North Queensland Area Plan Forum

Presenter: Julian Thomas
Facilitator: Gerard Reilly

April 2017

Session timings

- Welcome
- Presentation - 45 minutes
- Questions - 15 minutes
- Afternoon tea - 15 minutes
- Group discussion - 70 minutes
- Wrap-up and Q&A - 20 minutes
- Close and thanks
- Meet and greet with the Powerlink Board

Overview

- Demand and Energy - overview
- Planning the network - amended standard
- Deliver best solutions whether network, DSM, local generation
- Challenge to manage peak demand
- Why are we interested in energy? - network utilisation

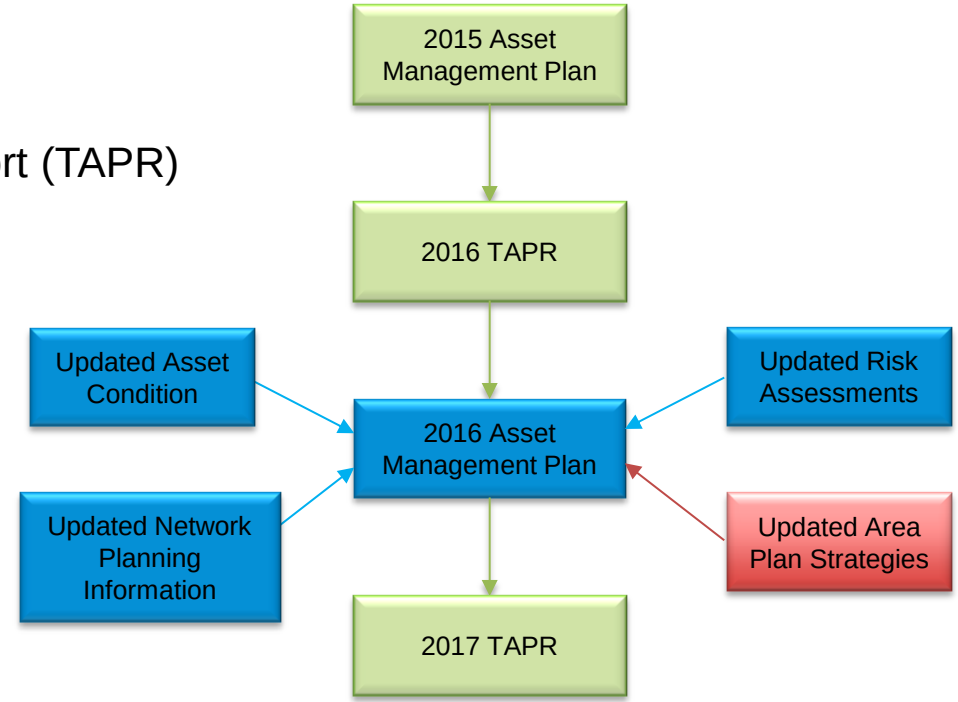
The role of transmission

- Powerlink recognises its role to provide a secure and reliable network that can power economic growth and long term sustainability of electricity supply in Queensland.

