



# Australian East Coast Electricity Market Update

August 2018

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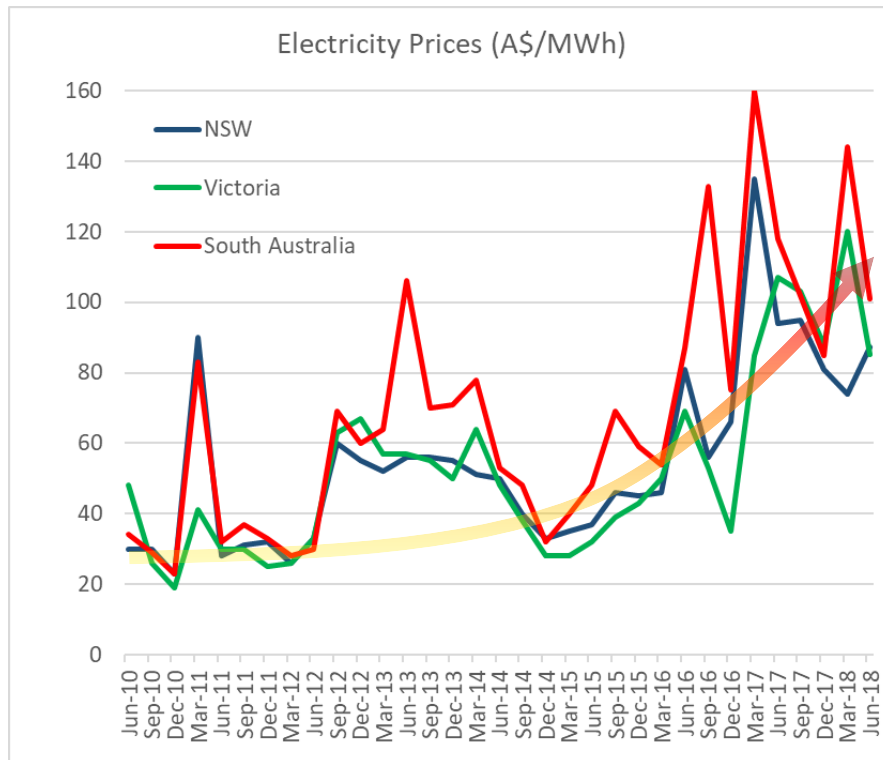
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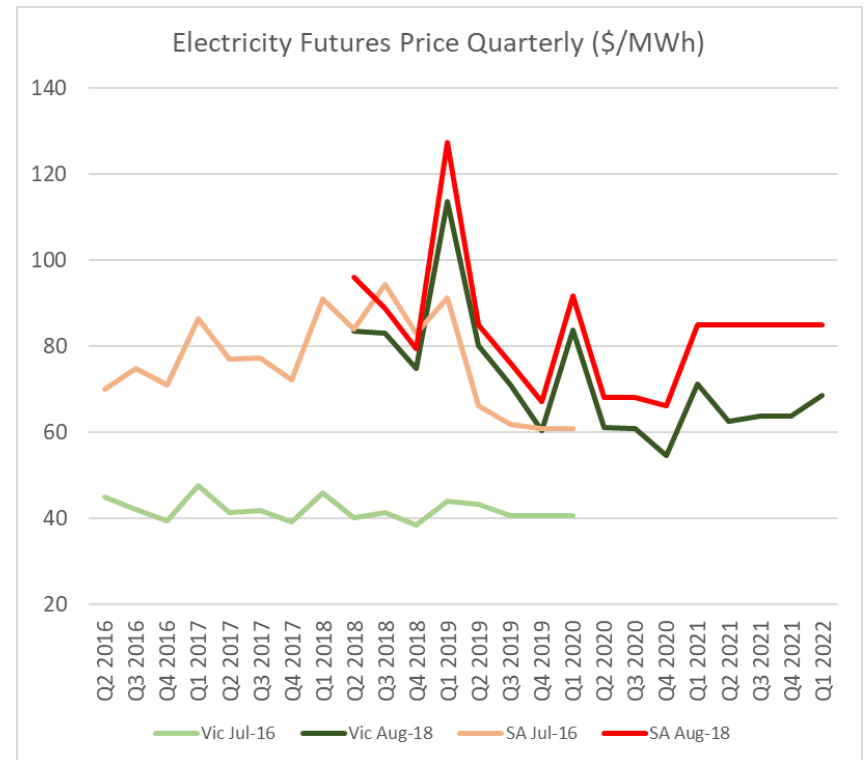
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## Rising Electricity Prices...



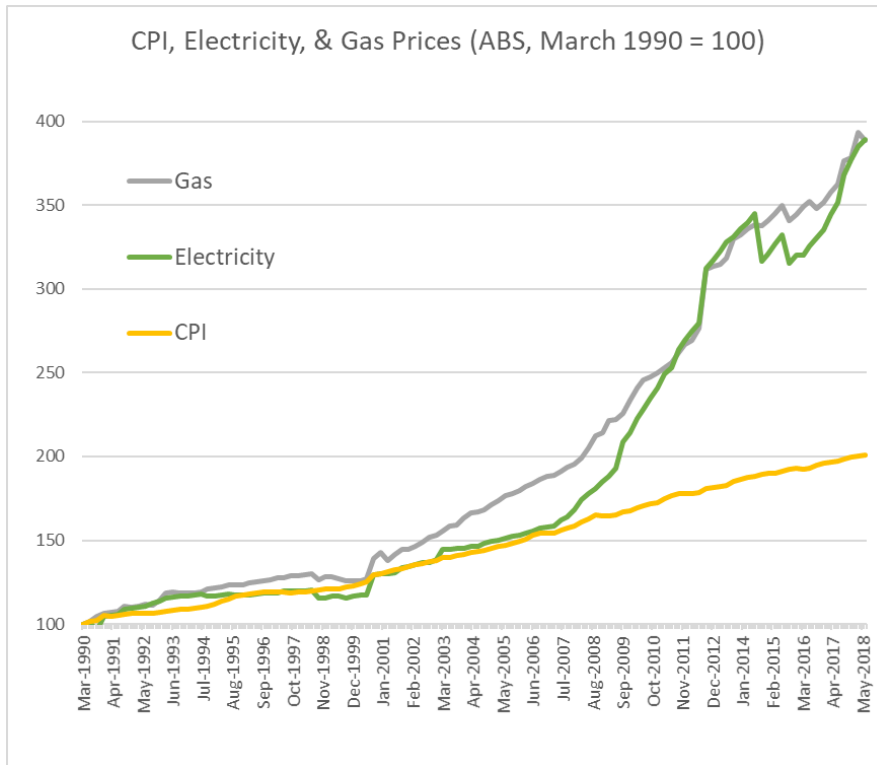
## ...and Futures Prices



- Historically, prices ranged between \$20-40/MWh
- Currently ranging between \$80-100/MWh
- Victoria has gone from the cheapest market to the 2<sup>nd</sup> most expensive

