

# **EUAA Queensland Energy Forum Gas Discussion**

**November 2018**

[www.energyedge.com.au](http://www.energyedge.com.au)



# Standard Disclaimer

Nothing in this document is intended to constitute financial product advice as defined by the Financial Services Reform Act. This document should not be used to make decisions on financial products or specific derivative transactions and is not to be used by parties who are not Wholesale Clients for the purposes of the Financial Services Reform Act. You should seek specific financial product advice prior to making any decisions relating to such transactions.

The information and advice contained in this document has been prepared by Energy Edge Pty Ltd (“Energy Edge”) in accordance with our standard Consultancy Agreement (“the Terms”) between you or your company (“You”) and Energy Edge and should be read and acted upon in accordance with these conditions and the Terms.

In preparing this document, Energy Edge has relied upon information and variables provided by You and its accuracy and suitability is dependent upon such information. Where information provided by You is inaccurate or incomplete, Energy Edge will not be liable to any extent where such deficiency adversely affects the viability or correctness of the contents of this document.

While exercising all care in the preparation of this advice, Energy Edge does not make any representations or warranties in relation to its content and expressly excludes all terms implied by legislation or otherwise, except to the extent that such implied term cannot, pursuant to law, be excluded. Liability in respect of such an implied term is, however, restricted to the extent as provided for in the Terms and You use the information and advice contained in this document at your own risk.

Energy Edge retains all intellectual property rights in relation to this document including, without limitation, copyright in its contents.

This document is supplied on these conditions, which you expressly accept and agree to by retaining this document or acting upon its contents. If you do not agree with these conditions, you must not act on the contents of this document and must return it to Energy Edge immediately.

# Energy Market Evolution

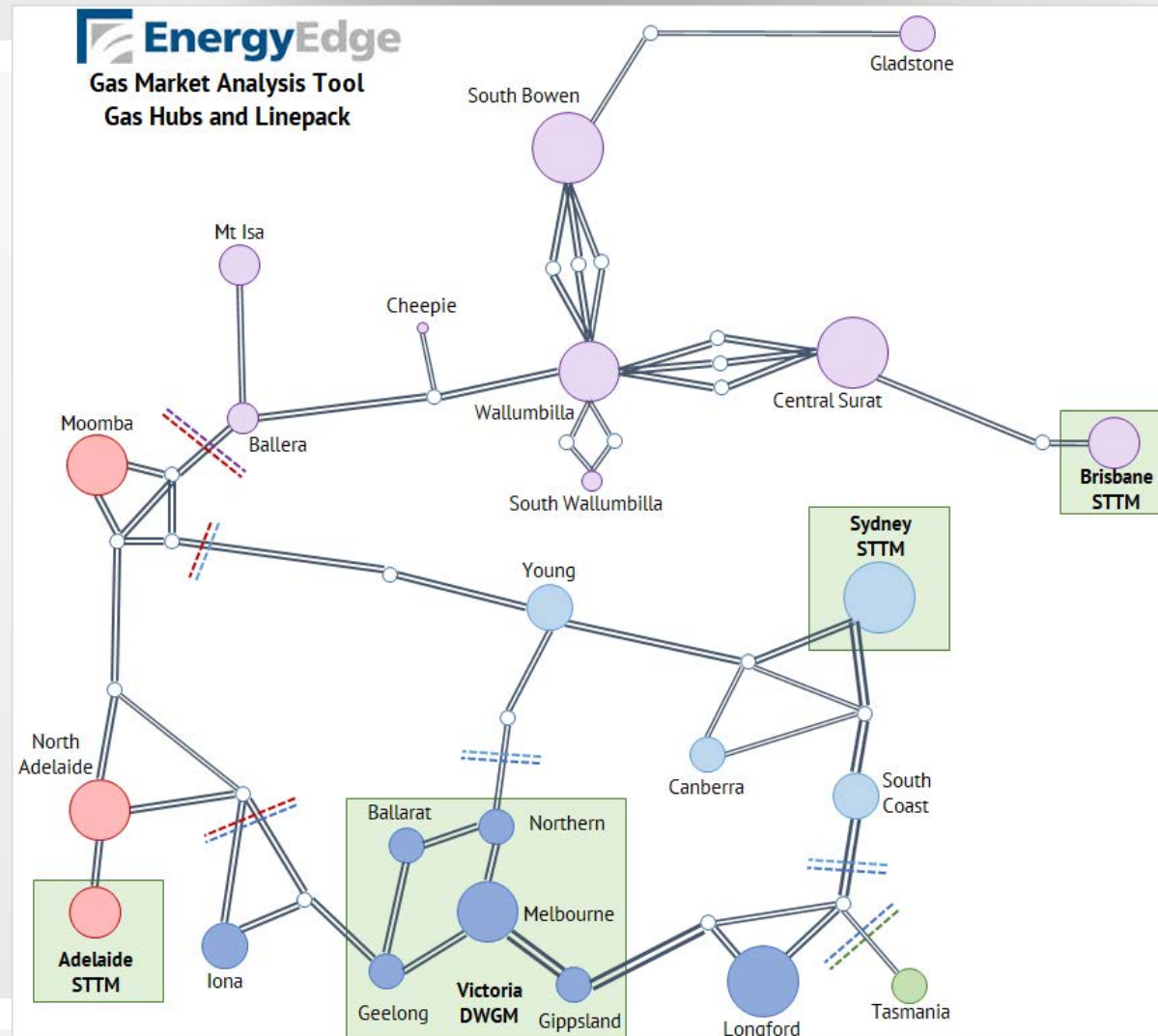
## Changes to the Energy Market

- Gas Infrastructure development
- Gas LNG Growth with corresponding gas supply and demand balancing
- Brent / JKM price linkages
- Upstream drilling program
- Gas generation change in merit order
- Renewable electricity generation
- Southern gas market
- Coal dark spread

# East Coast Gas Infrastructure (2014)

East Coast Gas Market has become more complex over time.

Queensland shifted from 13 connections across 7 Gas Hubs in 2014...

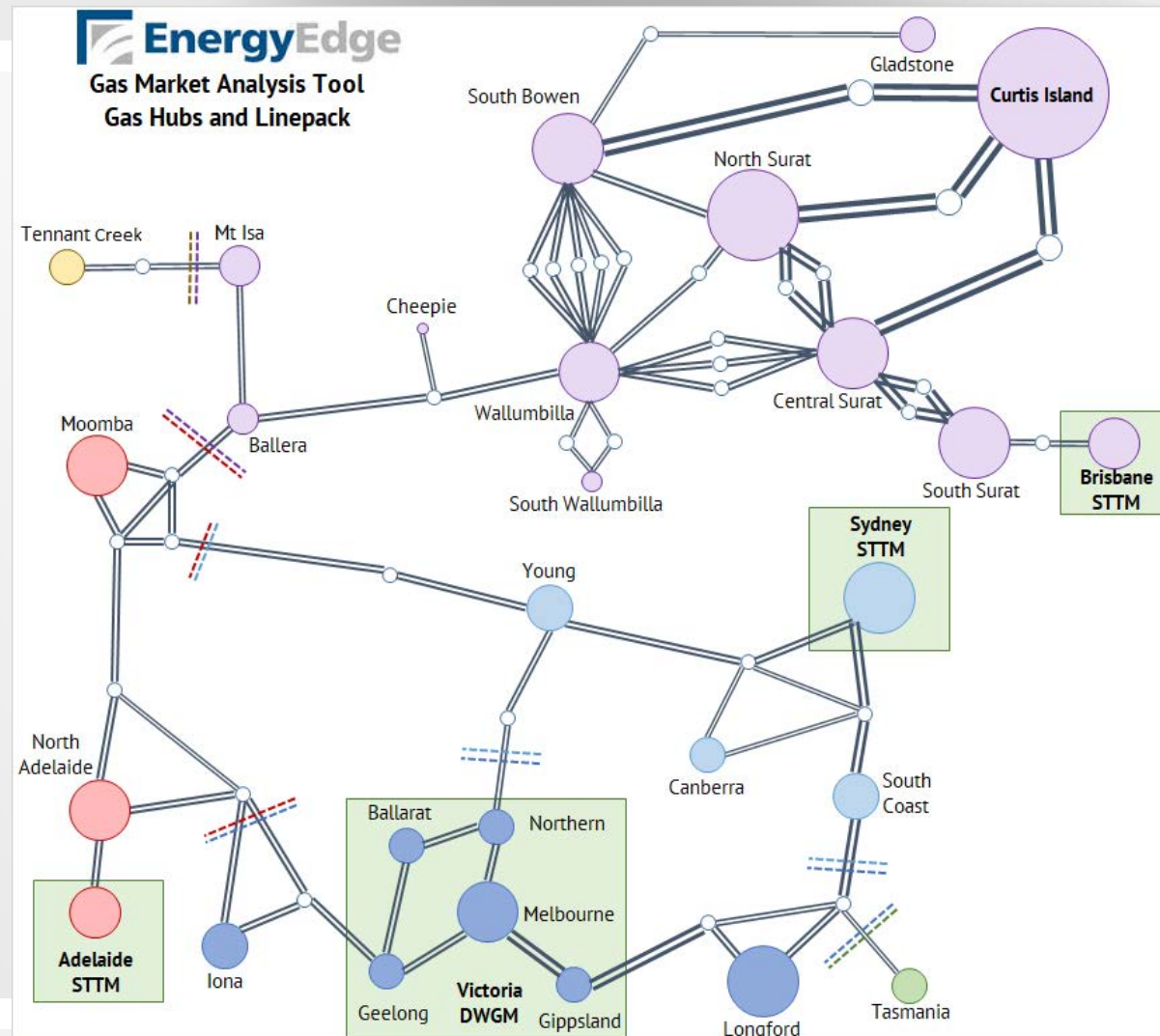


# East Coast Gas Infrastructure (2018)

East Coast Gas Market has become more complex over time.

