BREAKOUT SESSION 2

# Transmission **Annual Planning** Report insights



**Daniel Andersen**
General Manager Energy Markets and Planning
Powerlink Queensland

# Transmission Annual Planning Report

## Safe, affordable, reliable and sustainable transmission network



NER requirements



Network planning



Information sharing

**10** chapters

**May-Oct** preparation period

**50+** reviewers and contributors

**400+** datasets

**61** supporting templates

# What is new in 2026?

Last year we asked how to improve the Transmission Annual Planning Report (TAPR)

## WHAT WE HEARD

- ✓ Different readers value different sections
- ✓ Finding information for a specific area or project takes too long
- ✓ A clearer view of where non-network solutions can help

## WHAT WE'VE DONE IN RESPONSE

### Expanded TAPR Portal

More data, easier to navigate and new feeder flow information

### Regional area plans

Northern, Central and Southern chapters bring needs driver and projects together

### Zone one-pagers

One page for each of the 11 zones: demand, generation, reliability and constraints

### Greater visibility of non-network opportunities

Clear pathway from early visibility to formal consultation

# Alignment

## One planning reference point across three pathways

### Queensland Energy Roadmap
Released October 2025

- ✓ Make better use of existing assets
- ✓ Rebuild aging infrastructure where appropriate
- ✓ Higher capacity 275kV and 330kV infrastructure
- ✓ Gladstone Project via the Priority Transmission Investment framework

### 2027-32 Revenue Proposal
Lodged with the AER Jan 2026

- ✓ TAPR investment plan aligns with the proposed capital program and contingent projects
- ✓ Plan current to 31 August 2026
- ✓ AER final determination April 2027
- ✓ Changes flow into the 2027 TAPR

### AEMO 2026 Integrated System Plan
Released June 2026

- ✓ Central to North Queensland Stage 1
- ✓ Brisbane Area 275kV Reinforcement
- ✓ Each assessed through a Regulatory Investment Test for Transmission (RIT-T), network and non-network options
- ✓ QNI Connect reclassified to a future ISP project

The TAPR is the common reference point: actionable ≠ decided. It starts with a RIT-T.

# Demand forecasting methodology

## Tailored for Queenslanders

Underlying demand

Rooftop solar

Electric vehicles

Residential batteries

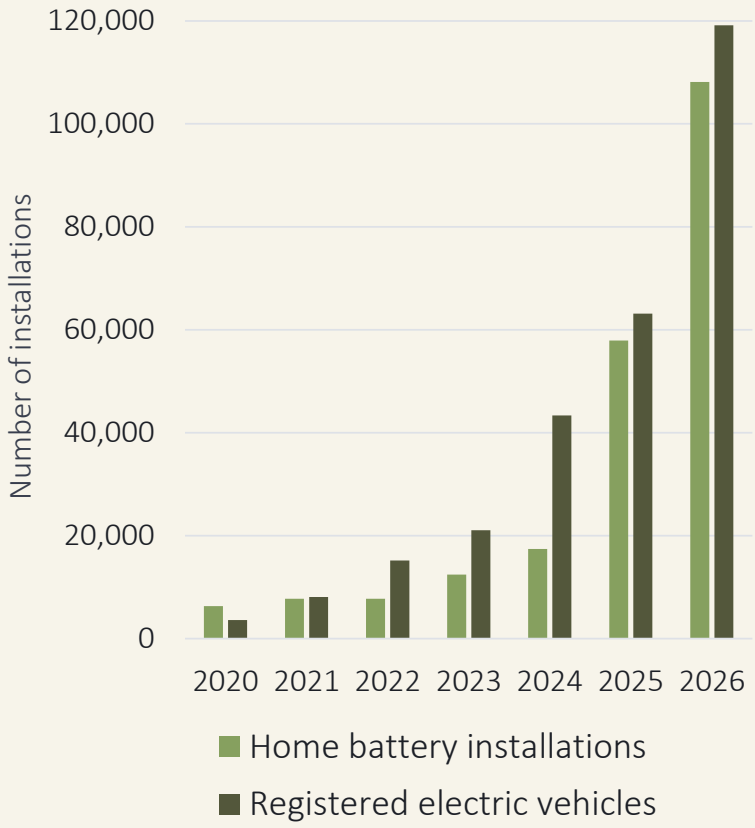
Block loads (data centres)

Embedded generation

High scenario

Central scenario

Low scenario



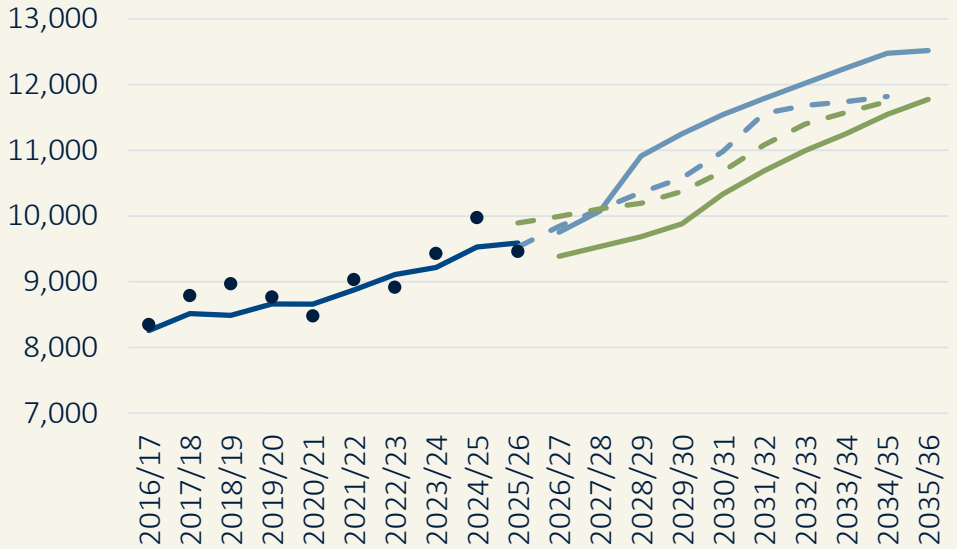

*Scenarios at state, regional and zone level. Inputs: Energy Queensland, large customers, AEMO, Queensland Government, ABS, Deloitte Access Economics, CSIRO GenCost, 2026 Household Energy Survey, 4,000 participants*