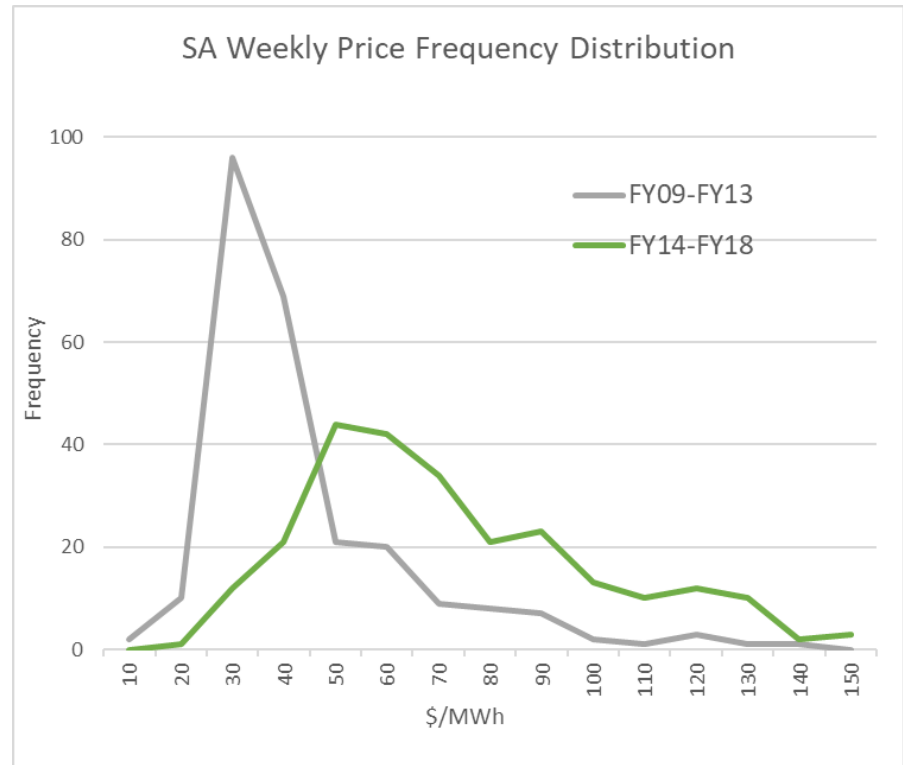
- Two years ago, Victorian futures prices expected to remain around \$40/MWh
- Now expected to range from \$115 down to \$60/MWh by 2022
- SA high prices and volatility remain high

## Energy Prices skyrocketing vs CPI...



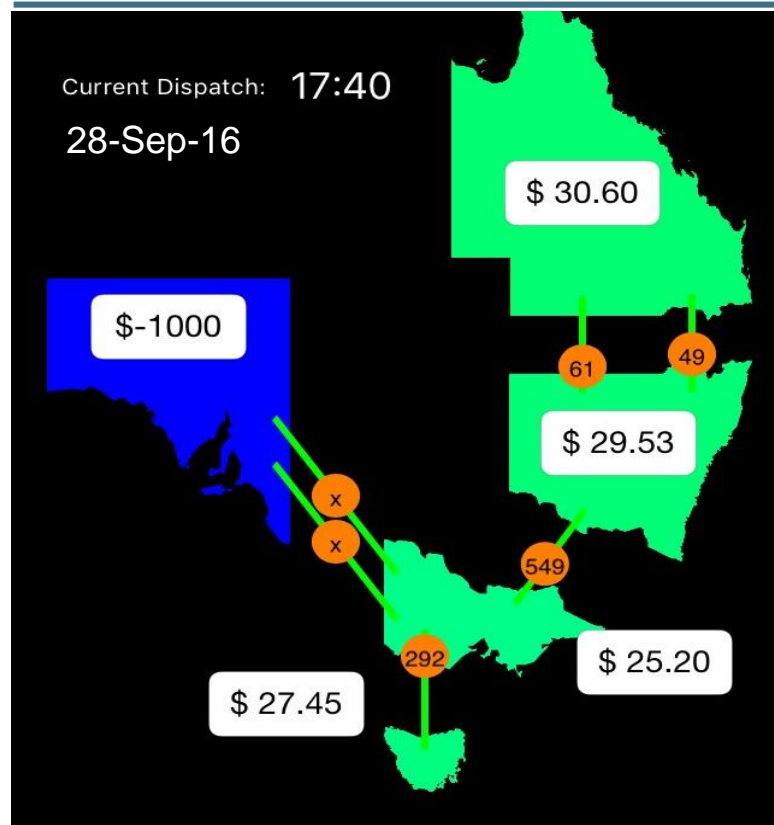
- The CPI doubled since Mar-1990, but retail Gas and Electricity prices have quadrupled.
- Gas is the marginal electricity supplier. Thus it is the price setter – the correlation with Electricity prices is 99%.

## ...and more volatile

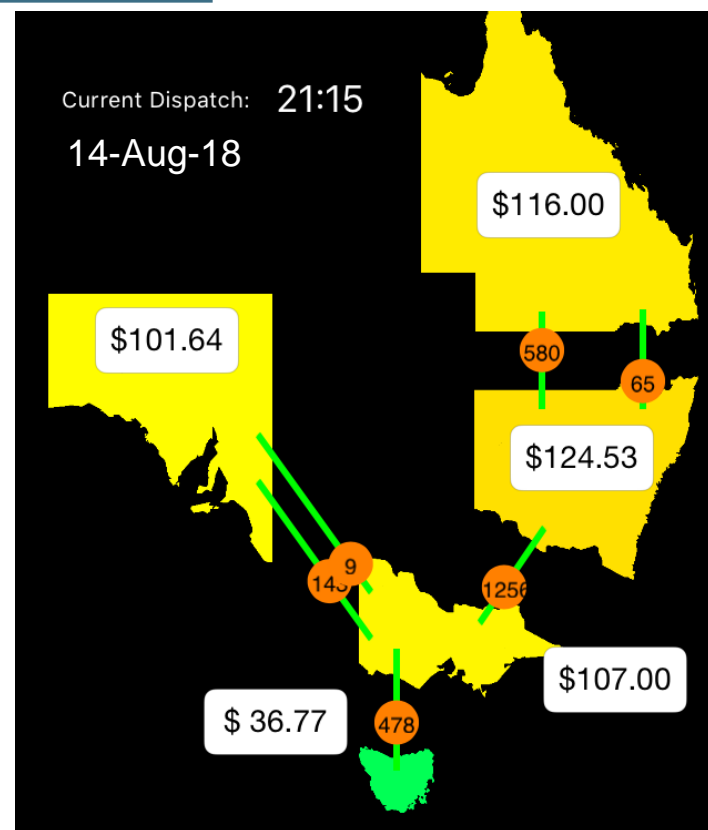


- The whole electricity curve has shifted
- Between FY09-13, 70% of SA prices lay between \$20-40/MWh
- In the past 5 years 70% of power prices sit between \$30-90/MWh

## Grid Instability Increasing and Prices Rising



- The NEM during the South Australian Blackout, 28 September 2016
- Wind caused instability, the interconnector tripped – cutting off South Australia
- Lack of fossil baseload also delayed restart



- Even though we are in a low-demand period, prices are averaging \$90/MWh
- All regions had record prices in FY17
- SA averaged \$123/MWh in FY17
- VIC now a net importer for most of 2018

## **NEM In Difficult Transition and Gas Market at high prices**

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- **The Australian National Electricity Market (NEM) is in turmoil. South Australia (and now Victoria) in the epicentre. Prices have risen despite falling demand. Since early 2017 wholesale prices have moderated from \$134/MWh to \$84/MWh**
- **Grid stability is becoming an important concern due to:**
  - Lack of transparency in energy markets
  - Intermittent power
  - Renewable mandates and certificates
  - Withdrawal of both base-load and peak-load fossil supply
- **Peak gas prices of \$9-10/GJ were triple long-run averages – now \$8/GJ**
- **Gas supplies have grown massively but the Gladstone LNG terminals are still in need of more gas than is currently being produced**
- **Australia is one of the world's largest exporters of energy; Coal, Uranium, LNG, yet we have the some of/if not the worlds most expensive power**
- **Australian failure in Energy Policy and direction. Despite the apparent policy dichotomy the end result has been what was always envisioned – higher prices but not increased revenues for fossil fuel generators**
- **Competing interests provide very different scenarios**

