

This slide pack is provided on the following basis:

- The slide pack was used to assist Powerlink Queensland present at the 2018 Transmission Network Forum on 7 September 2018. The slide pack is not a stand alone document. It must be interpreted in the context of the verbal presentation made on the day of the forum.
- Aspects of this slide pack are protected by Copyright law. The slide pack is provided on the basis that it can only be used for internal review purposes. No part may be reproduced or reused outside of the recipient organisation for any purpose whatsoever without the express consent of Powerlink Queensland.
- While care was taken in preparation of the slide pack, and it is provided in good faith, Powerlink Queensland accepts no responsibility or liability for any loss or damage that may be incurred by any person acting in reliance of the slide pack or assumption drawn from it, except to the extent that liability under any applicable Queensland or Commonwealth of Australia statute cannot be excluded.

Breakout Session 1

Managing demand
'hollows & peaks' to
improve network utilisation
and customer outcomes



Transmission Network Utilisation and Customer Value

- 20 minute - presentation
- 60 minute - table discussion
- 20 minute - summary

Transmission Network Utilisation



Council of Australian Governments (COAG) Energy Council

Sets policy direction



Energy Security Board (ESB)

Advises COAG on National Electricity Market reform

Australian Energy Market Commission (AEMC)

A statutory commission responsible for developing the rules for the National Electricity Market and for market development

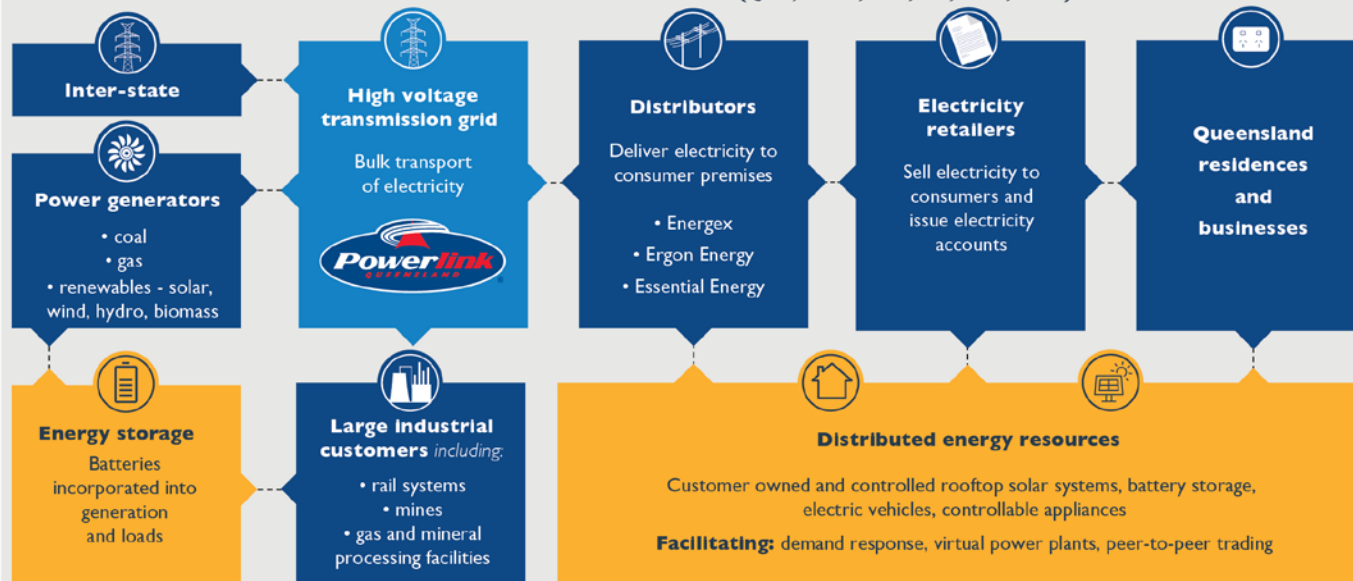
Australian Energy Market Operator (AEMO)

Operates the National Electricity Market and manages power system security

Australian Energy Regulator (AER)

Administers the National Electricity Rules and makes regulated revenue determinations for monopoly networks

NATIONAL ELECTRICITY MARKET (QLD, NSW, VIC, SA, TAS, ACT)