# Maximum and minimum demand

## Demand is changing at both ends of the range

**9,462MW**

2025/26 maximum, 12 Feb 6:30pm:
512 MW below the January 2025 record

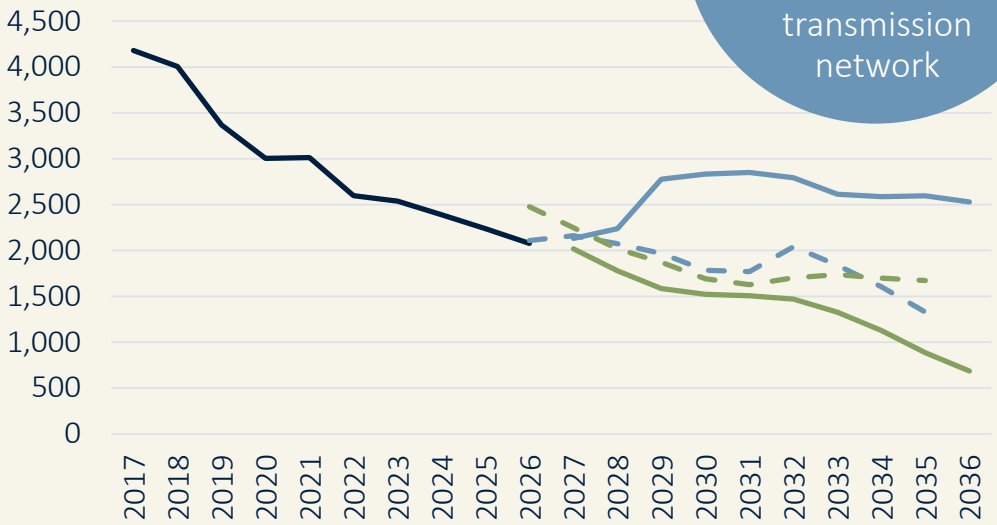



Record minimum

**2,077MW**
19 Sep 2026

**1,908MW**
27 Sep 2026

27 September: Energy Queensland connection points were net exporting 94MW into the transmission network




*Central scenario: summer maximum demand +2.7% a year*

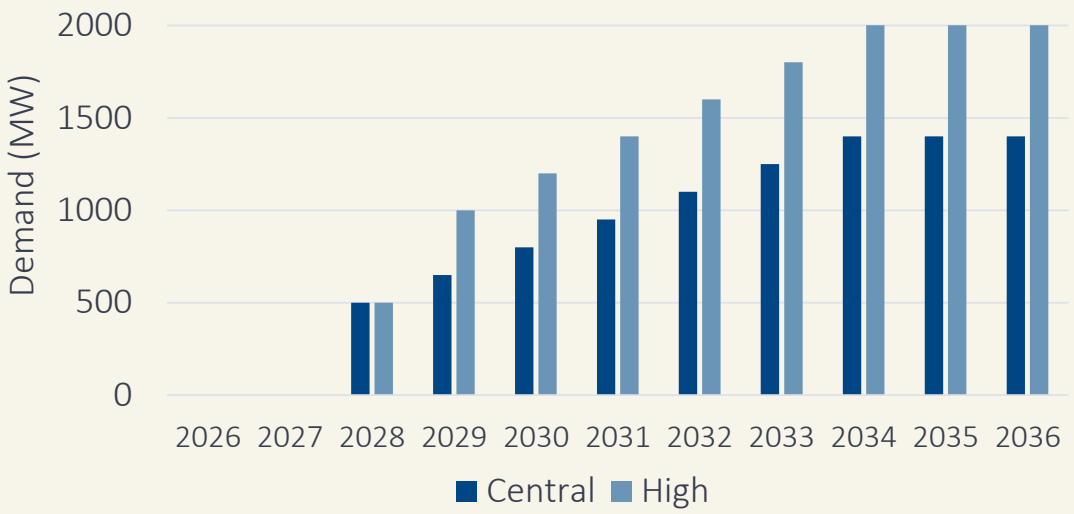
- Historical
- Weather corrected
- Powerlink's 2026 Central 50% PoE
- Powerlink's 2025 Central 50% PoE
- AEMO's 2026 Central 50% PoE
- AEMO's 2025 Central 50% PoE

