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Powerlink Queensland
Transmission
Network
Forum

2016



Program

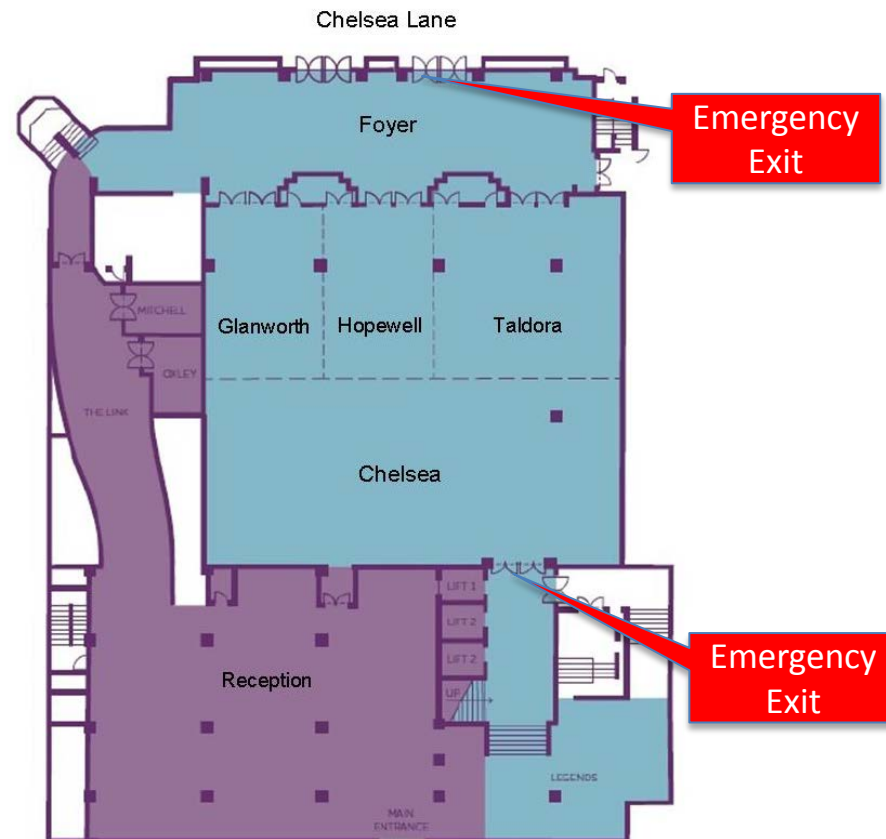
9:00am	Welcome, Business Update, Overview and TAPR highlights
10:00am	Morning tea
10:20am	Breakout sessions
11:50am	Wrap up
12:00pm	Close and lunch



@powerlinkqld #PQforum

Housekeeping

- We will be filming the presentation and sessions and will make these available via our website
- Please let us know if you have any questions
- Toilets are located to the left of the stairs in the pre-function area



Welcome and Business Update

Merryn York
Chief Executive

Regulated business

- Continuing changes in the electricity operating environment impacting the way Powerlink delivers its transmission services
- Developing innovative solutions to support the Queensland economy and lifestyle as our industry and technology evolves
- Focus on delivering better value to customers through alternative practices while maintaining reliable supply



Revenue Proposal snapshot



Electricity Prices

↓ **28%** drop in indicative transmission price in the first year of the 2018-22 regulatory period

Between
↓ **\$22 and \$37** savings for the average Queensland residential household annual electricity bill



Maximum Allowed Revenue

↓ **14%** lower in the 2018-22 regulatory period compared to the 2013-17 regulatory period

↓ **25%** lower regulated revenue in the first year of the 2018-22 regulatory period



Forecast Operating Expenditure

↓ **7%**

lower compared to actual operating expenditure in the 2013-17 regulatory period



Forecast Capital Expenditure

↓ **31%**

lower compared to actual capital expenditure in the 2013-17 regulatory period



Rate of Return

8.61% in 2013-17 regulatory period

↓ **6.04%**

estimate for start of 2018-22 regulatory period

Revenue and electricity price figures presented in this Revenue Proposal snapshot are nominal