# Too Many Regulators



ARENA



Australian Government

Department of the Environment and Energy

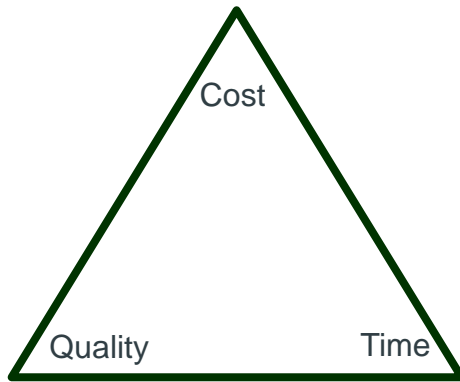


Independent Pricing and Regulatory Tribunal  
New South Wales

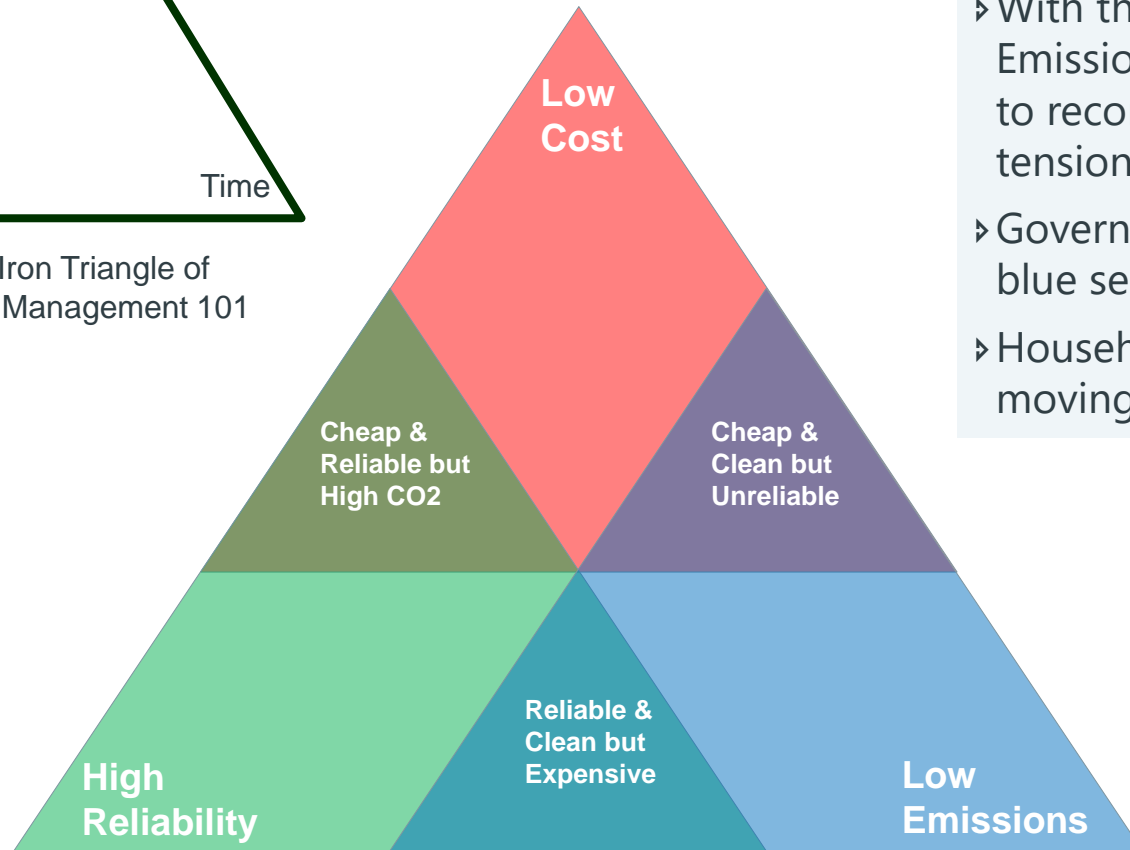


➤ Now with the proposed National Energy Guarantee (NEG), there will be an additional body, the Energy Security Board.

# The Iron Triangle and the Energy Trilemma

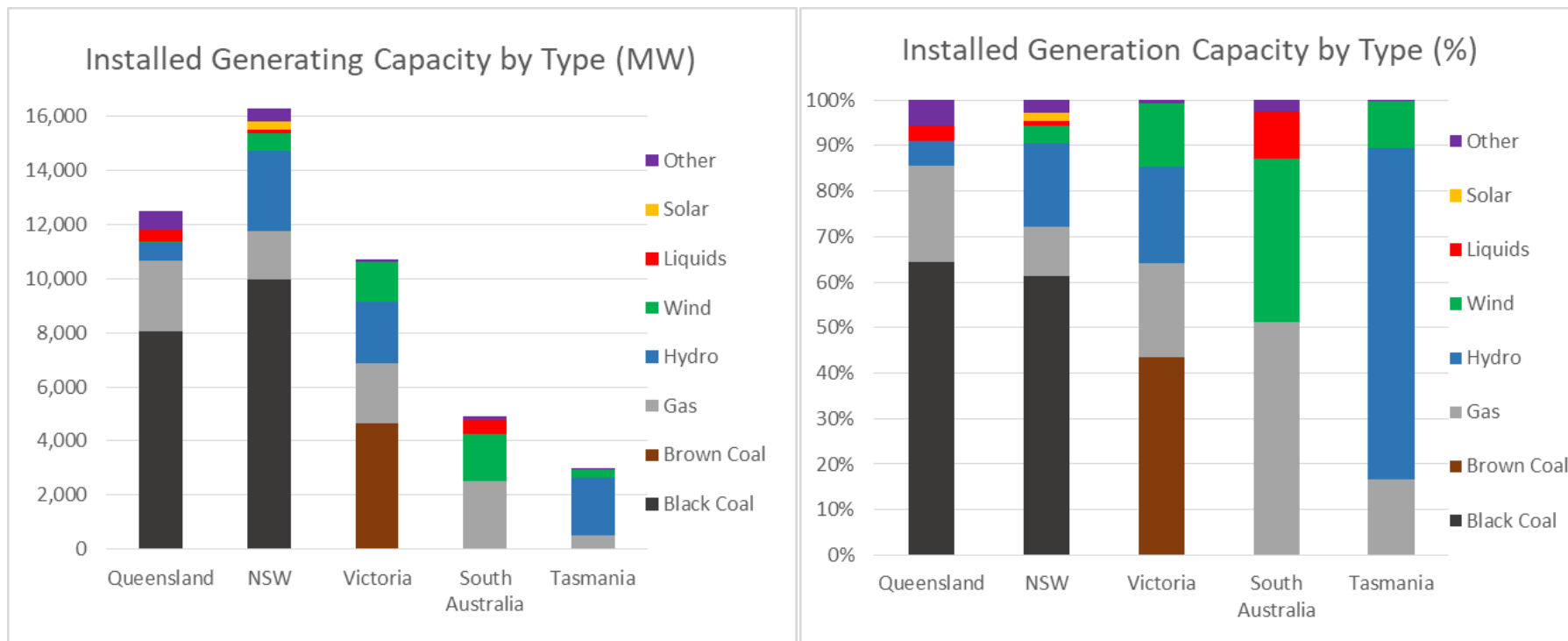


The Iron Triangle of Project Management 101



- Energy Policy used to focus on Lowest Cost and Reliability (brown segment)
- With the addition of Low Emissions, Australia has failed to reconcile the natural tensions between the 3 goals
- Government moving towards blue segment
- Households reacting by moving to the purple segment

