# Customer & Consumer Panel

26 May 2016

# Welcome & Introductions

# Agenda

- Submissions to AER Revenue Proposal
- Demand and Energy Forecasting
- Powerlink's Asset Planning Criteria
- Energex – Supporting Customers in Vulnerable Circumstances









# 2018-22
# POWERLINK QUEENSLAND REVENUE PROPOSAL

# Stakeholder feedback

- **Public forum – key themes**

  - 25-30 people in attendance, cross section of consumer groups, industry, large energy users
  - Key themes
    - the rules and guidelines governing the returns that can be earned by network businesses (Hugh Grant)
    - the approach Powerlink had taken to forecast demand and energy, particularly how we had considered emerging technologies
    - how Powerlink's reduction in transmission price would flow through to different customer and consumer groups
    - the need for effective engagement with consumers (particularly the aged and vulnerable) so they were aware of the ways to best reduce their electricity bills.

# Formal submissions

- 6 submissions in total (including 2 from Powerlink)

| Organisation | Key issues |
|---|---|
| Aurizon | • Focused on Negotiated Transmission Services Criteria, particularly arrangements for transition from prescribed to negotiated.<br>• Noted productive engagement with Powerlink on managing cost of service. |
| University of Queensland (Simon Bartlett) | • Outlined economic merit of large scale renewables development.<br>• Reinforced importance of strong, reliable interconnection between NQ and SQ, and requirement for adequate expenditure to manage maintenance and reinvestment. |
| QRC | • Outlined expectation that AER will conduct rigorous review of proposed expenditure.<br>• Acknowledged application of RoR Guideline and early engagement with CCP.<br>• Supported application of contingent projects regime in contrast to increased ex ante allowance. |
| Cotton Australia | • Encouraged by reduction in WACC, noted concern of potential increase given that Powerlink had reserved its rights.<br>• Outlined expectation for detailed review of replacement expenditure<br>• Outlined reservations regarding extent of contingent projects.<br>• Encouraged AER to apply benchmarking in consideration of opex. |
| Powerlink | • Confirmed no change to proposed rate of return, instead proposing that any changes made by the AER to its guideline and approach would apply to Powerlink.<br>• Responded to material errors and claims made by Hugh Grant (CCP) at Public Forum. |

# Consumer Challenge Panel

- Public forum - Presentation by Hugh Grant
  - Significant focus on particular elements of regulatory framework governing RAB and returns
  - Presented analysis of Powerlink's historic returns, received fairly extensive media mentions.
  - Powerlink's views:
    - Detailed analysis not correct or appropriate:
      - Applied TransGrid sale multiplier to describe historic returns
      - Excluded asset revaluation reserves from shareholder equity
    - Broad approach fails to consider interrelated package of arrangements under regulatory framework eg regulatory depreciation.
  - CCP input has been of great value during the process and they have an important role to play.

# Consumer Challenge Panel

- Public forum - Presentation by Hugh Grant
  - Ultimately changes to the regulatory framework flow through to revenue and electricity price
  - To date, focus has been exclusively on the RAB and analysis has not considered broader impacts on revenue model.

MAR = Return on Capital + Return of Capital + Opex + Tax ± EBSS

= (WACC * Indexed RAB) + (SL Depreciation – RAB Indexation) + Opex + Tax ± EBSS

# Consumer Challenge Panel

- Formal submission - Jo De Silva (Chair of Consumer Challenge Panel)
  - Commended Powerlink on raising level of engagement and willingness to engage in open/transparent manner.
  - Noted Powerlink had prioritised concern over electricity price.
  - Overall had positively/partially addressed 17/19 criteria based on CCP consumer engagement approach.
  - Two areas for improvement related to conveying price impact more clearly.
  - Jo also sought input from this panel. Key feedback:
    - Revenue proposal contained no surprises, in line with expectations
    - Powerlink had adopted an open/transparent approach
    - Noted different perspectives on opex efficiency, use of contingent projects

# Demand and energy forecasting

May 2016

Regional Grid Planning Manager: Peter McCarthy

# Context

- Powerlink develops its own forecast for Queensland demand and energy
- Keen to learn about technologies that may shape future electricity use