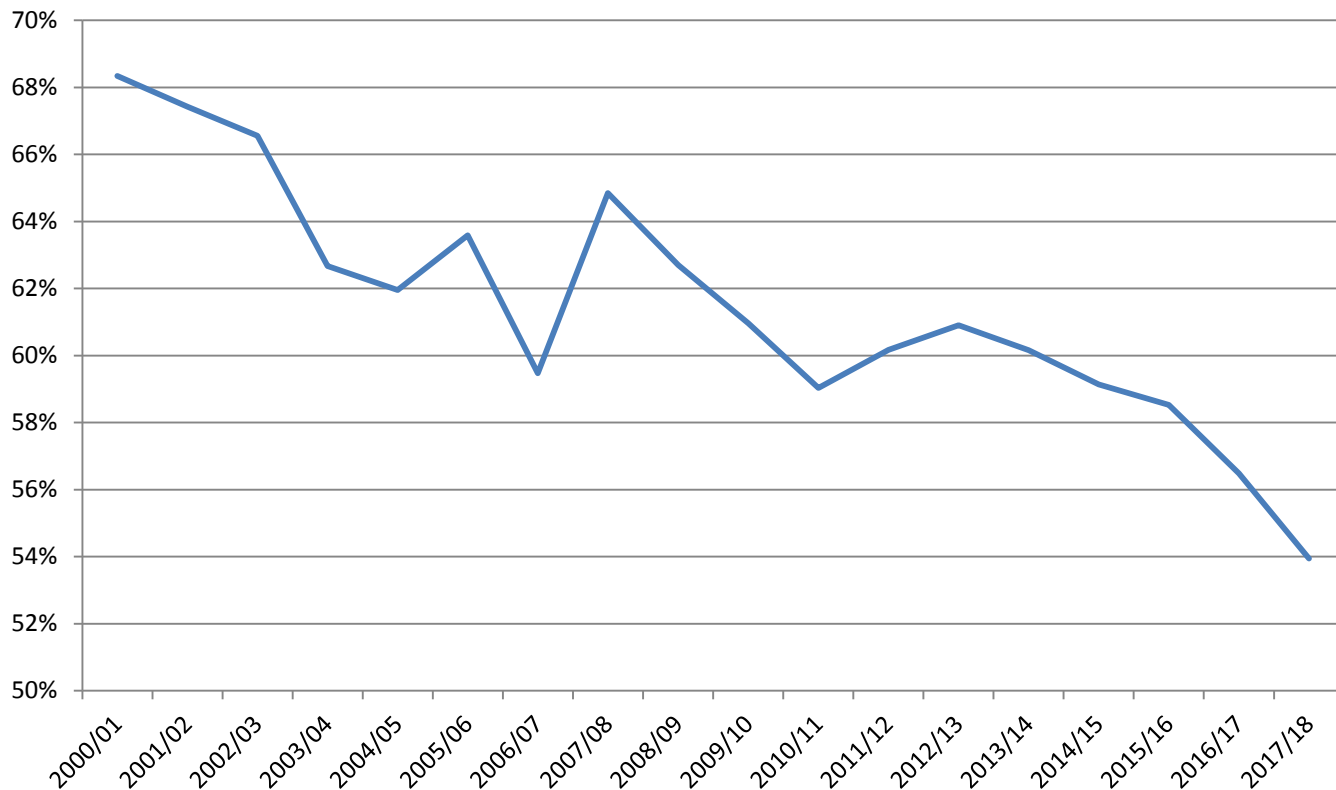


Reducing demand capacity factor



Annual capacity factor of distribution load

- Capacity factor is the average load divided by the maximum load
- A decreasing capacity factor on the transmission network indicates that the load is becoming more 'peaky'
- Closely related to transmission network utilisation



