

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

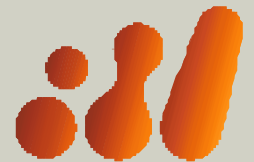


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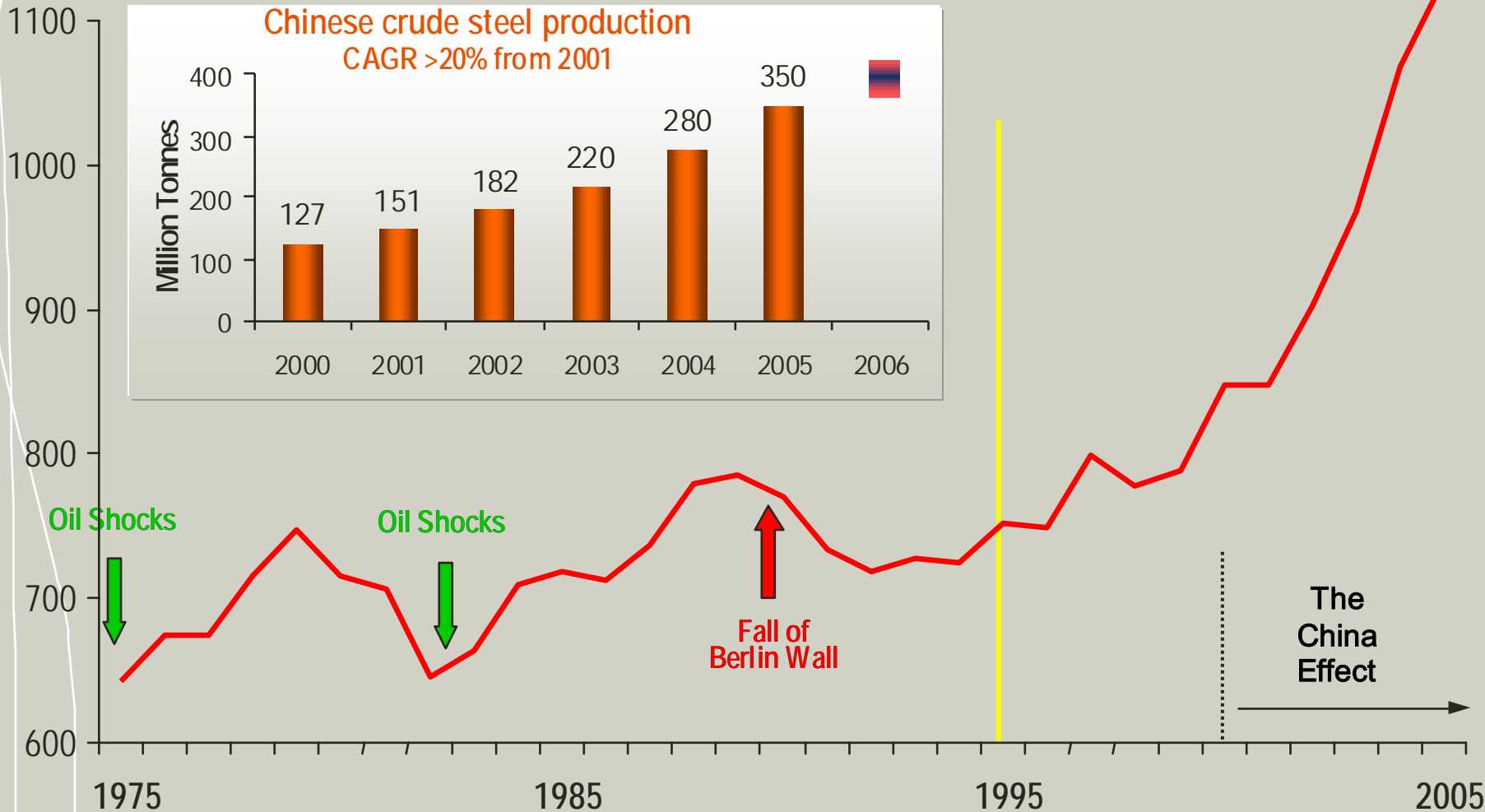
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# The global steel industry continues to power on led by China