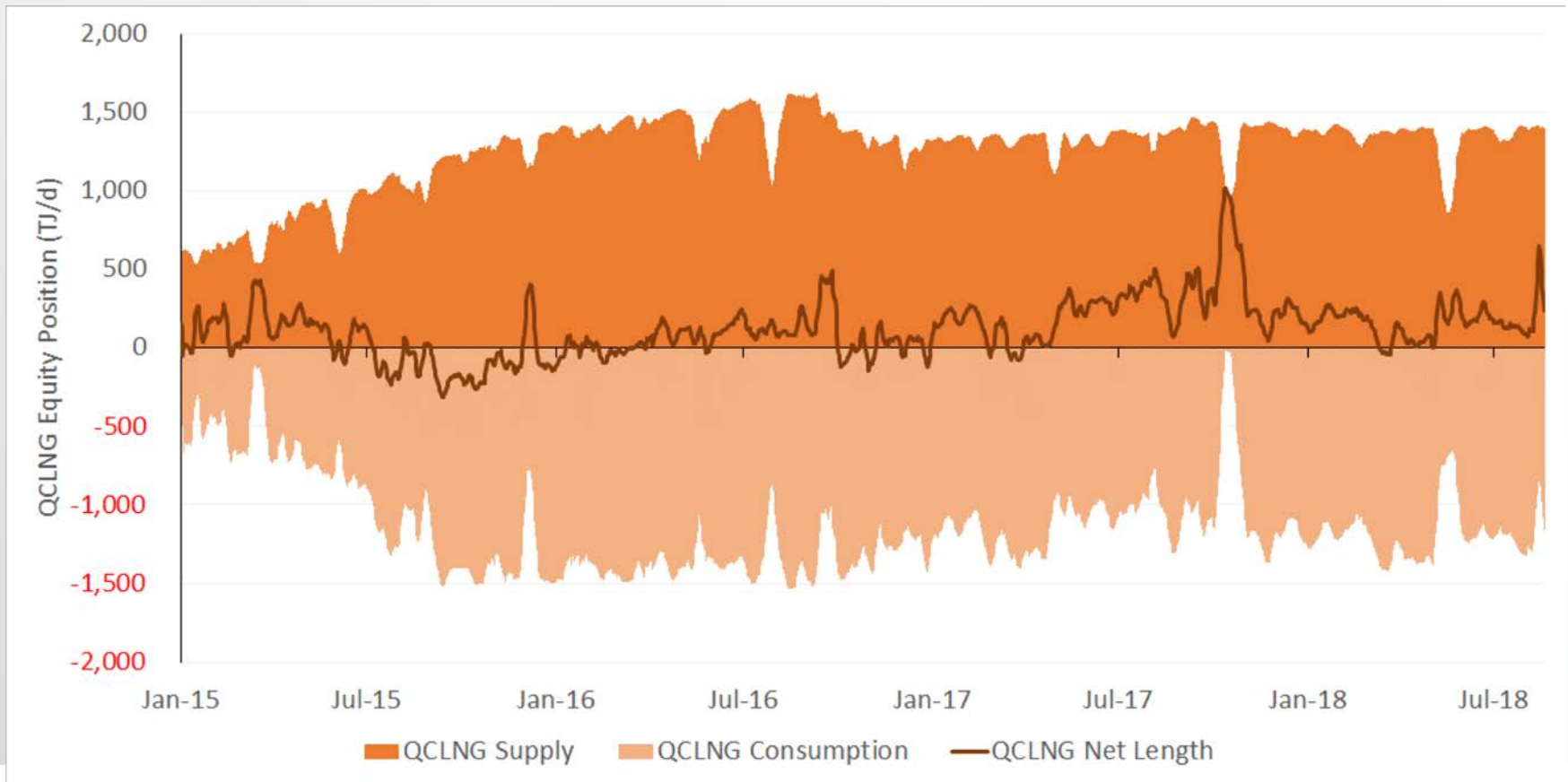
Queensland now has 11 Gas Hubs across 23 Pipeline connections.

Southern Gas Market remains unchanged in terms of structure.