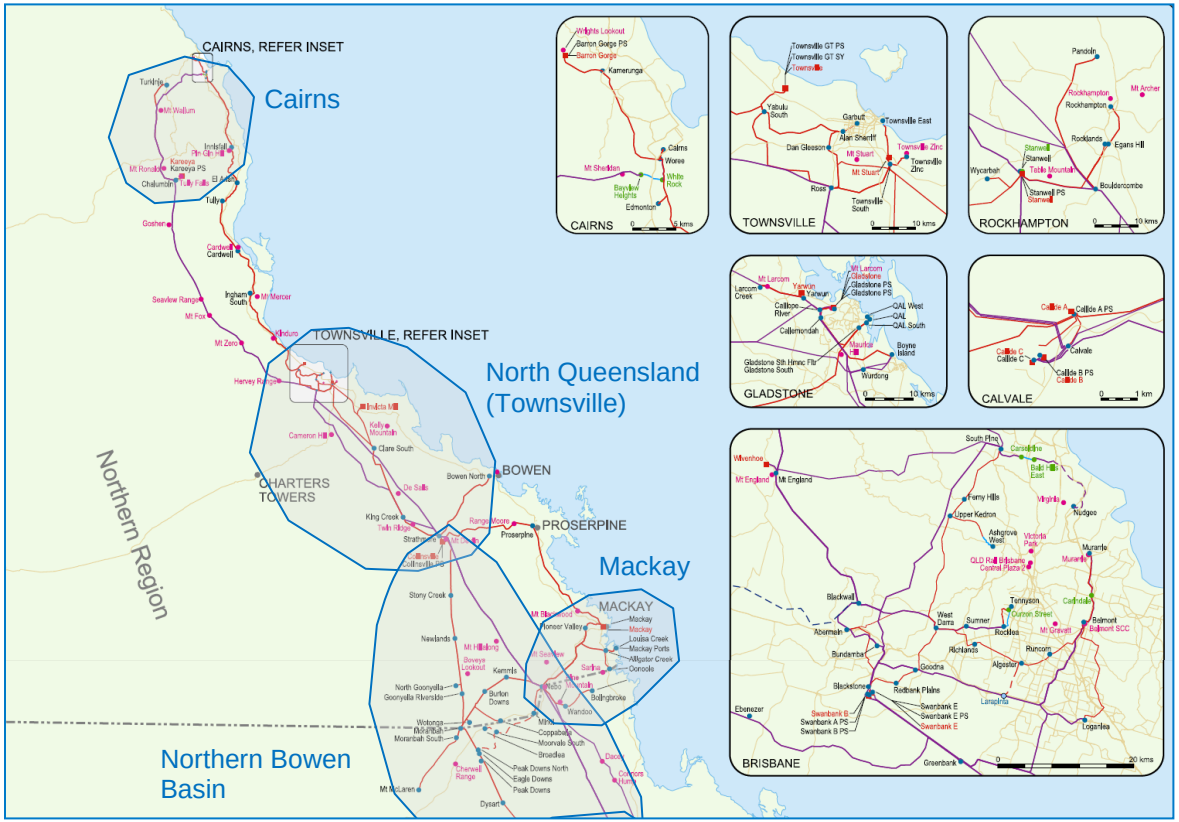
SO WHAT IS THE TRANSMISSION NETWORK?

Approach to planning our network

- Powerlink undertakes two annual planning processes:
  - Transmission Annual Planning Report (TAPR)
  - Asset Management Plan (AMP)
- The Asset Management Plan aligns Powerlink's corporate direction, asset management framework to an integrated network investment plan.



North Queensland Area Plans



Area plan development

Determination and review of investment drivers and needs

Planning and network optimisation

Optimised needs driven investment outlook

Area plan development

- Updated demand and energy forecasts
- Analysis of:
  - Asset condition, performance and related risks
  - Network capability and emerging limitations (including customer connection needs)
  - Competition and market impacts
  - Operational impacts and constraints
  - Customer and consumer engagement.
- Ensure compliance with system standards
- Confirm pending investment decisions and portfolio of approved projects

Area plan development

- Integrated review of investment needs and risks
- Market Engagement (such as this)
- Development of investment options (network reconfiguration, non-network solution, network solution or a combination of both)
- Risk and cost benefit analysis of options

Area plan development

- 10 year outlook
- New investment or renewal of existing assets
- Renewal strategies include:
  - Additional maintenance
  - Decommissioning or retirement
  - Refurbishment or replacement of plant (sometime with lower / higher rated equipment)
  - Consolidation of existing assets
  - Operational measures
- Non-network solutions

Challenges in developing the area plans

What is the future of the Energy Network in Queensland?

Future generation profiles are uncertain

- New de-centralised generation
- Distributed generations such as residential Solar PV
- Unpredictability of retirement of existing generation.

New technologies make forecasting demand outlook difficult.

Different levels of asset information depending on timing of risk

- More certainty closer to end of life as more detailed condition becomes available.

Stakeholder engagement

- Given these challenges and changes to the external environment, Powerlink acknowledges participation with stakeholders to seek their early input during the planning process is vital
- Area Plan forums are conducted to seek feedback from stakeholders as an input to the investment plan for our network
- Focused on longer term network developments and the economic and qualitative factors influencing Powerlink's decisions
- Two Area Plans forums were held previously:
  - Greater Brisbane Metro Area Plan
  - Central to Southern Queensland Interconnector