Mt



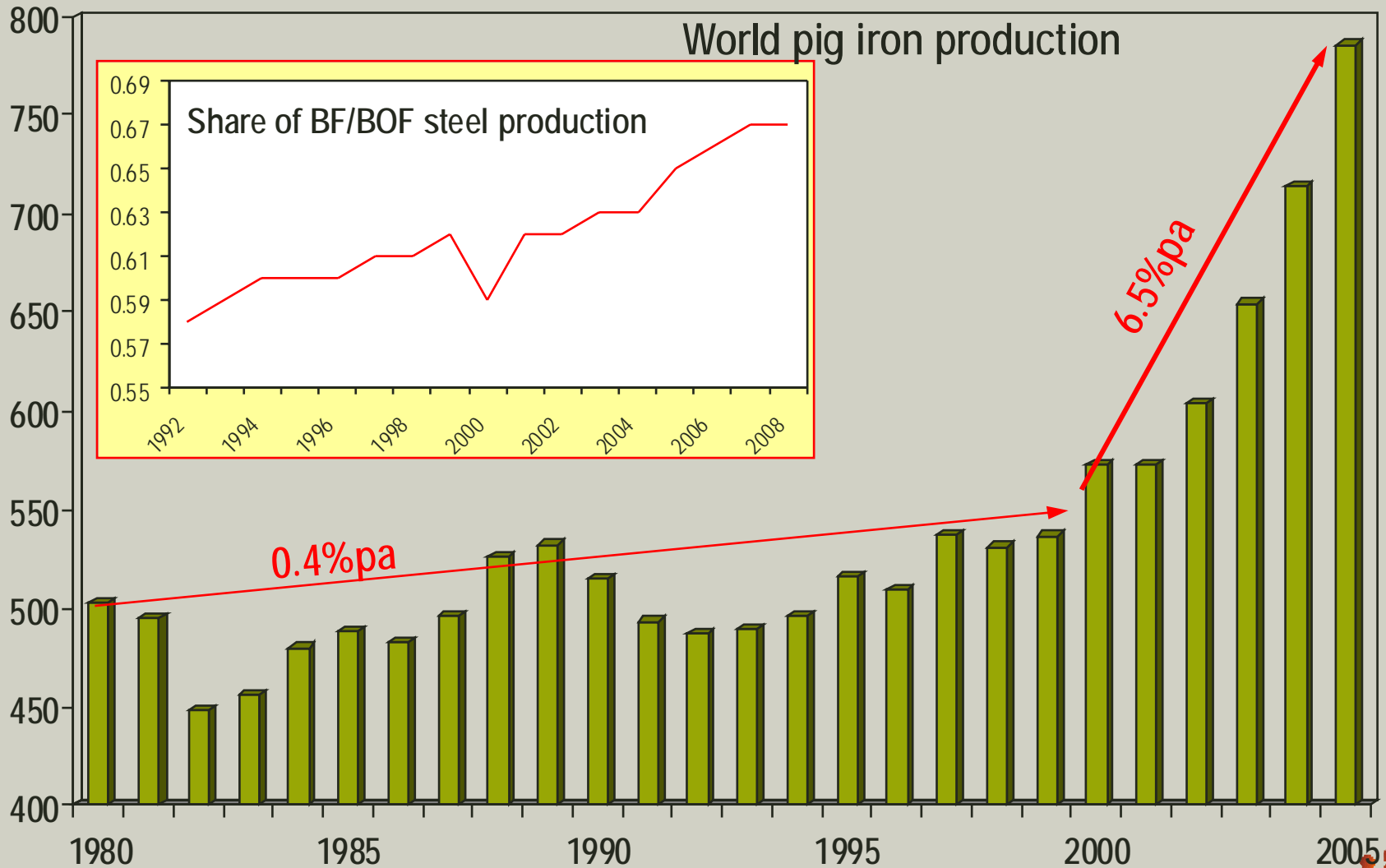
Source IISI, BHP Billiton

AAGR 0.6%

AAGR 4.6%

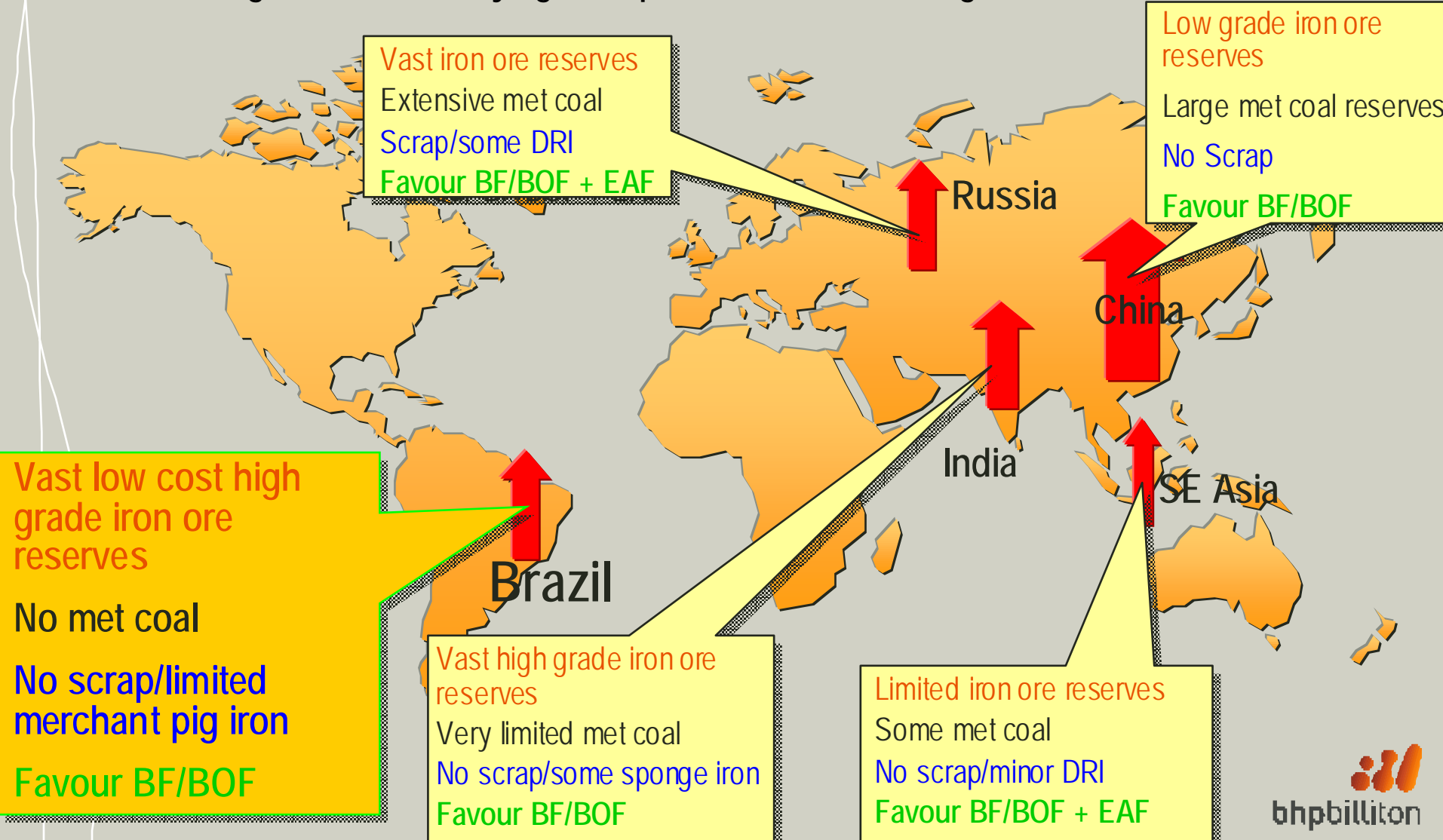


# Metallurgical coal based steel production has entered a new growth phase



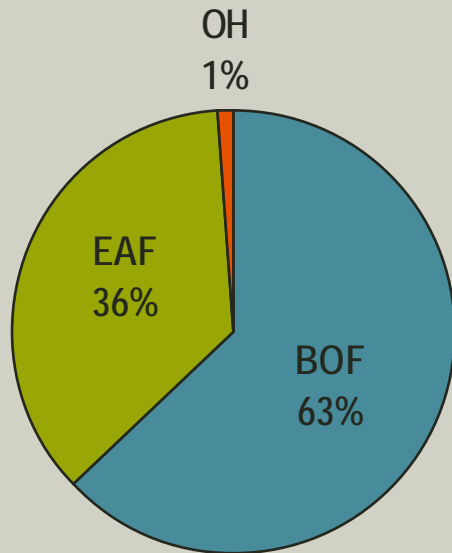
# Future growth will be led by BRICS

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.

