

Price Shock

Is the retail electricity market failing consumers?

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Next Generation

The long-term future of the National Electricity Market

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Energy for Japan, China, India: Future coal exports from the Hunter

Hunter Research Foundation Centre
Muswellbrook, 10 April 2019

- **A fundamental transformation of the global and domestic energy systems is happening, driven by primary and secondary responses to climate change.**
- **Australia's transition is occurring in a global context and there is no clear future view on the scale and rate of change over the next three decades.**
- **The direction and drivers are clear.**
- **Industries, governments and communities need to move beyond denial.**
- **Planning for an existential threat is the only responsible approach.**
- **There are grounds for cautious optimism.**

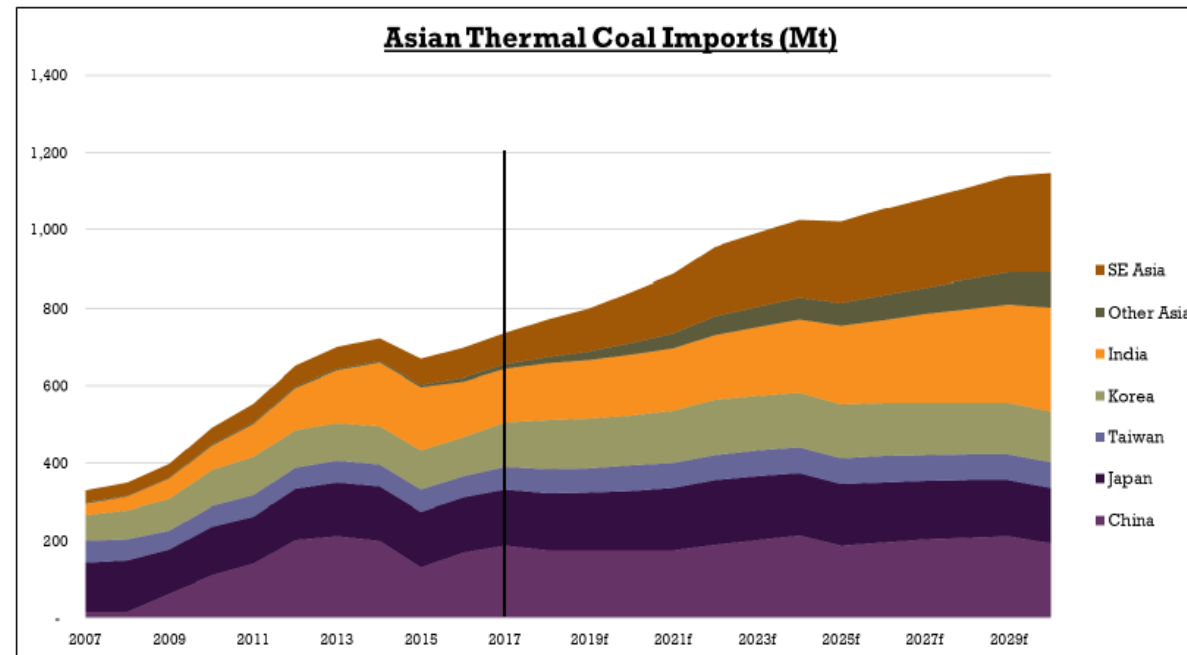
Australia's domestic coal story has an international context

AFR, June, 2018: Yancoal chief executive Reinhold Schmidt said:
Only a blackout in NSW will wake up the state to the value of the coal industry.

Coal is "here for the long term," he said, pointing to the value of the fuel for efficient, reliable base-load power, as well as for the industry's contribution to local communities such as the Hunter Valley's Singleton.

Minerals Council of Australia:
"Robust Asian thermal coal demand creates opportunities for Australia."