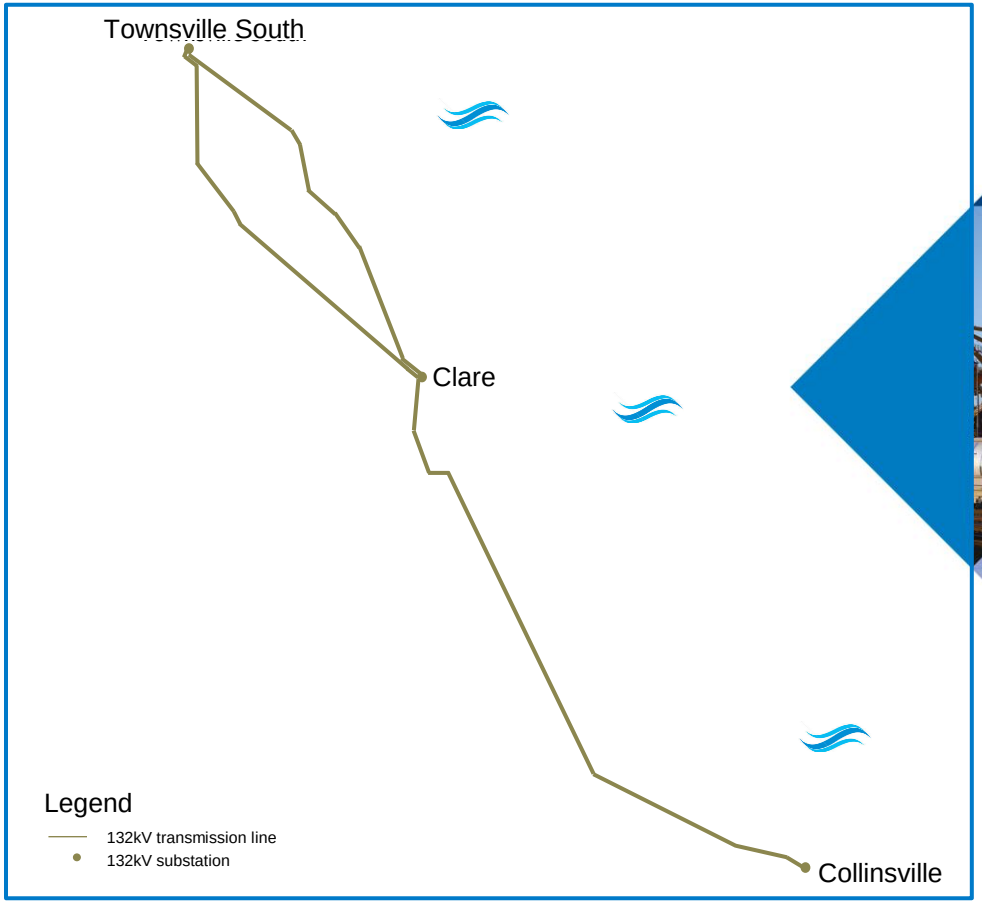
275kV & 132kV Transmission Corridor

NQ Area Plan – Network Development

1960

132kV circuit.

Collinsville PS to Townsville.