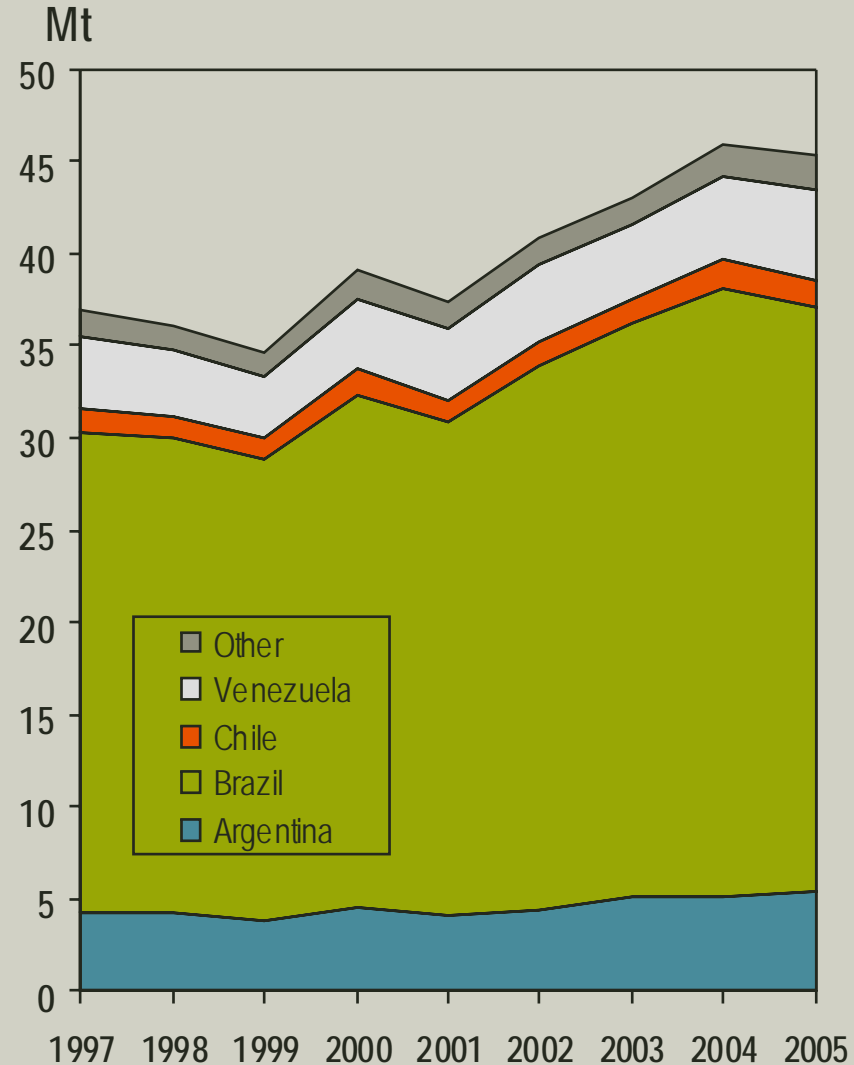


# South American steel trends

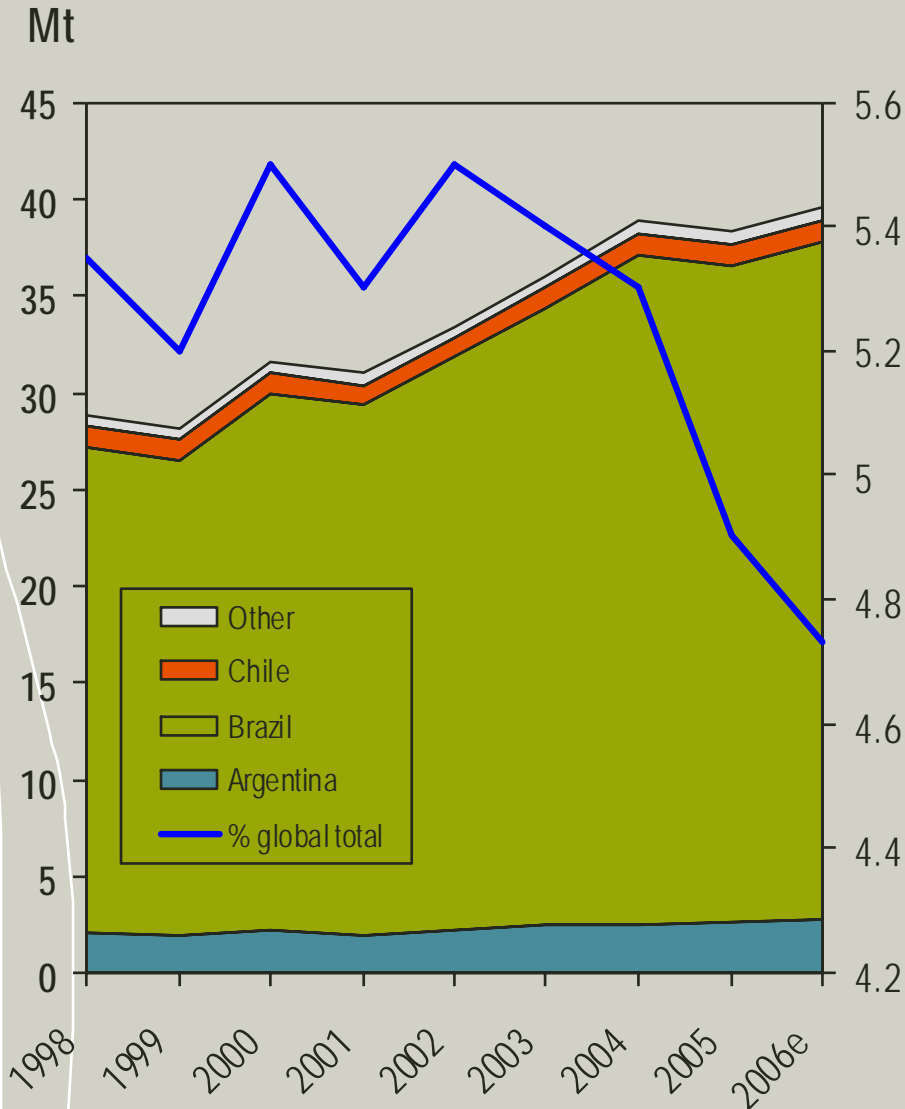
- Growth ~2.5% CAGR from 97
- Global share has declined by 1% due to growth in Asia
- Brazil major share ~70-72%
- Brazilian growth 2.3%pa