# Demand: Shell's QCLNG

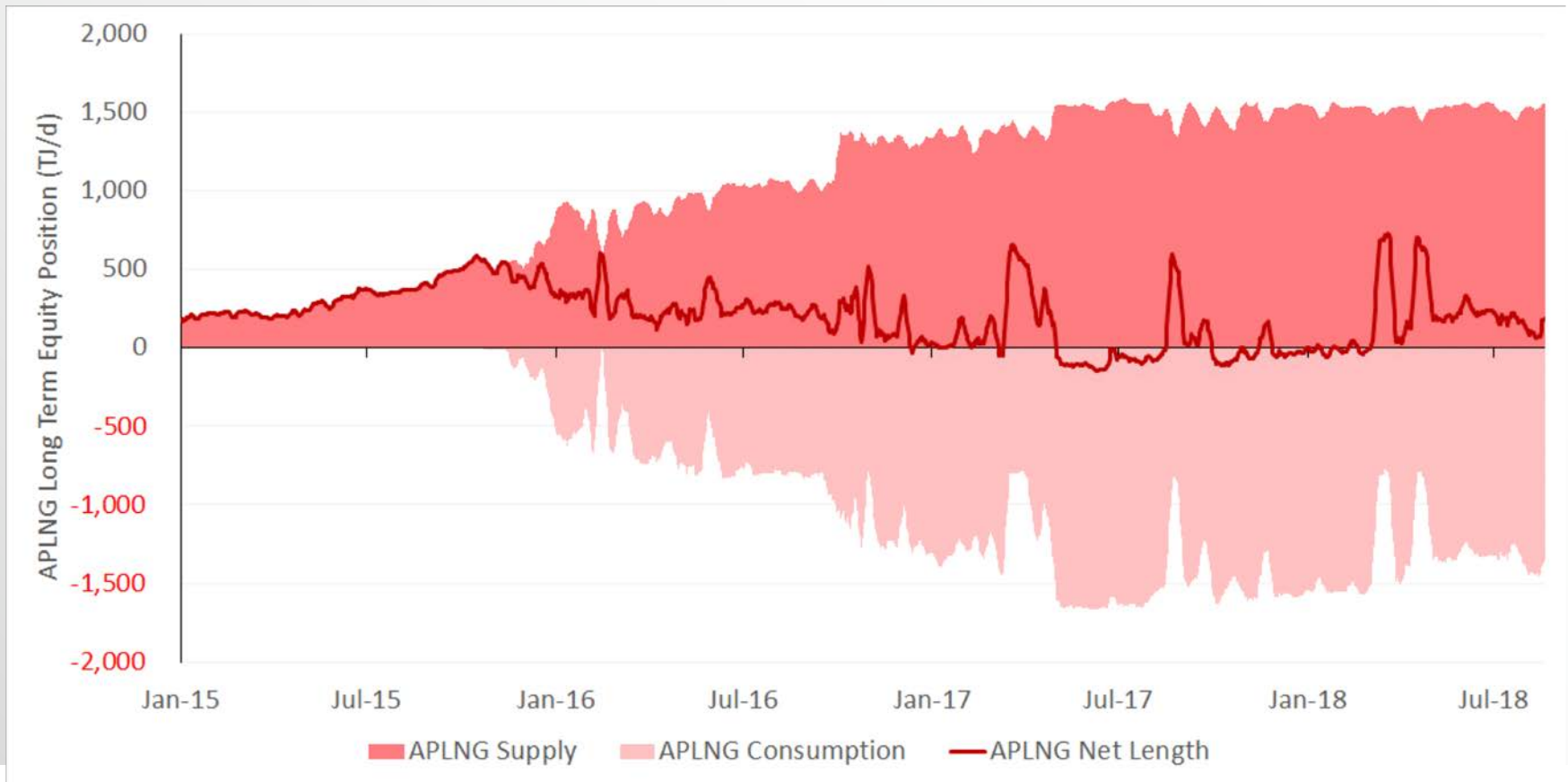
## QCLNG Demand and Supply Growth





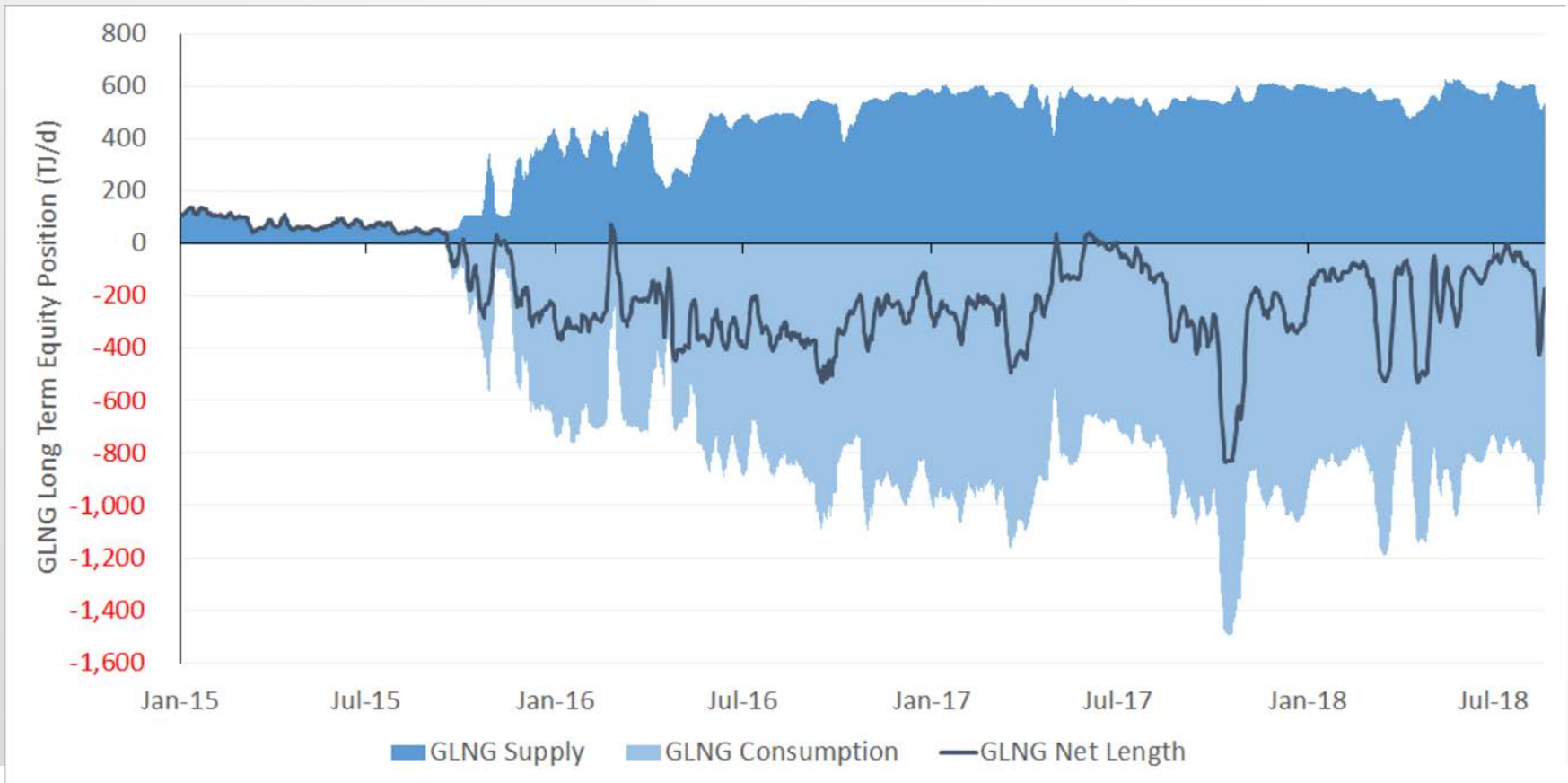
# Demand: Origin's APLNG

## APLNG Demand and Supply Growth



# Demand: Santos' GLNG

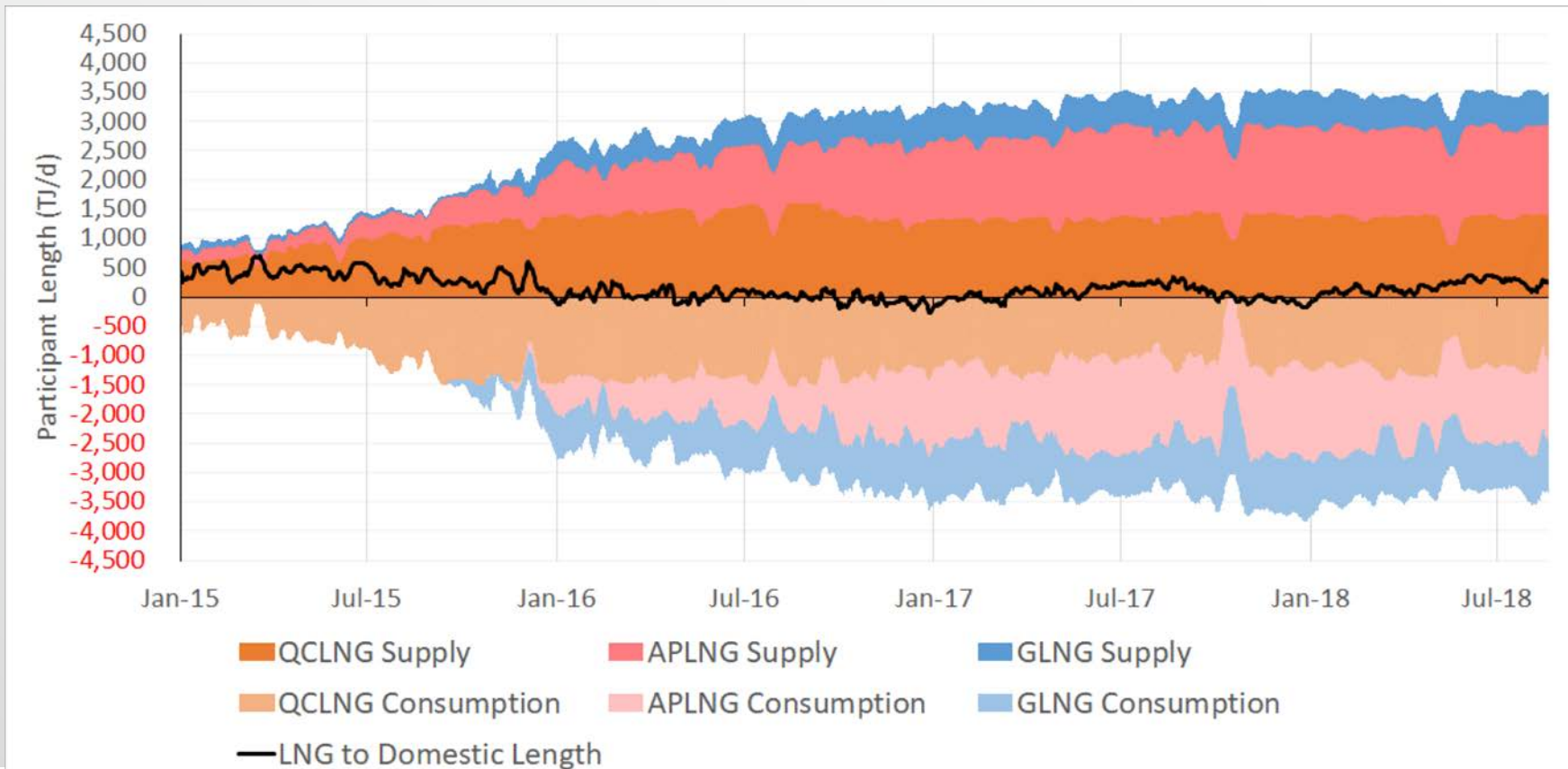
## GLNG Demand and Supply Growth





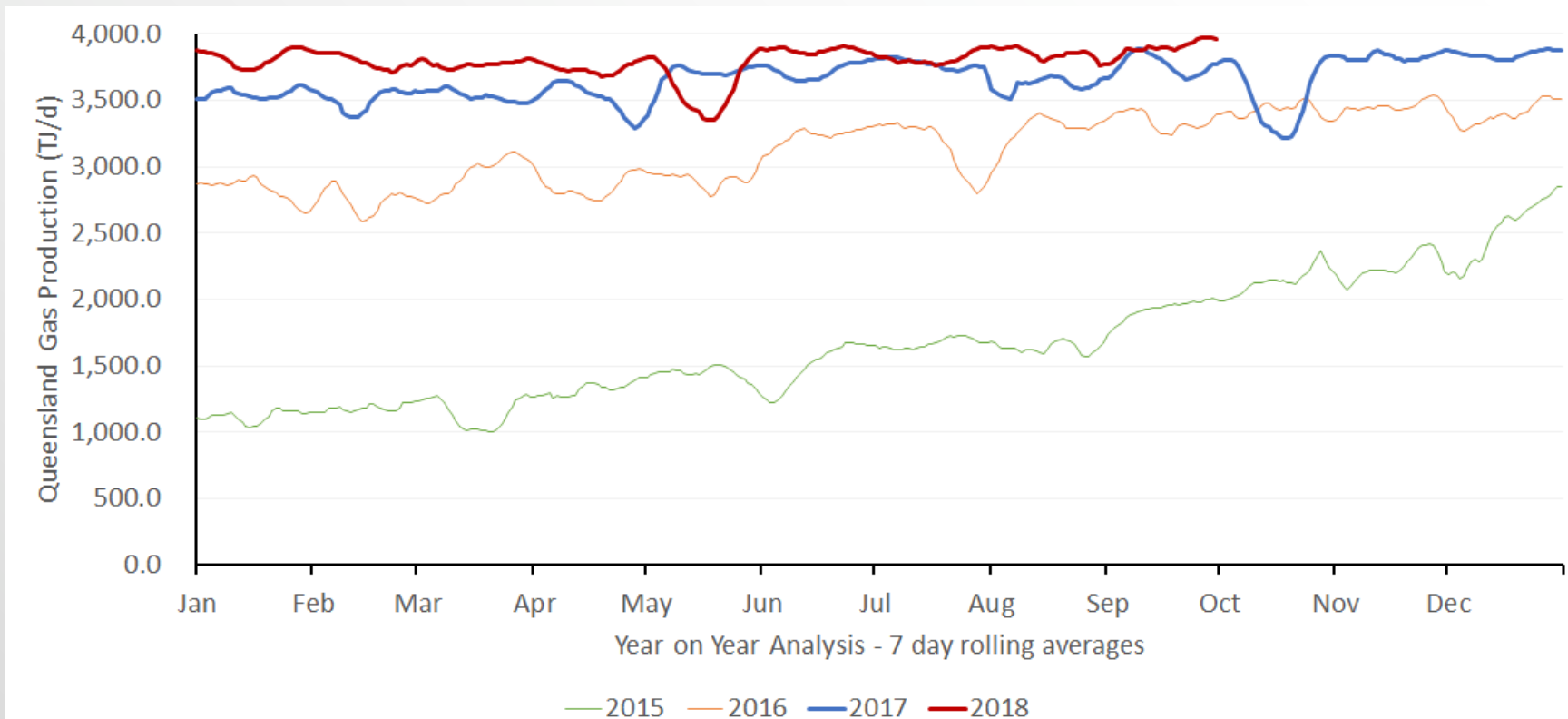
# Demand: Curtis Island

## Curtis Island Aggregate Demand and Supply Growth



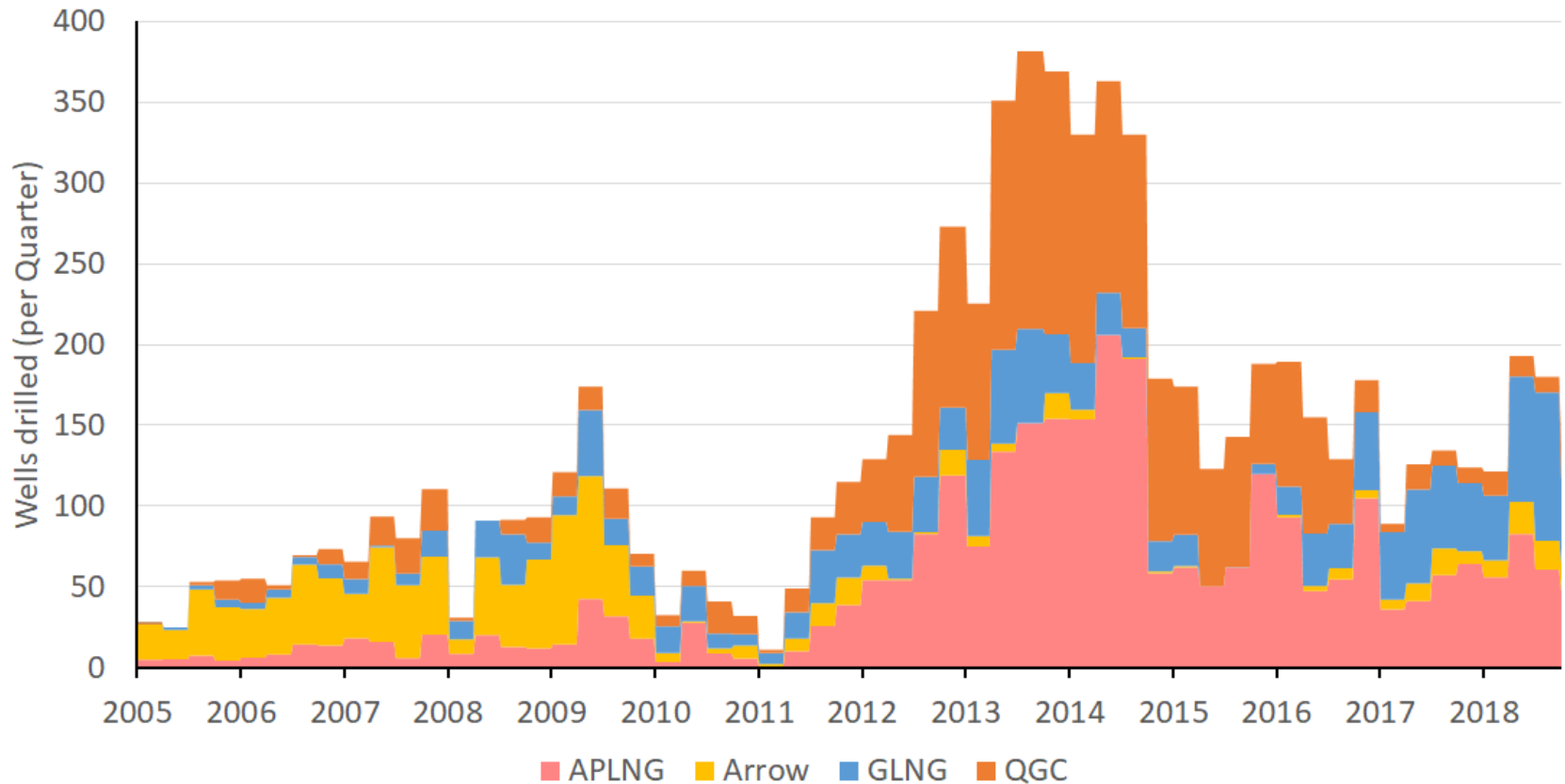
# Supply: Gas growth and plateau

Surat gas supplies continue to set new record production rates