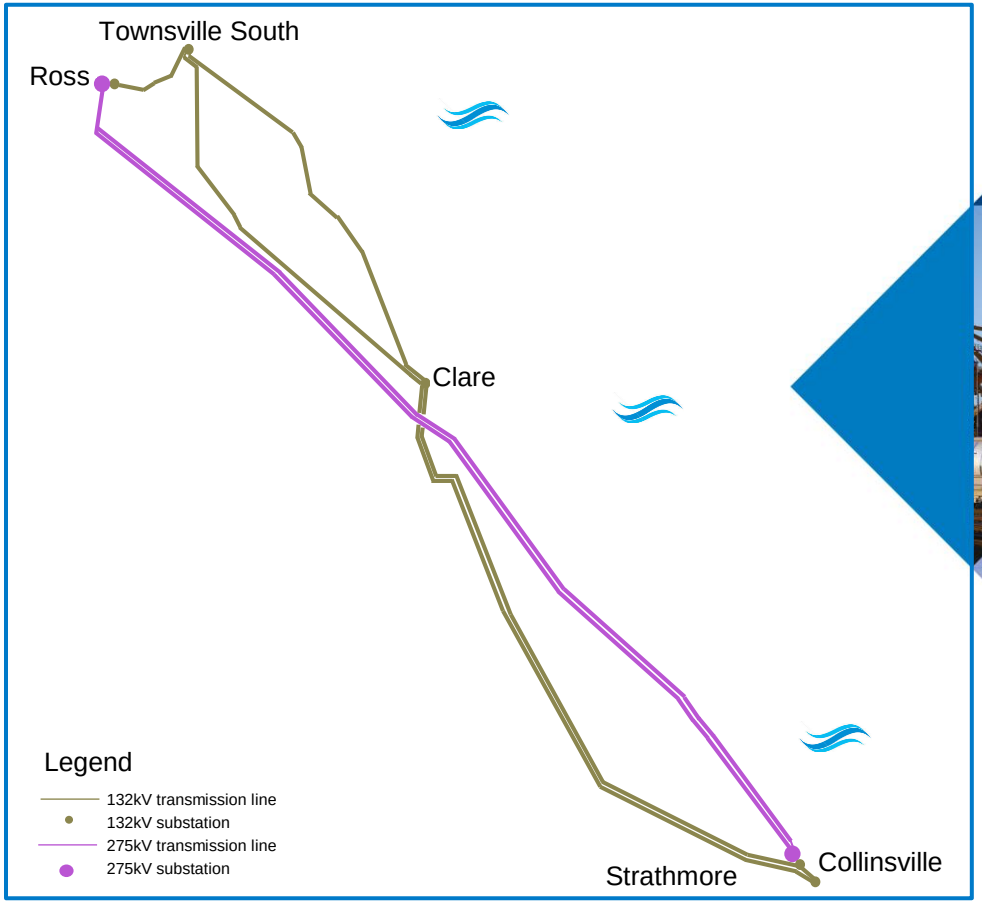


NQ Area Plan – Network Development

1970s-1980s

275kV SCs established between Collinsville and Ross.

Ross 275/132kV substation established with one transformer initially (there are now three).

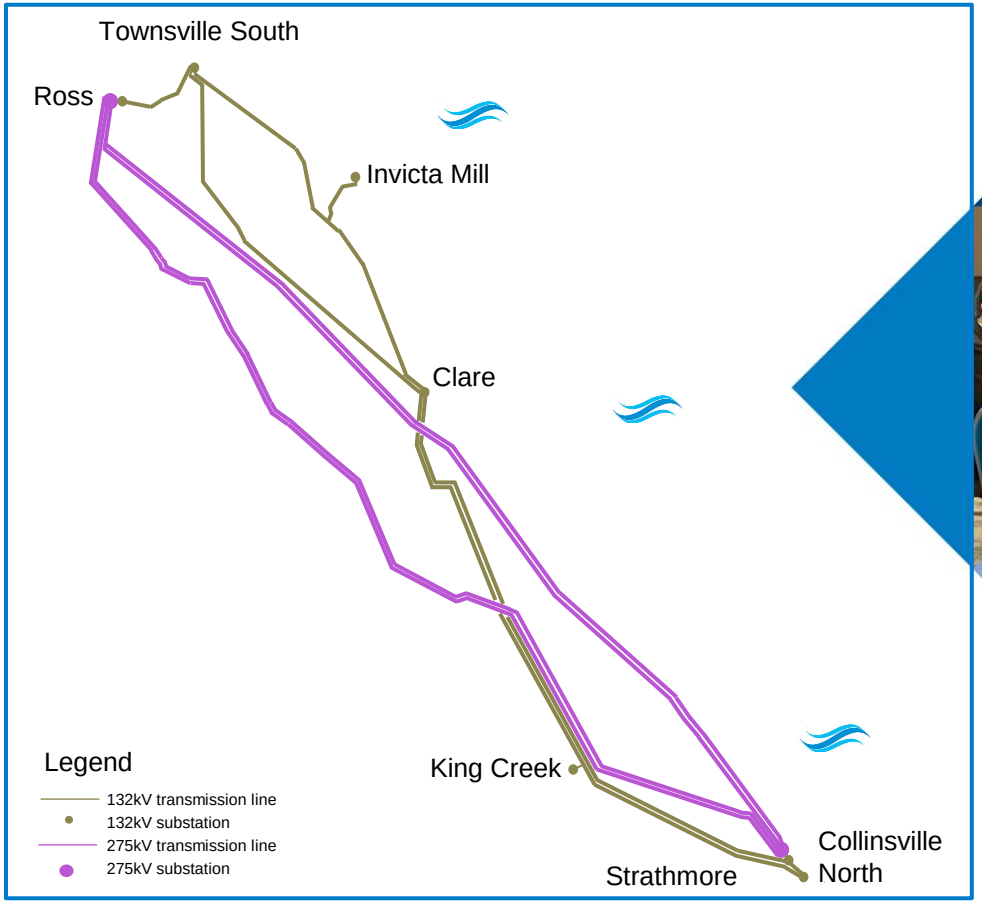


NQ Area Plan – Network Development

2000 onwards

275kV supply into NQ upgraded

- New double circuit from Strathmore to Ross
- Two existing SCSTs from Strathmore to Ross are paralleled for higher capacity
- Strathmore 275/132kV Substation established with one transformer.



