A Producer's response to the growing metallurgical coal demand in South America

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The global steel industry continues to power on led by China

Chinese crude steel production
CAGR >20% from 2001

Source: IISI, BHP Billiton
Metallurgical coal based steel production has entered a new growth phase.

Source: IISI, CRU, BHP Billiton
Future growth will be led by BRICS

In addition to China steel growth will be driven by other countries, with a majority favouring the BF route relying on imported seaborne coking coal and domestic iron ore.
South American steel trends

• Growth ~2.5% CAGR from 97

• Global share has declined by 1% due to growth in Asia

• Brazil major share ~70-72%

• Brazilian growth 2.3%pa
South American pig iron trends

- Growth >4% CAGR
- Pig iron production dominated by Brazil ~87-89%
- Decline in global share due to rise in China
- Strong growth in PI/CS ratio due to rising merchant pig iron

Source: IISI, BHP Billiton
Steelmaking Processes – Brazil will probably favour BF route

Major steelmaking route via large high quality iron ore reserves
Advantages of BF based steelmaking for Brazil

- Ability to utilise vast high grade domestic iron ore reserves
  - Lump and fines
- Can make full range of steels
  - Construction to Advanced High Strength steels
- Economies of scale
  - MBF to >5,000m³
- Energy efficiency
  - Significant efficiency gains, greenhouse benefits
  - Further options can be developed
- Large experience with BF technology
Meeting South America’s future steel needs

Requirements

1. Vibrant local steel industry
2. World class domestic mining industry
3. Supplies of excellent hard coking and PCI coals

BHP Billiton can provide assistance with a range of met coals leading to the further development of a successful vibrant steel industry
HRC: Cash and marginal costs

Source: WSD Q2 2005
Strong expansion of installed steelmaking capacity expected

### Installed Capacity (Mtpy)

- **Crude Steel**: 2005 - 34, 2010 - 61, 2015 - 50
- **Slabs**: 2005 - 21, 2010 - 40, 2015 - 31
- **HRC & Plates**: 2005 - 16, 2010 - 17, 2015 - 21
- **CRC**: 2005 - 8, 2010 - 8, 2015 - 8
- **Billets**: 2005 - 13, 2010 - 18, 2015 - 21
- **Total Long**: 2005 - 10, 2010 - 13, 2015 - 14
- **Total Flat**: 2005 - 35, 2010 - 29, 2015 - 35

- **Total Long excludes Billets**
- **Total Flat excludes Slabs**

**Source**: Public announcements, BHP Billiton
Summary of South American steel trends

• Steel demand and production is likely to accelerate

• Brazilian steel industry enjoys significant global advantages

• Major new capacity additions are planned in the next few years – growth in primary steelmaking/slabs

• Predicted robust growth in merchant pig iron sector to feed high quality “virgin” iron units to north American EAF’s

• BF based steelmaking will remain the technology of choice

• Continued growing need for high quality coking and PCI coals
Trends in global met coal demand

- **New BF capacity and associated coke capacity planned**
  - China, India, Brazil & new integrated steel capacity in Asia eg Korea, Thailand
  - Significant relined and enlarged BF capacity planned
  - New batteries Japan, Korea – remove reliance on merchant market

- **Changes to seaborne balance due to declines in domestic production**
  - Germany
  - USA, esp. low volatile HCC

- **Rise of China as an important met coal importer in medium term**
  - New coastal capacity favouring seaborne imports

- **Move away from SSCC to HCC**
  - Larger, and high BF productivity requiring increased levels of high quality HCC
  - Kyoto supporting moves to lower fuel rates = move away from SSCC to HCC
Traditional and new steelmakers are building / refurbishing and planning new coke capacity

- **France**: extension of battery at FOS
- **UK**: proposed new battery at Port Talbot
- **Italy**: rebuilds at Taranto
- **Japan**: new battery for JFE and NSC
- **Russia, Ukraine**: new capacity proposed
- **Korea**: new battery at Pohang, planned with INI steel
- **Malaysia/Thailand**: possible new batteries as part of new steel capacity
- **India**: numerous new batteries, inc NRCO
- **UK**: proposed new battery at Port Talbot
- **France**: extension of battery at FOS

**Source**: Market sources and announcements
Global Increase in met coal demand 2006 - 2007

Total met coal increase 2004 - 7 approx 29Mt or (5%pa)

2004-2007 increases:
- PCI increase +3Mt, (3% pa)
- Semi-soft increase +0Mt (0% pa)
- Hard coking coal increase + 28Mt (7%pa)

Source: Industry analysts, industry sources, BHP Billiton
Major met coal issues for Brazil

• Need to import 100% because of no domestic supply
• New larger capacity BF’s will require high quality coke
• Better coke needed in future due to
  – Increased PCI use
  – Increase in BF productivity
• New cokemaking technologies will still require hard coking coals
• Buying on price (short-term) vs. buying for quality, security of supply, etc. (long-term)
Latin America’s met coal demand will rise strongly

Source: Trade statistics, industry analysts, BHP Billiton
Major high quality global met coal producing regions

USA - Appalachia
LV, MV, HV producer ~300km to coast
Reserve depletion, rising costs and logistics challenges

Canada - Elk Valley
LV, MV producer, 1200km to coast
Logistics complex and partially constrained, rising costs