# Supply: Queensland CSG well drilling recovery

## Drilling by Equity Ownership (wells drilled per Quarter)

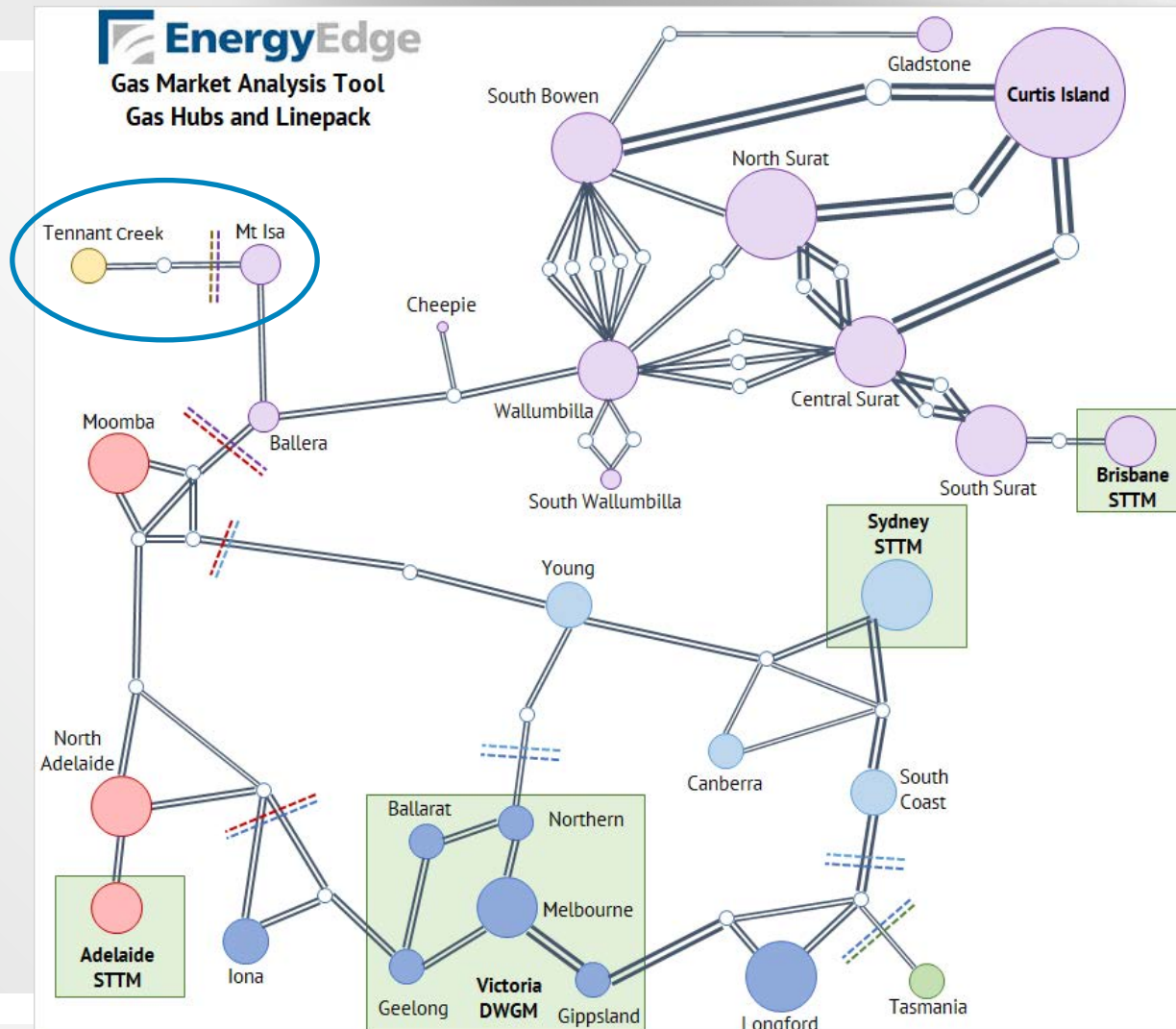


# Northern Gas Pipeline

Northern Gas Pipeline (NGP) is due online by December 2018

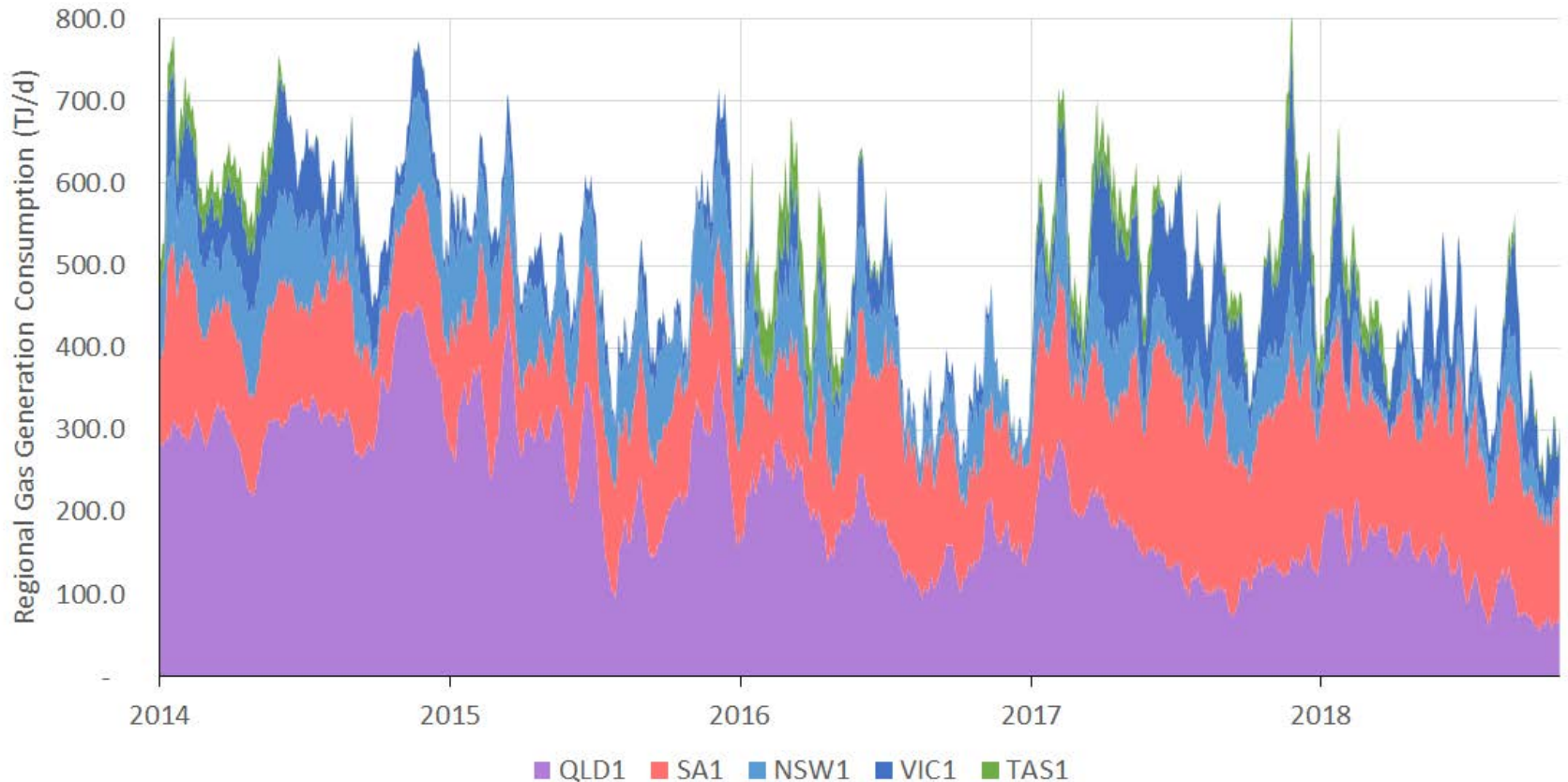
NGP will target the 80TJ/d demand in Mt Isa

80TJ/d is equivalent of \$1B investment in upstream production



# Electricity: Gas Generation Response

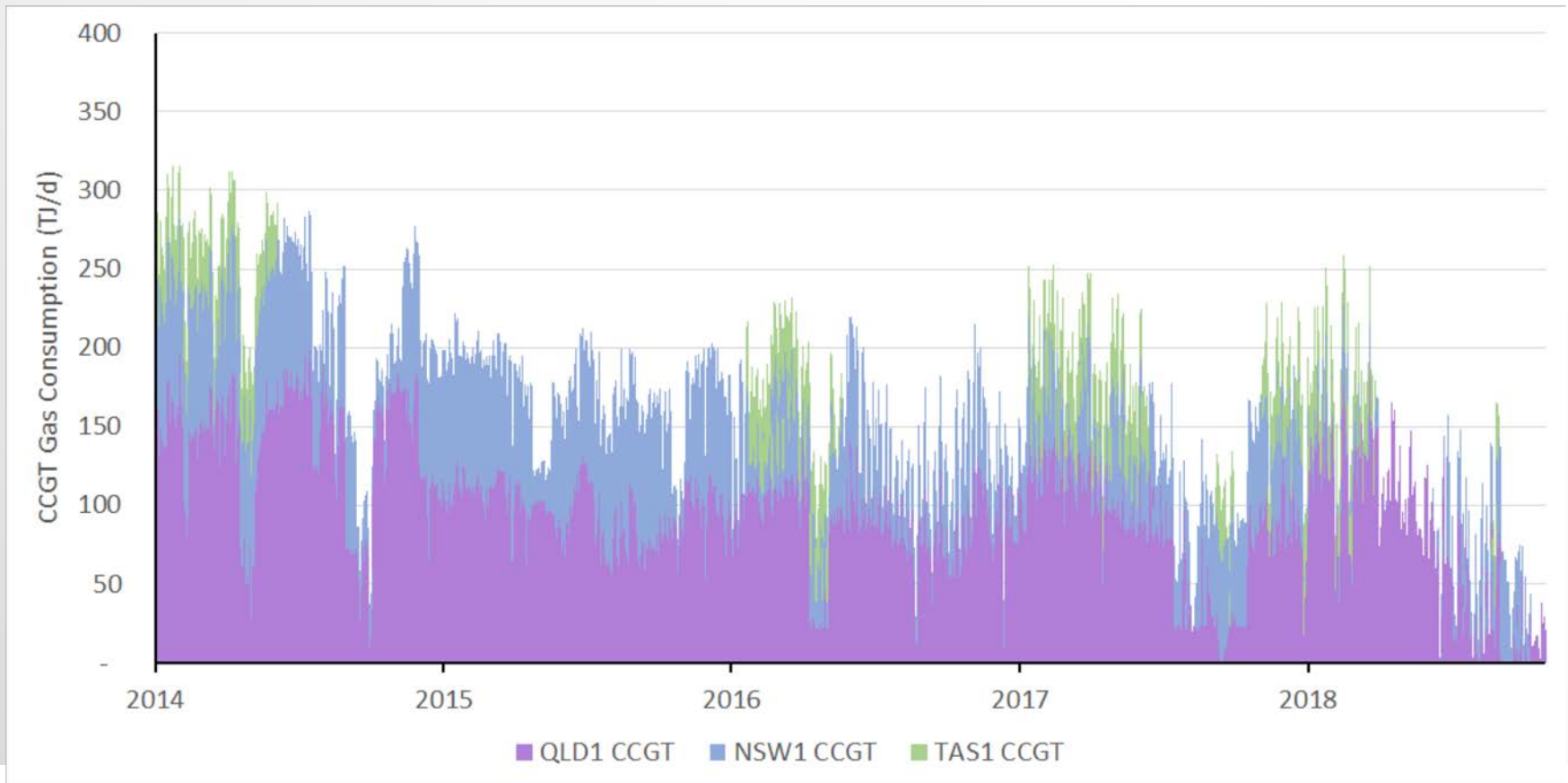
## All Regional Gas Generation Consumption (TJ/d)