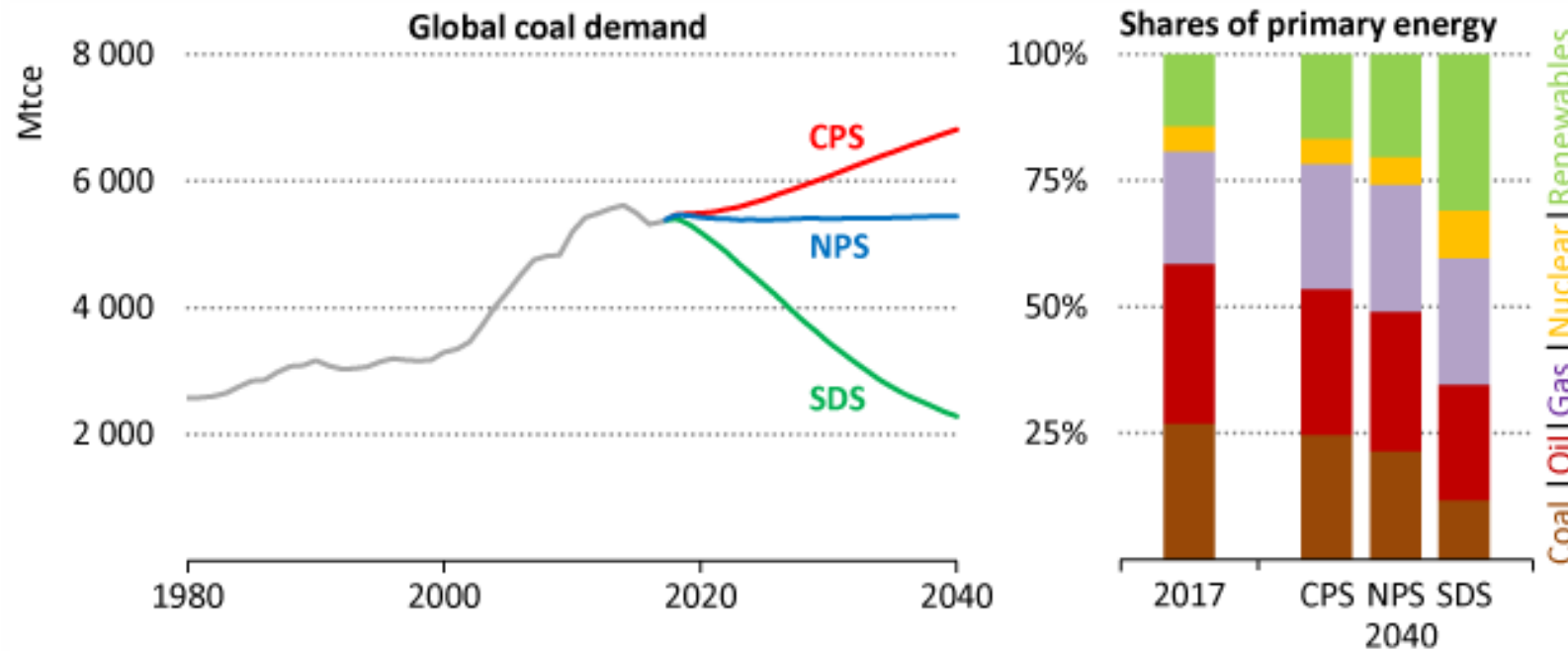
Hunter Valley News, 28 March:
"Data released by Coal Services Pty Ltd reveals 164.6 million tonnes of coal was exported from NSW in 2018, a rise of 838,000 tonnes on the previous 12 months and more than 23 per cent higher than in 2012."



Source: Commodity Insights.

The International Energy Agency takes a scenarios approach

Choose your scenario to get your preferred outcome

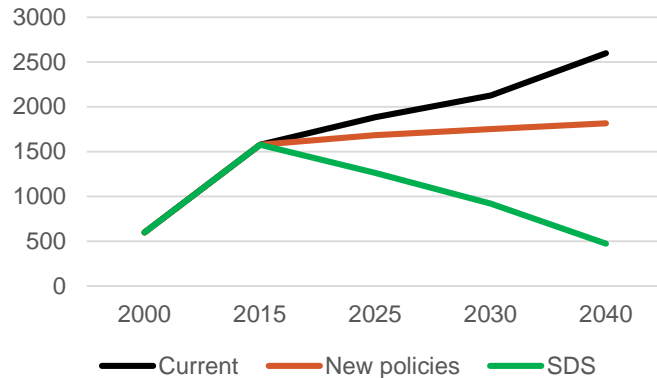


IEA: “Global coal demand is forecast to remain stable over the next five years as declines in Europe and North America are offset by strong growth in India and South-east Asia”

Regional and country differences could hardly be more stark

The global IEA view is mirrored in our region

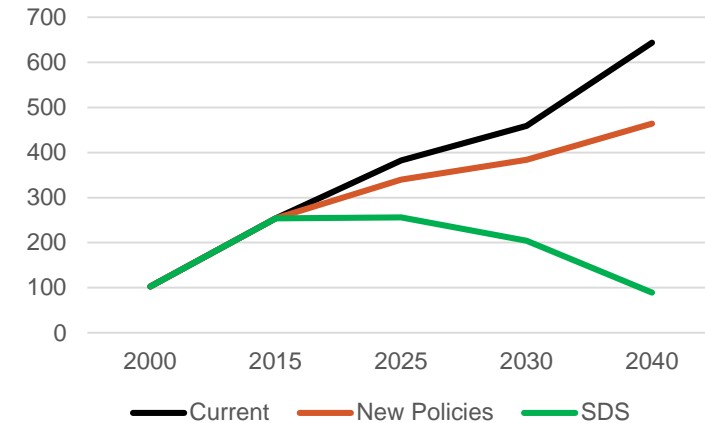
Asia Pacific



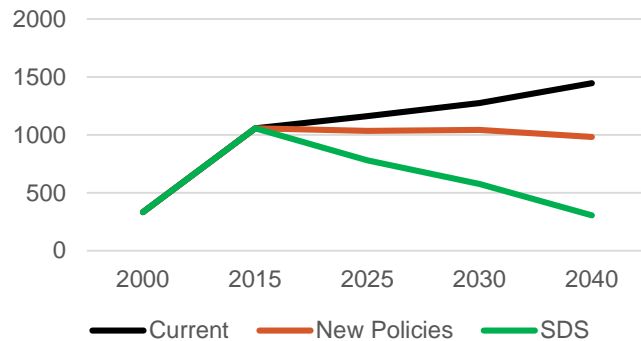
Regional coal demand for power generation (Mtoe)