NQ Area Plan – Network Development

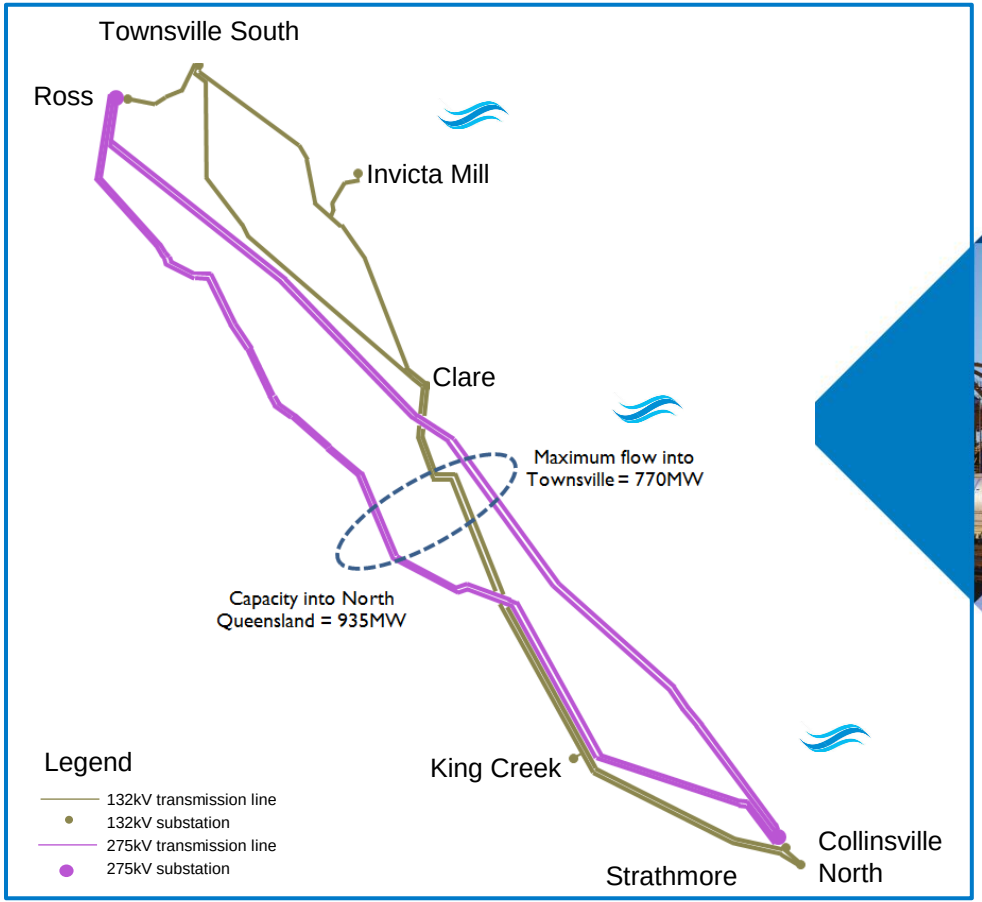
2000 onwards

Replacement of original substations at Clare and Collinsville at adjacent sites.

Connection of major customers.

Decommissioning of assets:

- Collinsville Power Station connections
- Mackay to Proserpine transmission line.



NQ Area Plan – Existing Network

- Existing capability
- Future load growth
- New generation
- Assets reaching end of life
  - Near term issues relate to the TS-CS 132kV lines
- Investment Decision
  - Renew these assets, or decommission?
  - Reconfigure the network?
  - Non-network alternative?

NQ Area Plan – Townsville

- Existing capability
- Major customers
- Investment needs
- Easement issues

NQ Area Plan – Future Requirements

- Appropriately reinvest in aging assets to maximise economic and social value, whilst achieving cost efficiencies
- As part of these decisions, consideration is given to:
  - Cost of reinvestment
  - Enduring Need
  - Operational requirements and ability to perform maintenance
  - Alternative network and non network solutions
  - Need to Support load centres and major customers
  - Geographic diversity of supply to North Queensland
  - Support new connections in the area, including renewable resources
  - Manage the potential impact of ‘latent’ load of resource sector.

Current NER Requirements

National Electricity Rules

Network Planning

Transmission Annual Planning Report

Review requirement for RIT-T

Augmentation or augmentation component >$6 million

Initiate RIT-T

Possible non-network solutions identified in TAPR for reinvestments or augmentations <$6 million

Non-rule requirement

Initiate Non-network solution feasibility study process

Questions?

Afternoon tea

NQ Area Plan - Discussion

Discussion Point 1

- What factors have the potential to impact on Powerlink's network in the next 10 years? (e.g. change in generation mix, demand levels, customer usage, new loads). What do customers need from the network?

Discussion point 2

- What are the key drivers Powerlink should consider in deciding the best network (reinvest, reconfigure or decommission) or non-network solutions for this area over the next 10 years?

Thank you