# The Available Power Supply Sources for Eastern Australia

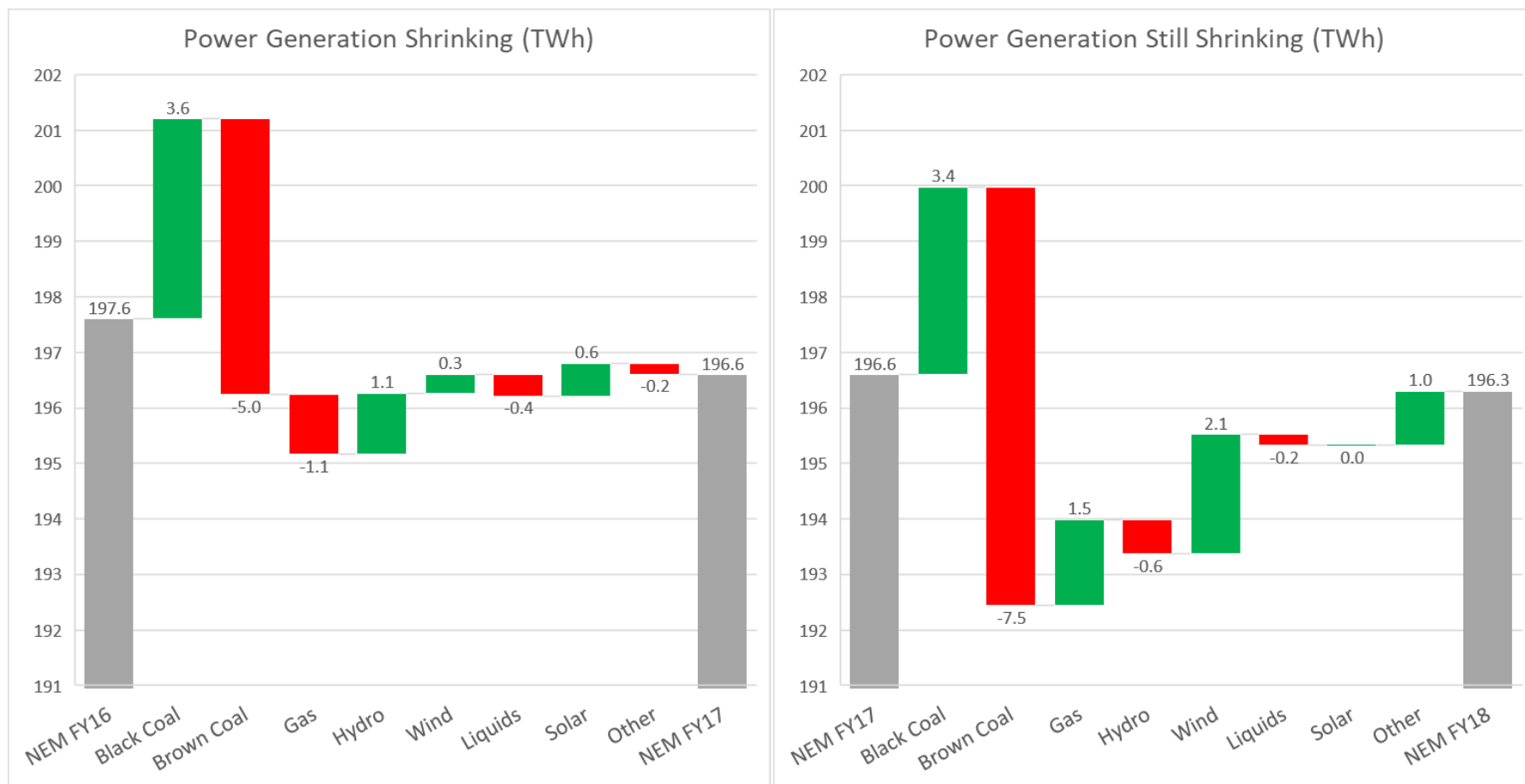


- ▶ The mix of generation technology is very similar among QLD, NSW, VIC – coal and gas backed up by hydro
- ▶ SA is gas and wind backed up with diesel
- ▶ TAS is hydro backed up with gas (and diesel)

- ▶ South Australia very vulnerable to supply constraints to gas and intermittency of wind
- ▶ Tasmania has suffered occasional droughts that limit hydro generation and has endured isolation from the NEM due to damage to the interconnector

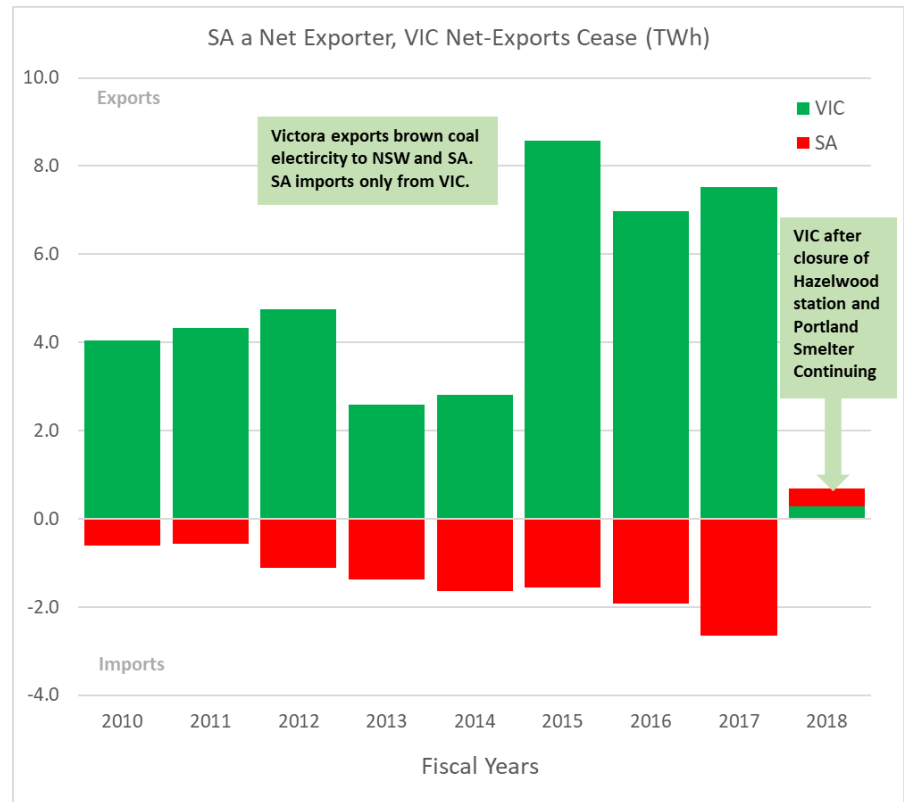
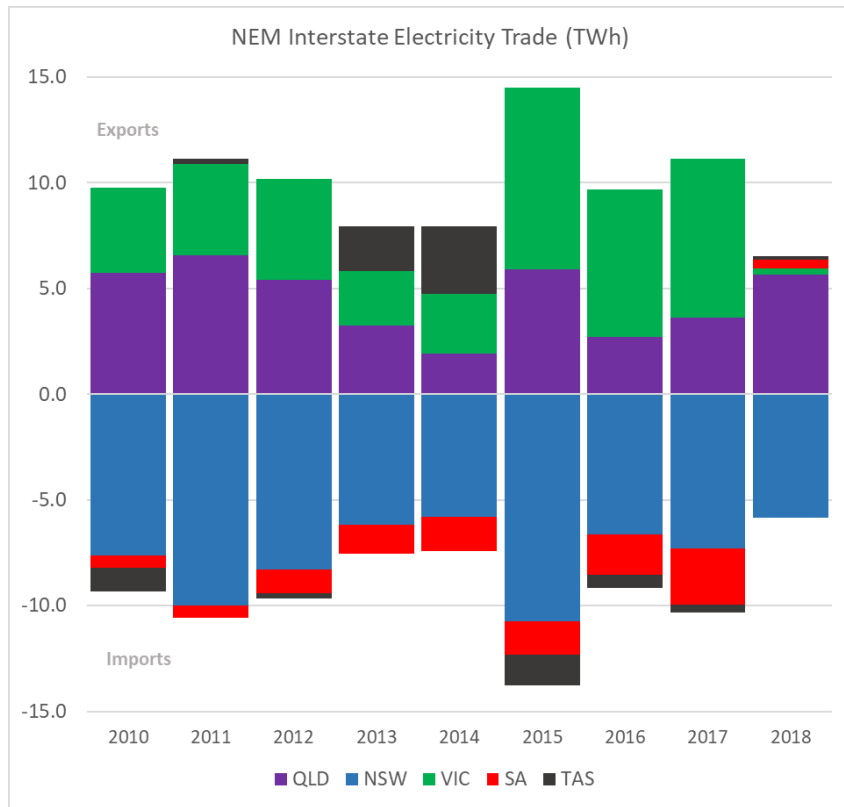


# Australian Power Generation is Regressing



- Electricity generation peaked in 2009 at 211TWh
- Consumption has fallen 7% despite population increasing by 13% since then
- Brown Coal is in the fastest decline – as expected