- Firmly entrenched policies
- Today's policy ambitions, including NDCs
- Paris Agreement+

India

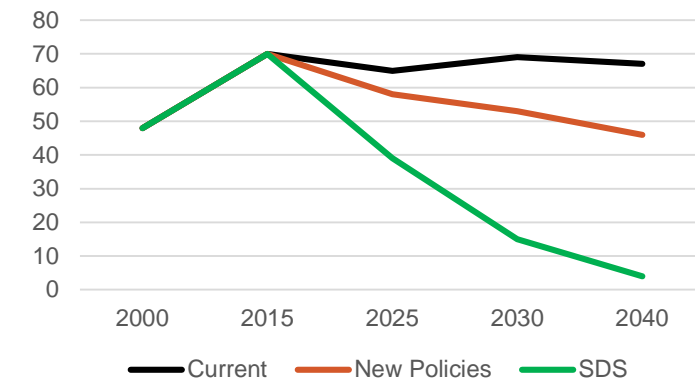


China



Queensland Treasurer: Global markets are “moving away from thermal coal” and communities that traditionally relied on mining needed to re-skill their workers.”

Japan



Source: IEA World Energy Outlook 2018

Careful data selection can't make both right

Is the carbon bubble about to burst?

Businesses are becoming obliged to address the valuation risk if the climate threat is tackled resolutely.

A study last year in *Environmental Research Letters* by Alexander Pfeiffer of Oxford University and colleagues: electricity producers would have to retire a fifth of capacity, and cancel all planned projects, if the Paris goals are to be met.

Between 2009 and 2015 Moody's cut the average credit rating of European power utilities by three notches, partly because of environmental risk.

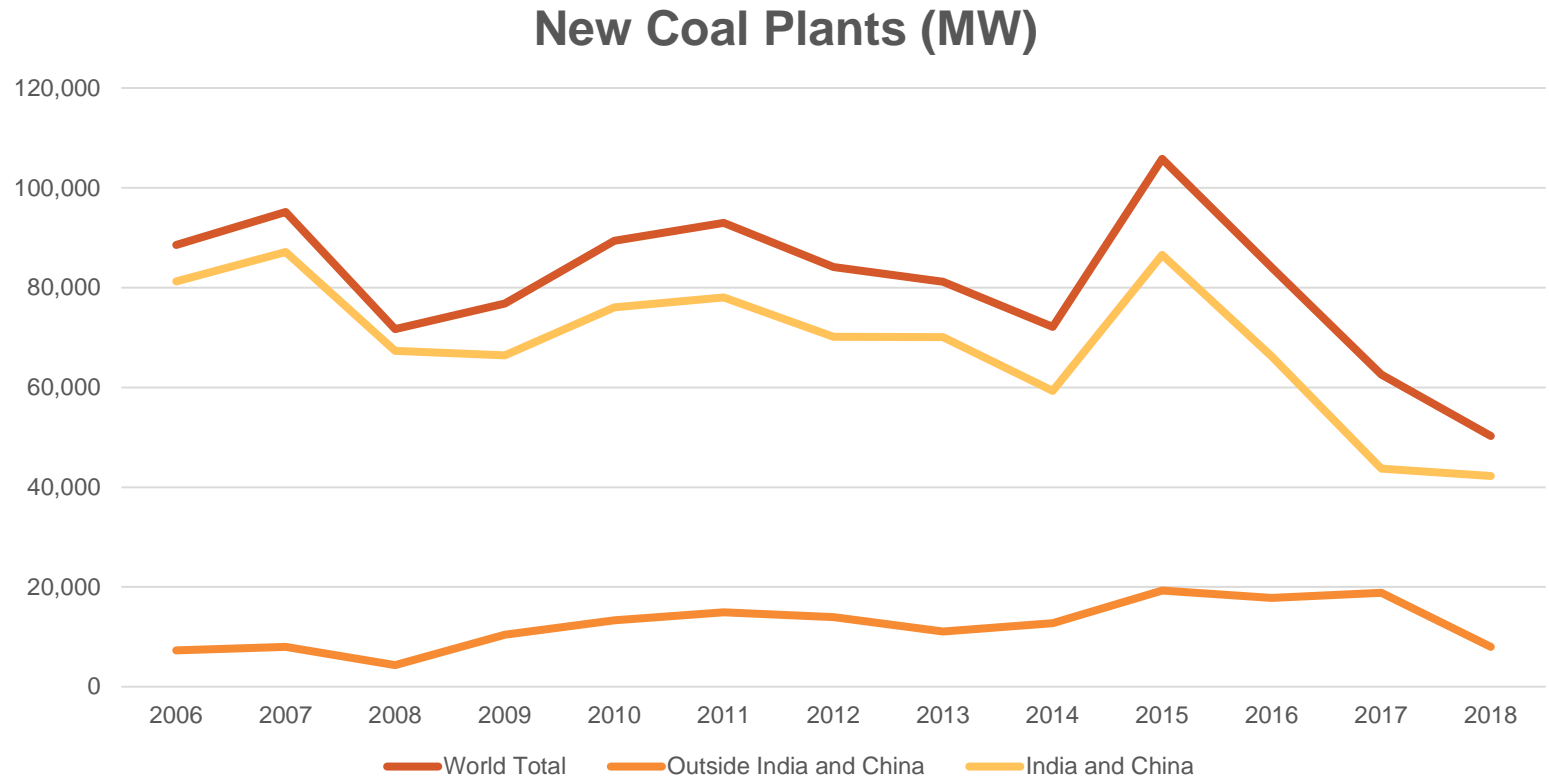
Last June the Financial Stability Board, a club of regulators, said companies should assess and own up to the climate-related risks they face. Since last year institutional investors in France have been required to do so by law.

