



Commodity Insights

Coal is Back – but here to stay?

MEC Mining, Brisbane, 28th March 2018



Commodity Insights

- Commodity Insights is a primary research and advisory firm specializing in global coal markets. We focus on understanding market fundamentals and drivers. We provide market advisory services including:
 - long-term fundamental market analysis and forecasts
 - advising on transactions/financings
 - due diligence and valuation processes

Client	Project Scope
Pacific basin coal producer	<u>Asian Thermal Coal Market Outlook to 2021</u> <ul style="list-style-type: none">• Asian thermal coal demand by country;• Asian thermal coal supply outlook to 2021 by country;• Market balance and price outlook for Asian thermal coal to 2021;• Position of asset on cost curve
Global infrastructure fund	<u>Throughput forecast to 2046</u> <ul style="list-style-type: none">• Global seaborne thermal coal market outlook• Demand outlook to 2046 by country, based on new capacity, energy policy, economic growth;• Supply outlook to 2046 by country based on demand and price forecast (induced supply model);• Estimate of latent supply capacity in various regions.• Throughput forecast under 5 modeled scenarios
Australian coal infrastructure operator	<u>NSW Export Forecast to 2040</u> <ul style="list-style-type: none">• Annual forecast of exports by mine to 2040, based on current mine plans and approvals;• Annual forecast of exports by mine to 2040, for brownfield and greenfield mines, based on submitted approvals and estimated commencement dates;• Estimation of remaining reserves by mine (operating, brownfield and greenfield) post-2040, to understand the future export potential from NSW.



Commodity Insights – Clients

- Our client list includes a wide range of coal producers, traders, project developers, financiers and infrastructure providers from across the globe

Australia	International
Adani Mining	Avra Commodities (Singapore)
AMCI	Banpu (Thailand)
Australian Pacific Coal	BHP Billiton (Singapore)
Hastings Infrastructure	Coal Marketing Company (Colombia/Ireland)
JP Morgan	Cloud Peak Energy (USA)
New Hope Group	KAPSARC (Saudi Arabia)
MACA	Edesia Asset Management (Singapore)
Metro Mining	Elliott Advisors (USA)
Stanmore Coal	Mitsubishi (Japan)
UBS	Signal Peak Energy (USA)
Vitrinite	Uniper Energy (Germany)
Waratah Coal	Vitol (UK)



Agenda

- Current coal market status
- Drivers of market strength – demand growth
- Drivers of market strength – supply weakness
- Outlook and implications



Current Market Status



It's a good time to be a coal exporter

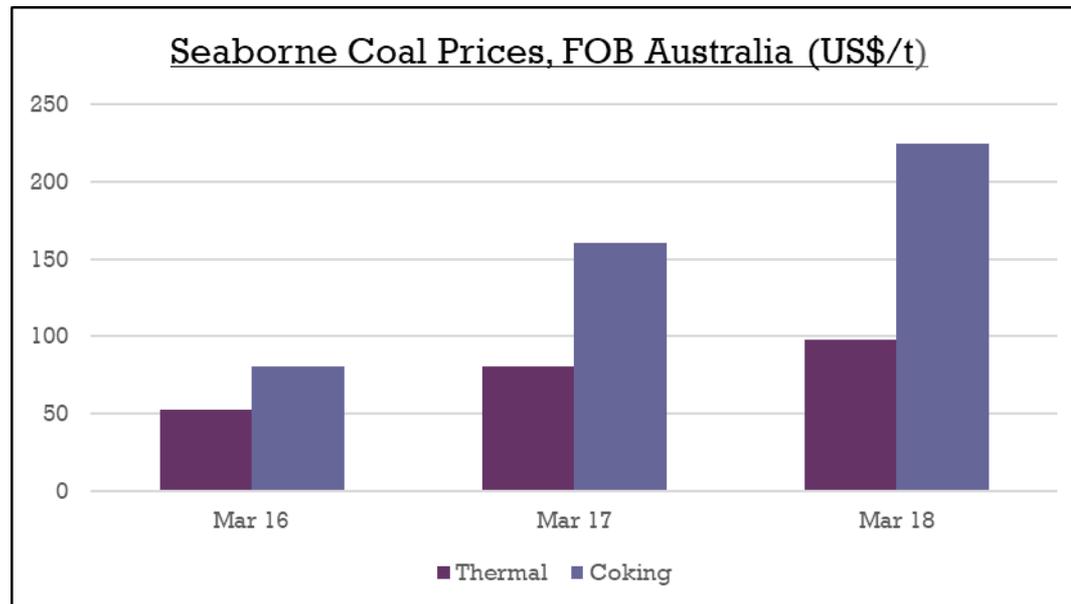
- Stronger prices on the seaborne market have fed directly into coal exporter profit margins, which recently have ranged from 23-54%, depending on the split of thermal/metallurgical coal and also the split of domestic and export sales. Major producer results are tabled below.
- To date, producers have managed to keep production costs under control, and this appears to be a focus of the industry – which did not manage costs well during the last boom.