# Electricity: Gas Generation Response

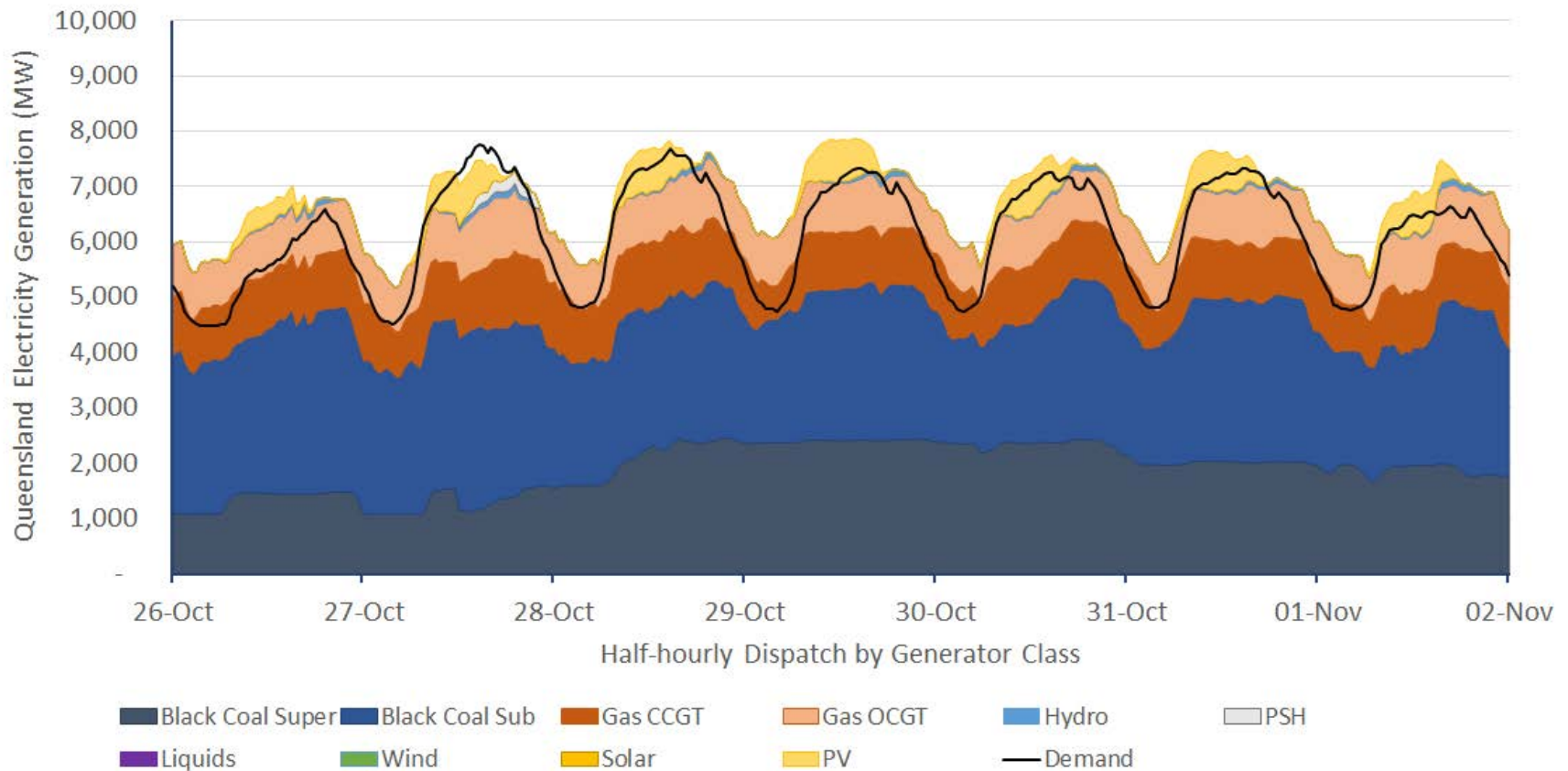
## CCGT Gas Generation Consumption (TJ/d) – without SA