Courts and regulators are challenging the territory of governments.

ASIC commissioner John Price: in addition to the strict legal requirements, companies should also "carefully consider the general information needs of investors" when it comes to disclosing climate risks.

Yet, in 2018, China saw a 5% jump in electricity generation from coal-fired power stations to drive up emissions by 250 Mt, while demand for the fuel in India grew by 5%.

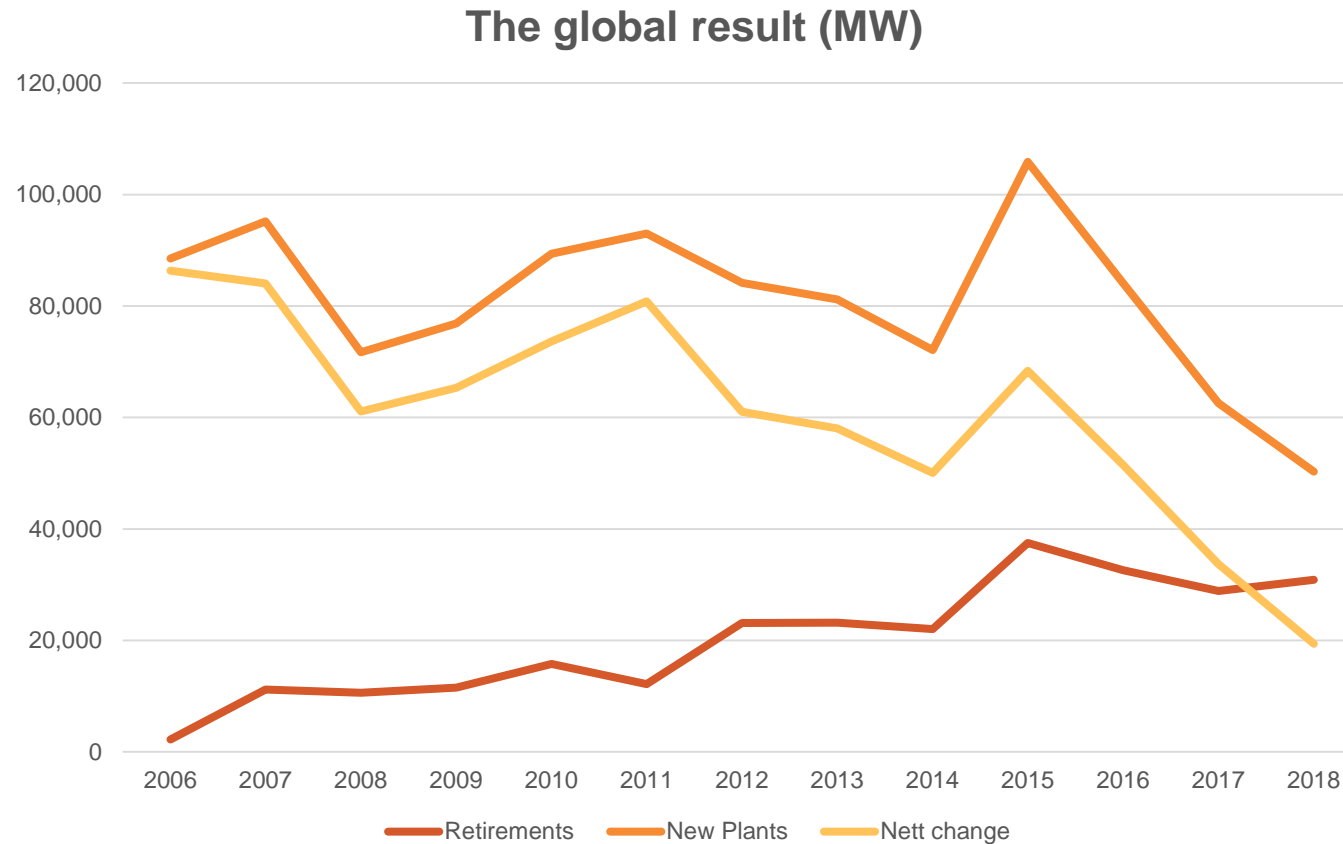
What's happening: new coal plants are being built



Source: CoalSwarm Global Coal Plant Tracker, January 2019 (Units 30 MW and larger)