Producer	EBITDA Margin Coal	Period	Notes
BHP	44%	Jun-Dec '17	Mostly met coal
Glencore	36%	2017	Energy group result (mostly coal)
Anglo	37% for thermal 54% for met	2017	
Peabody	30%	Q4'17	Mostly US domestic
Bumi Resources	23%	Jan-Sep '17	Indonesian
Whitehaven Coal	40%	Jun-Dec '17	



Due to a very strong recovery in prices over the last 18 months

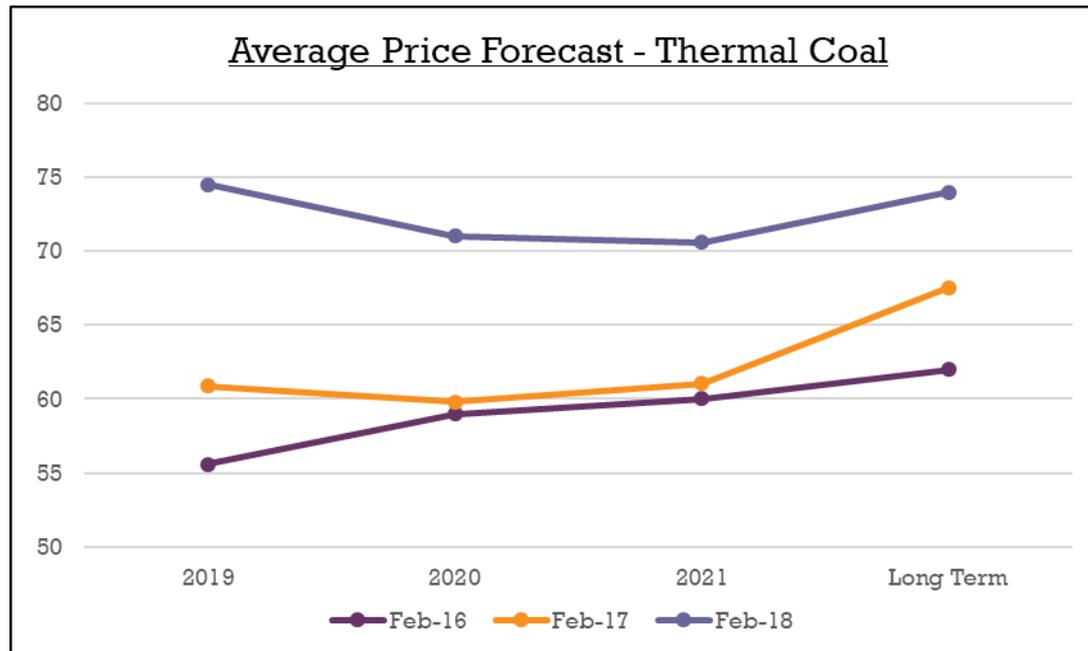
- Thermal coal prices have basically doubled since early 2016, from just over US\$50/t to around US\$100/t at present. For most of January and February 2018, prices were above US\$100/t.
- Hard coking coal prices have shown even more growth, increasing from around US\$80/t in early 2016 to over US\$220/t recently.





And now price forecasts are moving up....

- Average broker forecasts for thermal coal have risen more than US\$15/t over the last 2 years – but are still well below where they should be, in our view. Most analysts tend to trail the market both on the way up and on the way down.
- Expectations are very important as they help drive investment decisions.

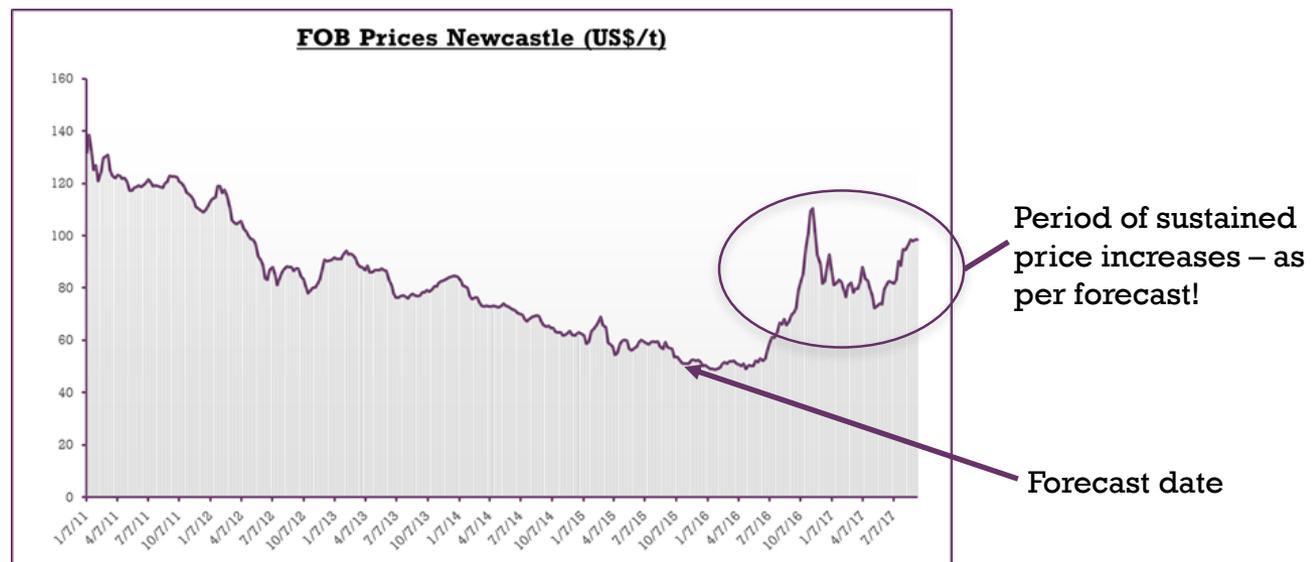




Commodity Insights called this market in 2015!