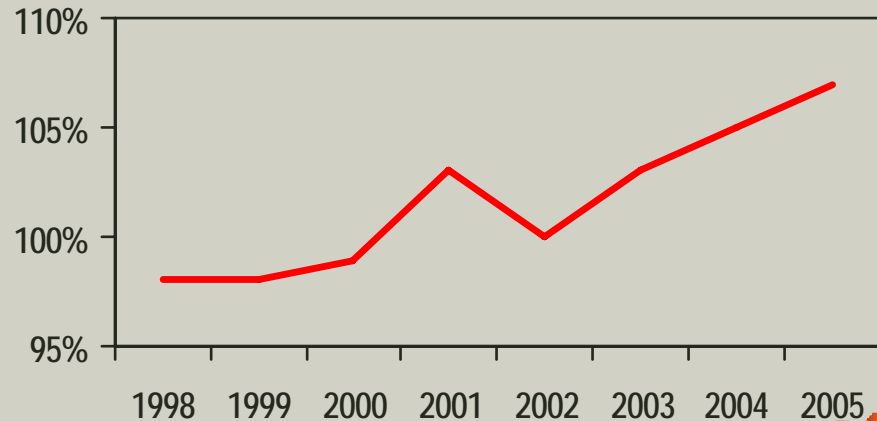
Steel by Process 2005



# South American pig iron trends

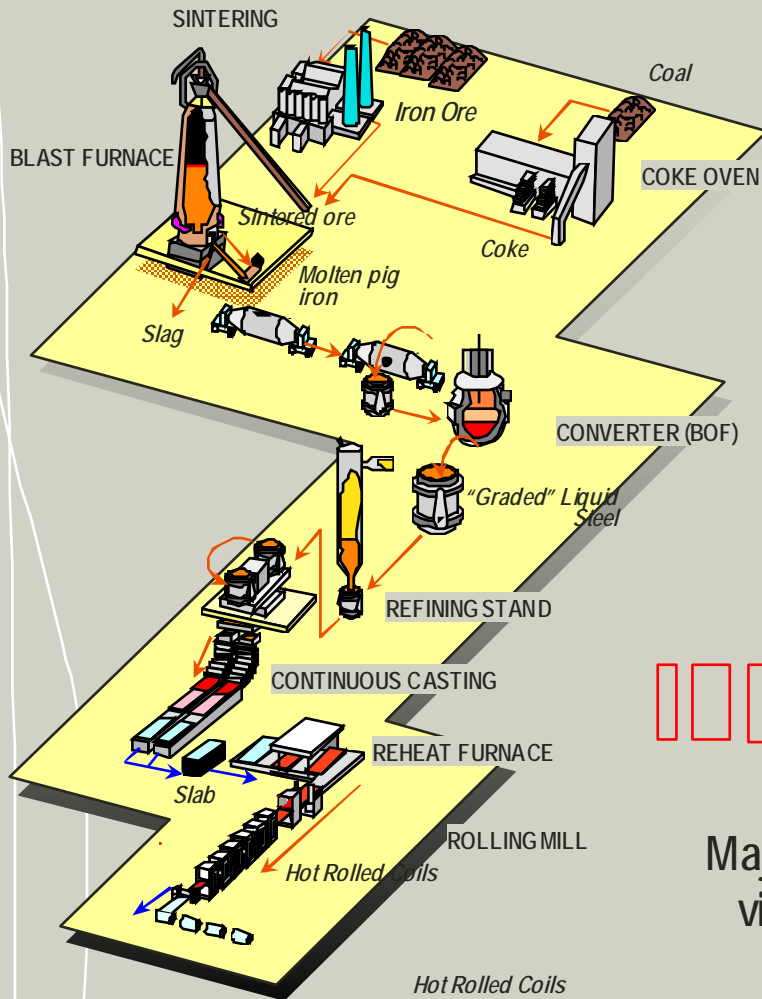


- Growth >4% CAGR
- Pig iron production dominated by Brazil ~87-89%
- Decline in global share due to rise in China
- Strong growth in PI/CS ratio due to rising merchant pig iron

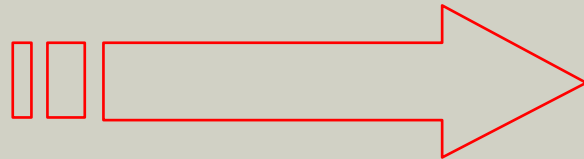
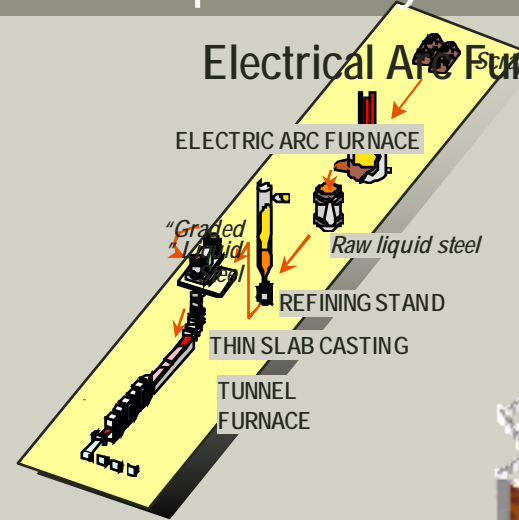


# Steelmaking Processes – Brazil will probably favour BF route

## Basic Oxygen Furnace



## Electrical Arc Furnace



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  $>5,000\text{m}^3$
- Energy efficiency
  - Significant efficiency gains, greenhouse benefits
  - Further options can be developed
- Large experience with BF technology

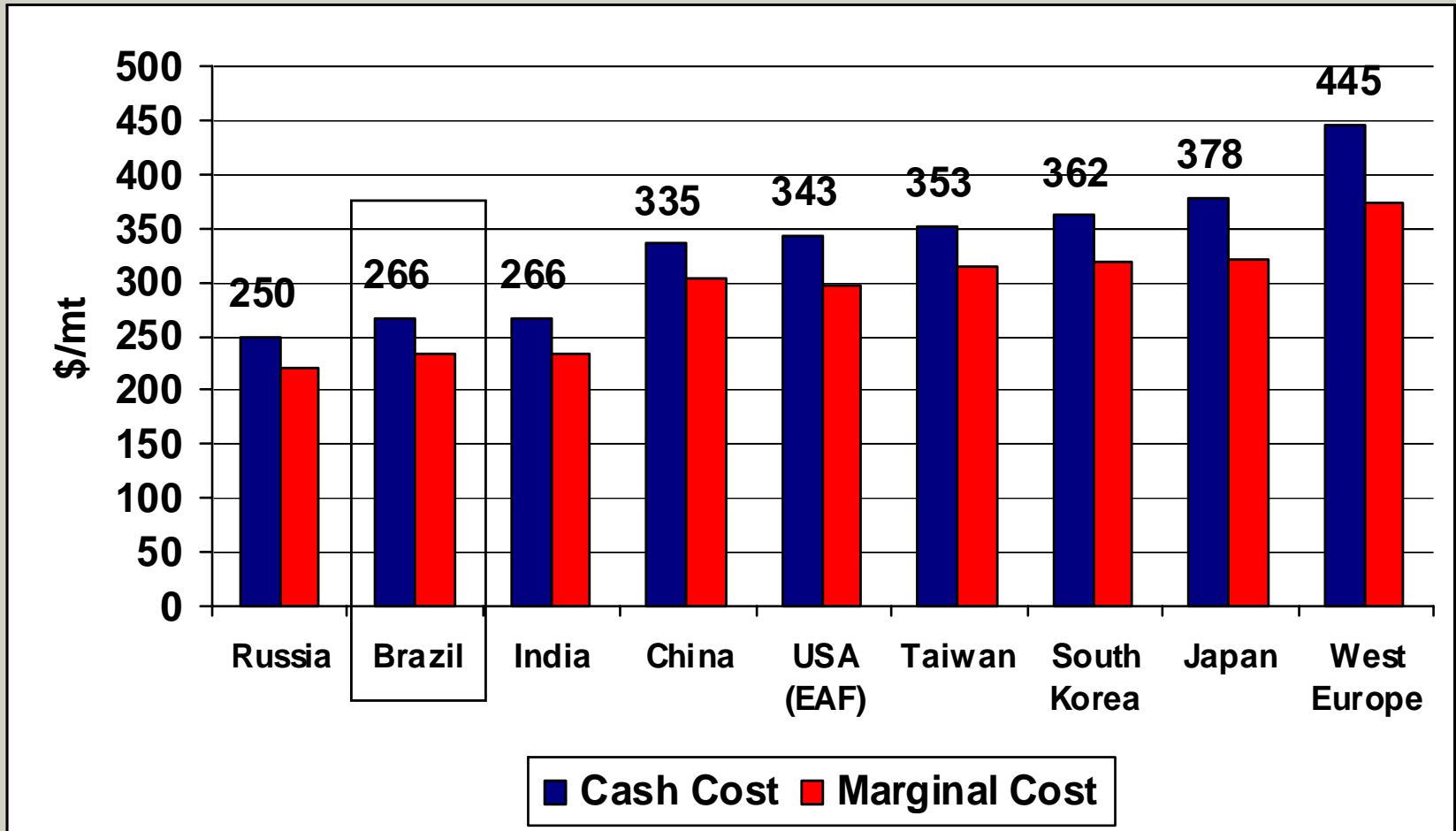
# Meeting South America's future steel needs

