich energy area to load centres within Central and South East Queensland.
- The Powerlink and Energy Queensland transmission networks also supply local agricultural farming, townships and industrial facilities within the region.
- Powerlink has continued to experience significant interest in large scale generation and energy storage development within the area.
- New generation development earmarked for the region will significantly exceed the capacity of the transmission network over the medium to longer term, and there may be economic and market benefits in augmenting the transmission system.

Western Downs

Medium to Long Term



The proposed network investment strategy for the South West Queensland area provides a balance between cost and economics for this rich regional energy and farming hub

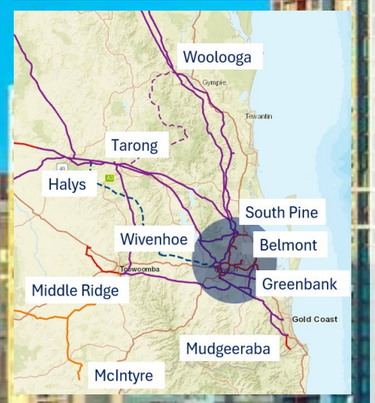


Investment Strategy

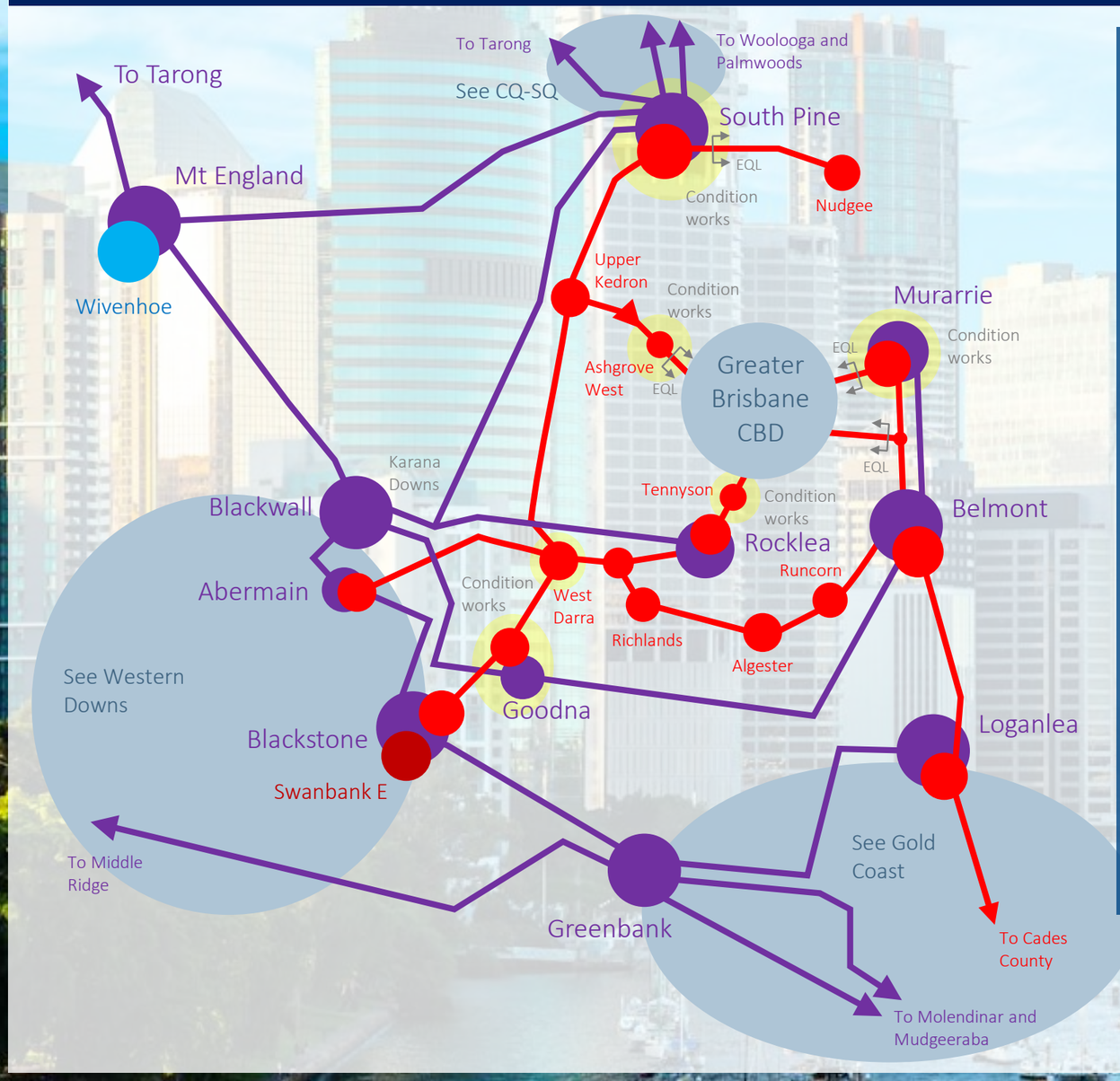
- The proposed investment strategy will need to consider the scale and pace of new generation, energy storage, and load developments both within South West Queensland and across South and Central Queensland.
- A range of transmission network options are plausible ranging from small-scale incremental upgrades to new high capacity transmission links.
- There may be opportunities for non-network solutions (including large-scale battery energy storage systems) to increase both the capacity and utilisation of the network whilst maintaining reliability and security of supply.
- The Queensland Government's Energy Roadmap has identified priority transmission developments for the area including substation upgrades and new transmission lines from the Darling Downs area to a new substation along the inland CQ-SQ transmission corridor.
- AEMO has designated an upgrade to the QNI as an Actionable Project within the 2024 Integrated System Plan (QNI Connect).