*Minimum demand forecast to grow about 2.0% a year as data centres add baseload*

# Data centres and flexible load

## Scale, location, timing and flexibility will shape network impacts

### Data centre demand in the forecast (MW)




**Low:** none
**Central:** ~500 MW from 2028 to ~1,400 MW by 2034
**High:** ~2,000 MW by 2034

*Plus ~1,446 MW of other large-load proposals not in Low or Central*

**Flexible load**

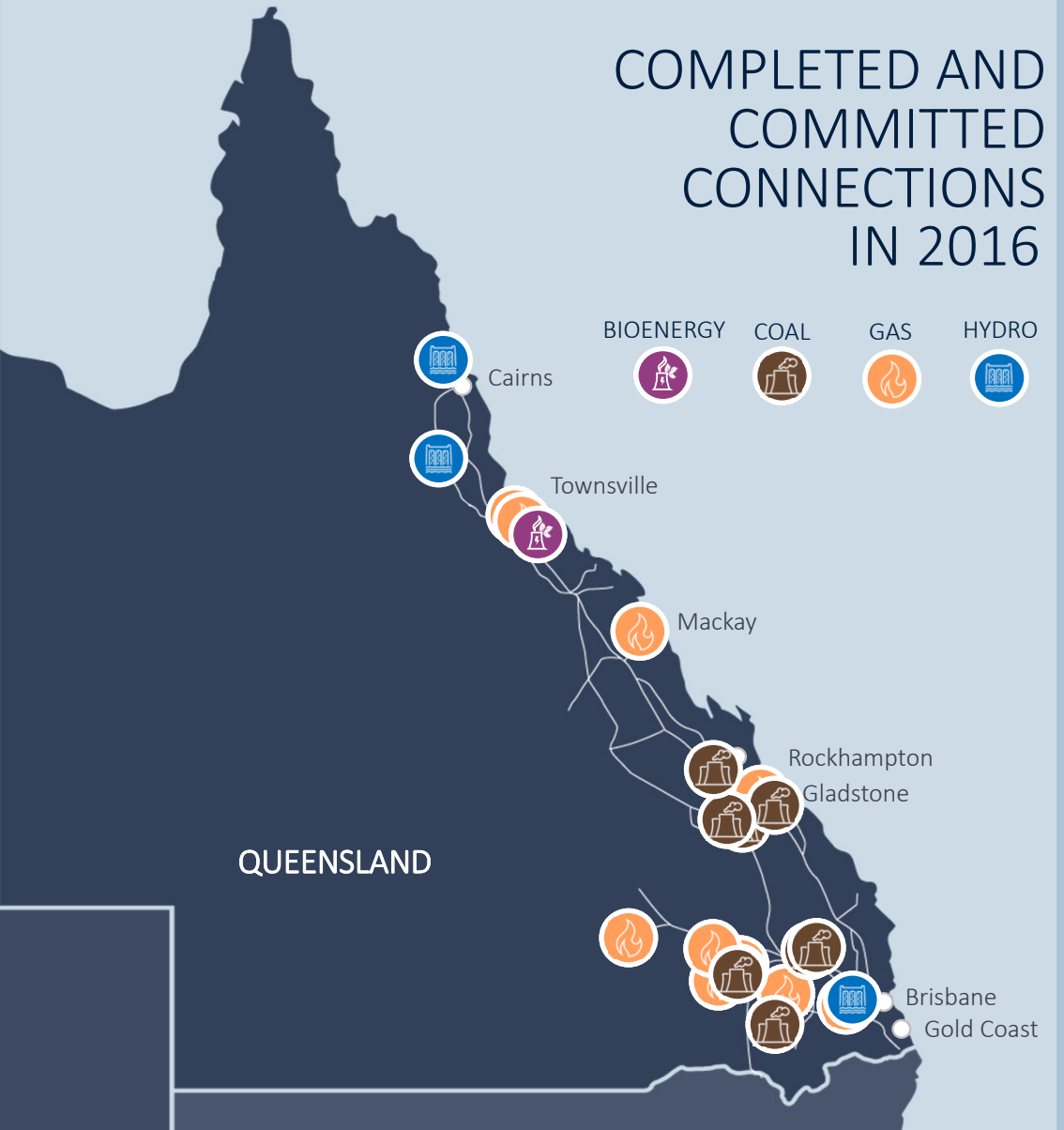
- Reduce, shift or briefly curtail when the network is stressed
- Better use of existing network; may defer augmentation
- Frameworks are moving to encourage or require it

**Where to look**

- Strong access to existing and future generation
- Well-interconnected network with multiple transmission pathways
- Detailed modelling confirms network capacity and connection requirements

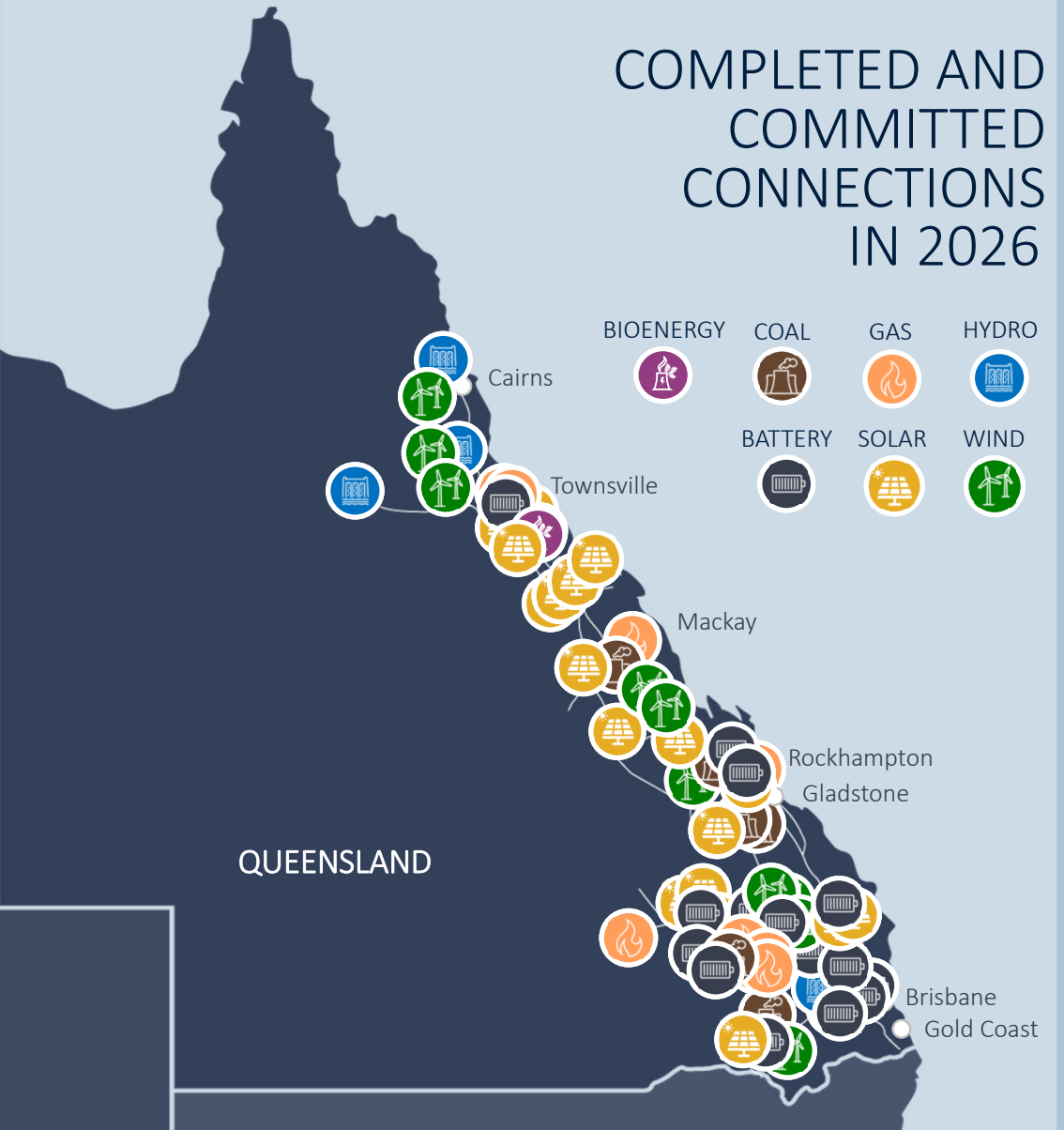
**Connect early**

- Realistic demand and daily load profile
- Staging and commissioning timing
- Use the TAPR (Appendix B: Data centre guide), then talk to us




