AUSTRALIAN INFLUENCE ON THE MET COAL AND COKE WORLD
WHAT DO THE NEXT FIVE TO FIFTY YEARS LOOK LIKE?

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Plan of Presentation

1. Introduction – setting the scene
2. Snapshot – conditions Coke meeting Pittsburgh
3. Outlook today – what has changed and why
4. Australia’s role in the met coal and coke market
5. Looking ahead Australia in 2020
6. Long term future, where will we be in 50 years?
7. Concluding remarks
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Introduction – setting the scene

• It’s a China story stupid – or is it?
• Is high coke strength the key factor anymore?
• Are Chinese steel exports here to stay?
• The commodity cycle has ended – or has it?
• Do we need any more met coal and if so..
• Who’s investing in new coking coal?
• When does scrap/EAF replace the coke/BF?
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In a nutshell = really bad!!

Macroeconomic conditions deteriorating fast

Falling demand for steel and coke, met coal

“flood” of Chinese steel exports

Prices heading south:
  - benchmark US$81.5 / spot US$78 – heading down

Industry unprofitable – severe cost reductions

Mine closures, across all major supply centres

Outlook for 2016 - bleak
Where we were in Pittsburgh

- Prices – heading down
  - Widening differentials
  - PCI weakening

- Demand softening
  - Steel demand
  - Chinese steel exports replacing imported coking coal steel
  - Chinese imports sharply lower 2.5Mt vs >4Mt in 2014

- Supply – mines closing as unprofitable
  - Australia – Isaac Plains, Integra, Wollongong coal, Crinum 1/1/16
  - Canada – Grande Cache, Teck lowering volumes
  - US – entering Chapter 11
In the near term further cost cutting is underway and could reach iron ore levels, adding to further US met coal problems. Could this even lead to increased met coal imports to keep coke plants operating?

Unfortunately I was right it did!!
• Prices – steelmaking raw materials heading down further
  ➢ Bottom November 2015; met coal US$73/t PHCC, IO US$38/t
  ➢ Steel forecasts down – change in China view, 2015 turning point

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• Chinese Demand – peak steel now softening?
• 2015 entry China toward 1bt, exit, peaked ~820mt!!
Outlook for 2016 - forecasts and views

- Prices – steelmaking raw materials heading down
2016 expected to be a bleak year and extend for a considerable period!!

Source: Macquarie bank, consensus forecasts, Bloomberg
Longer views also pessimistic in medium to longer term

Global crude steel consumption

kg per capita

Global financial crisis

Oil price shocks

Collapse of the USSR

Chinese steel exports, crude steel basis

Source: Macquarie bank
2015 - 2020 forecast growth in seaborne met coal demand growth ex China

- Downward revision 8Mt during 2015
- Downward revision 2Mt during 2015
- Downward revision 1Mt during 2015

Total downward revision 14Mt during 2015

Source: Macquarie bank
2016, an even worse year - “profits” wise

2016 met coal cost curve

- USA
- BMA
- Indonesia
- Mozambique
- Other
- Canada
- Russia
- Australia
- China

Quarterly contract
Spot price

Source: Macquarie bank, H&W Worldwide consulting
In summary...

- In a nutshell = really bad!!
- Outlook forecast to deteriorate in 2016
- No improvement for a “number” of years
- China steel lower future,
- Exports continued threat to global steel
- Met coal in “significant” oversupply
- and haven’t even mentioned India and others impacted by large volumes of cheap Chinese coke!
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Today...things look different, prices up, inventories down

- Prices US$97/t PHCC +US$24/t from lows November

- Prices predicted to “breakthrough” US$100/t

- Rise in benchmark to US$84/t and PCI % up to 87% HCC

Source: Macquarie bank
Real estate market started to pick up

New starts increased strongly into 2016

Steel recovery as construction ~60% of steel demand

Strong recovery in steel prices

Source: Morgan Stanley
Other FAI and loans also up boosting steel demand

China new loans

New Rmb loans, Rmb bn

- 2013
- 2014
- 2015
- 2016

Change in real & apparent consumption

"Real" demand (i.e after stock changes)

Apparent Consumption

Source: Macquarie bank, NBS
Sentiment has improved among Chinese steel mills - one of the largest recorded

How do you expect steel production to change over the next month

- Total
- Large Mills (>10mtpa)
- Medium Mills (5 -10mtpa)
- Small Mills (<5mtpa)

Increasing expectations of rising production

Increasing expectations of falling production

Source: Macquarie bank
Coke based pig iron joining in the party with coke and met coal imports up 5% Q1 YOY

Chinese pig iron annualised production (Mt)

Chinese coke price (Tanshan spot US$)
With less Chinese domestic coking coal which is continuing this year

- Effect potentially increasing Q2 as further mines idled on safety and coal production adjustments = more imports?
Is this sustainable?

• The **key** question!