Revenue Proposal 2017/18 to 2021/22

Revenue Reset timetable

June 15	AER Framework and Approach Paper published
30 June 2015	Powerlink lodged Expenditure Forecasting Methodology and Overview sheets
31 January 2016	Powerlink lodged Revenue Proposal
11 March 2016	AER invited public submissions on Powerlink's Revenue Proposal (closed 28 April)
September 2016*	AER publishes Draft Determination
December 2016	Powerlink to submit Revised Revenue Proposal
April 2017	AER to publish Transmission Determination

*Indicative

Renewable energy

- Key focus is to help enable a renewable energy economy
- New chapter of the TAPR exploring network capacity for renewable energy generation
- Transmission network can help address intermittency of renewable generation
- Renewable Energy Zones (REZs) may allow multiple large-scale renewable generator proponents to 'share assets', reducing infrastructure costs



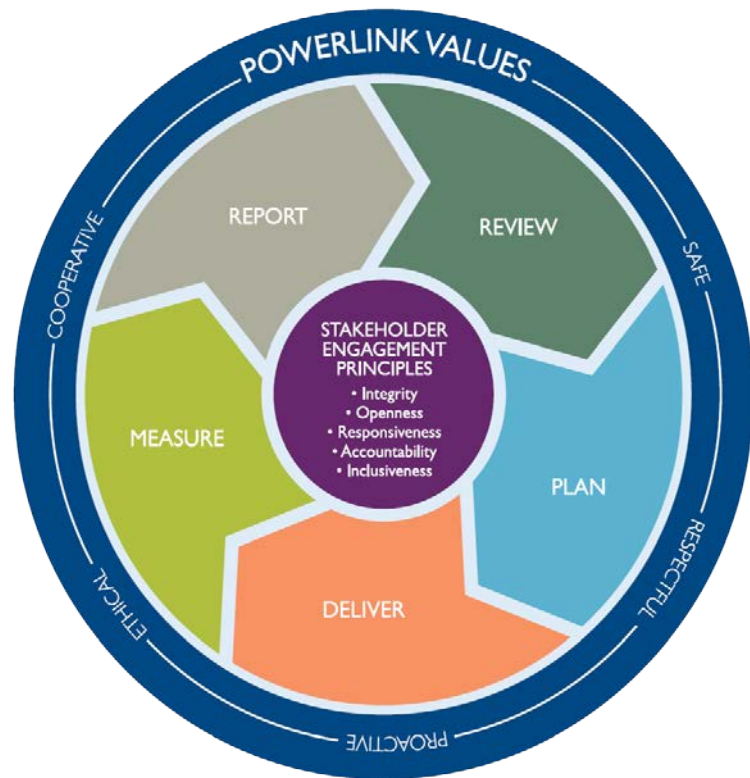
Non-regulated business

- Opportunities for provision of connection solutions – particularly for renewable generators in Queensland and interstate
- Delivered more network connections for customers on a commercial basis than any other transmission company in Australia
- Other solutions also available:
 - Telecommunications
 - Oil and insulation testing
 - Asset management
 - Property services



Stakeholder engagement

- Continuing to proactively work with our stakeholders
- Greater transparency through ongoing discussions
- Helped shape our Revenue Proposal, demand and energy forecasts, area plans, etc



TAPR highlights

Stewart Bell

Group Manager
Strategy and Planning

Overview – key points

- Electricity demand and energy forecasts
- Network development outlook
- Transmission development and reinvestment projects