## Requirements

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

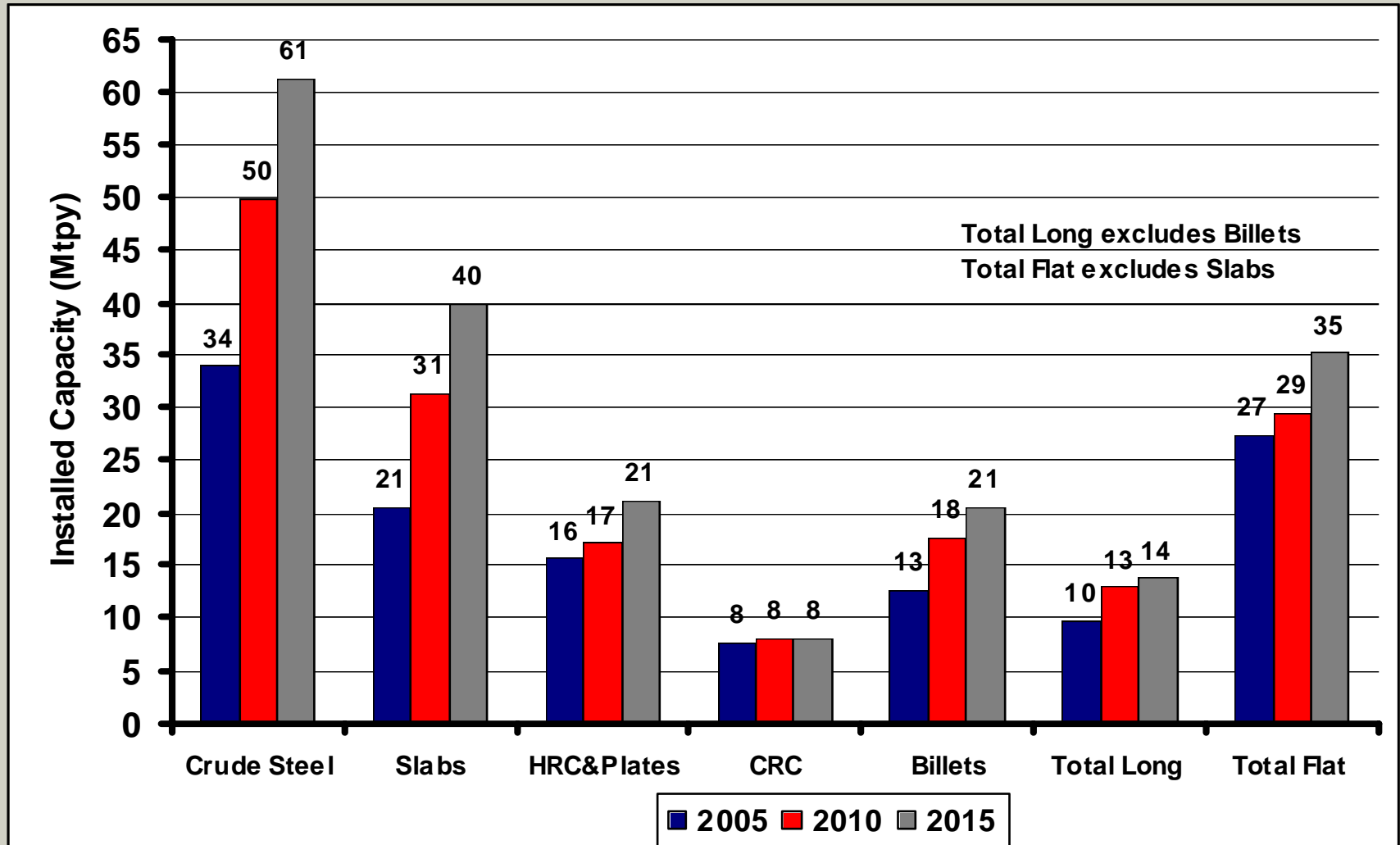
*BHP Billiton can provide assistance with a range of met coals leading to the further development of a successful vibrant steel industry*

# HRC: Cash and marginal costs



Source: WSD Q2 2005

# Strong expansion of installed steelmaking capacity expected



Source: Public announcements, BHP Billiton

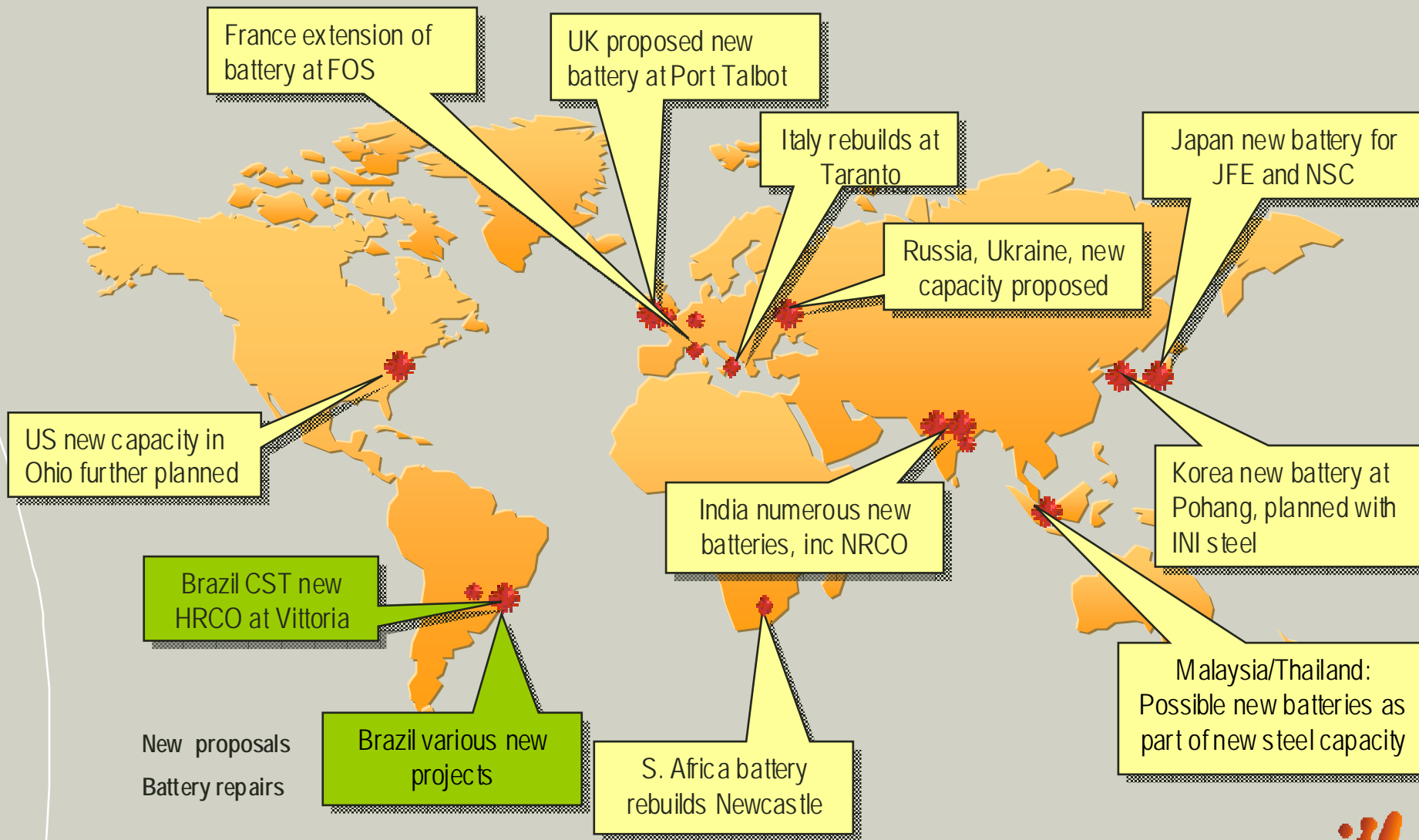
# Summary of South American steel trends