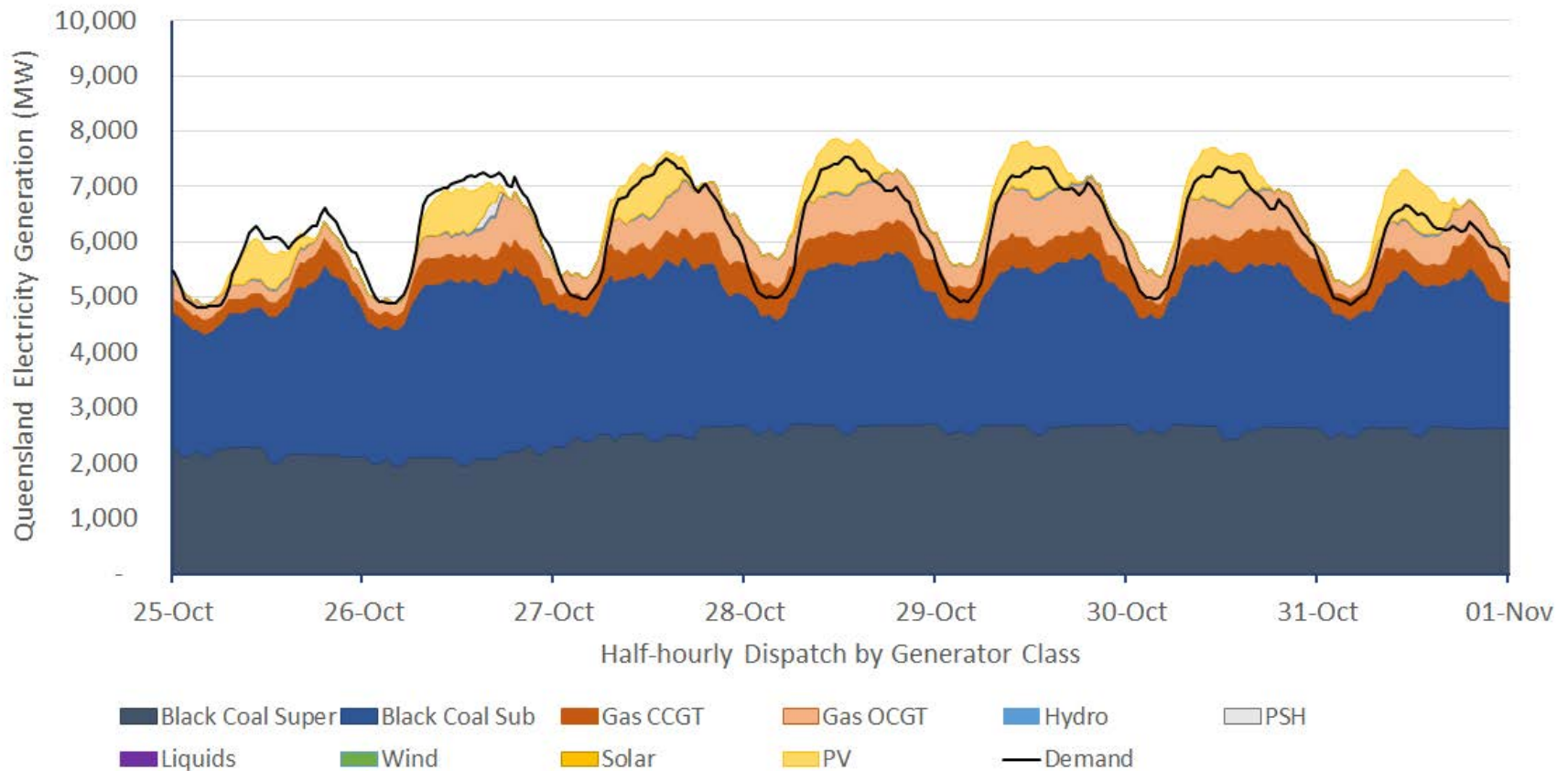
# Electricity's Transition

2014: Ramp Gas. Tarong Mothballing. Cal15 @ \$39.20



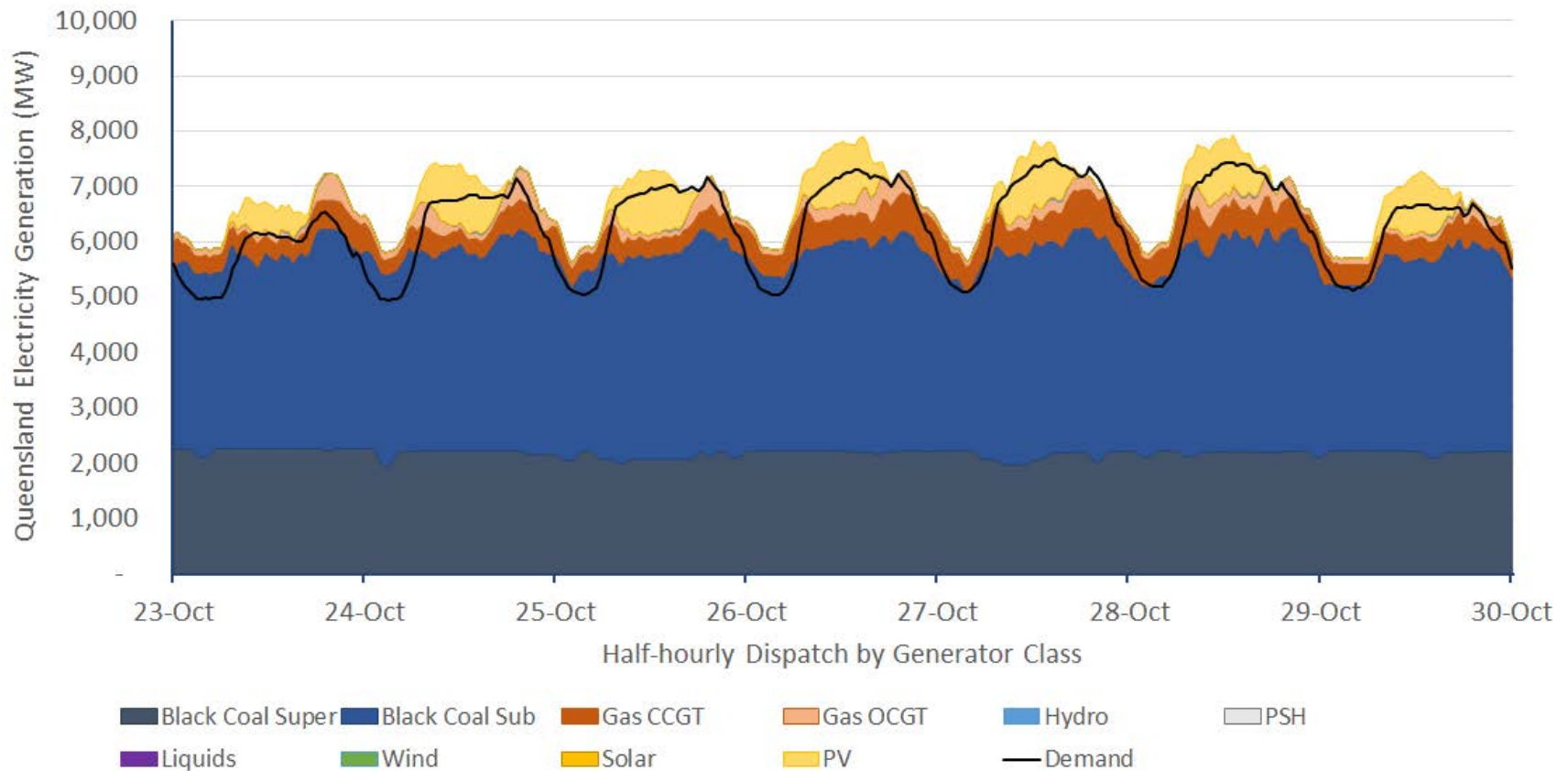
# Electricity's Transition

2015: Three LNG Trains. Electrification. Cal16 @ \$60.15



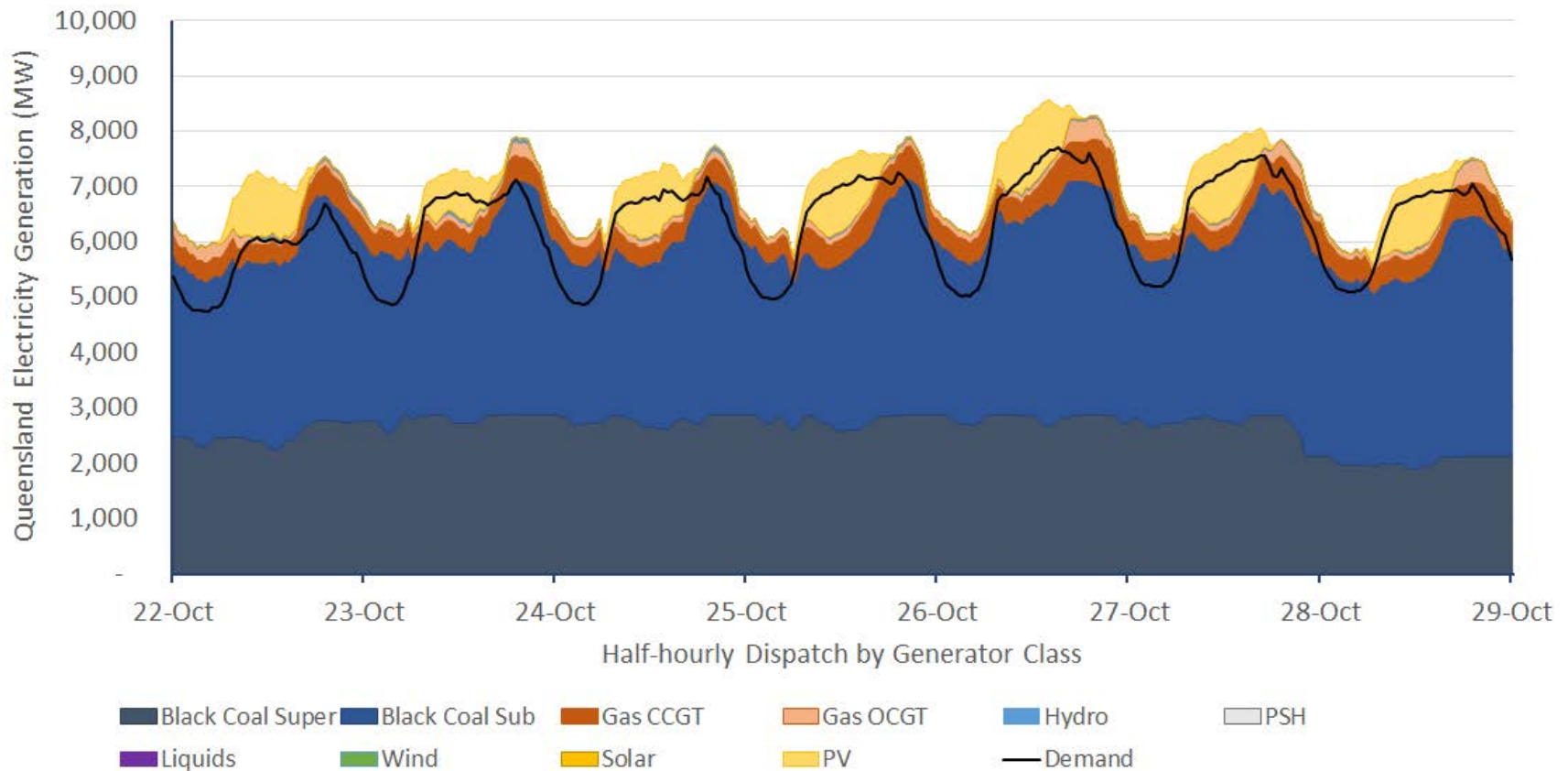
# Electricity's Transition

2016: Six Trains. 2016 Winter. Hazelwood. Cal17 @ \$66.50



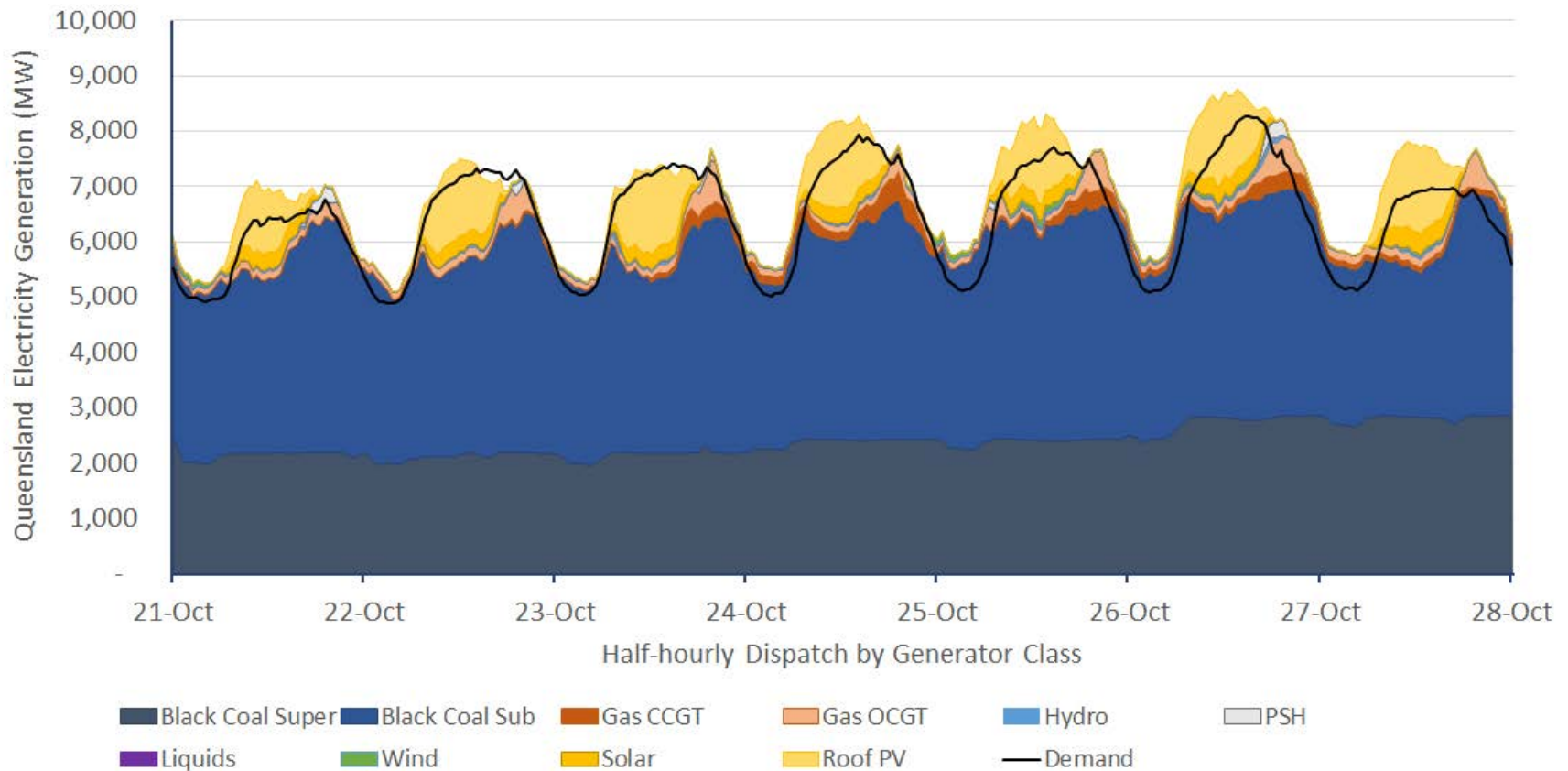
# Electricity's Transition

2017: LNG HoA. Q1-17. Directions. Firming. Cal18 @ \$80.70



# Electricity's Transition

2018: NEG In/Out. Intervention. Brent. Solar. Cal19 @ \$76.50





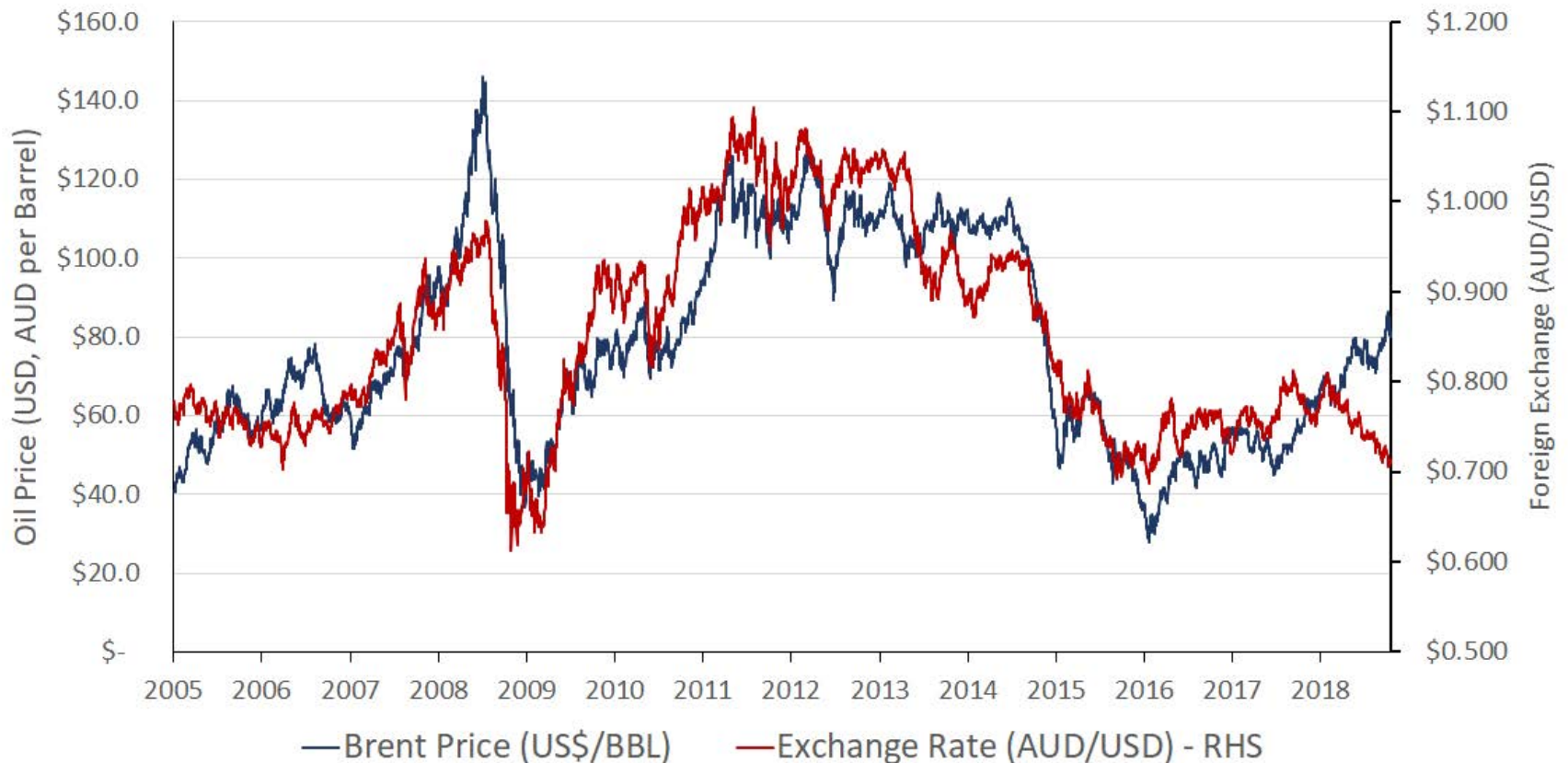
# We have looked at the positives

What is moderating our positives in the market?