- In mid-2015, when seaborne thermal coal prices were languishing in the US\$50's, I wrote an article for the American Coal Council. The link to the article is here: <http://acclive.com/american-coal-magazine-archive/> (2015, Issue 2, page 46). After noting that the (then) current downturn was cyclical and not structural, the concluding paragraph of the article was:

“Combining this anaemic supply outlook with the bullish demand picture, the fundamentals for seaborne thermal coal over the next five to 10 years are very strong, and will result in a period of sustained price increases—otherwise known as a bull market. You heard it here first.”





The positive coal stories are re-appearing!

- US Energy Administration outlook to 2040:
 - World energy consumption will grow 28% between 2015 and 2040, with the majority occurring in Asia;
 - Chinese coal use in electricity generation is projected to rise slightly through to 2023 and then slowly fall to less than the 2015 level by 2035;
 - Indian coal consumption will grow on average 2.6% a year from 2015 to 2040;
 - Africa, the Middle East and other non-OECD Asian countries will increase coal consumption on average by 2.4% annually between 2015 and 2040;
 - Coal's global share of electricity generation will fall from 40% to 31% in 2040, the same level as renewables.
- The Yancoal / Glencore purchase of Rio Tinto's thermal coal assets in New South Wales. In our view this is a bullish signal – more export supply being purchased by the world's largest thermal coal exporter and a Chinese-backed organisation.
- The Glencore purchase of the Hail Creek mine (and Valeria project) from Rio Tinto. The Whitehaven purchase of the Winchester South coking coal project from Rio Tinto. Both Glencore and Whitehaven are publicly bullish on the outlook for coal, and have put their money behind their sentiments.



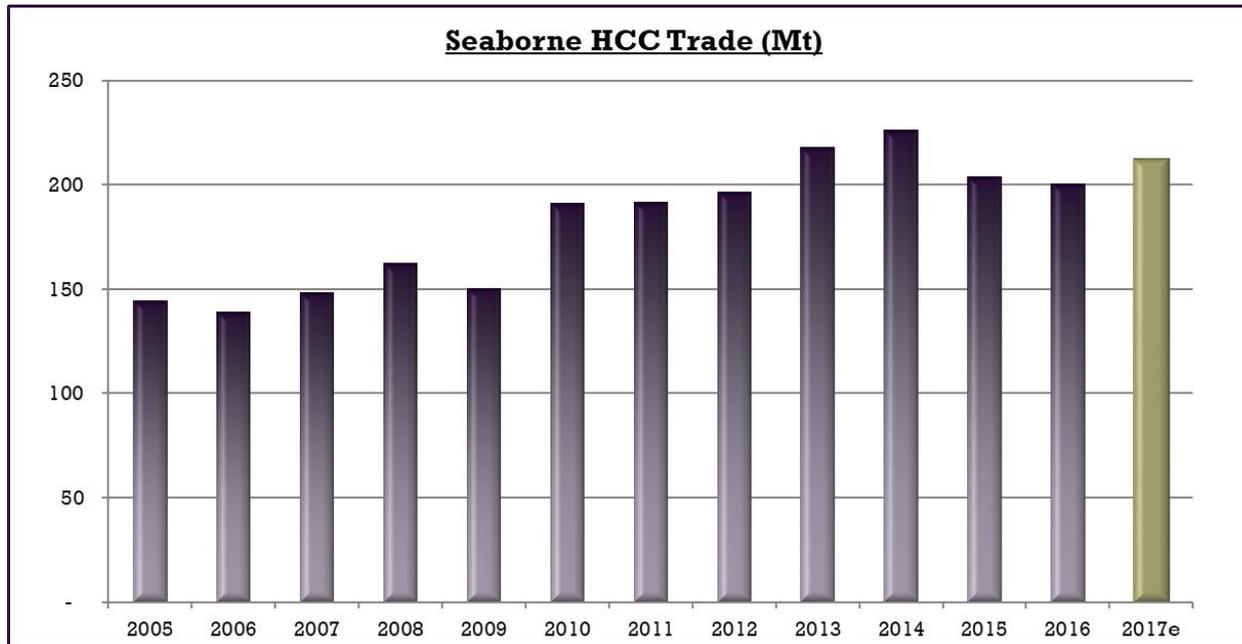
Why is the market strong?

1. Demand recovery



Demand has recovered! Firstly, coking coal...