But, that's not the whole story

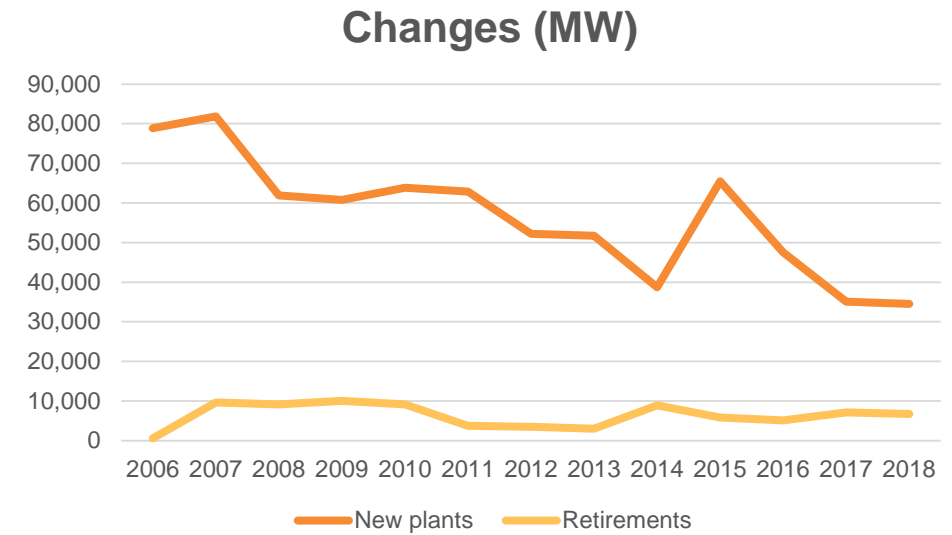
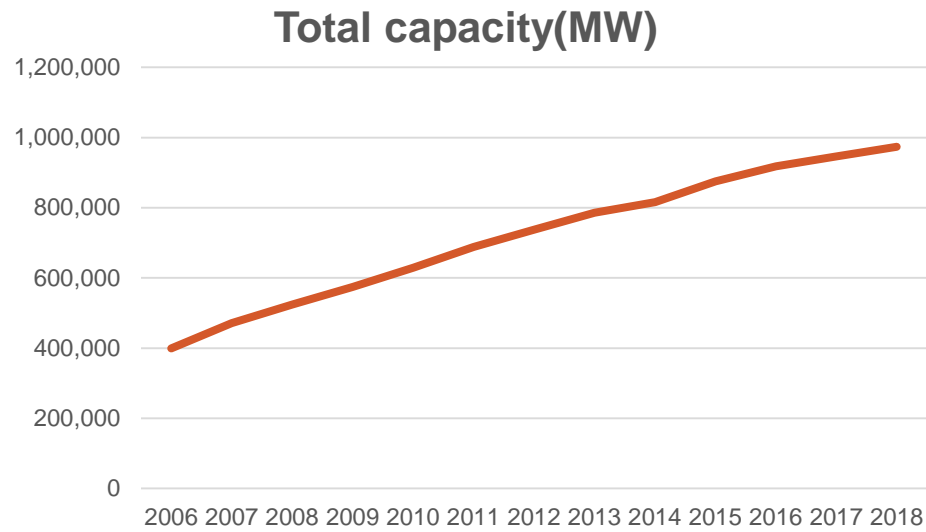
As new capacity is falling, retirements are rising



Source: CoalSwarm Global Coal Plant Tracker, January 2019 (Units 30 MW and larger)

Multiple contributors leave many fingerprints

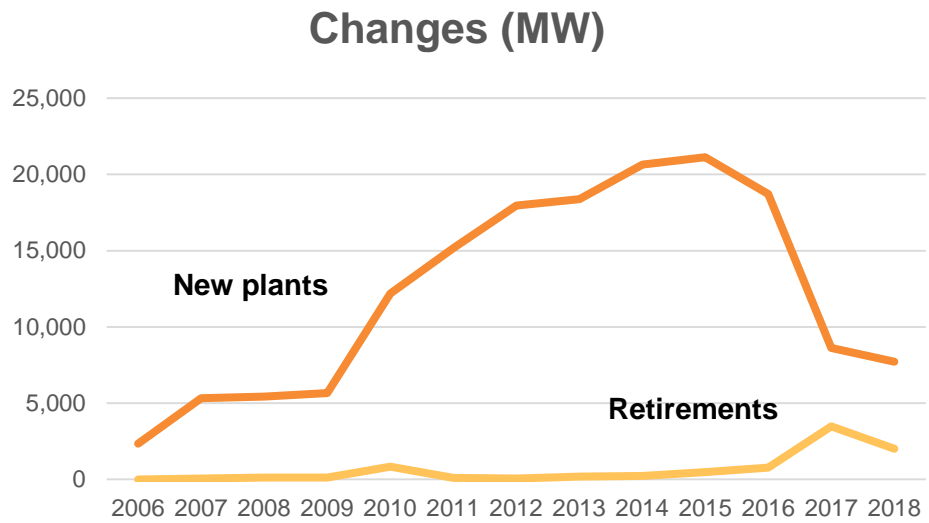
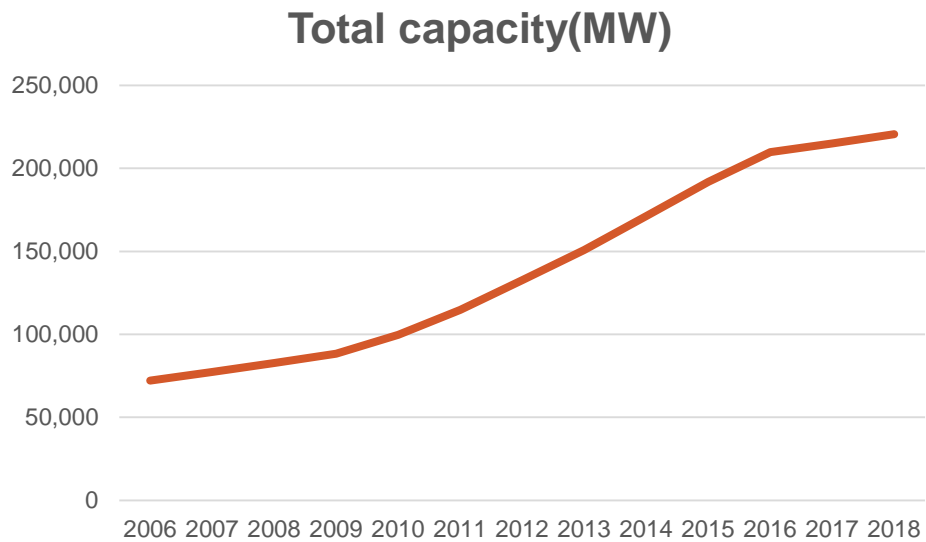
The Chinese story dominates