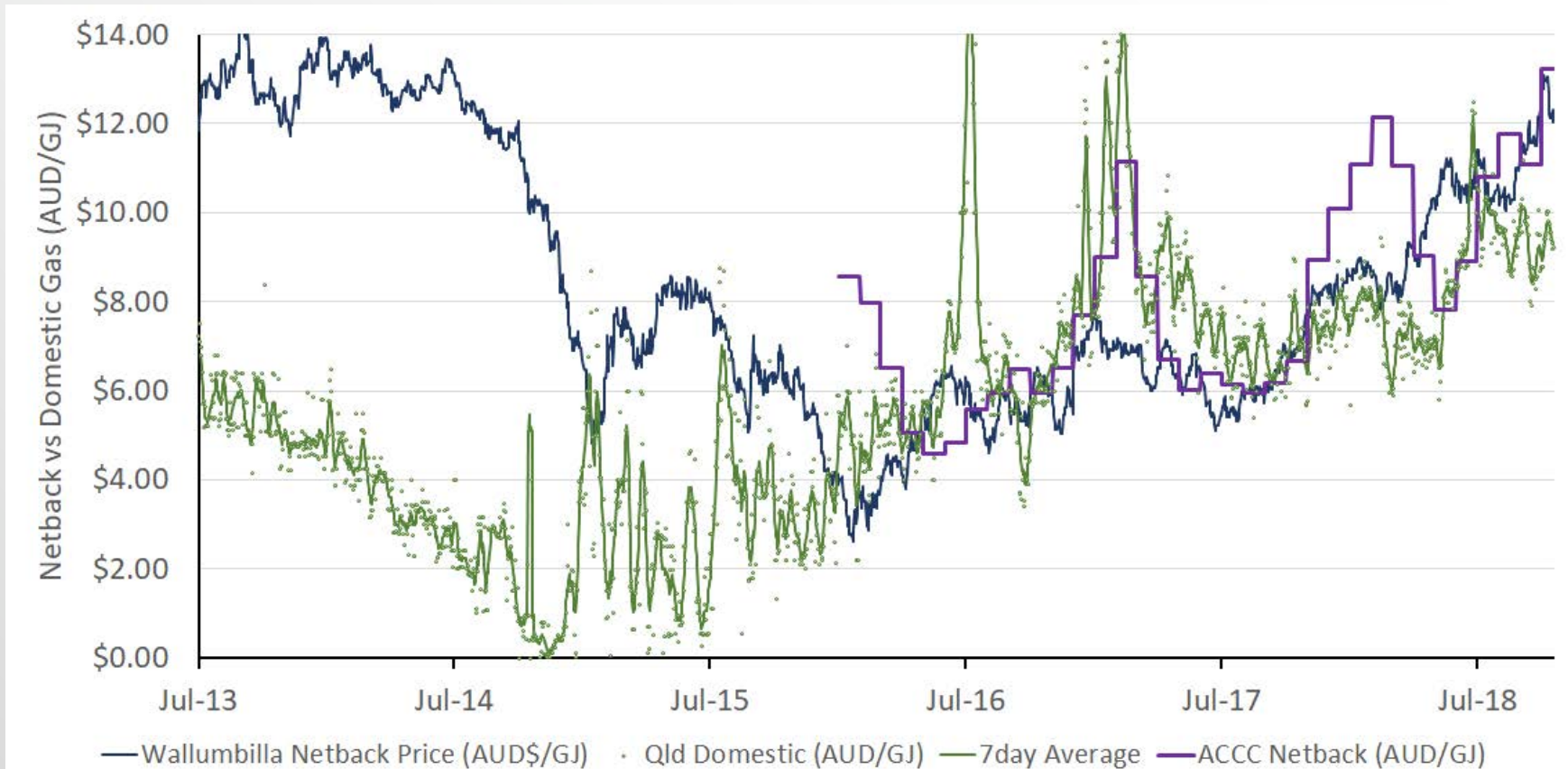
# Price: Brent and FX Behaviour

## Decoupling of the relationship between Brent and AUD/USD



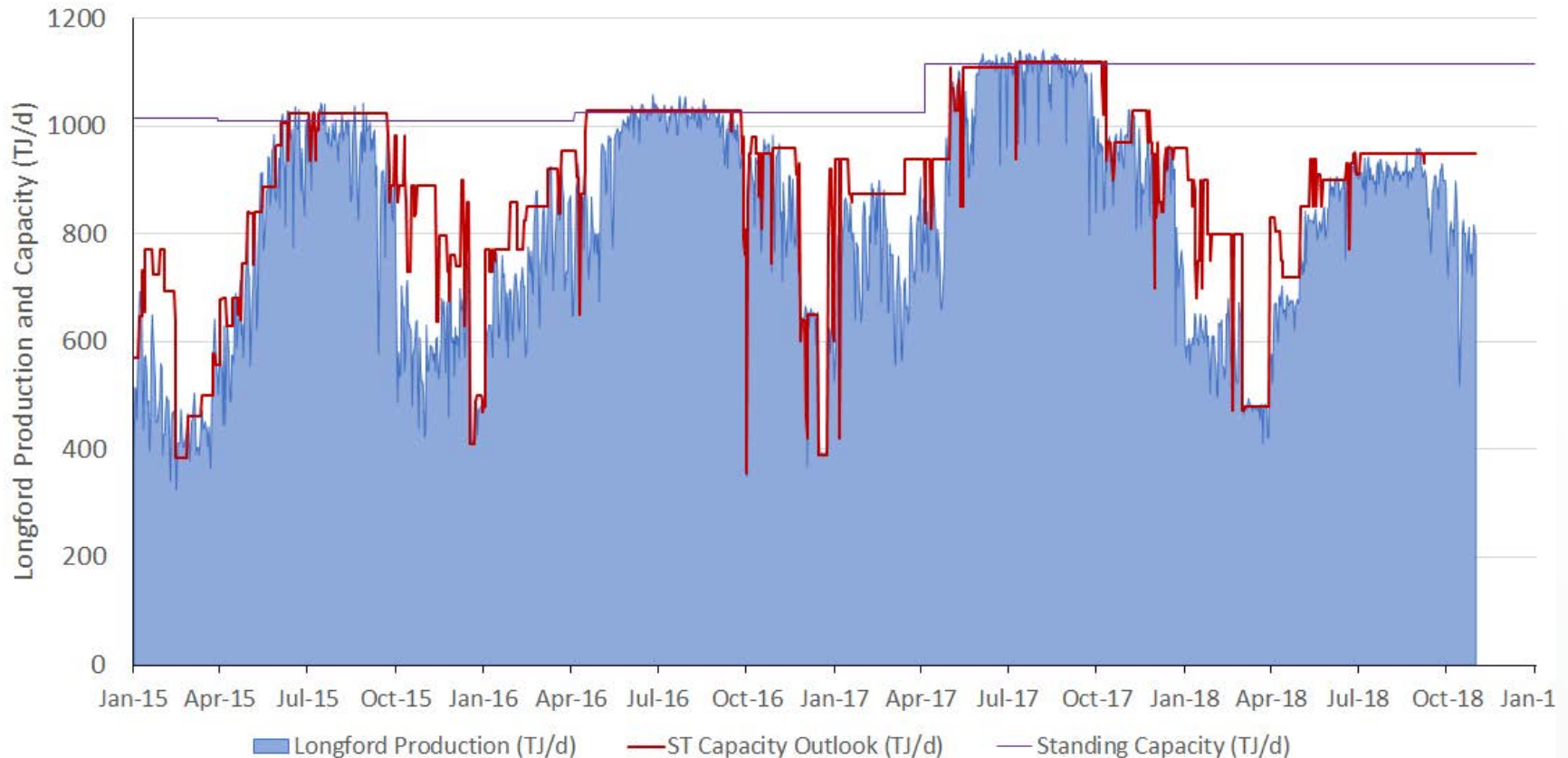
# Price: International Linkages to Domestic

Brent (Blue) & JKM (Purple) vs Qld Domestic (Green)