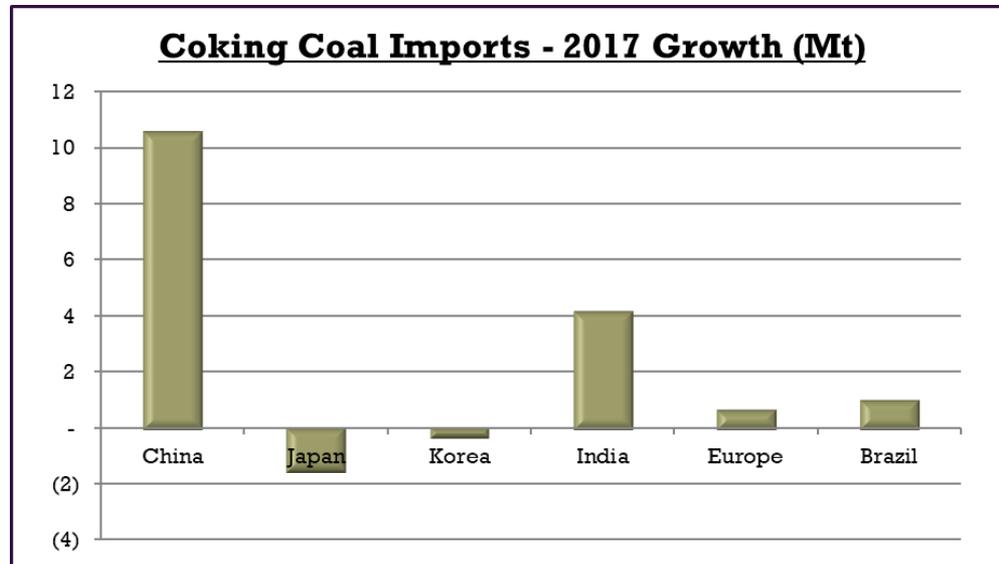
- Trade grew strongly from 2005 to 2014, and then had a China-induced dip for several years, before recovering in 2017. On average, the seaborne market for HCC has grown on average nearly 3% per annum since 2005.
- Growth in 2017 is expected to be around 10-15Mt in the seaborne market, which would not quite bring trade back to 2013-14 levels.





Coking coal demand is being led by China

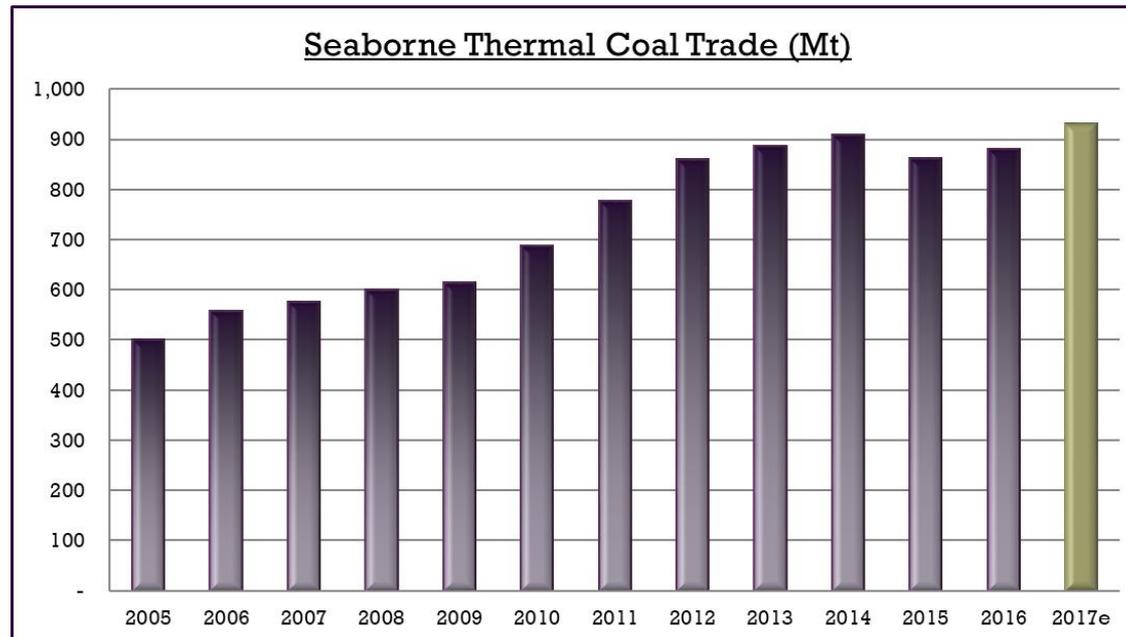
- There was a resurgence in global steel production 2017, with global production up 4.8% or 75Mt. Growth was evenly split between China and the rest of the world, both of which grew 4.8%. Coking coal import growth was led by China, followed by India, which has also shown solid growth (5%) due to new steel capacity.
- One stark difference between coking coal and thermal coal demand is the relatively narrow growth profile of coking coal demand – which is quite dependent on China and India, while thermal coal's profile is much broader based.