# Why does Powerlink Forecast?

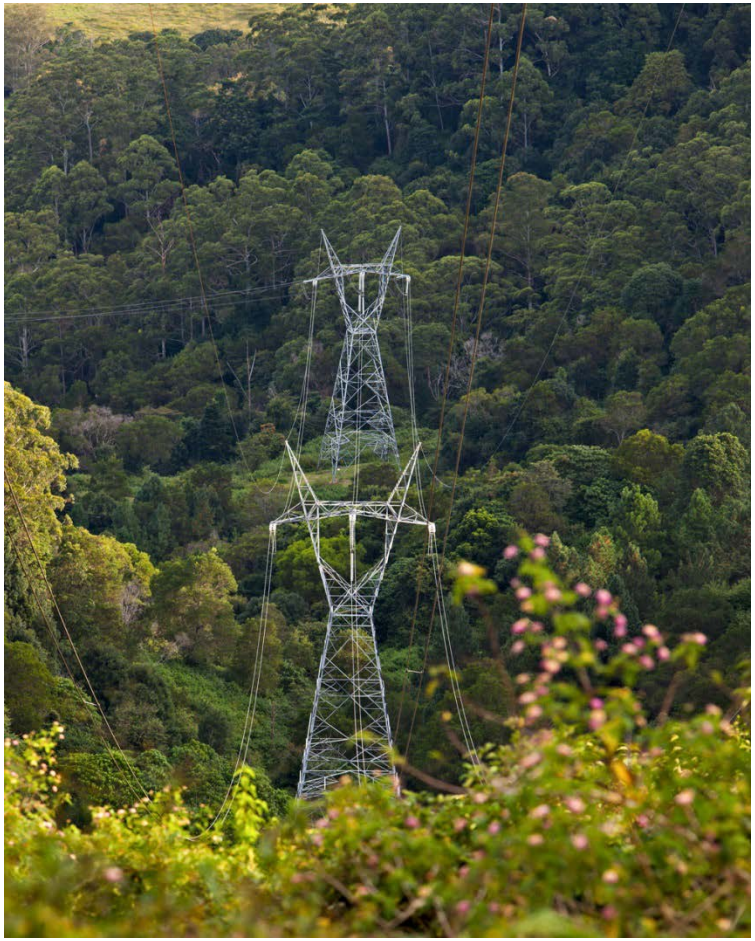
- Demand and Energy - overview
- Planning the network – amended standard
- Deliver best solutions whether network, DSM, local generation
- Challenge to manage peak demand
- Why are we interested in energy? – network utilisation
- Lower peak demand, higher energy – leads to lower price

# Forecast Background

- Work with AEMO, Energex and Ergon
- AEMO's forecast – NEFR June 17
- Summer 2015/16 within 1% of Powerlink's forecast!

# How does Powerlink Forecast?

- Building block approach
  - Econometric model for DNSPs
  - Large customer forecasts
  - Build in new technologies explicitly



# Emerging Technologies & Drivers

- Solar PV
- Battery storage
- Energy efficiency
- Electric vehicles
- Tariff reform and
  Demand Side Management

# New Approach

- Demand & energy forecasting forum
- Who attended
- When
- Purpose

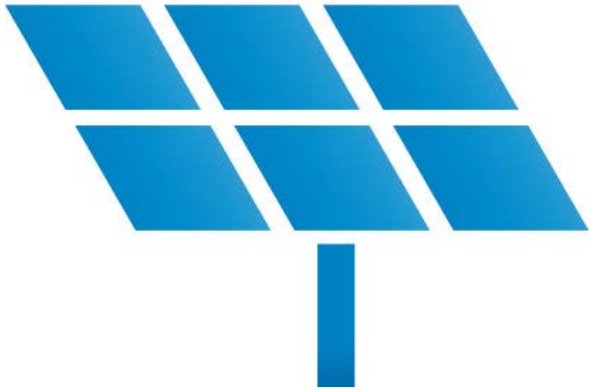
# Solar PV – TAPR 2015

- Installed capacity
  - 1,300MW at the end of 2014
  - 3,700MW by 2024/25
- Cheap panels may encourage retrofit of existing systems
- Limited uptake to date on warehouse roof space

| Year | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 | 20/21 | 21/22 | 22/23 | 23/24 | 24/25 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reduction in annual energy (GWh) | 2024 | 2339 | 2654 | 2970 | 3285 | 3600 | 3916 | 4231 | 4546 | 4862 |
| Reduction in peak demand (MW) | 133 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# Solar Considerations