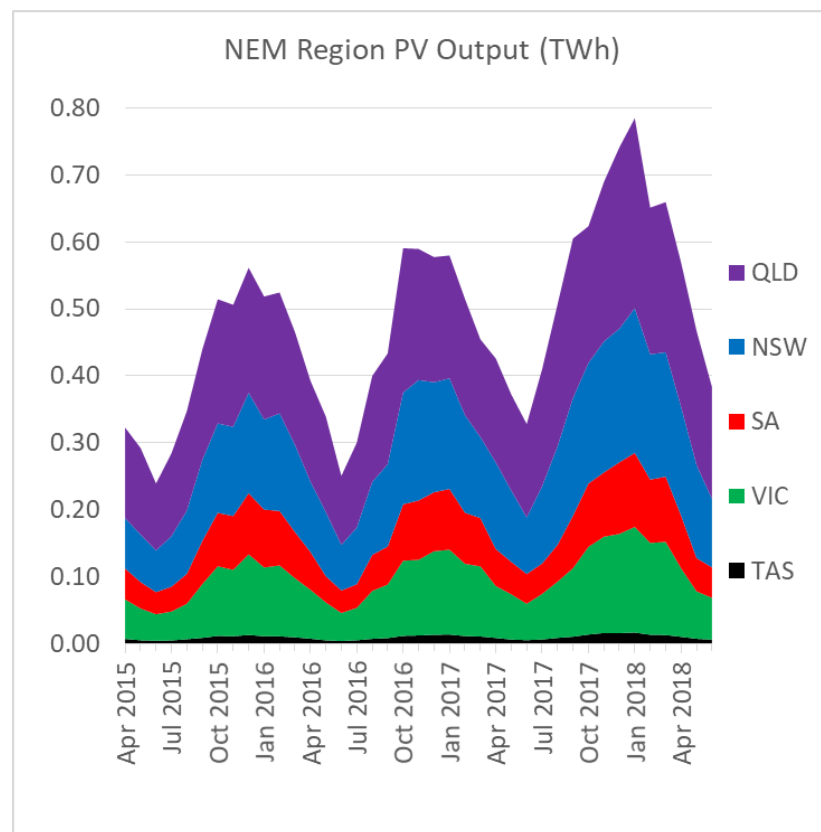
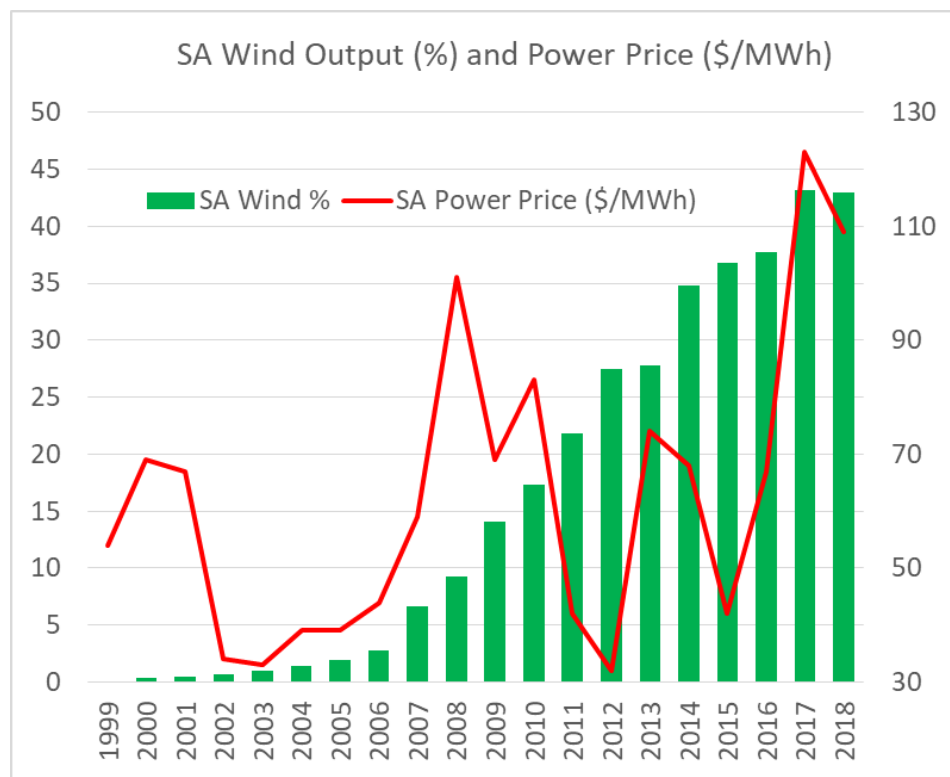
# Interregional Electricity Trade



- ▶ Victoria and Queensland have been the traditional exporters
- ▶ NSW and South Australia were importers
- ▶ Tasmania swings depending on drought

- ▶ With the closure of Hazelwood and the subsidising of the Portland Aluminium Smelter, Victoria became a higher priced market and a net importer in the first 3Qs.
- ▶ South Australia loses its only import option

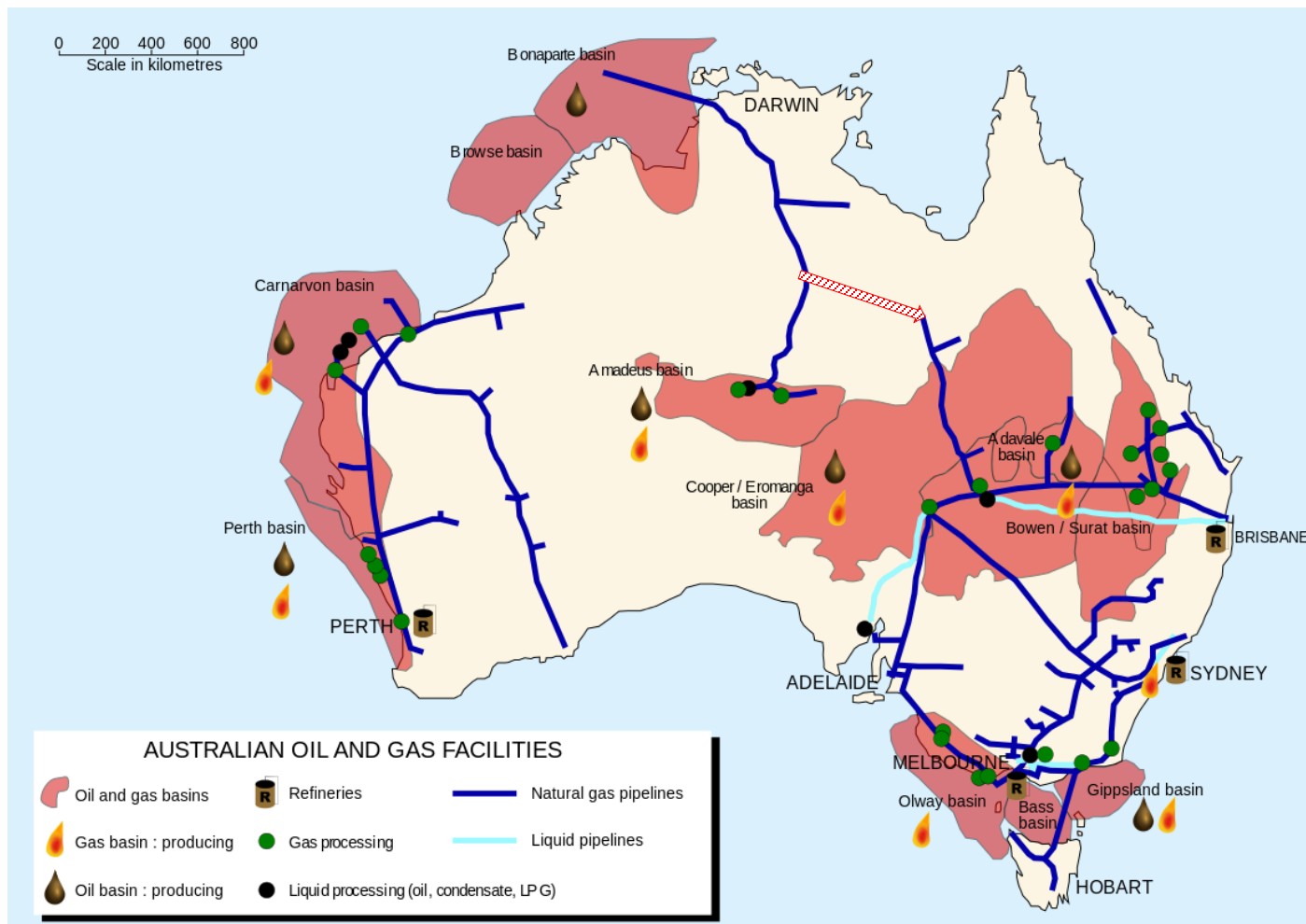
## Contribution of Renewables is growing and impact on prices is large