And even more, thermal coal which had its largest year ever in terms of volumes traded

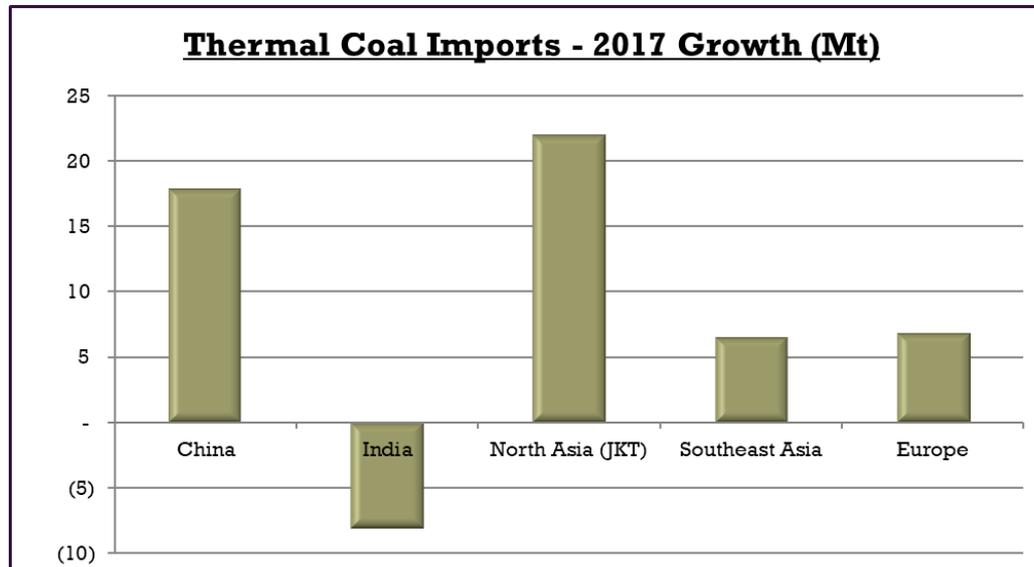
- Despite a slowdown in 2015, the seaborne thermal coal market averaged >5.5% growth from 2005-17. Asia remains the dominant market for seaborne thermal coal demand, now accounting for over 80% of global demand. Europe's share has shrunk from 23% in 2011 to 17% in 2016.
- 2017 trade volumes are estimated at around 930Mt, making it the highest ever volume traded on the seaborne market.





Demand has grown at over 6% globally this year

- Demand growth for thermal coal was strong across the board except India, with China, North Asia (notably Korea), Southeast Asia and Europe all increasing imports in 2017. The demand profile for thermal coal import growth is broader-based than hard coking coal, which is reliant on China and to a less extent India.
- Except for the obvious exception of India, demand has remained strong despite elevated prices in 2017. In our view, this is due to high domestic Chinese prices, strong electricity demand, and a relative lack of substitutes for coal-fired generation elsewhere, leading to inelastic demand.





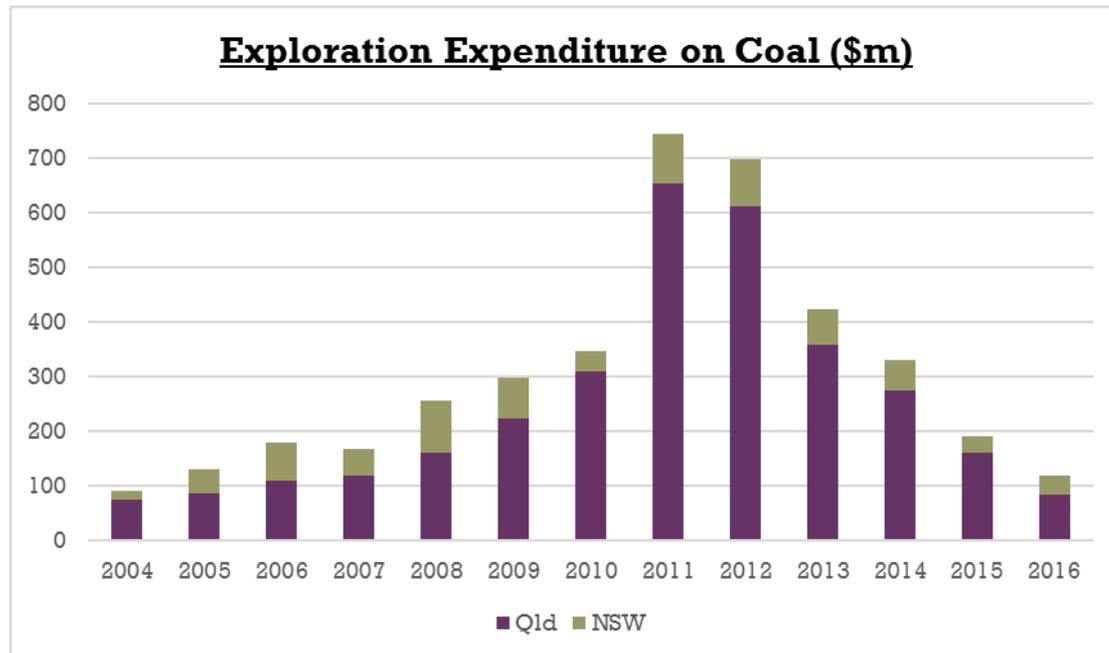
Why is the market strong?

2. Slow supply response



Long downturns, such as we saw from 2012-16, have implications for development

- Exploration expenditure on coal in Australia has plummeted in recent years, falling from a high of over \$700 million in the peak year of 2011 to just over \$100 million in 2016 – basically following coal price cycles.
- We suspect that mine development expenditure follows a similar pattern, as mining companies ‘tighten their belts’ during market downturns.