- Installations have dropped to around 15MW per month. Previous year and forecast was for 20MW per month
- Summer 2015/16 was around 1500MW installed
- Larger/industrial PV not yet significant but many enquiries may change this into the future
- No further impact on peak demand as we are virtually at evening peaks – 5pm and 7pm peaks now very close
- Battery storage will drive future solar PV



# Battery Storage – TAPR 2015

- Potential to transform the electricity supply industry
- Will help “flatten” demand profile
- Potential for costs to halve by 2020
- Strong push from retailers


| Year | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 | 20/21 | 21/22 | 22/23 | 23/24 | 24/25 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reduction in annual energy (GWh) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduction in peak demand (MW) | 0 | 0 | 3 | 9 | 19 | 33 | 52 | 77 | 125 | 185 |

# Battery Storage Considerations

- Awareness of battery storage has increased (QHES)
- Ergon are trialling battery storage in remote areas as opposed to rebuilding SWER
- Costs will need to drop before it becomes mainstream but happened with solar
- ENA/CSIRO roadmap (interim program report) predicts battery storage could drop to a third of its current price by 2025
- Number of retailers now promoting battery storage

# Energy Efficiency Above Trend

- Energex consultancy– demonstrates residential energy efficiency unlikely to exceed trend
- 2015 Queensland Household Energy Survey – supports this view with a decline in consumer interest on energy efficient behaviours
- No energy efficiency above trend in the 2016 forecast

# Electric Vehicles

- Compared to world leaders, low uptake in Australia
- 1% penetration increases total energy usage by 0.3%
- No specific allowance in this year's forecast
- When range anxiety addressed uptake could be swift
- Potential to be supported by driverless cars

# Tariff Reform and Demand Side Management – TAPR 2015

- Tariff reform directly impacts on all emerging technologies
- Can shift usage patterns away from peak times
- Difficult political decision to change tariffs so currently opt in
- Much stronger impact if mandated

| Year | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 | 20/21 | 21/22 | 22/23 | 23/24 | 24/25 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reduction in annual energy (GWh) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduction in peak demand (MW) | 0 | 0 | 0 | 14 | 28 | 42 | 58 | 72 | 86 | 100 |

# Powerlink approach

- Focus on understanding and meeting changing customer expectations
- Demand forecasting must incorporate localised technology effects and “peakiness”
- Do not build network to meet short duration peaks
- Understand and embrace (integrate) with new technologies

# How has our Forecast Changed from Last Year

- Information discussed has been worked through and findings likely to be included in the 2016 TAPR as follows:
  - Small scale solar PV – similar to last year
  - Battery Storage – similar to last year
  - Energy efficiency – is expected to follow historic trends
  - Electric vehicles – no substantial impact in 10 year horizon
  - Tariff/DSM – similar to last year

# Questions

What are your views on our forecast, in particular the impact of emerging technologies?

Are there any other impacts you believe we should take into account when developing demand and energy forecasts?

Is there anyone else we should be engaging with to improve our forecasting methodology?