TAPR improvements

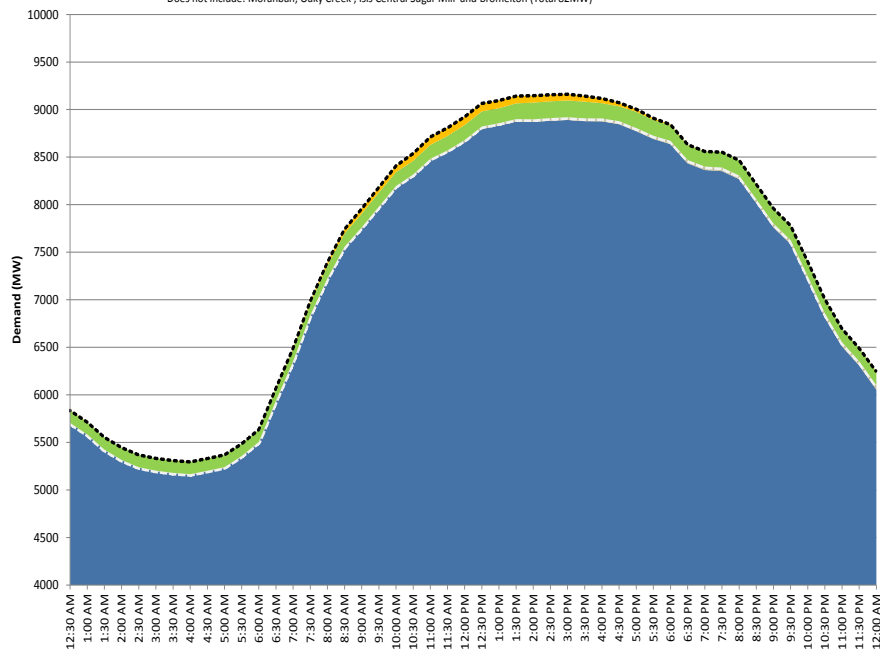
- Updated information on the demand and energy forecast methodology (ongoing)
- Provides information on improved engagement practices for non-network solution providers
- New chapter on available transmission network capacity and potential opportunities for renewable connections

Change is already happening

Observed Demand on 18 January 2010

■ 'As Generated' Demand Excluding LNG ■ Total LNG ■ Total 'As Generated' Demand ■ Other Embedded* ■ PV ■ Total End-User Demand*

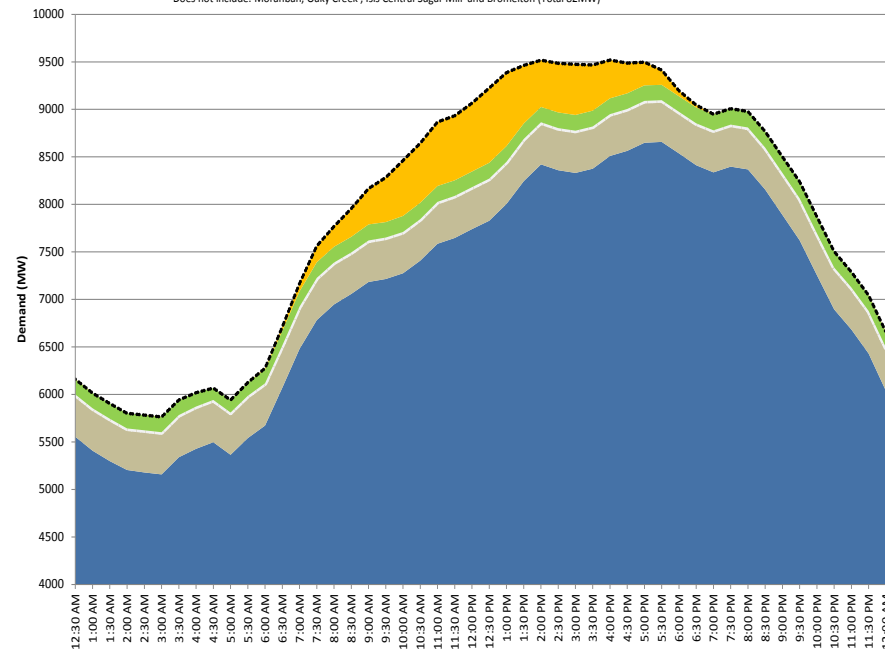
* Includes: Pioneer Mill, Racecourse Mill, Moranbah North, German Creek, Daandine and Rocky Point (Total 274MW)
Does not include: Moranbah, Oaky Creek, Isis Central Sugar Mill and Bromelton (Total 82MW)