• Yes
  • Real estate market continues strong
  • Steel remains strong, restarts, and improving prices
  • Continued modest infrastructure spending boosting demand
  • Loans more available and easier credit

• No
  • Overcapacity remains and could be getting worse
  • Too rapid recovery, too quick a response
  • Real estate inventories tier 3, 4 still large, too large?
  • Lack of pick up in ROW

• Summary – yes for now, but late 2016 into 2017?? risks
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Major Producers - Australia

Metallurgical coal producing regions

- **BOWEN BASIN**
  - Premium high quality coking coal, Very low volatile PCI coals

- **HUNTER VALLEY**
  - Semi-soft coking coals and PCI coals

- **ILLAWARRA**
  - Premium high quality coking coal and moderate coking coal

AUSTRALIA

0 1000 Kilometres
Seaborne met coal trade flows 2016f

* Coking coal and PCI

Source: Customs data, Macquarie Research, H&W Worldwide Consulting
Australia is the dominant seaborne supplier

- Australian market share limited by rise in Mozambique and limited new mines to 2020
- Declines in US and limited Russian, Indonesian growth
## Strengths
- Large reserves of HQHCC and SSCC
- Close to coast
- Coals perform well in all blends
- Technically strong, high CSR, low OWP
- Close to major Asian markets
- Proven infrastructure
- Very large mines

## Weaknesses
- Generally, third party owned infrastructure
- Rising strip ratio, impacting costs
- Rising ash levels
- No high fluidity HV or high vitrinite
- Weather – summer rain
- Heavily unionised

## Opportunities
- New mine opportunities – if needed
- Productivity rising after period of declines
- Further cost reductions, labour, technology (following iron ore)
- Ports, rail expansion options

## Threats
- Rising Green movement
- Political pressures/interference
- Mozambique into India, Brazil, EU
- Rising rehabilitation costs
Simplified met coal positioning for blending

Source: H&W Worldwide Consulting
2016 Cost curve adjusted for cost reduction

- Spot price
- Quarterly contract

Cumulative volume (Mt)

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FOB Cost ($/t) HCC equivalent
Australia in 2016

- Supply issues
  - Closures Crinum early 2016, reductions Illawarra,
  - Anglo’s Moranbah North, Grosvenor up for sale
  - Weather problems, mild in February/March
  - Declining quality in Rangals (Burton, Hail Creek)
  - Other PCI/WCC mines up for sale
  - Take or pay

- EBA’s
  - Up for negotiation – far apart, strike???
  - Union militancy – election year

- Capex
  - Very, very limited, sustaining not expansion
  - Majors unlikely to authorise any new capacity, creep only
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Australia to 2020

• Supply issues
  • Restart some idled capacity e.g. Isaac Plains, Wongawilli, Integra
  • Expansions brownfield likely at Caval Ridge, Goonyella, Grosvenor, Illawarra (South 32, Wollongong coal)
  • Gunnedah basin, increased SSCC
  • Major review into post 2020 = more long walls
  • Changes to take or pay contracts – ports yes; rail no or ????

• EBA’s
  • Movement to reduced union control, automation, contractors
  • Automation lowering labour numbers and costs

• Capex
  • Coming back post 2017 – probably
  • New investment – India, China?
  • Port expansions - possible
Options for Australian met coal in the next 5 years

- Linked to market demand and cost structure – more flexibility
- A$ important
- Growth will depend on brownfield
- Balance with closures
- Australia becoming more dominant with US closures
- No change in technology
Met coal and coke Australian dynamics in the next 5 years

- Overall market issues
  - Demand growth rate uncertain – India, China domestic
  - Supply uncertainty US – final end? options for others
  - Potential weather rain/snow events = return of volatility
  - Full commoditisation of coking coal? Or not???

- Australia’s role – continued dominance
  - Low cost, plentiful reserves, favourable location, etc.
  - Risks are environmental activism, exchange rates
  - Interplay with new high vitrinite coals, Mozambique, Indonesia
  - Can Australia become flexible, balance supply/demand

- Downstream processing?
  - Why doesn’t Australia make coke?
Why doesn’t Australia make coke for export?

• History
  • Australia used to be an exporter, Port Kembla, ICC, now small
  • Batteries closed, no plans
  • Sun looked at Gladstone – not competitive

• Australia why can’t it be a merchant coke producer?
  • Not a resource issue
  • Problems high labour costs, high construction and logistics costs
  • Green activism – won’t accept coal and coke
  • Suncoke style technology – could it be done? Yes but not economic

• Competitors
  • Won’t China always have too much capacity?
  • What about Indonesia or Mozambique for coke production?
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The rise and rise of Africa

World Population by Region/Country to 2100

Source: UN Population Statistics
Steel demand growth will there continue

Stylized depiction of the relationship between per capita GDP and commodity demand

- India
- Indonesia
- Russia
- China
- Mexico
- US
- Australia
- Euro area
- Japan
- Services
- Manufacturing & urbanization
- Subsistence, agriculture

Source: World Bank, IMF, Saul Eslake Grattin Institute
Issues for the next 50 years

• The “known”
  • Steel will still be the major industrial material
  • The recycling pool will grow, size and efficiency – more scrap available
  • Aging and longevity with see the rise of a “bipolar” population
  • There is sufficient met coal for the next 50 years
  • Likely to see continued environmental pressures

• The “unknown”
  • Climate change entrenched or will carbon leakage continue
  • Technology, will we see the end of the BF – finally cokeless ironmaking
  • Substitute’s penetration into premium high value steel markets – autos
  • Industry structure – will we see more consolidation, vertical integration
  • DR could become a rising threat to coke/BF
Steel consumption could more than double by 2050

- **India**: >400-600Mt
- **Indonesia**: >100-250Mt
- **Other Asia**: >80-150Mt
- **Africa**: >>800Mt
- **Other, e.g. South America, Middle East**: >150Mt

*H & W Worldwide Consulting*
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Concluding Remarks

- After the doom and gloom, some bright spots
- Near term looks good but risks of uncertainty into 2017
- Australia well endowed with reserves and infrastructure
- Dominance in the past here to stay – possible increasing
- Premium LV HQHCC supplier – always in demand
- Australia highly competitive vs. new comers
- Long term future challenging but Australia uniquely placed