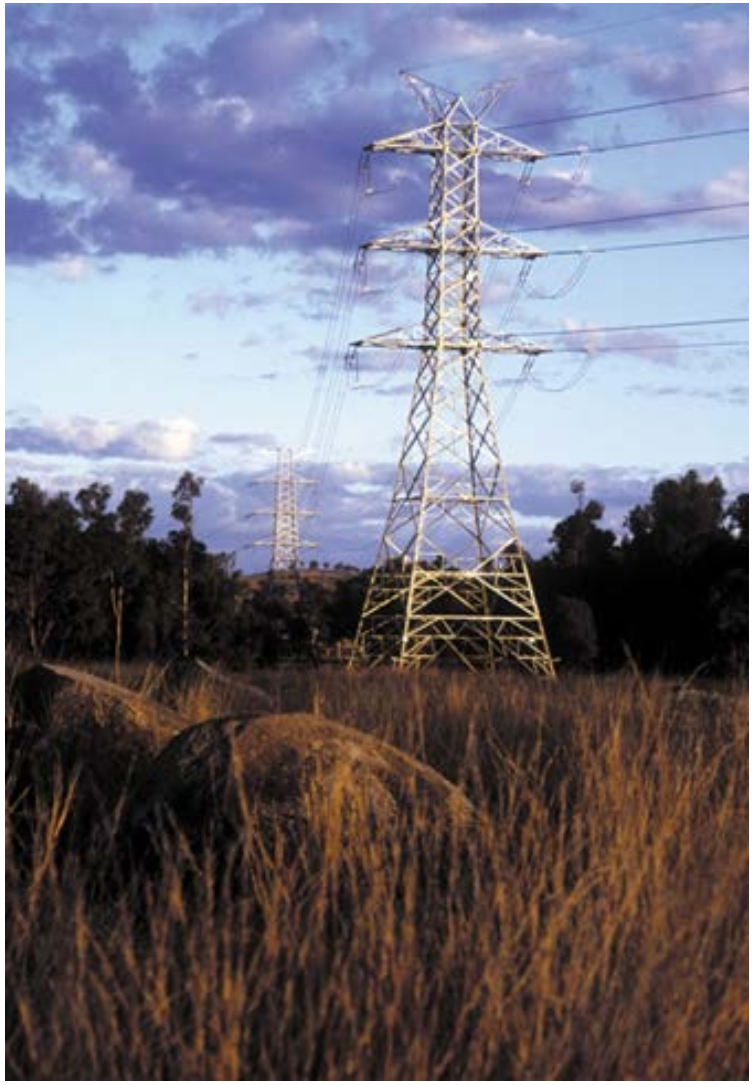
# Powerlink's Asset Planning Criteria

26 May 2016

Group Manager Strategy and Planning: Stewart Bell

# Context

- Powerlink develops its transmission network taking into account:
  - demand and energy forecast
  - location and capacity of new and existing generation
  - condition and performance of assets
- Investment and reinvestment decisions are done under a consistent framework known as the “Asset Planning Criteria”



# What is the Asset Planning Criteria?

- Powerlink has mandated obligations
  - Transmission Authority (issued by Queensland Government)
  - National Electricity Rules
  - Electricity Act 1994 (Qld)
- Asset Planning Criteria defines
  - Reliability standard
  - Assumptions that apply when assessing reliability

# Where have we come from?

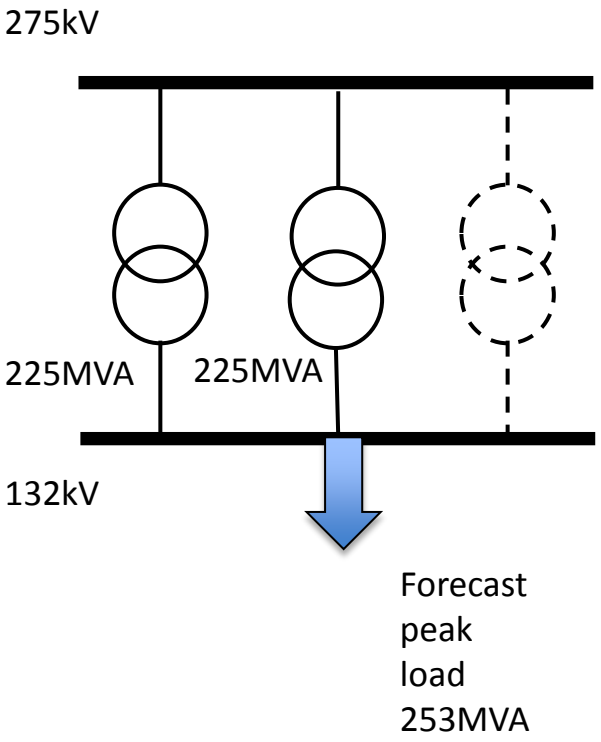
- 2004 Summerville Report
  - concerns about the performance of the distribution systems
  - inadequate investment in, and maintaining, network to deliver reliable supply
- Focus on “Reliability”
- Powerlink’s Transmission Authority
  - Mandated N-1 reliability standard