Observed Demand on 01 February 2016

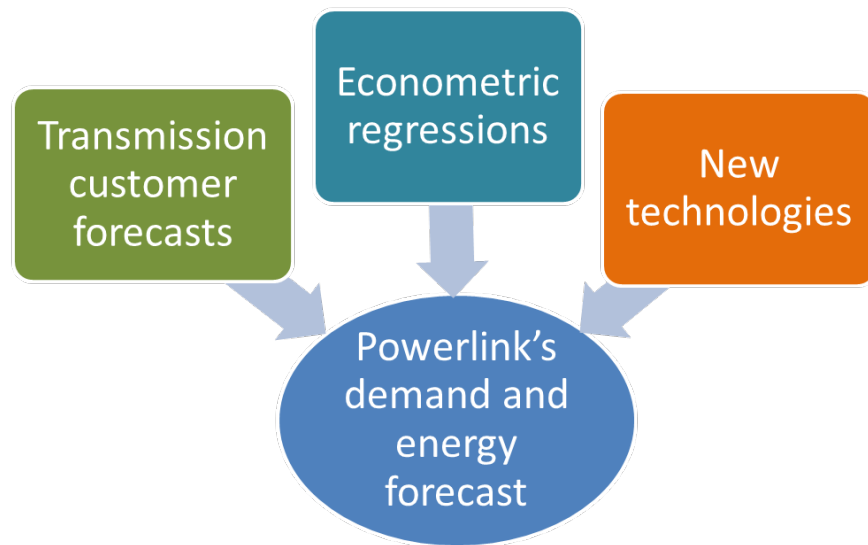
■ 'As Generated' Excluding LNG ■ Total LNG ■ Total As Generated Demand ■ Non-Scheduled Embedded* ■ PV ■ Total End-User Demand*

* Includes: Pioneer Mill, Racecourse Mill, Moranbah North, German Creek, Daandine and Rocky Point (Total 274MW)
Does not include: Moranbah, Oaky Creek, Isis Central Sugar Mill and Bromelton (Total 82MW)



Forecasting methodology

- Building block approach
 - Large customer forecasts
 - Econometric model for DNSPs
 - Build in new technologies explicitly
- Model is available on Powerlink's website



Major customer loads in the TAPR outlook period

Included in the base forecast

- APLNG, Santos GLNG and QGC upstream LNG processing facilities in the Surat Basin