# ENERGY LANDSCAPE IN 2016

- Dominated by large synchronous generators
- Generation concentrated around the major load centres
- No wind, solar and battery storage connected to the transmission network




# ENERGY LANDSCAPE IN 2026

**4.0GW**
utility-scale solar

**2.8GW**
wind

**3.1GW**
transmission-connected batteries

**250MW**
pumped hydro

# System security

## Powerlink is Queensland's System Strength and Inertia Service Provider

### DECEMBER 2025

Agreement for system strength from Pacific Blue's synchronous condenser at Haughton Solar Farm

### APRIL 2026

Hitachi Energy contracted to supply and install four synchronous condensers

### EARLY 2029

First two synchronous condensers operational

### END OF 2029

Final two synchronous condensers operational

### Four synchronous condensers

- Calliope River × 2
- Stanwell × 1
- Nebo × 1
- Flywheels add inertia

*Preferred option of the System Strength Regulatory Investment Test for Transmission (RIT-T)*

### Inertia Service Provider

- Enough synchronous inertia expected to at least 2031
- Minimum synchronous machines needed for minimum system strength
- Draft reassessment: four-unit need unchanged

### Grid-forming BESS

- Can already provide efficient-level system strength
- Studies underway on minimum-level system strength
- Non-network solutions stay open

# RIT-Ts completed, underway and starting

## Network and non-network options assessed side by side

### Completed since the 2025 TAPR

**FEBRUARY 2026**
Ingham South

**MAY 2026**
Townsville South network wide current transformer failure risk

**SEPTEMBER 2026**
Kamerunga, Cairns and Northern Beaches

### Underway

- ✓ Atherton Tablelands and Cairns
- ✓ Ashgrove West
- ✓ Voltage transformer failures
- ✓ Voltage and transfer capability, North Queensland
- ✓ Tennyson
- ✓ Townsville South and Townsville East
- ✓ Central to North Queensland Reinforcement: PADR by June 2028
- ✓ Brisbane Area 275kV Reinforcement: PADR by June 2028
- ✓ Central Queensland System Strength RIT-T: draft reassessment published October 2026

Further RIT-Ts expected within 12 months

# Non-network solutions

## The case for grid-forming batteries

### Voltage support



A battery near load can support voltage and relieve flows: a virtual transmission line.

### Efficient-level system strength



Grid-forming BESS can already provide it. Studies continue on minimum-level system strength.

### Location matters



Where a battery connects determines what it can do. See Unlocking Battery Potential (November 2025).

## INDICATIVE PATHWAY FOR NON-NETWORK OPPORTUNITIES

**Early visibility**
TAPR, templates and portal show needs and indicative requirements

**Formal consultation**
RIT-T, EOI or other published process sets requirements and dates

**Procurement and delivery**
Network Support Contracting Framework principles apply

Contact NetworkAssessments@powerlink.com.au or join the non-network engagement stakeholder register

# Southern Region

## KEY DEVELOPMENTS

### Brisbane Area 275kV Reinforcement

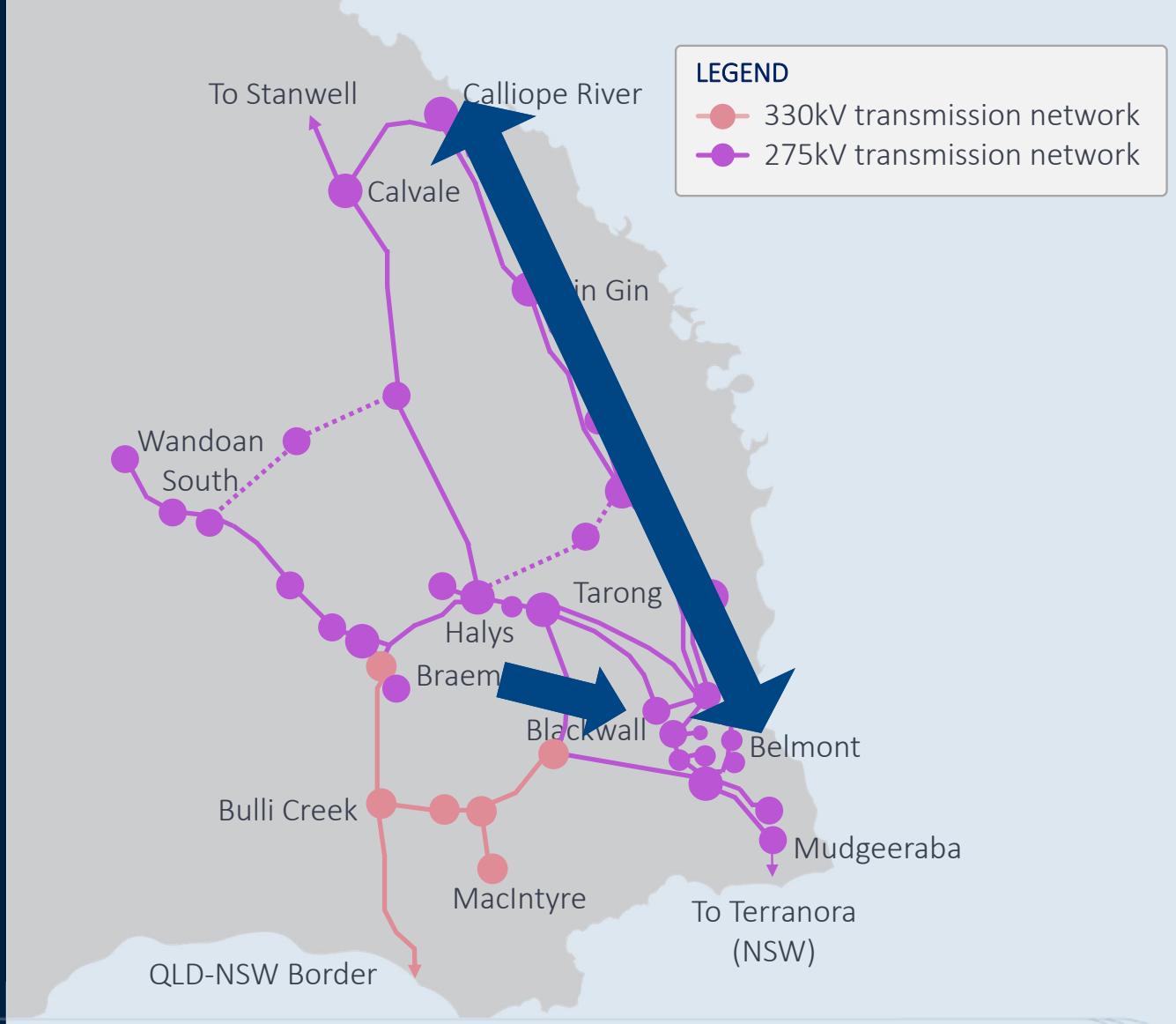
Actionable 2026 ISP project.
RIT-T under way; PADR by June 2028.