# Greater focus on cost

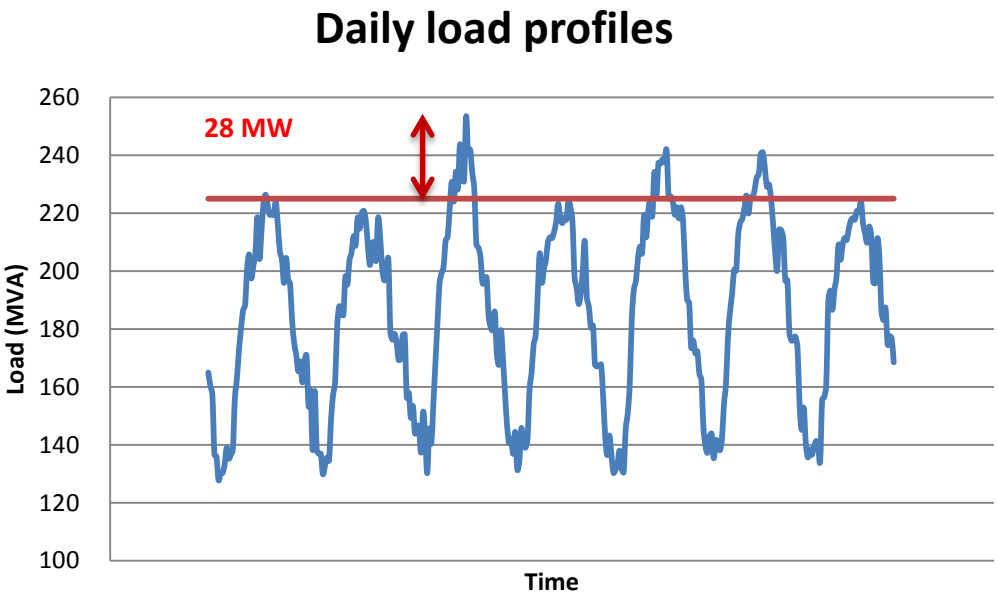
- Striking the right balance between reliability and cost
- 2013 – Powerlink requested increased flexibility (load driven augmentation in Northern Bowen basin)
- 1 July 2014 - Queensland Government formally amended Powerlink's Transmission Authority
  - N-1-50MW
  - 600MWh
- The risk limits can be varied by:
  - a connection or other agreement; or
  - agreement with the Regulator

# N-1 versus N-1-50MW

- N-1 (there is sufficient capacity to meet the maximum load with a single network element out-of-service)
- N-1-50MW (no more than 50MW of load is interrupted with a single network element out-of-service)
- Example does not comply with N-1
  - but has no more than 28MW load at risk
  - therefore complies with N-1-50MW



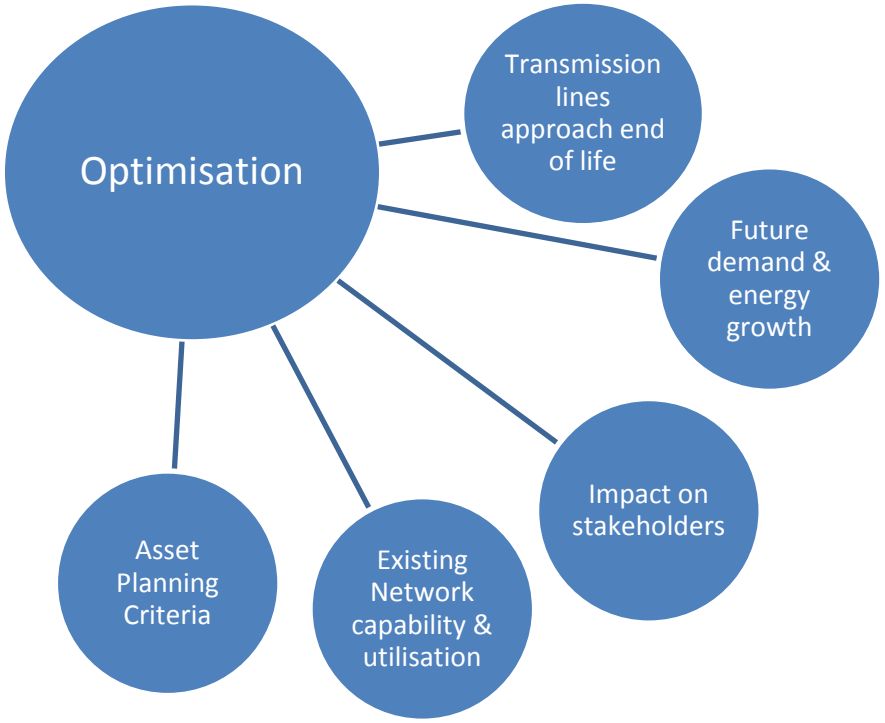
# Energy risk limit - 600 MWh




- Transformer outage can be as long as 10 weeks
- 180 MWh above the “N-1” line over the 10 weeks in this example
- 180MWh < 600MWh so no augmentation is required