Not included in the base forecast

- Approximately 1,300MW of potential mining and industrial loads

New technology break down

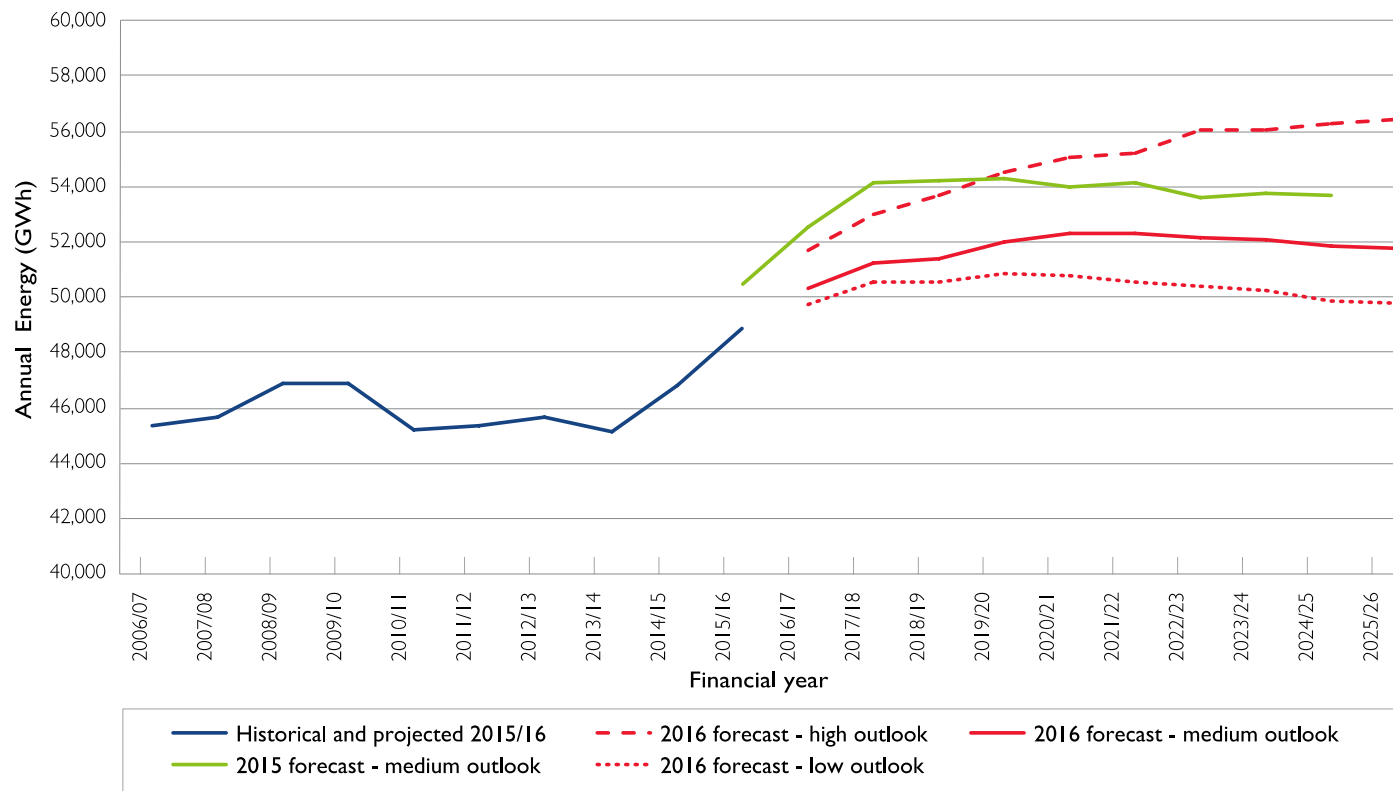
	2025/26 Demand (MW)	2025/26 Energy (GWh)
Solar PV	150	5650
Battery storage	240	0
Electric vehicles	0	0
Energy efficiency	0	0
Tariff reform / Demand Side Management	120	0
Customer momentum factor	307	1747