- 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

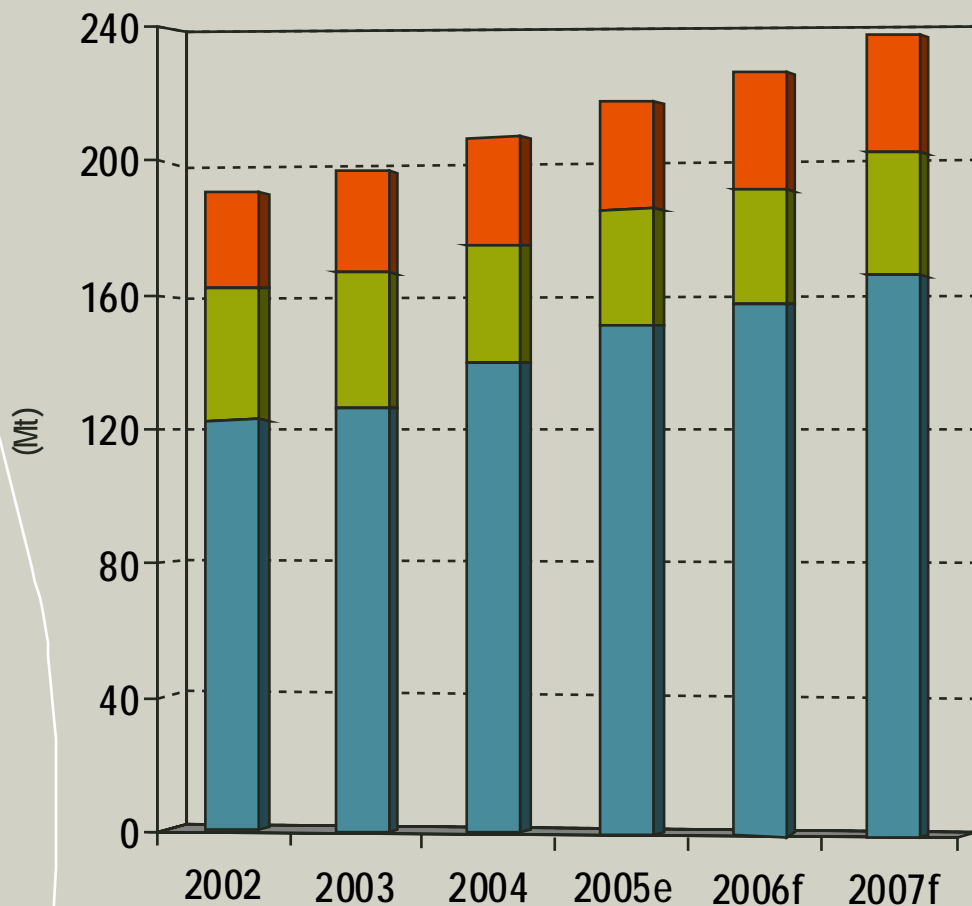
# Traditional and new steelmakers are building / refurbishing and planning new coke capacity



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)

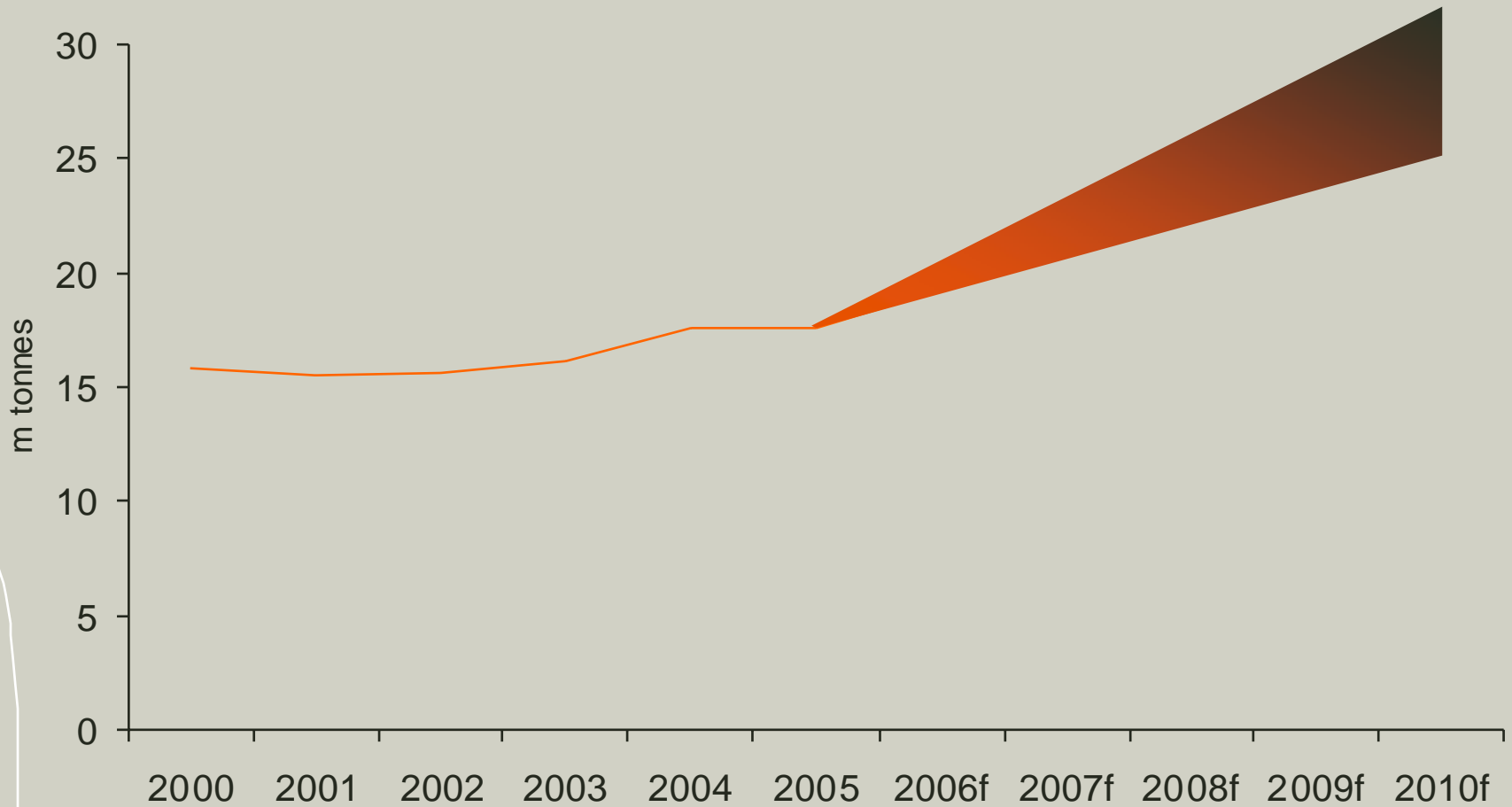
Hard coking coal increase + 28Mt (7%pa)