Brisbane

Short Term



The proposed strategy provides an economic balance between network reinvestment and augmentation to maintain reliability of supply to Queensland's capital city and home to the Brisbane 2032 Olympic Games

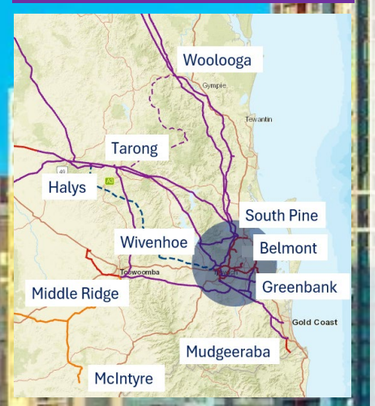


Background

- As Queensland's capital city, Brisbane is an important commercial, economic, business and residential hub. Brisbane will host the 2032 Olympic Games.
- Powerlink's 275kV and 110kV transmission network and the Energex 110kV transmission system provide network supply to the greater Brisbane area.
- A significant proportion of 275kV and 110kV network was constructed in the 1970s and 1980s with emerging condition and obsolescence risks across lines, substation and secondary system network assets.
- There is continued load growth particularly around the outer Brisbane areas due to residential housing and associated commercial and infrastructure developments.
- In particular, the Brisbane to Ipswich corridor is expected to experience significant continued demand growth due to housing and commercial developments.
- Priority Development Areas (PDAs) such as Ripley Valley are earmarked for development over the medium to longer term.
- New block load developments associated with data centres may progress over the medium to longer term potentially requiring transmission capacity upgrades.