Source: CoalSwarm Global Coal Plant Tracker, January 2019 (Units 30 MW and larger)

But it's not only about China

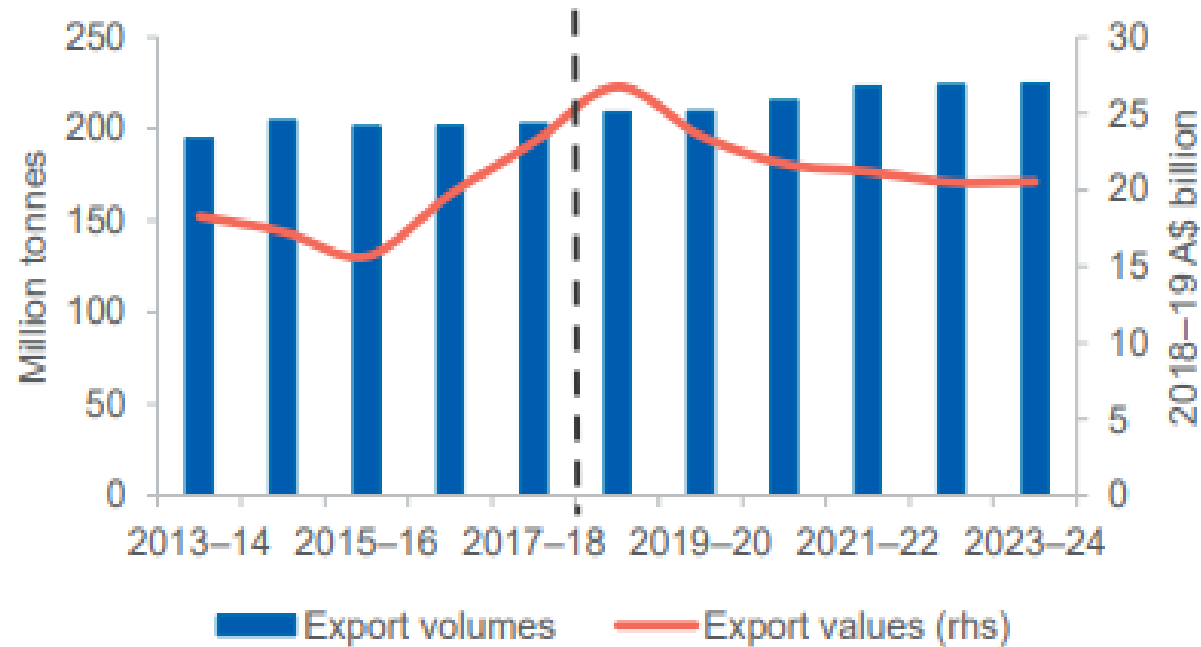
The Indian story is more confusing, if less dominant



Source: CoalSwarm Global Coal Plant Tracker, January 2019 (Units 30 MW and larger)