- SA enjoys both strong winds and higher average air density, thus it became the magnet for windfarms subsidised by the Federal Govt (Capex and Production)
- Has limited baseload left as a consequence

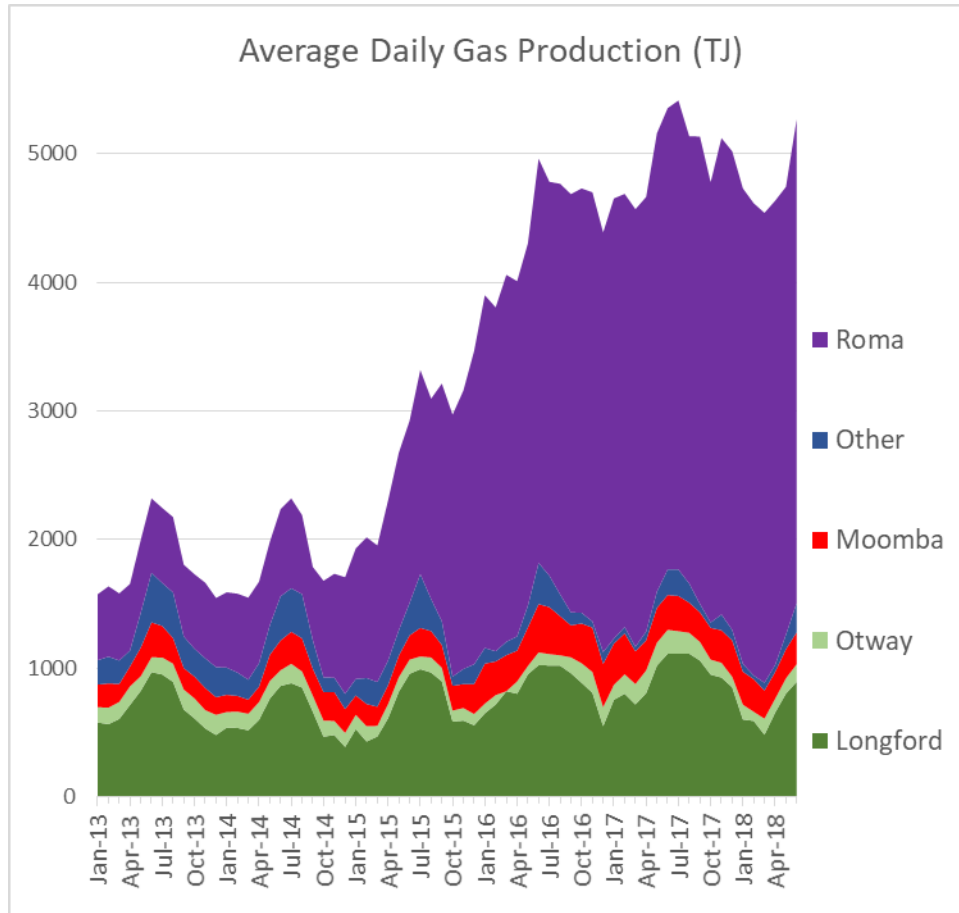
- Since Apr-15 to Apr-18 , electricity generation from Photovoltaics has increased by 78%
- Fastest growth in NT (not in the NEM). NSW has grown by 116%

# The Australian Gas Network

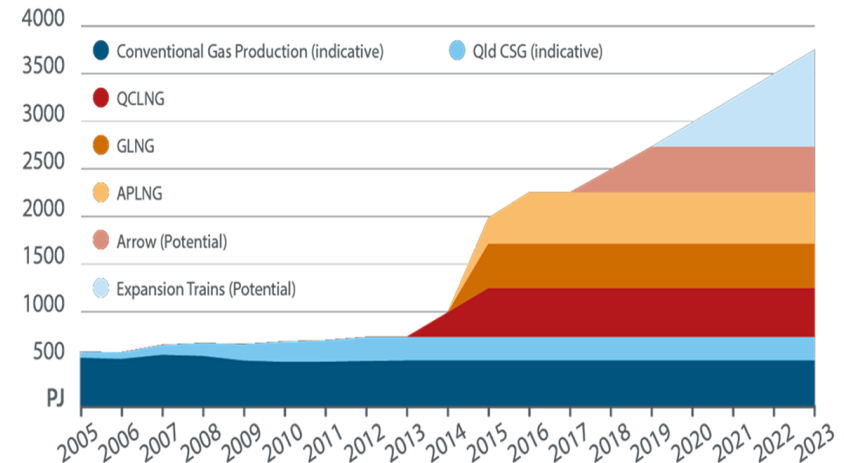


- Australia currently has 3 separate networks.
- The NT network and the Eastern network will be joined by the new NGP (formerly NEGI) pipeline being built by Jemena
- NGP due for completion in 2018

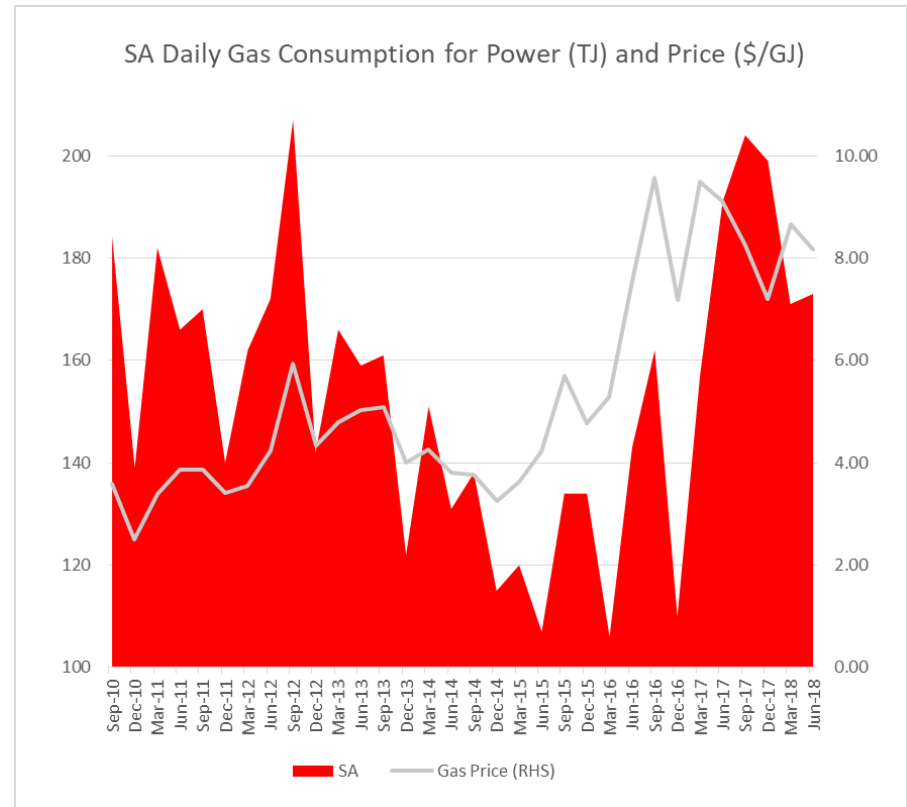
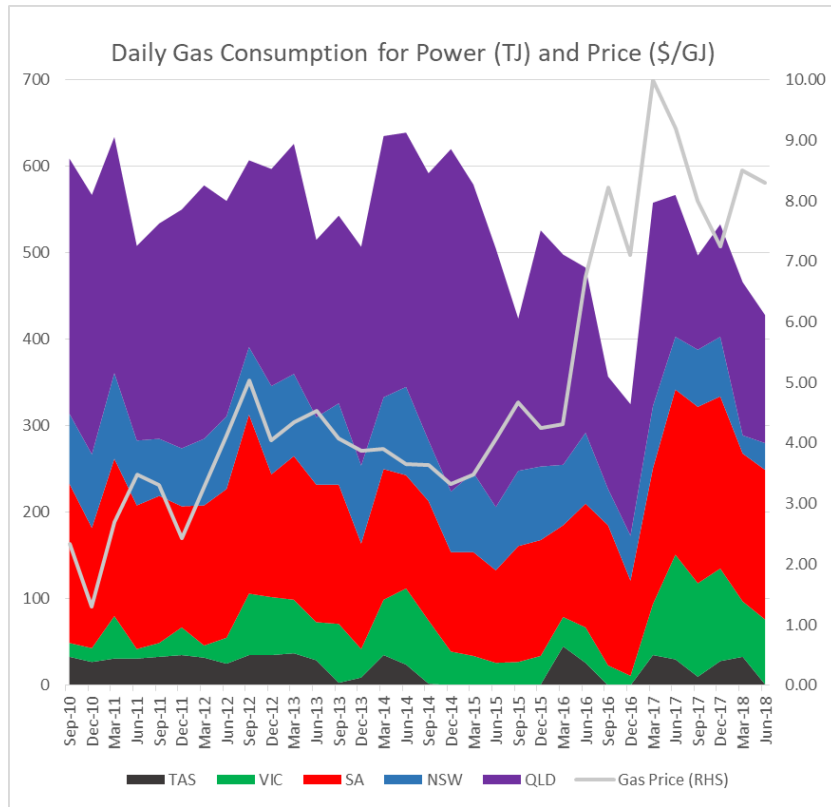
# No Shortage of Gas