### QNI Minor complete

More transfer capability in
both directions.

### Central to South wide-area protection

Tranche 2 expands the scheme for the loss of both Calvale–Halys circuits.



# Central Region

## KEY DEVELOPMENTS

### Gladstone Project: Priority Transmission Investment

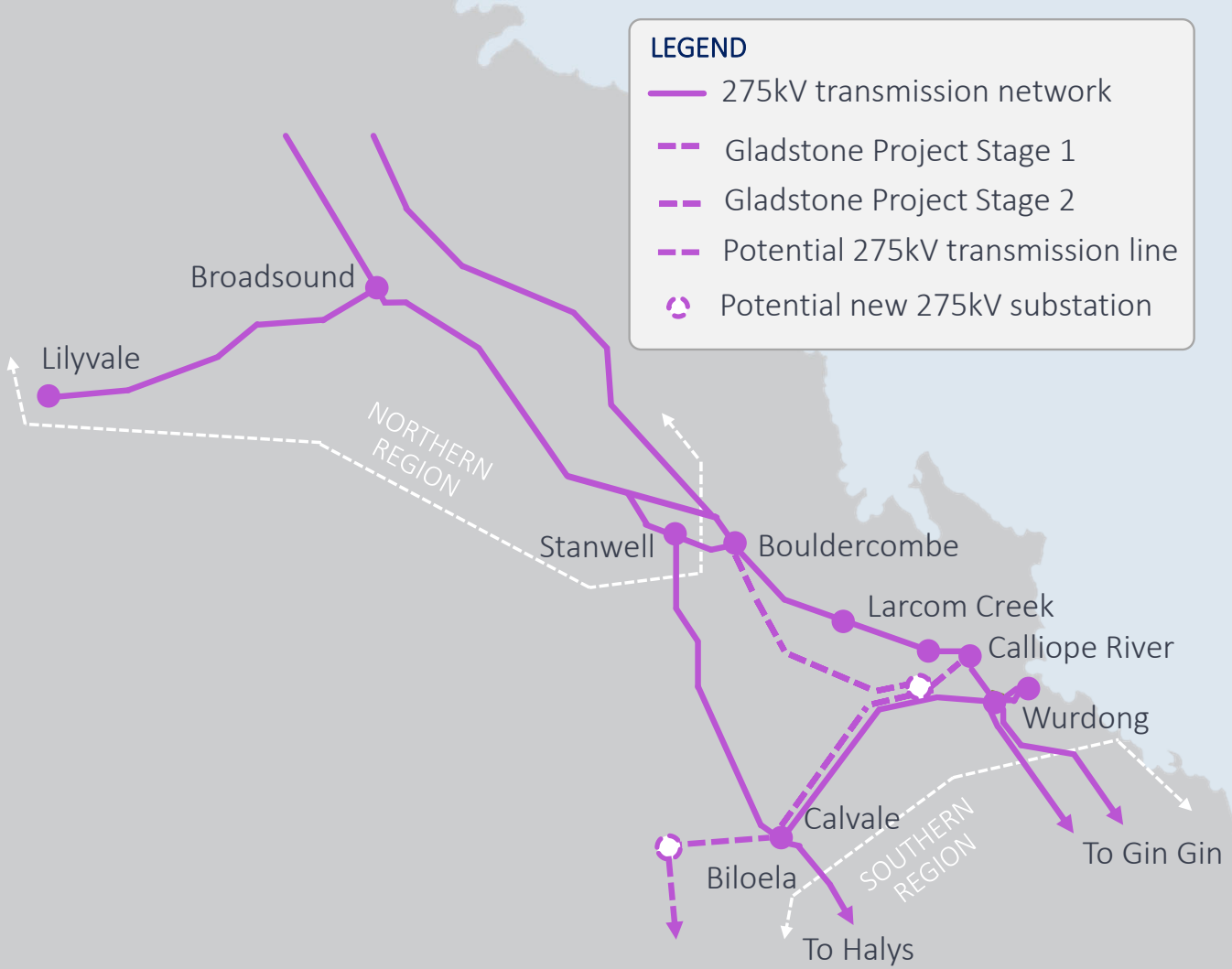
Declared August 2026.
Stage 1 Calvale – Gladstone West – Calliope River 275kV by March 2029.

### Anticipated Gladstone Power Station closure

1,680MW, expected March 2029.

### Four synchronous condensers

Calliope River × 2, Stanwell, Nebo.
First two early 2029.