Brisbane

Medium to Long Term



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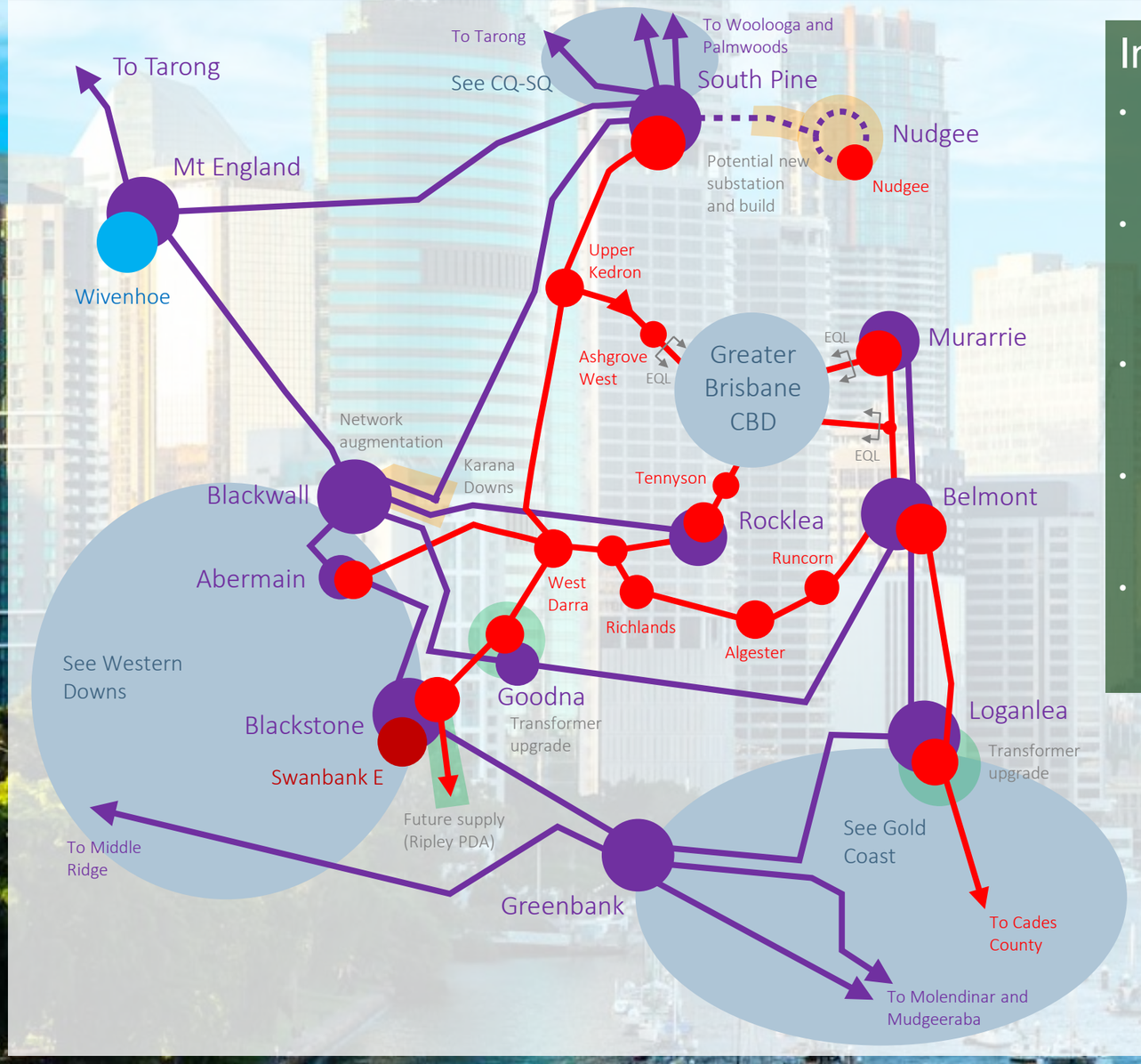
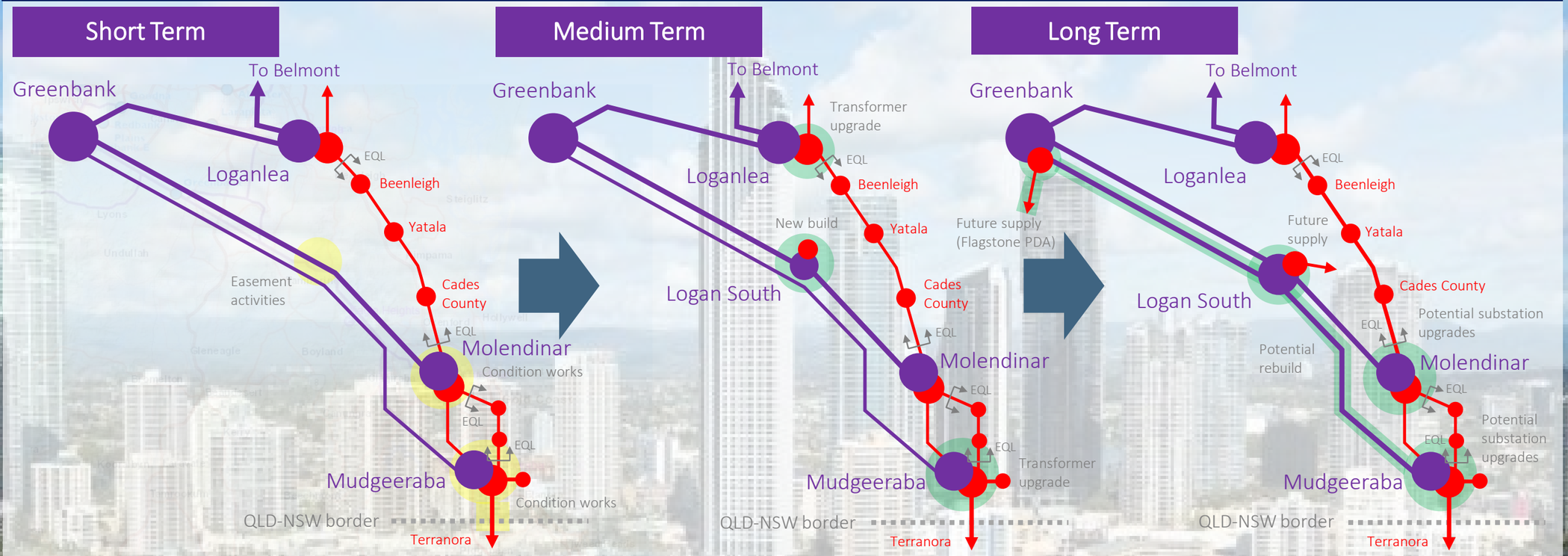