Energy forecast

Queensland average forecast growth per annum over 10 years

	2015 Forecast	2016 Forecast
Energy	1.4%	0.6%
Energy less LNG	0.1%	0.2%

Historical and forecast transmission delivered energy

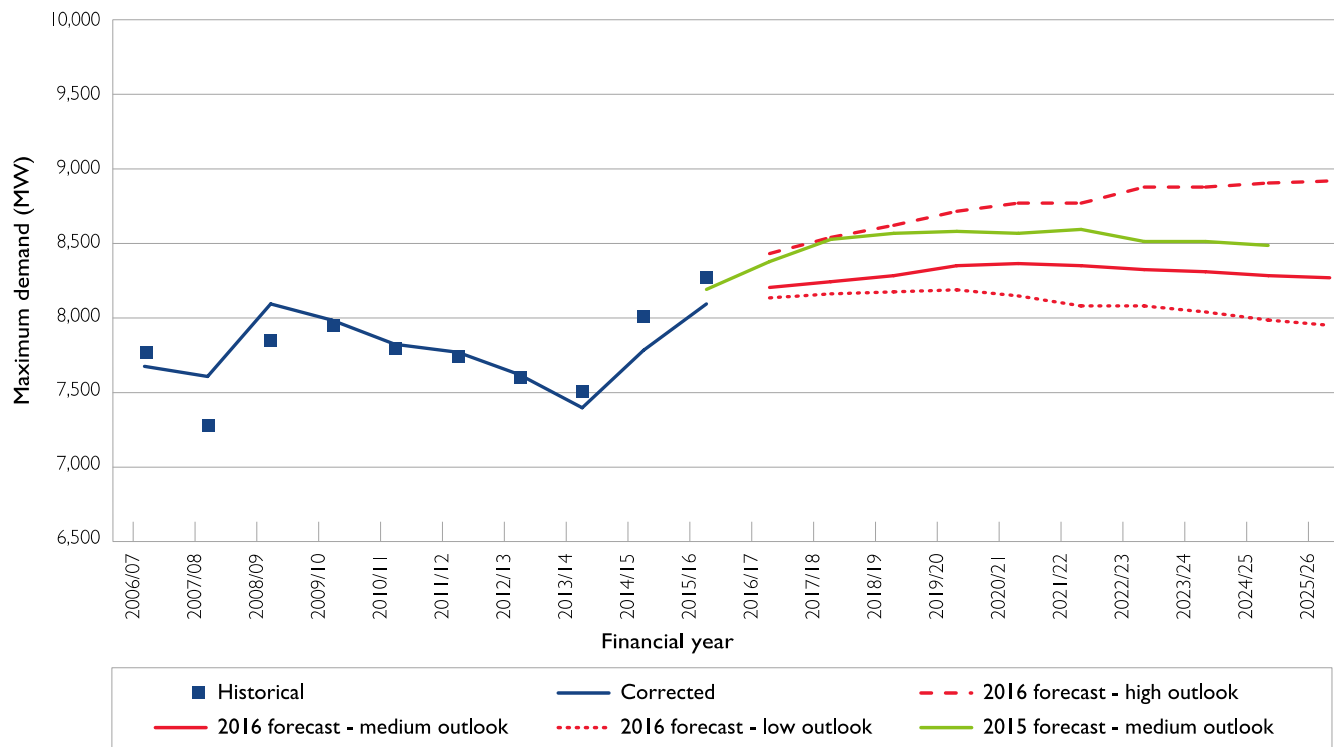


Maximum demand forecast

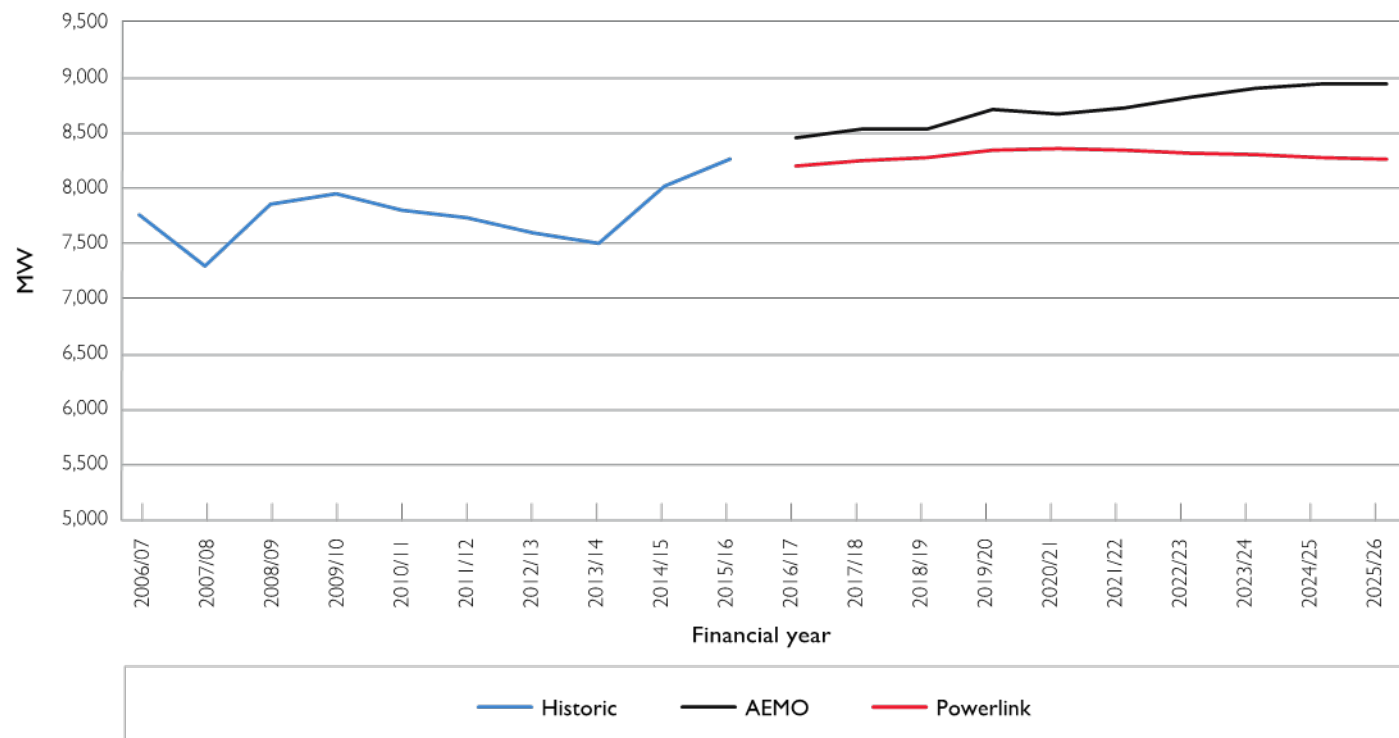
Queensland average forecast growth per annum over 10 years