- ▶ Despite massive growth in production, domestic market is under-supplied.
- ▶ Further gas shortfalls are anticipated as the 3 LNG plants in QLD ramp up.
- ▶ 5,300TJpd is approx. 2,000PJpa – the Gladstone LNG terminals need that much on their own.
- ▶ limited baseload generation available as a consequence

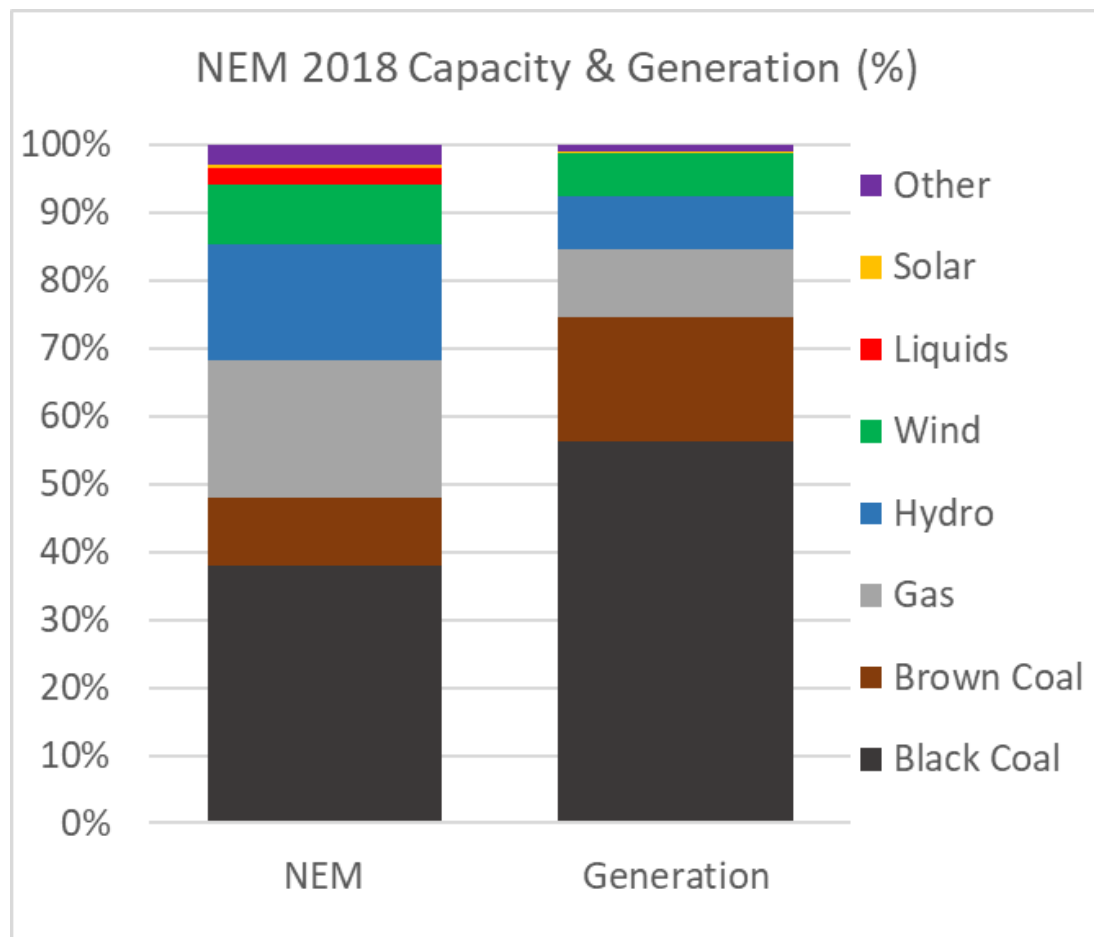


# Export Parity Gas Pricing Means Lower Demand for Power Generation



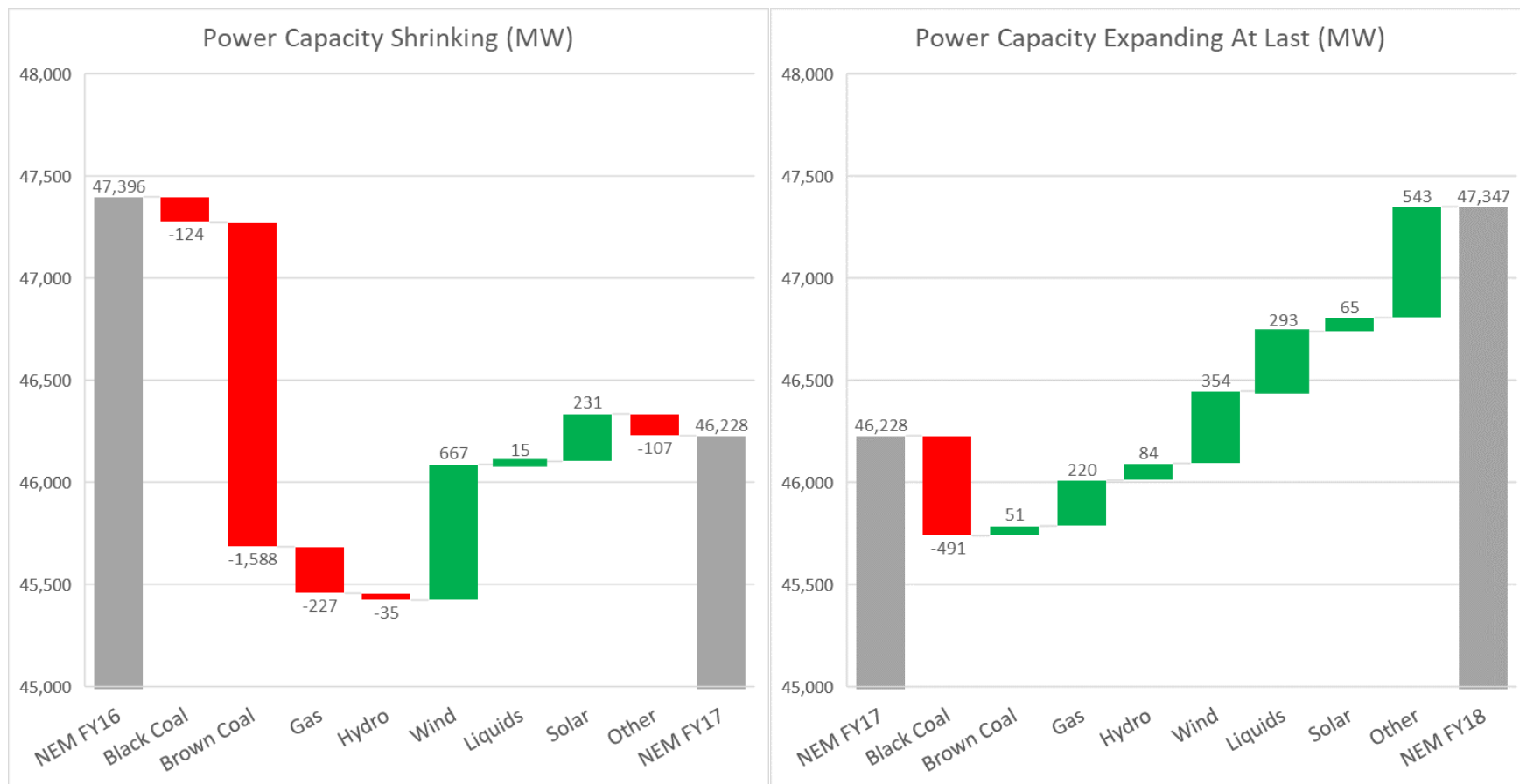
- Despite gas demand for electricity generation falling, prices have more than doubled since 2014 to over A\$8/GJ in the East Coast.
- Gas-fired power stations in South Australia now operating as shoulder and peaking load
- Other States are limiting supply of new gas through exploration bans.
- SA is the exception and supports unconventional sources