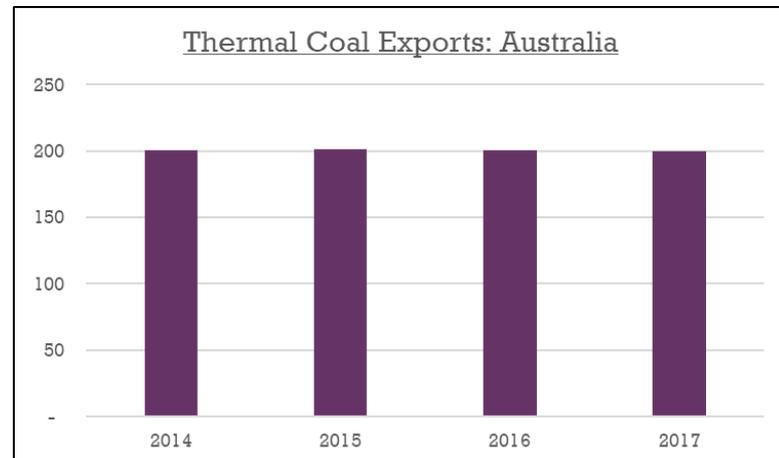
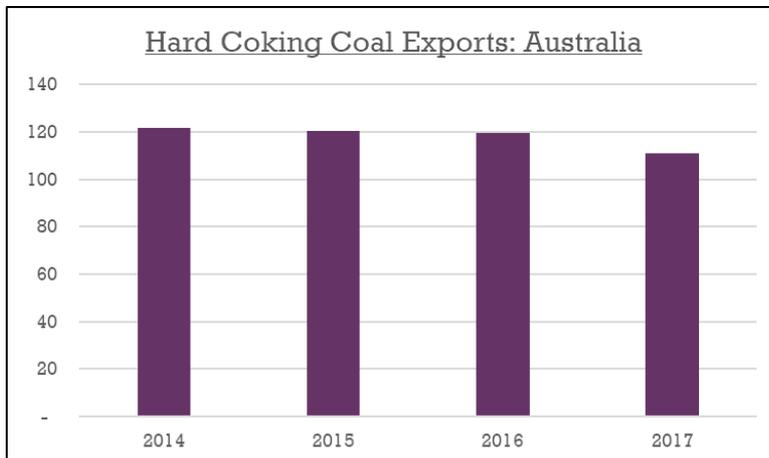


Source: ABS



Australian export levels typically trail price movements by a number of years

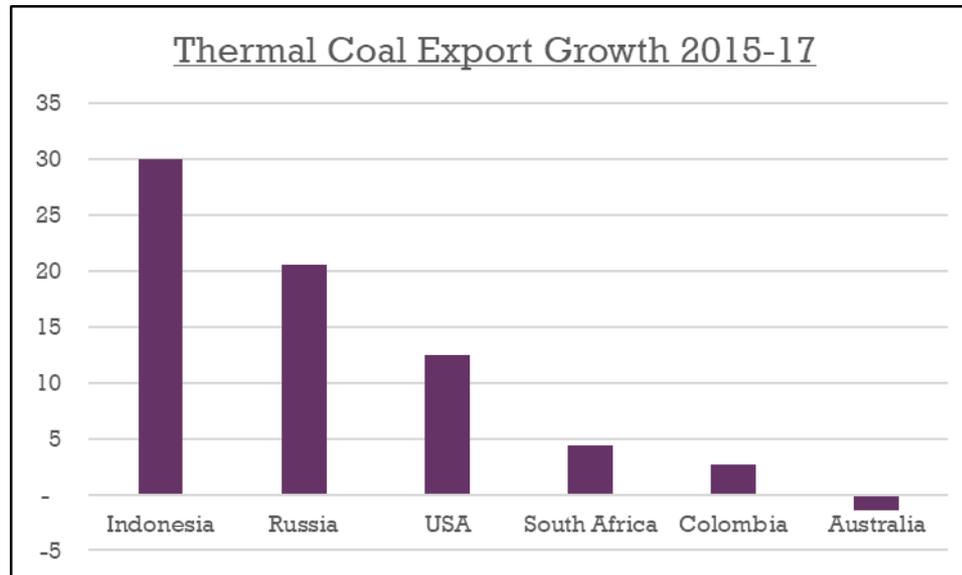
- Despite a massive jump in coal prices in H2'16, which has largely been maintained, there has barely been any Australian supply response. Export levels did not rise in 2016. In 2017, export levels of thermal coal were flat while hard coking coal exports fell on 2016 despite significantly higher prices, somewhat due to weather (cyclone Debbie) but also due to miners being unable to quickly ramp up volumes.
- Many projects were abandoned or postponed during the market downturn of 2012-16, due to weakening coal prices and a bearish outlook. Very few new mines were commissioned over this period.
- A number of Australian mines are coming towards the end of their mining life, either through reserve depletion or expiry of current mining approvals/licenses.