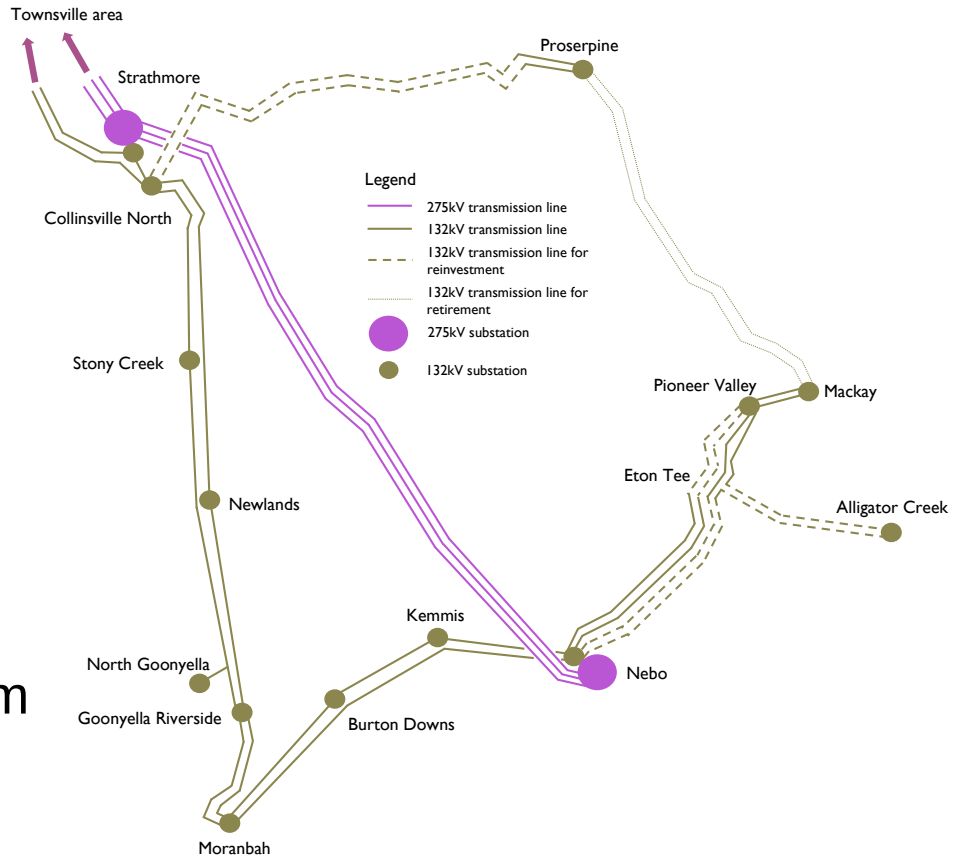
# Integrated planning approach

- Amended planning standard is applied to augmentation and replacement triggers
- Integrated planning approach
  - Includes Joint planning with DNSP and/or TransGrid
- Amended planning standard defers and/or reduces the extent of investment in network solutions
- Planning reflects how the network has been developed of the past 40 years



# Mackay – Proserpine Example

- 110km, 132kV transmission line
  - end of life 2016/17
- Based on past network development
  - is the transmission line required?
- Largest contingency
  - Proserpine load at risk
  - 15MW / 100MWh (2016/17)
- Options
  - Capacitor bank ~$2.5m
  - 2nd Strathmore transformer ~$14m
- Probability weighted value of unsupplied energy
  - 100MWh x $40k/MWh x 1% x $\frac{10}{52}$ weeks
  - ~ $8,000 p.a.