## Fossil Fuels still account for 85% of electricity generation



- power shortages and higher prices
- dependence interconnectors and on imported Victorian brown coal power
- Furthermore, affordable gas supply expected to remain under pressure as the CSG-to-LNG exports accelerate in QLD.
- SA Government policy has shifted towards stability from utility-scale batteries and distributed demand management
- VIC policy shifting to effectively de-carbonise

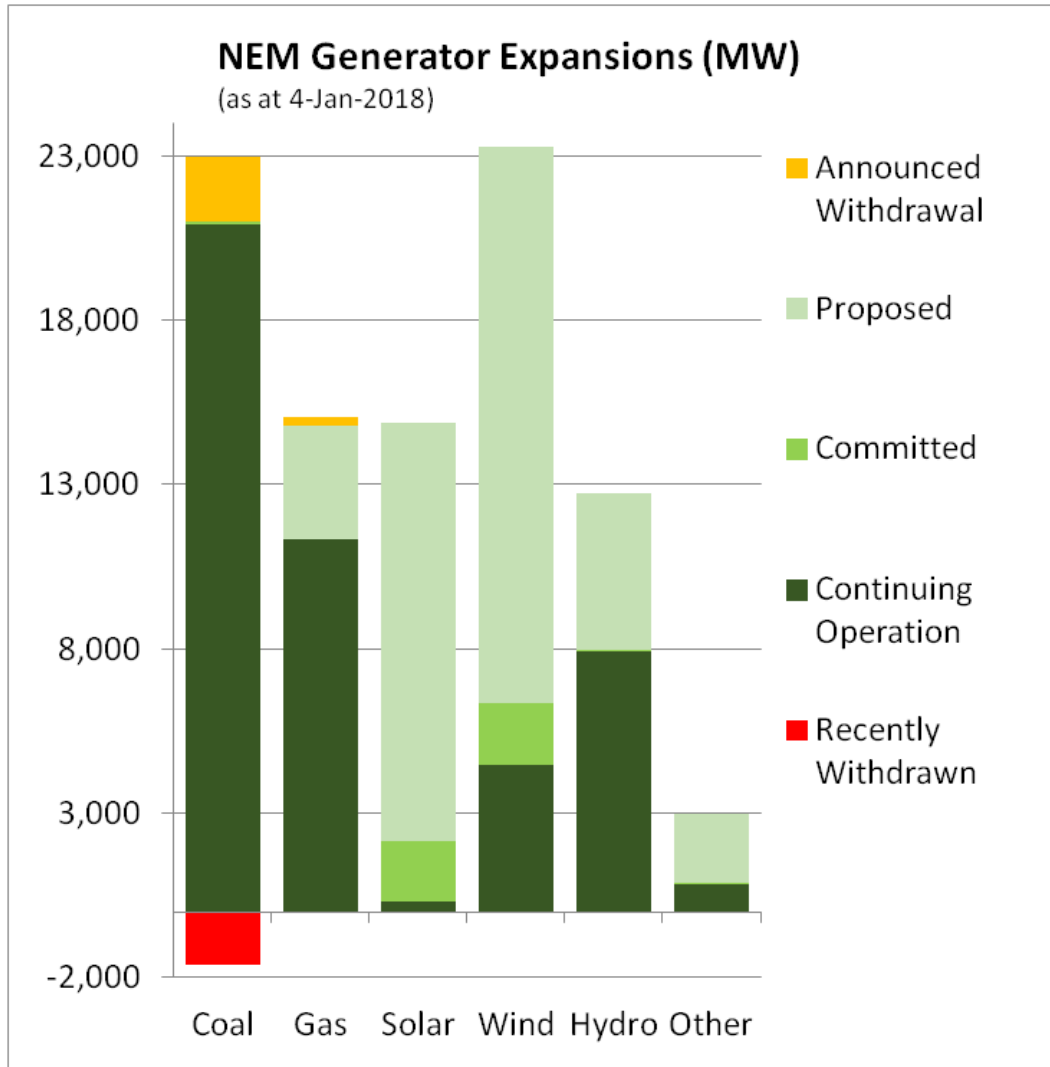
# The Australian Installed Capacity of Power Generation Turns Around



- Installed power capacity peaked in 2010 at 48,321MW
- The investments in wind and solar don't yet compensate for loss of coal



# Massive Renewable Energy Expansions Planned



- › If all of these projects get built, renewables will go from 26% to 57% of the installed generation mix.
- › Assumes coal and gas generators are able to stay online – likely that renewable mix will be much higher
- › Does not include rooftop solar panels. Currently 6,500MW installed and adding about 1,000MW every year
- › Note: solar and wind installed capacity is worth only ~30% (range of 10-50%) of fossil capacity in terms of electricity production

## **Energy Policy and the NEM no longer seem fit-for-purpose**

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- **Australia is one of the world's largest exporters of energy; Coal, Uranium, LNG, yet we have the some of/if not the worlds most expensive power**
- **Complexity of rules and regulations – limited competition**
- **Geographic shape of Australian grid – long and thin**
- **Gold-plating of Transmission infrastructure due to guaranteed returns**
- **Gold-plating of Market mechanisms increasingly likely due to NEG and ESB**
- **Danger of Complexity driving away consumers to self-supply**
- **Downward spiral of rising costs for those remaining on the grid – more defections**
- **“Grid Parity” of renewables is only possible because prices and subsidies are so high**
- **This was always the intention of energy/climate policy – higher prices without increased revenues for fossil fuel generators**
- **New Batteries are amazing, but they, and Pumped Hydro, are net consumers of energy not suppliers**
- **Fossil+battery could be the most efficient and cheapest power**
- **Nothing gets built now unless it is subsidised and now customers get subsidised due to the directly consequential higher prices**
- **Finally, limits to government have eroded, and governments now see companies and citizens as tax donkeys, rule camels, debt serfs, suspects - for our “own good”.**

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- **CCZ is a highly respected full service institutional stockbroker and corporate financier with private client capabilities**
  - **Sydney and Melbourne based offices with 26 employees and is 100% owned by its principals and staff**
  - **CCZ is a Trading Participant of the Australian Stock Exchange and utilises Pershing Securities Australia (a subsidiary of Bank of New York Mellon) as our clearer**
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  - ✓ Built on consistent, high quality advice and execution
  - ✓ 8 professionals with nearly 150 years of experience
- 

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  - ✓ 3 professionals with over 35 years of experience
- 

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  - ✓ Strong merger & acquisition capability covering acquisitions, divestments, take-overs and defences
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