# Northern Region

## KEY DEVELOPMENTS

### Third 275kV connection into Woree

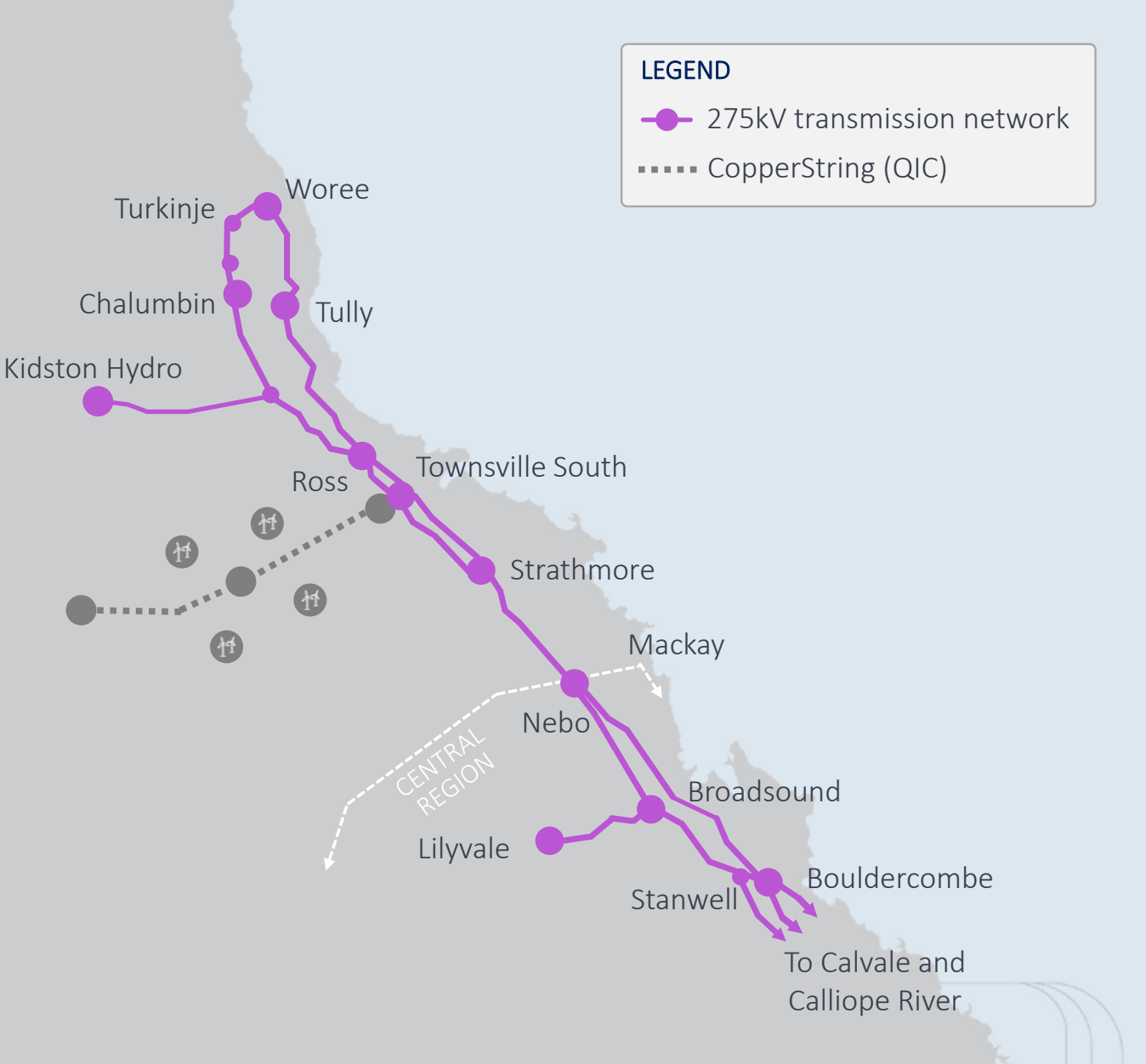
Recently commissioned.

### Central to North Queensland Reinforcement (Stage 1)

Actionable ISP project. Candidate option is second circuit on Stanwell–Broadsound 275kV. PADR by June 2028.

### CopperString (QIC)

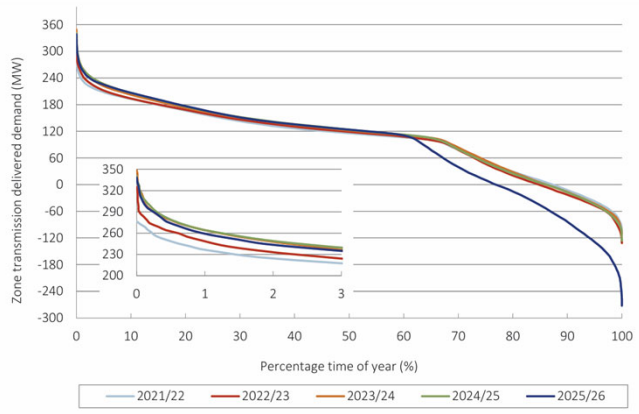
Connecting the North West to Townsville.