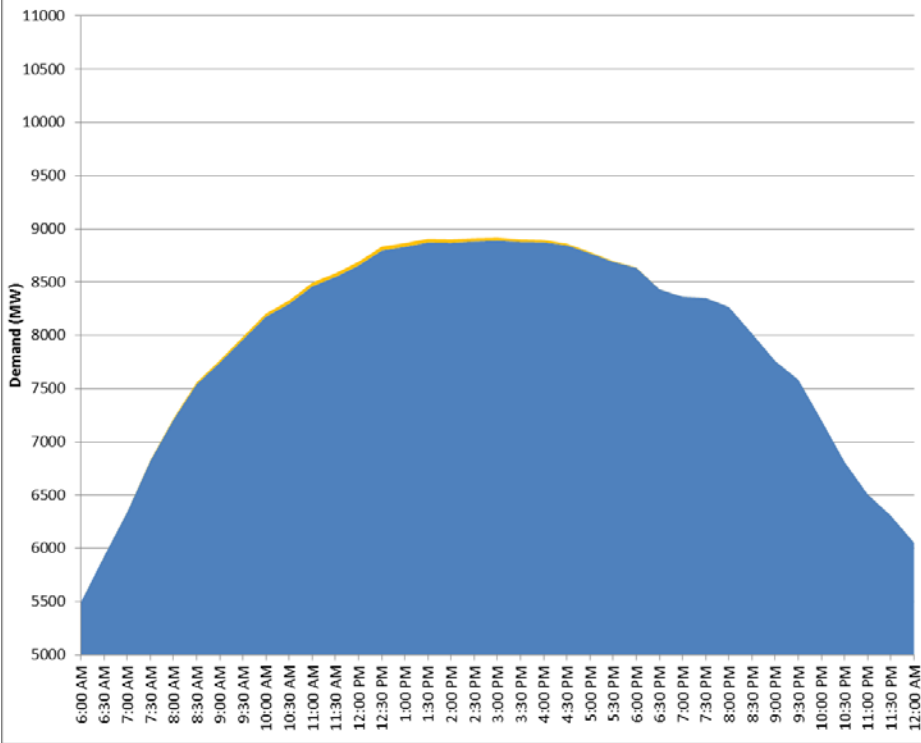
Changing shape of transmission demand



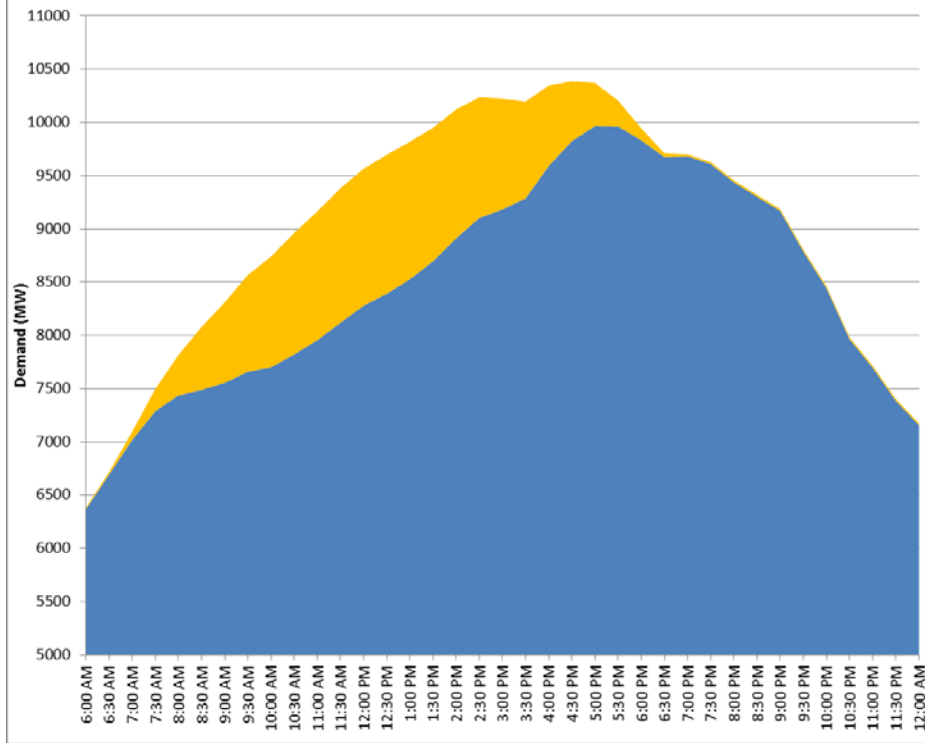
■ Operational demand

■ Demand offset by rooftop solar

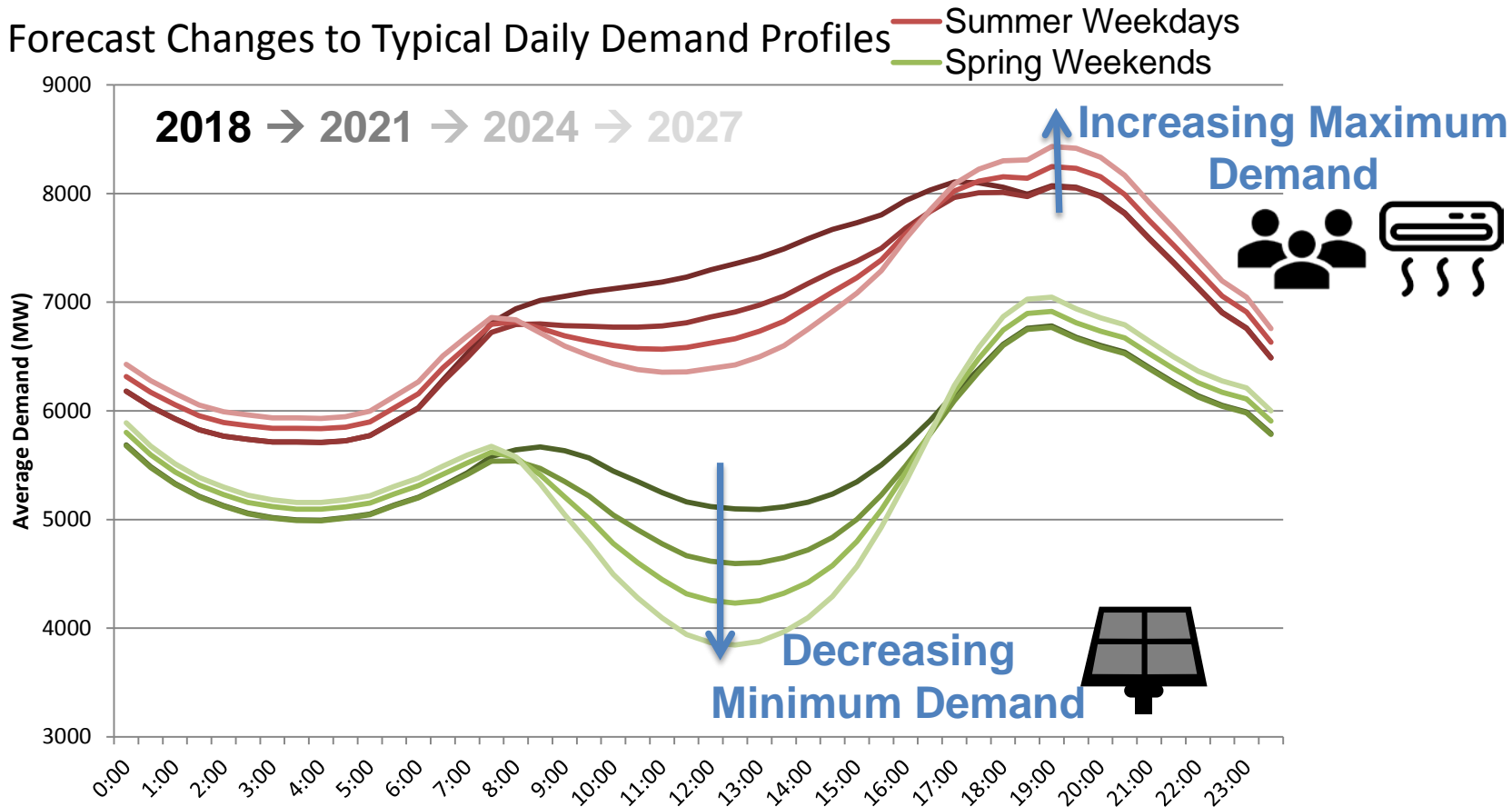
18 January 2010



14 February 2018



Changing shape of transmission demand



Stakeholder assessments



DISTRIBUTION

- Building network to supply peak
- Voltage issues with low demand



GENERATION

- Peaking generation used infrequently
- Low spot price during low demand



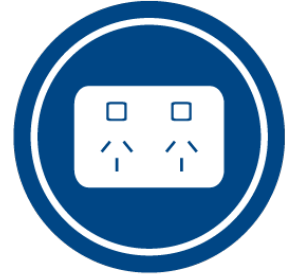
TRANSMISSION

- As for distribution but exacerbated by embedded solar farms
- Interconnection can help



RETAILERS

- Demand volatility adds risk and hedging costs



CONSUMER

- Customer wants the lights to stay on and costs to come down
- Integral to addressing utilisation

Impact on pricing

Our current thinking



- Transmission asset replacement decisions – timely repurposing of assets
- Measures to extract additional capacity out of our existing transmission network, especially at peak times
- Transmission pricing consultation, includes options such as pricing electricity differently at peak and off-peak times

Whole of system issue. Whole of system response?