# 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

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

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

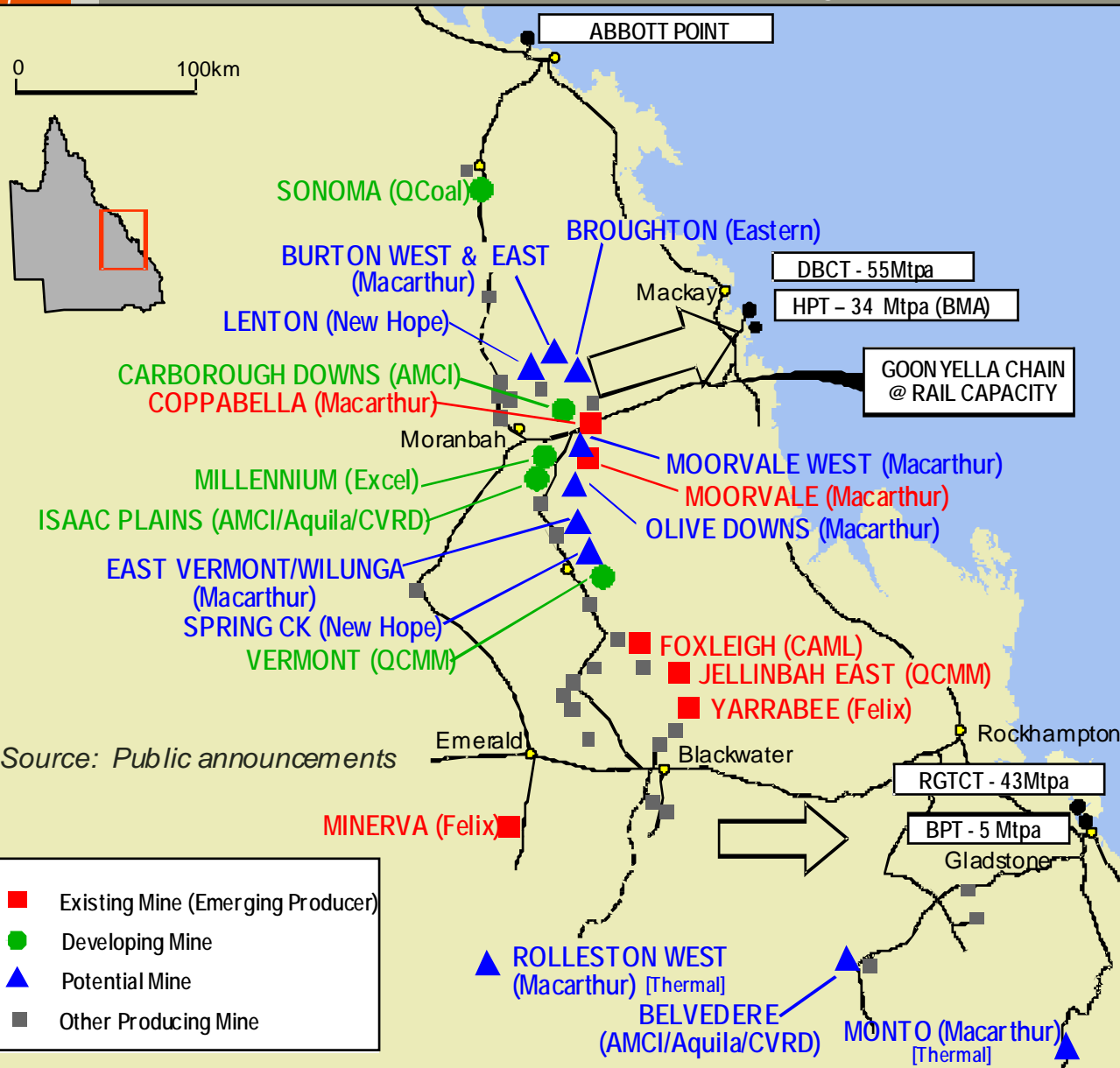
**Russia - Kuzbass**  
LV, MV, HV producer ~4000km to coast  
Limitations on infrastructure, dependent on subsidised rail transportation  
Strong domestic demand

**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



Source: Public announcements

- Existing Mine (Emerging Producer)
- Developing Mine
- ▲ Potential Mine
- Other Producing Mine