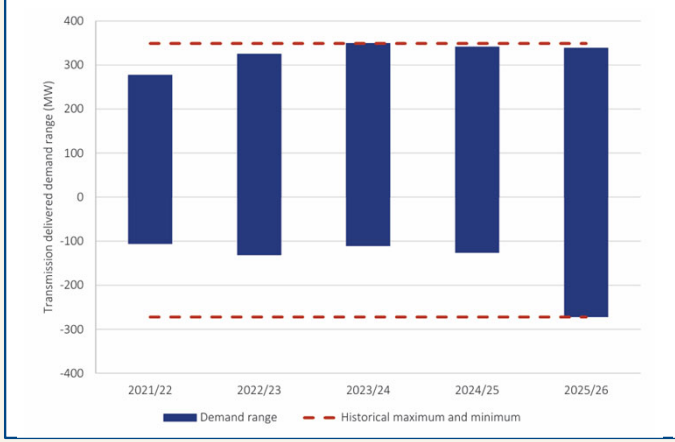
# Zone overviews: Local detail snapshot

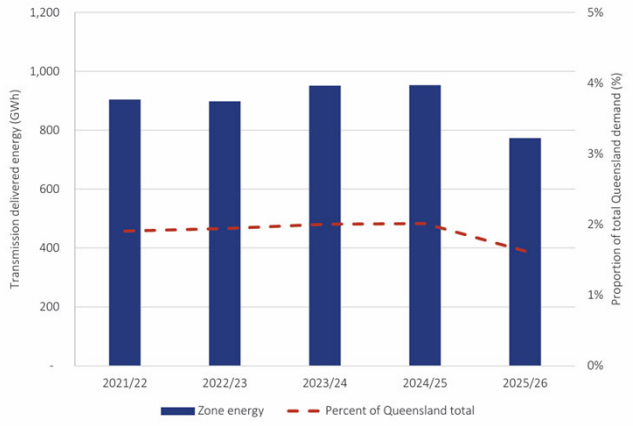
## Wide Bay zone overview

### Demand duration curves




### Demand and energy trends




**0**

LOAD LOSS EVENTS

from a single network element outage

### Embedded generation

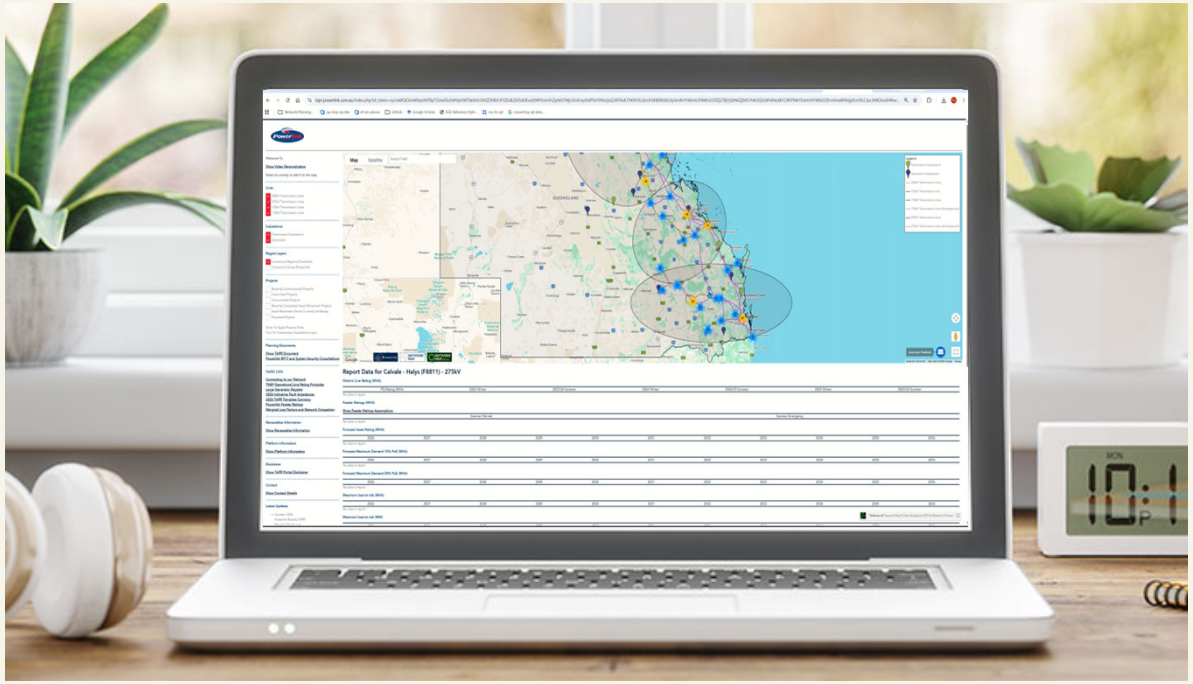
| | | |
|---|---|---|
| 315GWh | Bundaberg Solar Farm | Semi-Scheduled |
| | Childers Solar Farm | Semi-Scheduled |
| | Munna Creek Solar Farm | Semi-Scheduled |
| | Susan River Solar Farm | Semi-Scheduled |

Transmission lines vulnerable to lightning

**NIL**

# The TAPR Portal

## From reading the report to exploring the data



### Why we built it

The report cannot carry every data set. The portal puts the data behind the TAPR in your hands, beyond the minimum requirements.