	2015 Forecast	2016 Forecast
Summer maximum demand	0.9%	0.2%
Summer maximum demand less LNG	0.2%	-0.1%
Winter maximum demand	1.4%	0.9%
Winter maximum demand less LNG	0.4%	0.3%

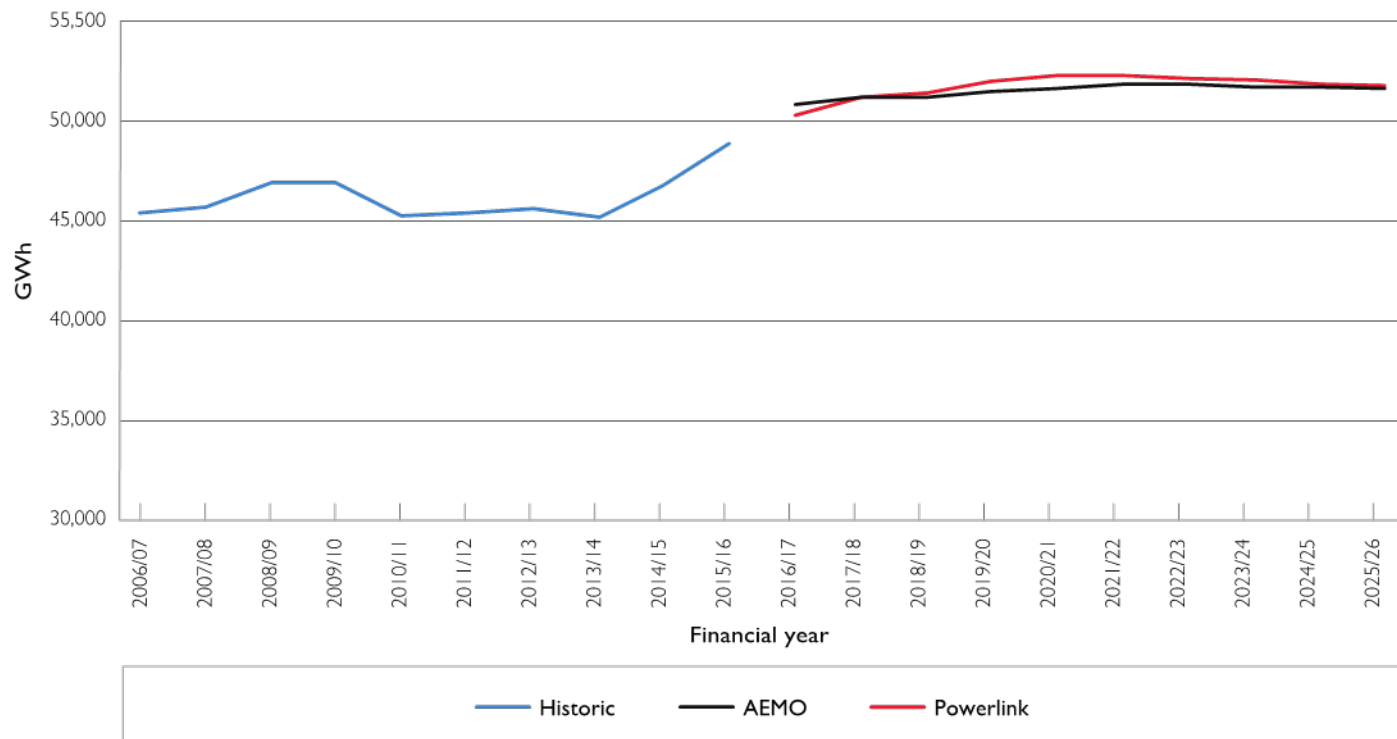
Historical and forecast transmission delivered summer maximum demand