But competitors are taking market share – in thermal coal

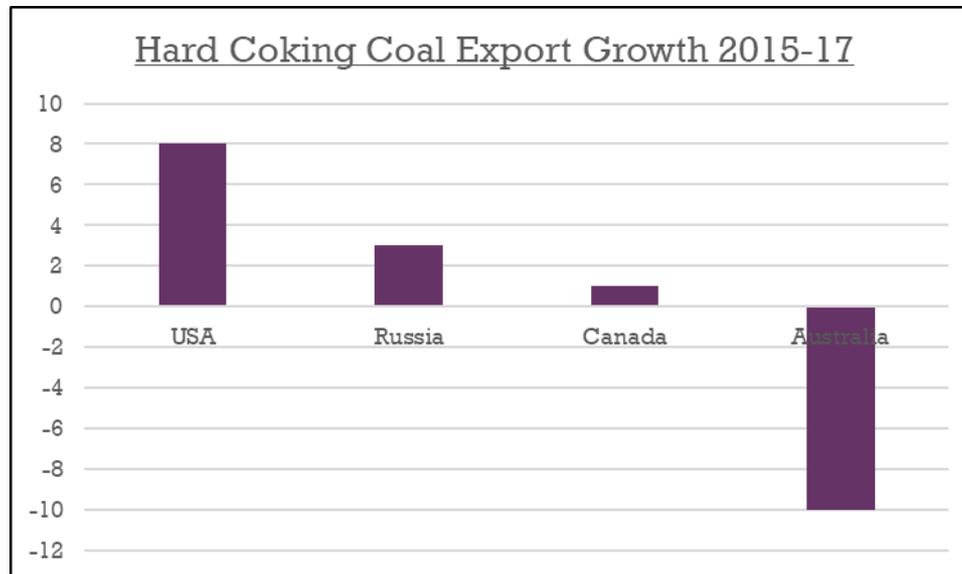
- Since 2015, which was the bottom of the current coal market cycle in terms of prices and volumes, seaborne traded volumes have increased around 75Mt – nearly a 10% increase.
- However, this growth has been taken by other producers, particularly Indonesia, Russia and the USA, with Australia the only major seaborne coal exporter NOT to increase volumes over the period – despite prices basically doubling.





And in hard coking coal

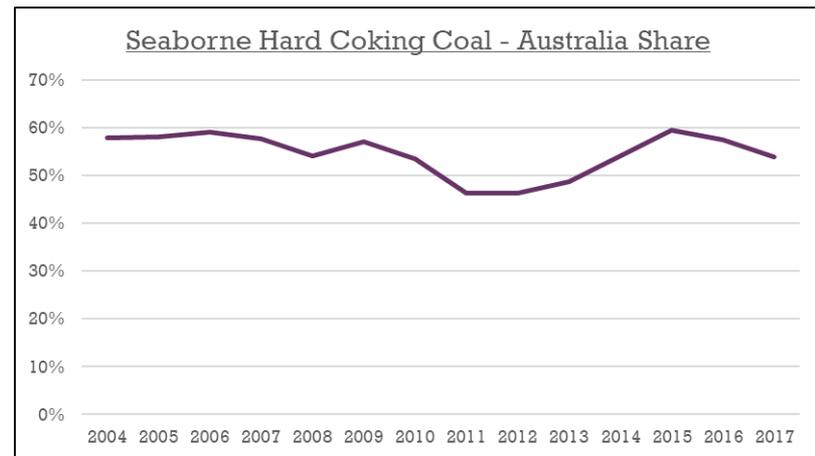
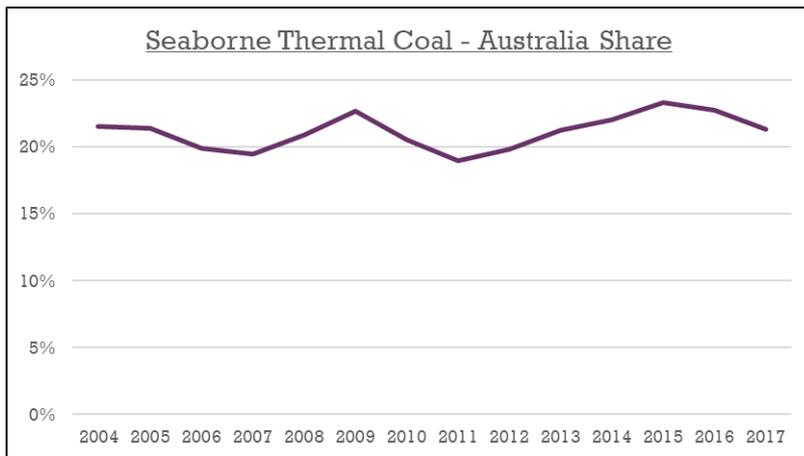
- While market growth in volumes has been less in hard coking coal than thermal coal over the 2015-17 period, there has still been growth in competitors' volumes, particularly the USA and Russia.
- Conversely, Australian volumes are down sharply, due largely to cyclone Debbie in March/April 2017, but even without the cyclone there would have been minimal growth. This is in a period where prices were 2-3 times 2015 levels.





Which has resulted in a loss of market share

- Australia's share of the seaborne thermal coal market was around 21% in 2017 and falling. It's share of the hard coking coal seaborne market is much higher – around 54% - but is also falling.