## Australia and Canada

Majority of new projects are WCC/SSCC and PCI coals

# 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

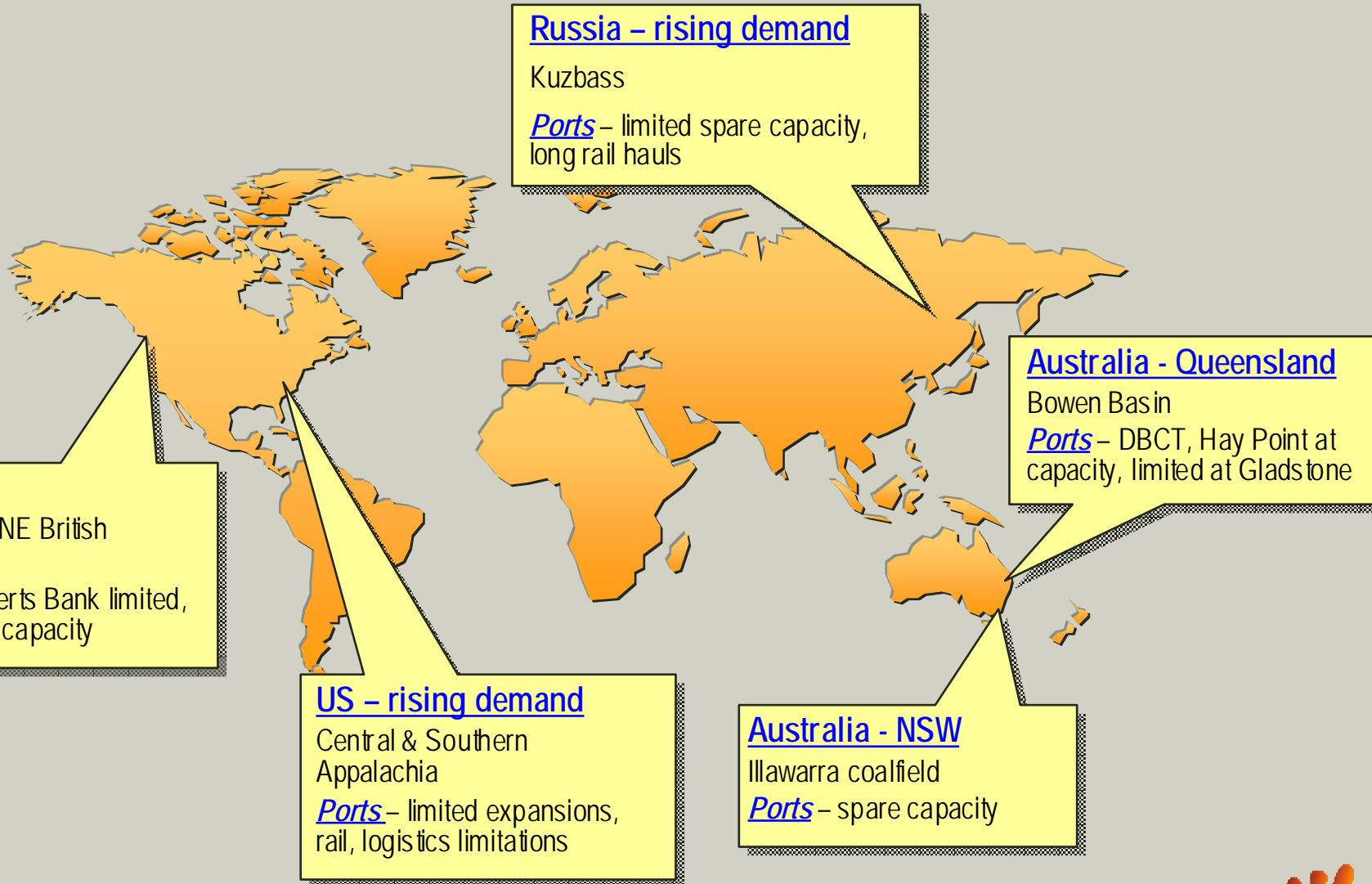
- **Russia**

- 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

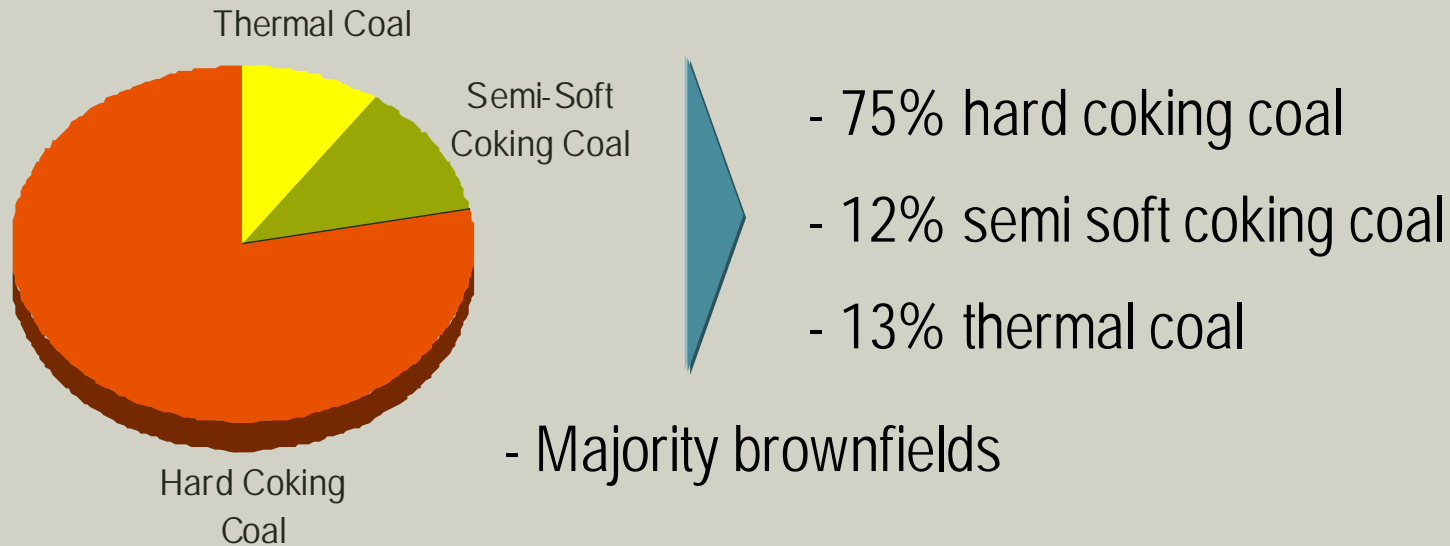
- Continued importance of Australia especially in better quality HCC
- Port throughput not mine production the key to export volumes in near term
- Supply becoming more volatile

# Port and rail capacity is the key in the short term



# 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



## 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 2<sup>nd</sup> 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 2<sup>nd</sup> half 2006 – underway
  - Phase 2 to 44 MTPA by 1<sup>st</sup> 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

- Dendrobium UG mine commenced production April 2005

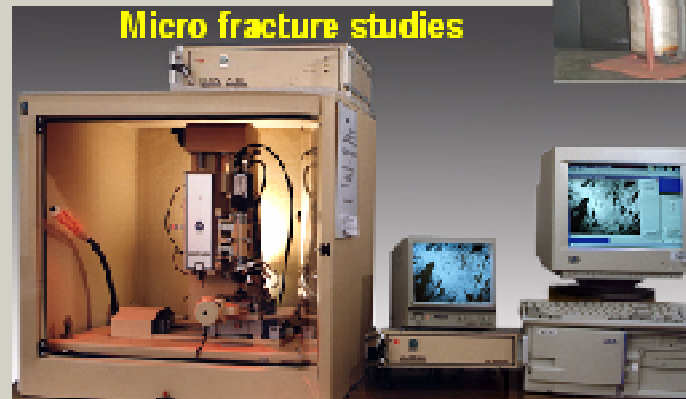


- Further expansion options at Illawarra under feasibility study
- Maruwai moved into feasibility study stage.

# BHP Billiton experience in optimising met coal understanding



Micro fracture studies



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



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