Russia - Kuzbass
LV, MV, HV producer ~4000km to coast
Limitations on infrastructure, dependent on subsidised rail transportation
Strong domestic demand

China – Shanxi Province
LV, MV, HV producer, 800km to coast
Strong domestic demand, resource depletion, environmental, safety issues, skilled labour shortages, rising costs

Australia – Bowen Basin
LV, MV, HV producer ~300km to coast
Shortages of skilled labour, input costs rising, commissioning delays, port capacity

Predominantly export
Predominantly domestic
Queensland selected new projects

Australia and Canada

Majority of new projects are WCC/SSCC and PCI coals

Source: Public announcements
Met Coal Supply Outlook to 2007

• **Australia** (>60% of global total)
  - Exports up strongly
  - Further additional supply from Hail Creek, Dendrobrium, Broadmeadow, other HCC
  - Brownfield creep/expansions
  - Delayed new capacity expansions

• **Canada** (13% of global total)
  - Exports increasing from 2004/5
  - New capacity NE British Columbia, but mainly PCI, WCC or poorer HCC
  - Ramp up Alberta, Cheviot, Grande Cache
  - Possible restarts - brownfield expansions

• **USA** (12% of global total)
  - Difficult to predict after rise in 2004/5
  - Outlook further decline, ~3-5Mt by 2007
  - Possible decrease in HV – power linked
  - High cost producer

• **China**
  - Little HCC exported
  - Probable shortage of domestic HCC in future
  - Counterbalance high domestic demand with export desires – China first
  - Shanxi Province key - hard to predict

• **Russia**
  - Exports predicted to rise slightly
  - Domestic demand growth/supply tightening
  - Most HCC owned by steelmakers
  - Further potential, but domestic demand rising exports secondary – price sensitive
  - Production costs low but very low rail freights vital

**Key Takeaways**

• Continued importance of Australia especially in better quality HCC
• Port throughput not mine production the key to export volumes in near term
• Supply becoming more volatile

Source: McCloskey, Barlow Jonker, industry sources
Port and rail capacity is the key in the short term

**Russia – rising demand**
- Kuzbass
- **Ports** – limited spare capacity, long rail hauls

**Australia - NSW**
- Illawarra coalfield
- **Ports** – spare capacity

**Canada**
- Elk Valley & NE British Columbia
- **Ports** – Roberts Bank limited, Ridley spare capacity

**US – rising demand**
- Central & Southern Appalachia
- **Ports** – limited expansions, rail, logistics limitations

**Australia - Queensland**
- Bowen Basin
- **Ports** – DBCT, Hay Point at capacity, limited at Gladstone

**Canada**
- Elk Valley & NE British Columbia
- **Ports** – Roberts Bank limited, Ridley spare capacity

**US – rising demand**
- Central & Southern Appalachia
- **Ports** – limited expansions, rail, logistics limitations
BHP Billiton has numerous growth opportunities to meet market demand.

BHP Billiton Bowen Basin expansions contribute the majority of the growth, predominantly high quality hard coking coal announced Q3 2004.

- 75% hard coking coal
- 12% semi soft coking coal
- 13% thermal coal
- Majority brownfields

Capacity growth based on:-

- brown & greenfield expansions in Bowen Basin
- replacement new longwall and potential expansions in Illawarra
- new coking coal basin in Kalimantan, Maruwai
BHP Billiton’s expansion progress
Queensland – Bowen Basin

- Queensland Stage 1 expansion from 52 to 57 Mtpa completed
- Queensland Stage 2 (to 59 MTPA) underway & due by 2nd half 2006
- Broadmeadow long wall commenced production August 2005
- Poitrel open cut approved and under construction
- Expansion of capacity at Hay Point Coal Terminal on track:
  - Phase 1 to 40 MTPA (+6) by 2nd half 2006 – underway
  - Phase 2 to 44 MTPA by 1st qtr 2007 – announced
  - Phases 3&4 to 55-57 MTPA – being assessed & environ approvals sought.

- Currently evaluating range of further options for expansion subject to market demand and constraints imposed by the current environment
  - resource shortages, lack of skills people and significant cost pressures
BHP Billiton’s expansion progress
Broadmeadow – commenced production August 2005
BHP Billiton’s expansion progress
Poitrel mine

Crushing station
Surge bin
Ultra-fines microcell tanks
Poitrel rail loop

Note: Poitrel mine has a JV for infrastructure sharing
BHP Billiton’s expansion progress
Expansion of existing operations

- Construction of new Blackwater CPP
- Expansion of Saraji CPP
- Expansion of Hay Point
- Additional contract stripping
BHP Billiton’s expansion progress
Illawarra and Maruwai

• Dendrobiyum UG mine commenced production April 2005

• Further expansion options at Illawarra under feasibility study

• Maruwai moved into feasibility study stage.
BHP Billiton experience in optimising met coal understanding

Further development of research heat recovery coke oven underway
Concluding Remarks

• The global steel industry remains on a fast growth track

• Latin America has great potential to raise capacity and boost production, especially given the excellent iron ore resource position

• BF based steelmaking is the optimal solution for Brazil’s steel industry and requires imported met coal

• The outlook for met coal esp. hard coking coal is strong and challenges to meet market demand are faced by all major producing regions

• BHP Billiton are fully committed to meeting the growth for coking coal, delivering Brazil and South America the confidence and assurance for its future steel needs