The consequences for Australia and the Hunter region are material

Figure 6.9: Australia's thermal coal exports

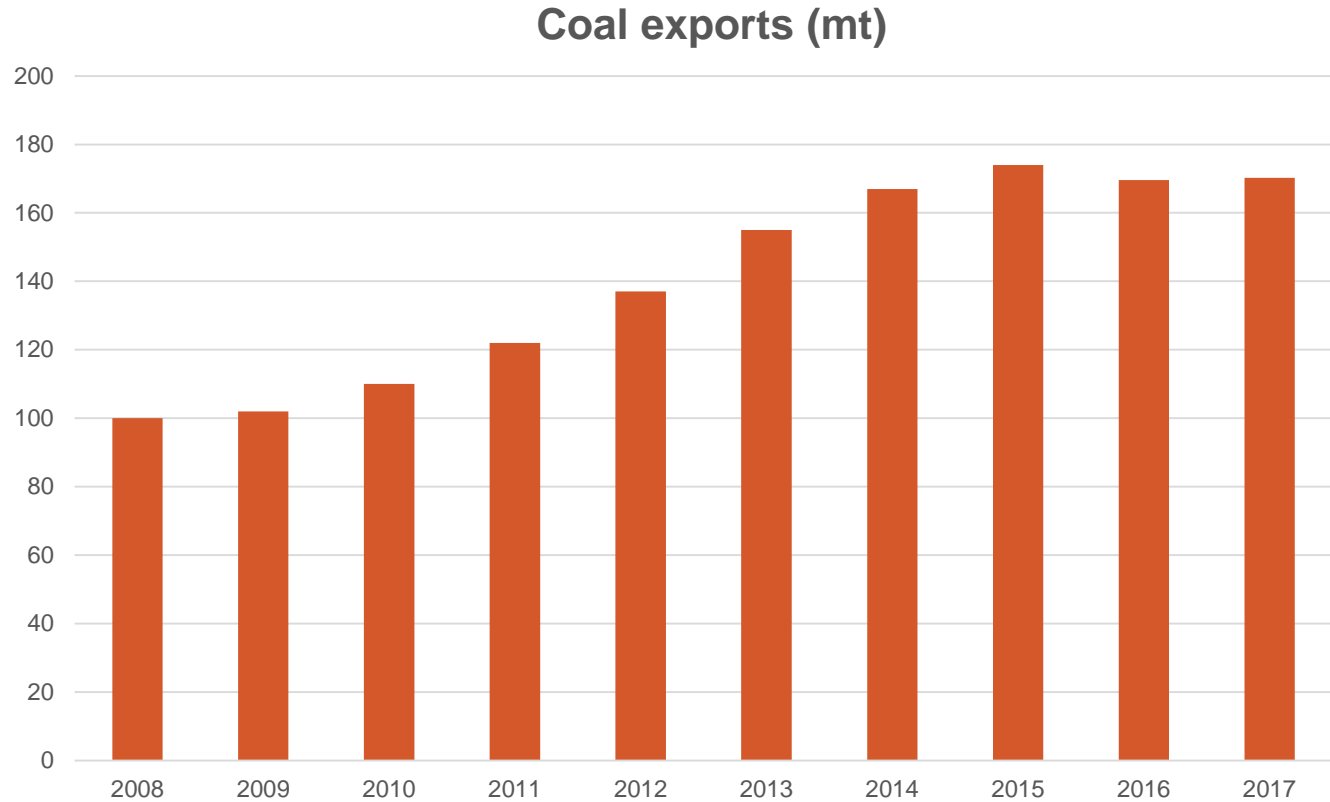


Source: ABS (2019) International Trade, Australia 5454.0; Department of Industry, Innovation and Science (2019)

Source: Australian Government, Resources and Energy Quarterly March 2019

And the data are open to selective interpretation

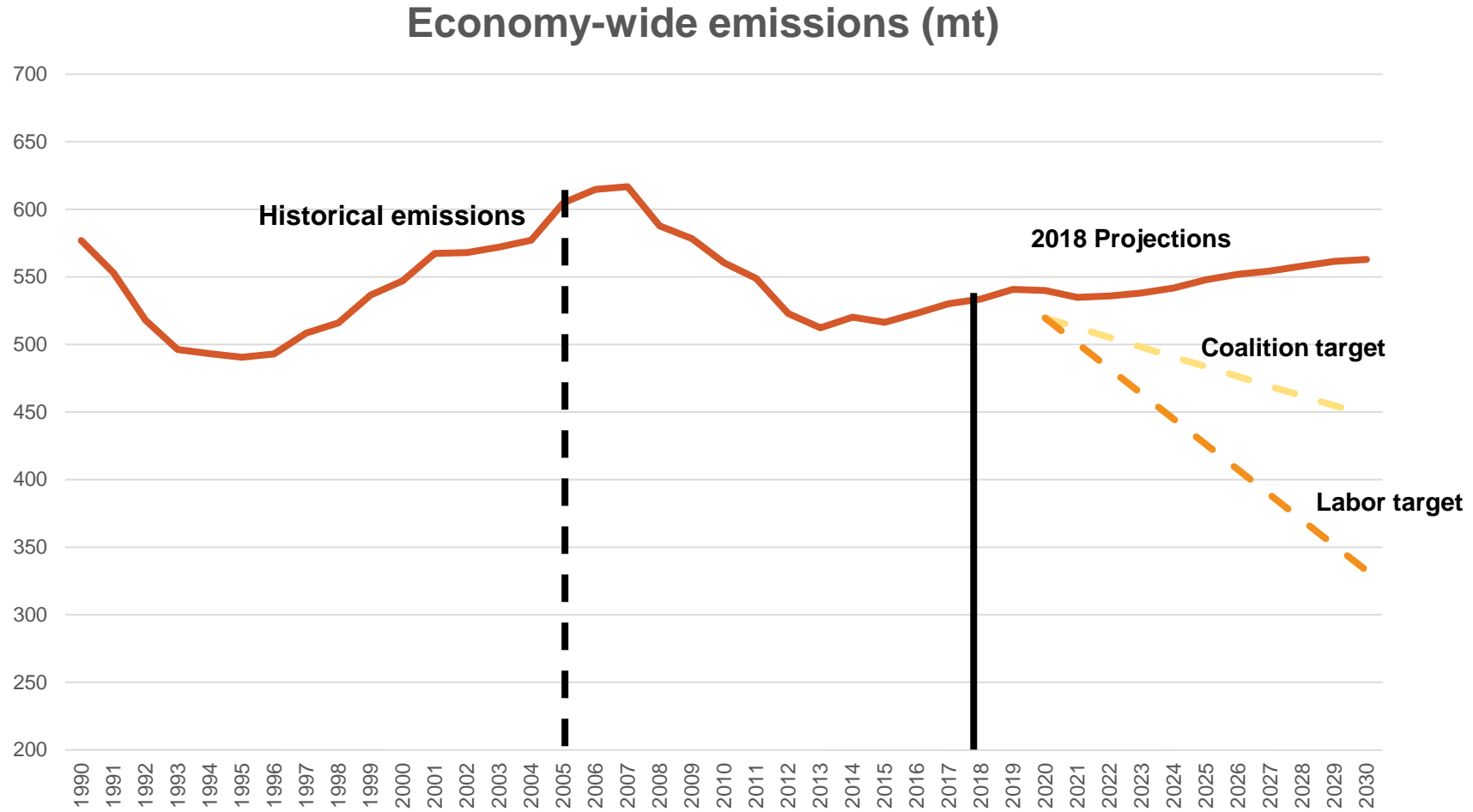
NSW exports have flattened after a period of strong growth