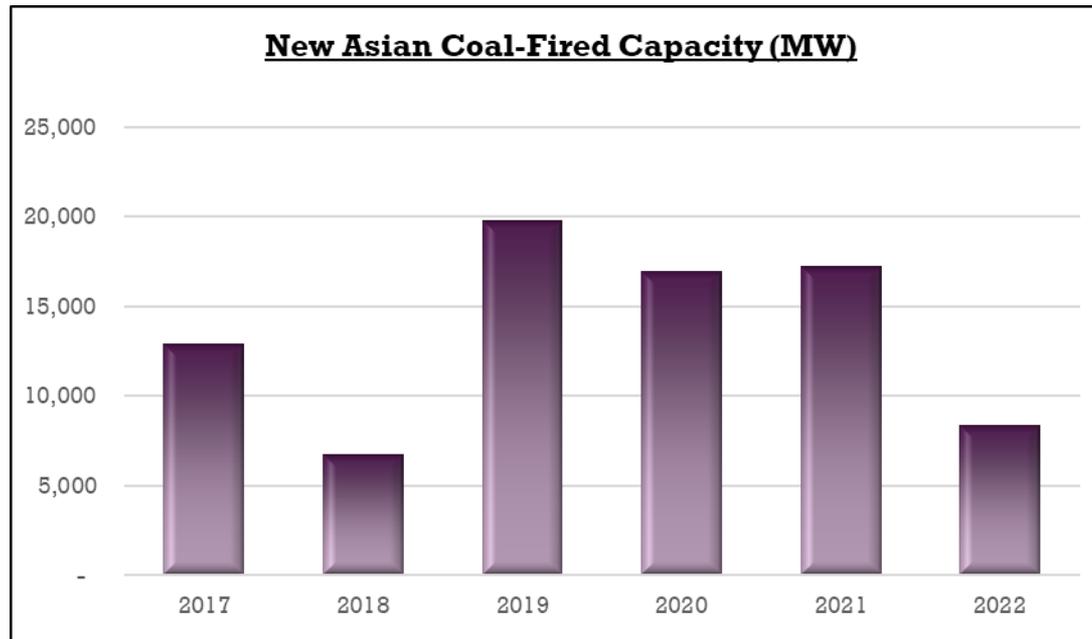


Implications and Outlook



The demand remains extremely robust for thermal coal

- Due to its favorable economics in Asia, the demand outlook is extremely robust, with over 80,000MW of new coal-fired capacity scheduled for commissioning between 2017-22 in north Asia and SE Asia alone (i.e. not including China and India). This profile is charted below, and represents over 200Mt of additional demand, over 20% of the current seaborne market.
- If India and China (which have domestic coal but still import also) are included, these demand figures will approximately double.





The market outlook for thermal coal is positive

- Demand growth across Asia is solid and broad-based, even assuming flat imports from China. Coal retains its competitive cost advantage in Asia, resulting in significant new capacity being developed across the region.
- Aside from a collapse in Chinese import volumes, which in our view is unlikely, the outlook for seaborne thermal coal demand is very positive, with import growth of 3-5% over the next 5-6 years.
- On the supply side, the world's largest supplier by far - Indonesia – has its own program of new coal-fired capacity which will be commissioned over the next decade. This will result in the diversion of Indonesian thermal coal from the export market to the domestic market. In our view the market is overstating the likely volume of Indonesian exports from 2020 onwards.
- These fundamental developments (stronger demand, weaker Indonesian supply) are likely to tighten the market further, and supply growth from other sources will be required.
- There is a significant opportunity for Australian thermal coal to reclaim some of its lost market share in a growing and buoyant market.
- Australian supply will respond, but due to the capital intensity and more onerous and lengthy regulatory processes, will take some time.



The market outlook for coking coal is a supply story

- While demand growth for seaborne hard coking coal is only forecast to be steady in the mid-term, we believe that constrained supply will continue to support prices. It is difficult to see a rapid expansion of export tonnes even with higher prices, as the long and painful price decline from mid-2012 to mid-2016 pushed back or cancelled many projects.
- Therefore, the ability of miners to quickly ramp up supply is very limited (unlike Indonesia in the thermal coal space, for example) outside of new projects, which themselves are also limited in number and scale.
- And unlike thermal coal, which has a larger number of supply options, hard coking coal on the seaborne market is dominated by Australia, Canada and the USA, which account for over 85% of supply.
- Canadian coking coal exports may increase slightly but are predominantly Teck, which has recently given flat production guidance for 2017 and 2018. US coking coal exports will also increase in response to higher prices, and indeed already have but the growth is limited due to domestic demand and also the large numbers of mines closed during the downturn.
- Higher prices (and possibly limited supply from Australia) will enable smaller exporters such as Mozambique to take advantage, but the relative volume increase is quite small overall.



So, coal is back – and here to stay! For a while at least....

- Coal is back! Volumes are up, prices are up, price forecasts are up, producer margins are up.
- Supply is struggling to respond, due to a hangover from the previous downturn. Producers and financiers mostly remain gun-shy. This will only prolong the strong market conditions in our view.
- Thermal coal demand growth is clear and broad-based, assuming Chinese imports don't collapse – which is our view is highly unlikely. Supply will struggle to keep up, particularly given the potential export clamps on Indonesia.
- Demand growth for coking coal is more concentrated, but the relative scarcity of coking coal and tightness of supply will ensure that prices jump at any supply shocks.
- In our view, there are significant opportunities in this sector for investors as the traditional players appear to be mostly stagnant despite a much more favorable environment.
- Australia has opportunities to participate in export growth over the next decade, but the investment environment has become politicized and remains challenging.



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Strategy Enhancement

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