Customer Value

Changing customer value



Changing generation mix



New grid technologies and services

Energy storage



Changing customer expectations

Two-way power flows



Blurring distinction between generation and load

Electrification of additional loads



Changing technical issues (inertia, system strength)

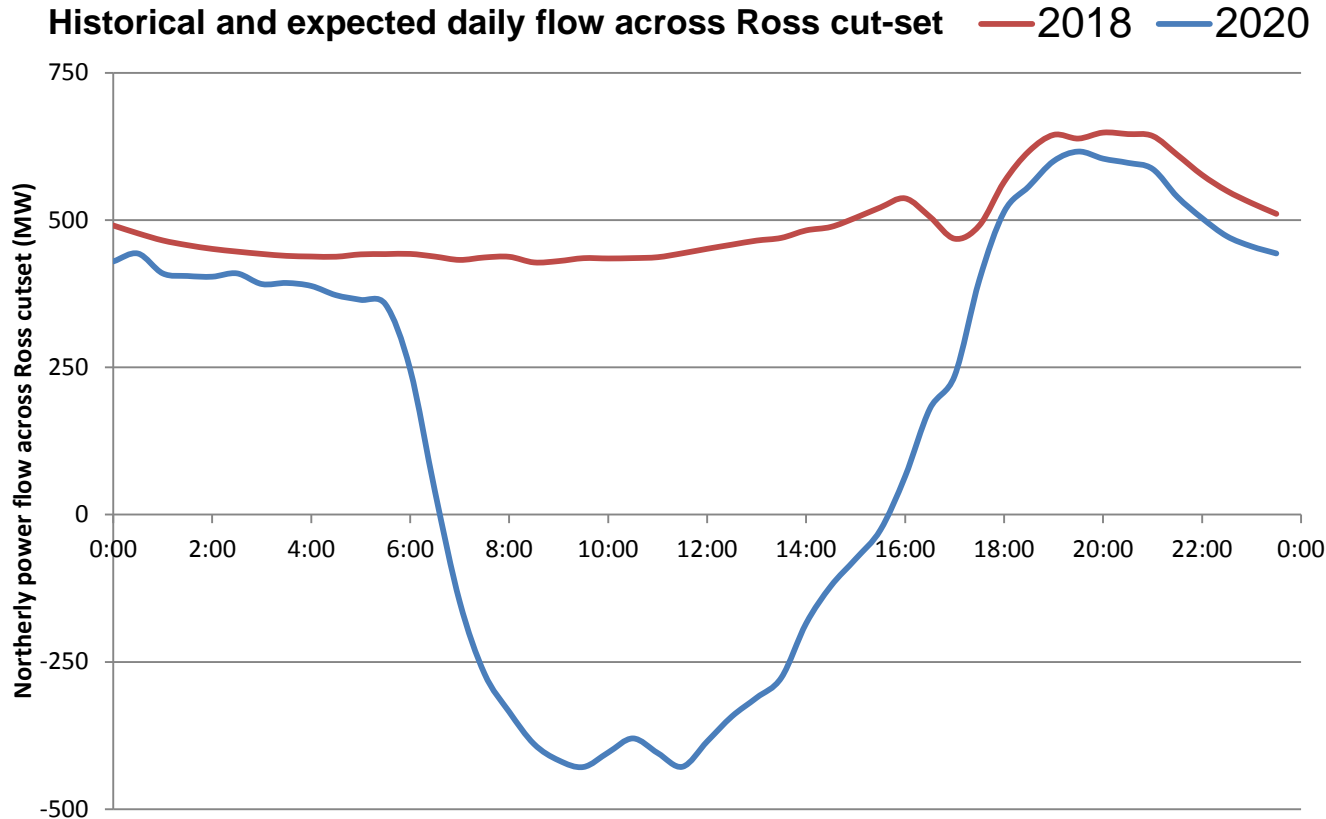
Growing intermittency in generation, growing controllability in demand



Supply Link →

Balancing & Enabling Platform

Intra-day variability



- Decreasing utilisation
- Increasing value?
- Utilisation is important, but not fully comprehensive

Questions (15 minutes discussion time on each)



1. What other challenges does the peak and hollow load profile present?
2. What opportunities are available on the transmission network to
 - reduce peak-time demand?
 - increase day-time demand?
3. What is the best way to coordinate this work across the power supply system?
4. How do you value our network and the service it provides?
 - Benefits and trade-offs
 - Economic and community considerations