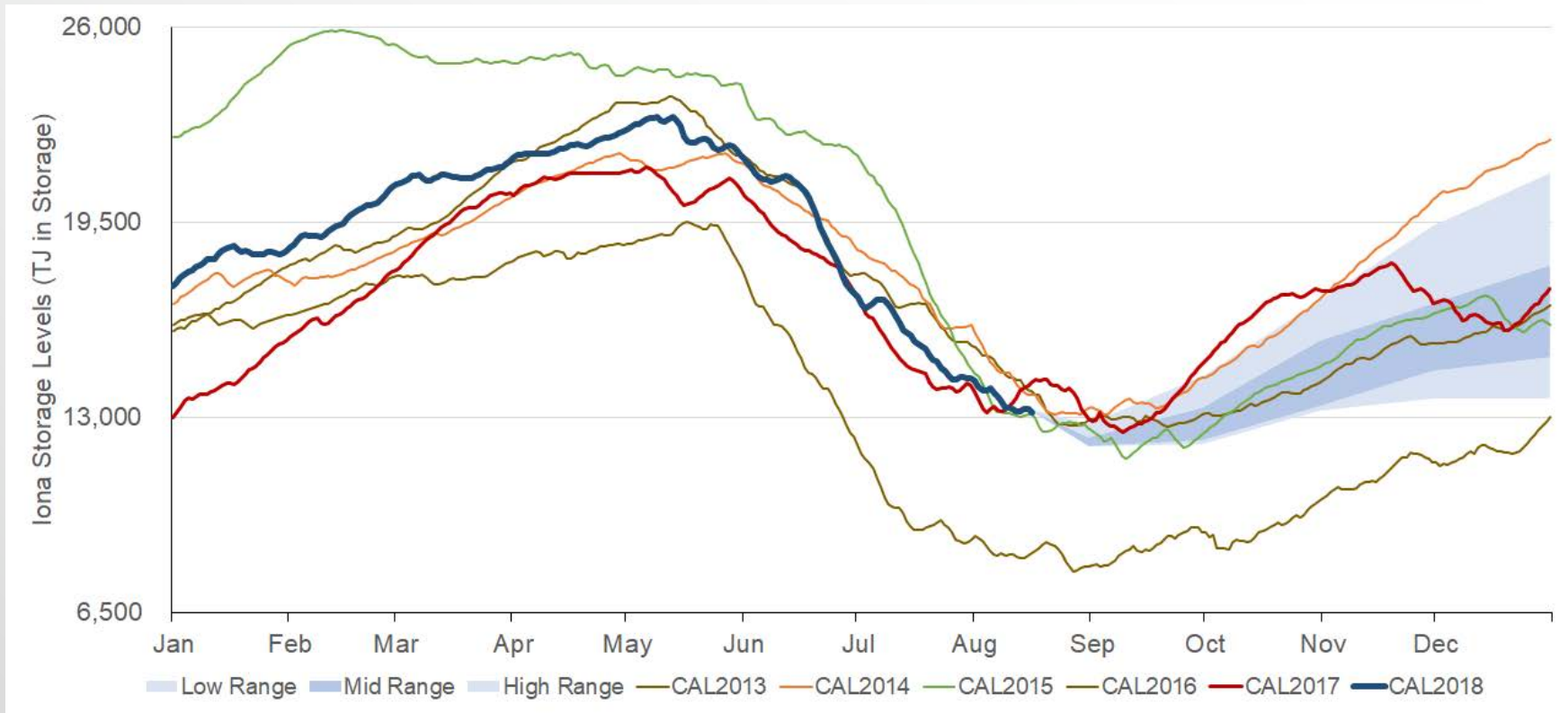
# Longford Production Rates

Substantial change in supply profile between 2017 and 2018



# Iona Gas Storage – Southern Bellwether

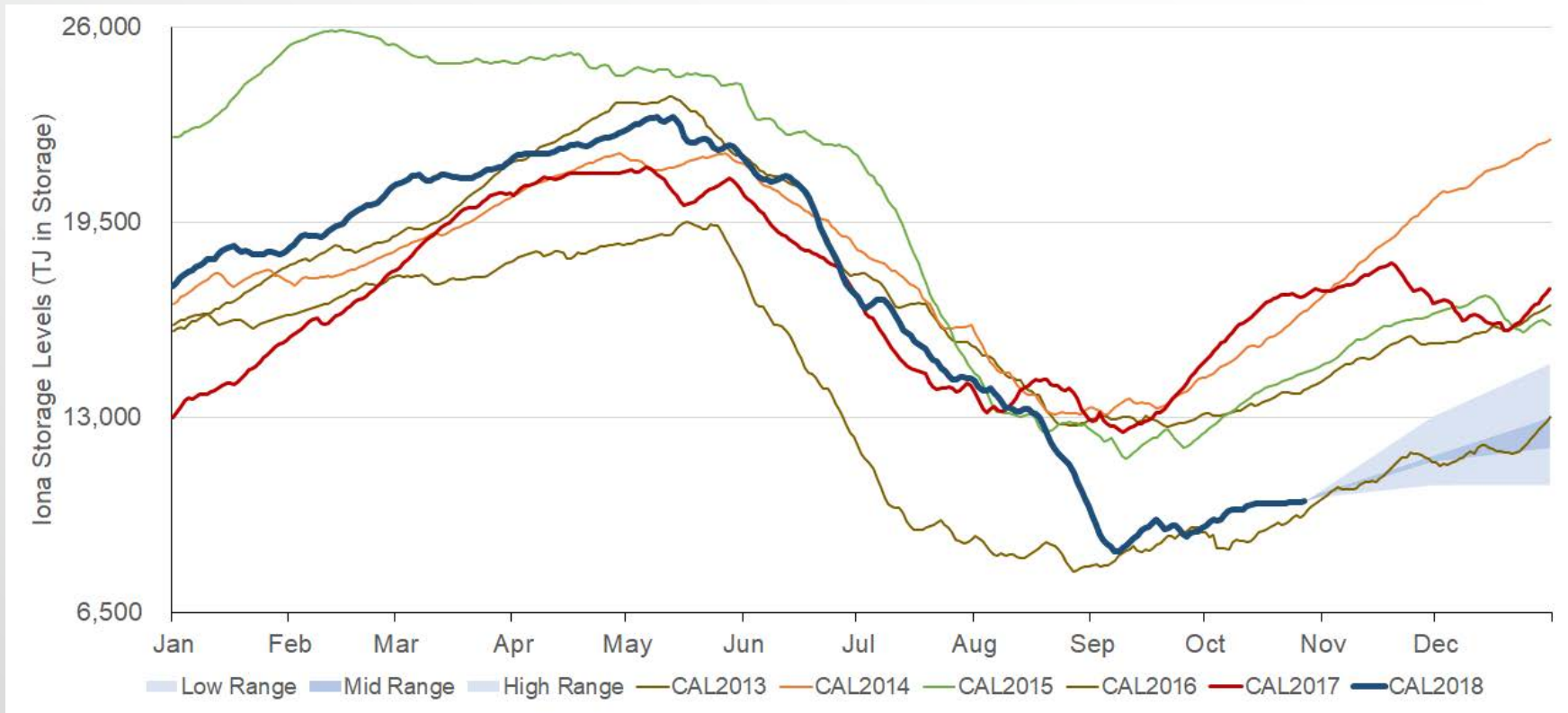
The difference the late cold snap had on the outlook





# Iona Gas Storage – Southern Bellwether

The difference the late cold snap had on the outlook



# Coal Dark Spread (NSW)

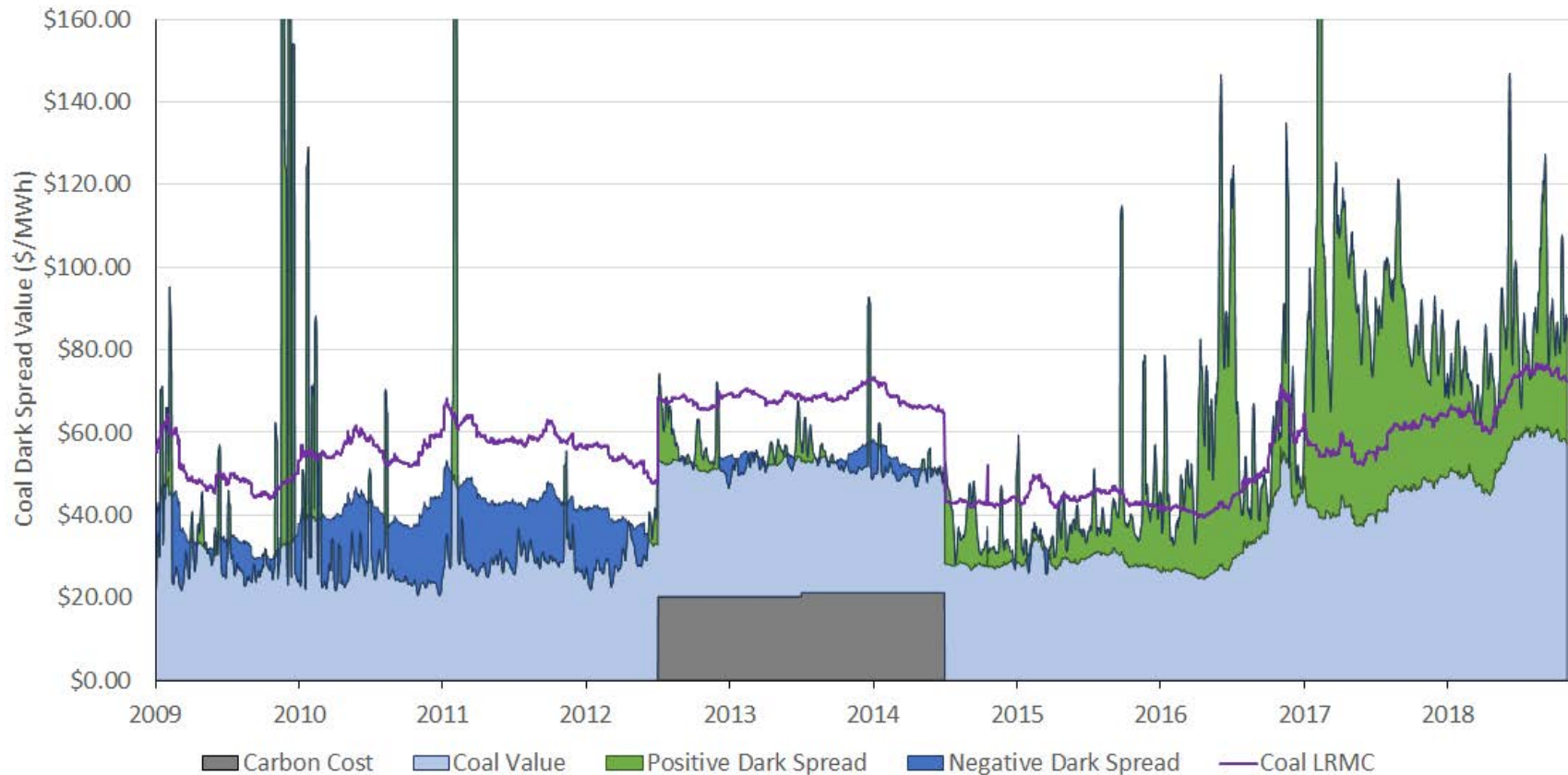
Coal Input cost have risen. Combination of USD/t and FX





# Coal Dark Spread (NSW)

Input costs have influenced electricity outcomes as well



# Solutions?

Solutions already on the way:

- Northern Gas Pipeline
- Drilling activity and junior activity
- Renewable generation wave

Some solutions will need help:

- Southern gas supplies
- LNG import facilities
- Second tier of Queensland gas fields

The information and advice contained in this document has been prepared by Energy Edge Pty Ltd (“Energy Edge”) in accordance with the Consultancy Agreement (“the Terms”) between you or your company (“You”) and Energy Edge and should be read and acted upon in accordance with these conditions and the Terms.

In preparing this document, Energy Edge has relied upon information and variables provided by You and its accuracy and suitability is dependant upon such information. Where information provided by You is inaccurate or incomplete, Energy Edge will not be liable to any extent where such deficiency adversely affects the viability or correctness of the contents of this document.

While exercising all care in the preparation of this advice, Energy Edge does not make any representations or warranties in relation to its content and expressly excludes all terms implied by legislation or otherwise, except to the extent that such implied term cannot, pursuant to law, be excluded. Liability in respect of such an implied term is, however, restricted to the extent as provided for in the Terms and You use the information and advice contained in this document at your own risk.

Except as is expressly provided for in the Terms, Energy Edge retains all intellectual property rights in relation to this document including, without limitation, copyright in its contents. You are granted a licence to use this document as provided for in the Terms, but to no other extent.

This document is supplied on these conditions, which you expressly accept and agree to by retaining this document or acting upon its contents. If you do not agree with these conditions, you must not act on the contents of this document and must return it to Energy Edge immediately.

Nothing in this document is intended to constitute financial product advice as defined by the Financial Services Reform Act. This document should not be used to make decisions on financial products or specific derivative transactions. You should seek specific financial product advice prior to making any decisions relating to such transactions.