Source: Coal Services

Domestic demand will begin to change with policies

The domestic Australian story is challenging



Source: Department of Environment and Energy, December 2018

A shift in electricity generation is necessary but not sufficient

Drivers of the coal and renewables shift: policy and technology

Figure 3.8: NEM generation mix, 2020, 2030, 2050¹⁸⁴



Emissions target: 28% reduction by 2030 and trajectory to zero emissions by 2070

Source: Finkel Review (2017)

Accelerators and brakes for the transition

Accelerators

- Accumulation of pressures from multiple directions
- Economy wide policy (beyond 26-28% by 2030 – 45%)
- Costs of large scale solar deployment
- Policy that integrates energy and climate change to drive dispatchability (pumped hydro etc)
- Policy on vehicle emissions
- Build-out of interstate and intrastate transmission

Brakes

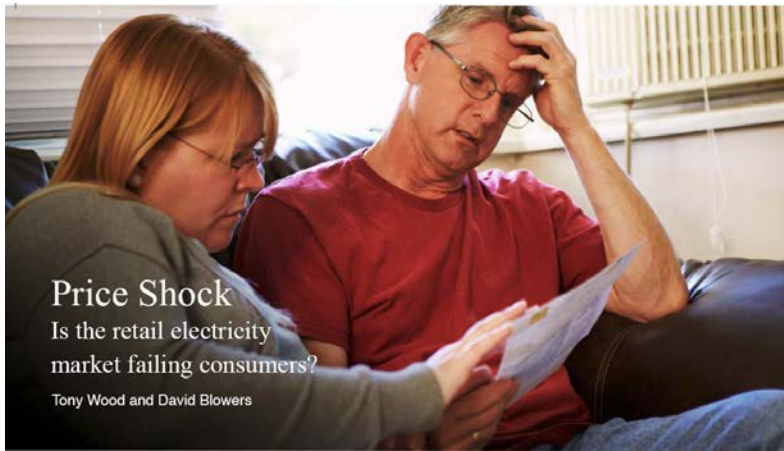
- Slowing in policy aspiration
- Failure to integrate climate and energy policy
- Stuck in sector framework for extended period
- Slow development of storage
- Blackouts
- Increasing cost of balancing solar and wind at high penetration

- **World trade in coal is around 1.1btpa and will fall to 0.5bt by 2040 if the world addresses climate change.**
- **China's thermal coal imports are projected (Department of Trade, March 2019) to decline as domestic production recovers after several years of industry reforms.**
- **In the short term, Australia's thermal coal exports look stable.**
- **In the longer term, the risks for thermal coal exports are on the downside, and could accelerate quickly.**
- **We have little influence over the global trend, yet its implications for our export coal revenues are existential.**
- **These are the lessons from the numbers.**

But, complacency leads to rapidly increasing problems

A planned response to a long-term existential threat

- **Consider the five stages of grief: denial, anger, bargaining, depression and acceptance are a part of the framework that makes us eventually able to navigate loss. We are struggling with denial.**
- **Rapid change (closure of Hazelwood power station) accentuates anger and depression, while slower change accentuates denial. The good news from recent data means more time for planning and a stronger economy to fund change – it should not be wasted**
- **In the denial stage, we are able to find data and opinions to support our preferred view of the world and ignore the data that say otherwise.**
- **Ultimately, the accumulating quantitative and qualitative data should lead to acceptance and strategic planning.**
- **Industries, governments, social advocates and community organisations can deliver a better outcome if they are mobilised together. Without plans, everything becomes reactive and much more painful.**
- **A strategic plan is required based on a pragmatic view of the data and trends and informed by scenario planning for the region.**



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