Investment Strategy

- The proposed investment strategy involves staged development of the 275kV and 110kV transmission network to address emerging capacity drivers.
- Network reinvestments will be required over the medium to longer term to address emerging condition risks within overhead line, underground cable, substation plant and secondary systems equipment.
- There may be a requirement for development of new transmission infrastructure within north Brisbane if new block load developments (including data centres) progress.
- Joint planning between Powerlink and Energy Queensland will continue to be key to determining cost efficient and optimal investment strategies.
- It is anticipated that non-network solutions will also play a key role in the future investment mix especially in relation to smoothing peak demand and management of minimum demand.

Gold Coast

Proposed investment strategy optimises emerging capacity and cost effective network supply to one of Australia's fastest growing residential, commercial and tourism hubs



Background

- The Gold Coast area is one of Australia's fastest growing urban regions and is a key economic hub and international tourist destination.
- The Gold Coast will play host to key events in the 2032 Olympic Games.
- There is significant continued residential and infrastructure development especially along Brisbane to Gold Coast corridor. A number of Priority Development Areas (PDAs) have been designated for future residential estates and development.
- Prudent and timely investments will be required to address both emerging condition risks and capacity needs.

Investment Strategy

- The proposed investment strategy involves staged development and reconfiguration of the 275kV and 110kV transmission network and substation plant over the medium to longer term to address capacity and condition drivers.
- A new 275kV hub will be required within the Brisbane to Gold Coast corridor around the Logan South area to supply growing residential, commercial and infrastructure developments.
- Joint planning between Powerlink and Energy Queensland will continue to be key to determining cost efficient and optimal investment strategies. It is anticipated that non-network solutions will also play a key role in the future investment mix.