### Forecasts and TAPR templates

Demand and energy forecast data, plus the TAPR templates

### Region and zone navigation

Move from the state view to a zone one-pager

### New: Feeder flow information

See how power flows on the network around a site

### Download the data

Use the data behind the charts in your own analysis

**TNF** and **webinar** live demonstrations

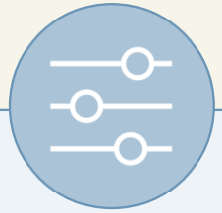
# Key takeaways



Power system is changing rapidly



Where things happen matters more than ever



Flexibility has real value



Better information and earlier engagement matter



## TECHNICAL EXPERT PANEL

# Transmission Annual Planning Report



**Emma Rogers**

Operations



**Cheryl Noronha**

System strength



**Roslyn Stewart**

Area plans



**Enrique Montiel**

Network



**Lance Frater**

Connections

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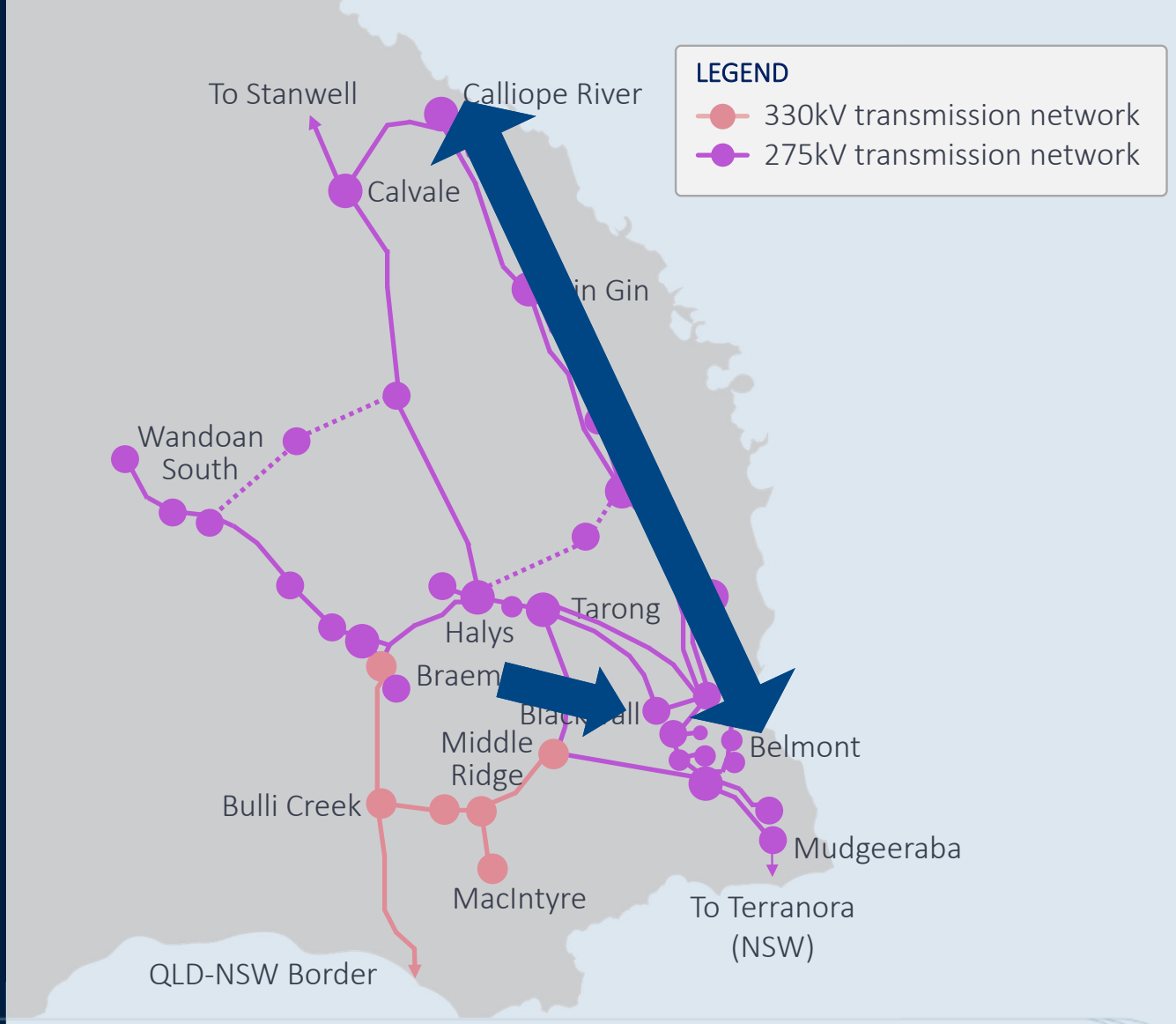


# Southern Region

## ONE CONNECTED PATHWAY

**1 Surat: from import to export**

Built to import, now exporting. Option: new 275kV path towards Auburn River

**2 South Path: Middle Ridge/Braemar**

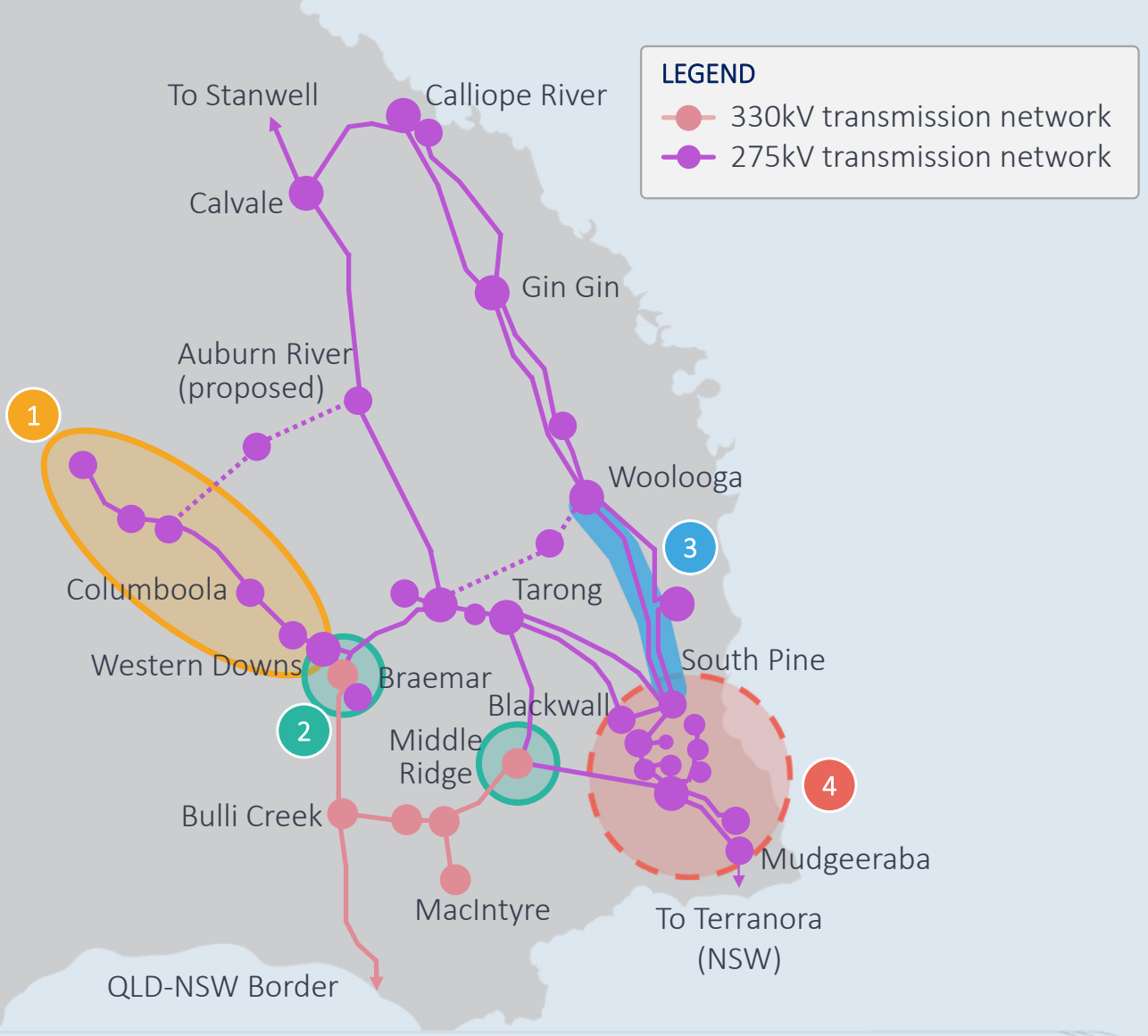
Darling Downs and QNI flows converge; N-1 limits capacity

**3 North Path: Woolooga–South Pine**

Blackwall and CQ flows converge as North Brisbane grows; refit vs rebuild

**4 Outer SEQ ring: where load lands**

Where load connects, how fast, how it operates




Thank you

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