Comparison with AEMO forecast – demand



Comparison with AEMO forecast – energy



Generation outlook

Swanbank E

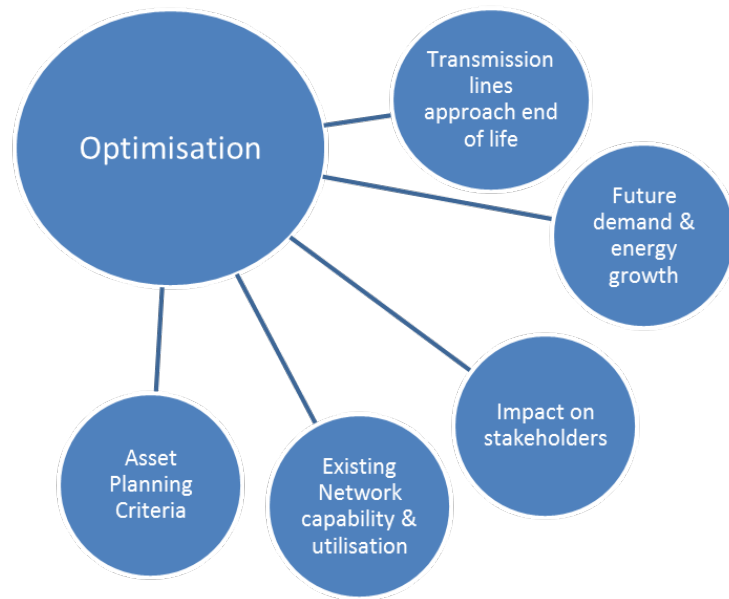
- Withdrawn in December 2014 for up to three years

Tarong

- Unit 2 returned to service in February 2016

Integrated planning approach

- Amended planning standard (N-1-50MW) is applied to augmentation and replacement triggers
- Challenging like for like replacements
- Integrated planning approach
 - includes joint planning with DNSP and/or TransGrid
- Focus on reducing the transmission charge over the long-term
- Continue to operate the network to ensure reliability is maintained



Transmission network outlook

- No emerging peak demand related network limitations in the outlook period
- Majority of network development will be on asset reinvestment – not necessarily like for like
- Potential for network reconfiguration to meet current and future plausible capacity needs

Completion of North West Surat project

- Australia's largest commercial high voltage transmission project
- First time a commercial framework allowed customers to share common assets

\$500 million of assets

7 substations

227 kms of transmission lines

565 towers

77,500 insulators



Reinvestments in progress

Substation projects committed in 2015/16

- Turkinje secondary systems replacement
- Calvale and Callide B secondary systems replacement
- Mudgeeraba 110kV substation primary plant and secondary systems replacement, Mudgeeraba 275/110kV transformer replacement

Line refit works committed in 2015/16

- 132kV line refit works between Collinsville North and Proserpine substations
- 132kV line refit works between Calliope River and Boyne Island substations



Possible reinvestments within five years

Examples of works across the State include:

- Line refits on ageing transmission line assets such as Brisbane metro area, Townsville South to Clare South
- Substation replacements at Kamerunga, Mudgeeraba and Ashgrove West
- Transformer replacements at Ingham South, Garbutt and Lilyvale



Non-network opportunities

Garbutt 132/66kV transformers replacement

- Recently implemented Non-network Solution Feasibility Study process called for information and comments – closed at the end of April
- Findings will be published on Powerlink's website by the end of August 2016



Questions?

Breakout Sessions

Chelsea Room

How can the transmission network support large-scale renewable generation?

Taldora Room

Improving engagement in developing non-network solutions