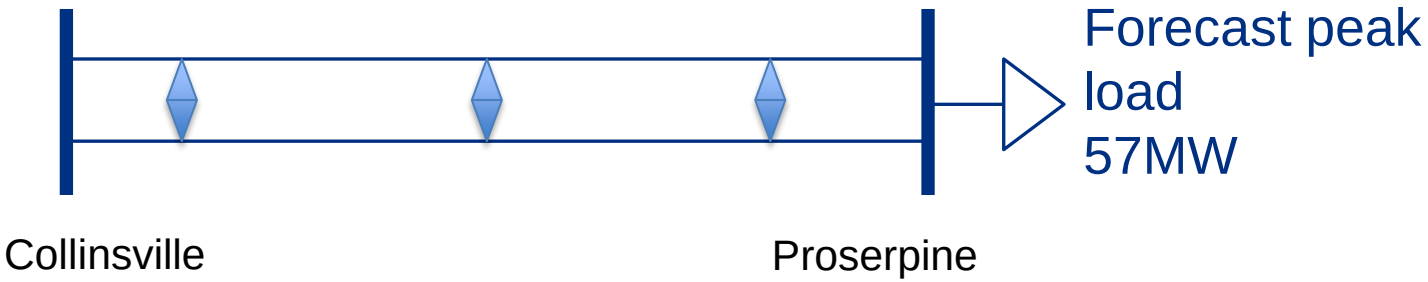


# System Normal - Operational impacts

- Powerlink will continue to maintain and operate its transmission network to maximise reliability to consumers
- Load may be at risk of interruption for system normal depending on demand conditions
- Loss of load is a low probability event
  - High load and unplanned outage
- If event occurs – work closely with DNSP to moderate load interruptions

# Planned outages – Operational Impacts

- Maintenance and project related planned outages
- Objective is to minimise risk of supply interruption during maintenance / project work
  - Outages during lower load periods
  - Live-line/substation work
- More load at risk during planned outages
  - e.g. Collinsville – Proserpine outage
- May need to trip other load to maintain system stability
- Other parts of the network already have these challenges
  - Surat Basin



# For discussion

- Should there be a maximum duration of load interruption that should not be exceeded?
  - Greater MWs over a few days and short duration per day
  - Less MWs over many days and longer duration per day
  - Directly connected customers v consumers
- Value of customer reliability – $40,000 per MWh - thoughts?
- Are there other stakeholder considerations we should take into account when planning the network?

# Supporting Customers in Vulnerable Circumstances

Powerlink Customer and Consumer Panel

**Energex Limited**
26 May 2016

# Background

- No consensus exists for what constitutes a ‘vulnerable’ customer
- Most focus on economic approach – do not take into account social, emotional and societal indicators
- Energex programs and business activities may impact on customers in vulnerable circumstances

# Purpose

***To determine the social, emotional and societal indicators of vulnerability***

***To come up with ways Energex may be able to support customers in vulnerable circumstances***

# Customer Vulnerability

- *Customer Vulnerability: Exposed to the possibility of being harmed financially, physically, mentally or emotionally.*

# Gap analysis

- Gap analysis conducted to look at:
  - Current Government supports
  - Electricity retailer obligations and supports
  - Potential opportunities for Energex

- Options being explored are intended to:
  - Complement but not duplicate existing supports
  - Focus on what is within our power and where we are visible to customers
  - Ensuring value-add via support and influence “behind the scenes” for better customer outcomes
  - Feed into an overarching framework for Energex to support customers in vulnerable circumstances

# Literature review findings

- Variation across literature but general agreement that factors include;
  - Low income or high debt
  - Low levels of education and literacy
  - Renting
  - Non-English speaking background (including refugees)
  - Unemployed or underemployed (inc. casual, seasonal work)
  - Younger and elderly
  - Health status (chronically ill, mentally ill, physically or intellectually disabled)
  - Remoteness
  - Accessibility to technology and skills to use it
- Not a fixed state and should be seen on a continuum
- Some negative connotations of word vulnerable

# Outcomes from Workshop

- *Community sector representatives believe that Energex does play a role in supporting customers in vulnerable circumstances*
- Key expectations from the group, e.g.:
  - Identifying customer touch points
  - Eliminating barriers in business processes
  - Training for staff
  - Collaboration with community partners

# What is next?

- Workshop report will be shared with attendees and other groups
- Wider consultation will be undertaken
- A Vulnerable Customer Support Framework will be developed

# Questions?

# Next steps

- Powerlink Transmission Network Forum – 20 July 2016
- Timing of next Customer and Consumer Panel meeting

# Thanks and close