

# Review of the Market for Metallurgical Coal



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**bhpbilliton**

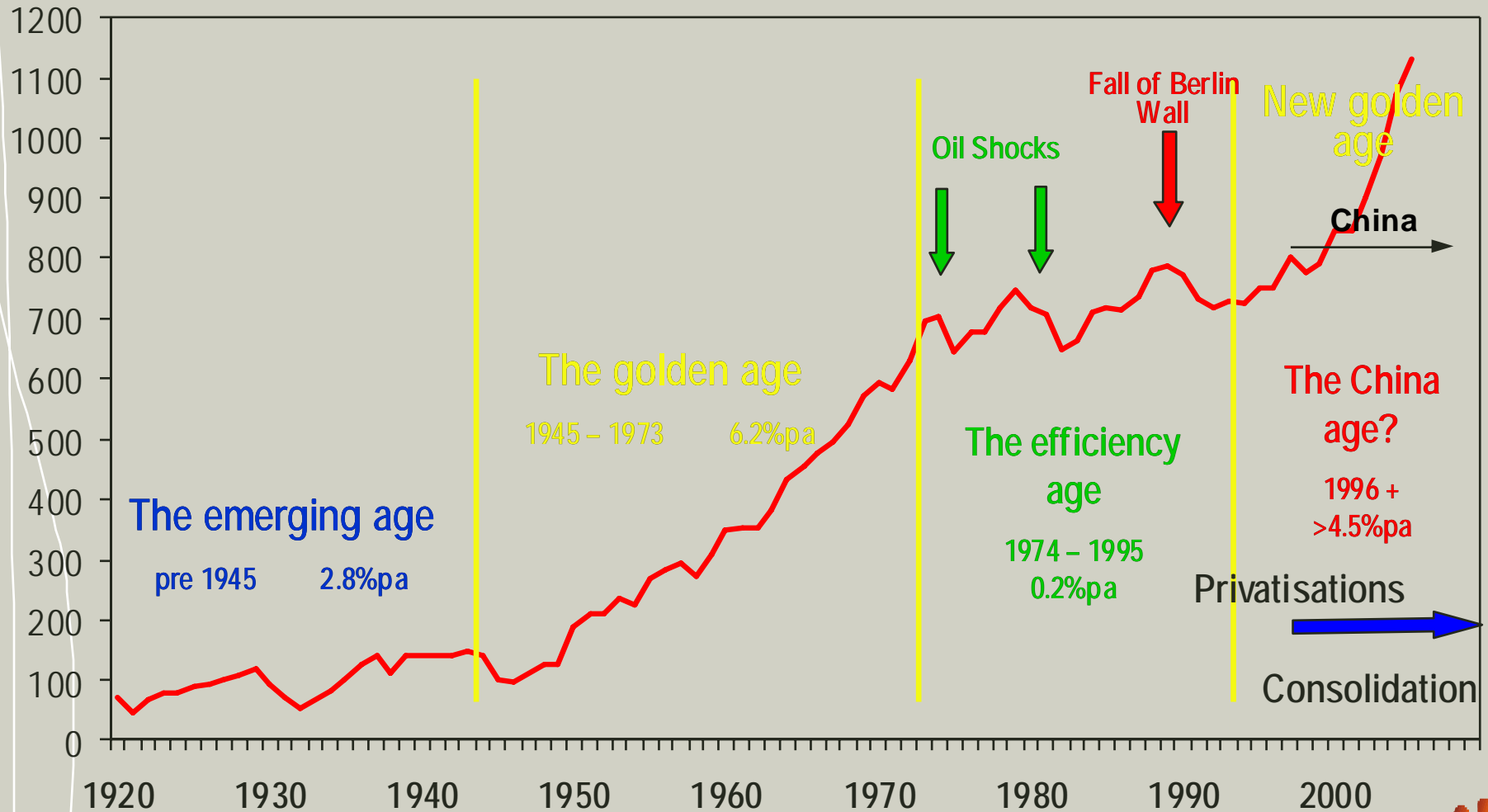
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# Global steel production has entered the 4<sup>th</sup> age

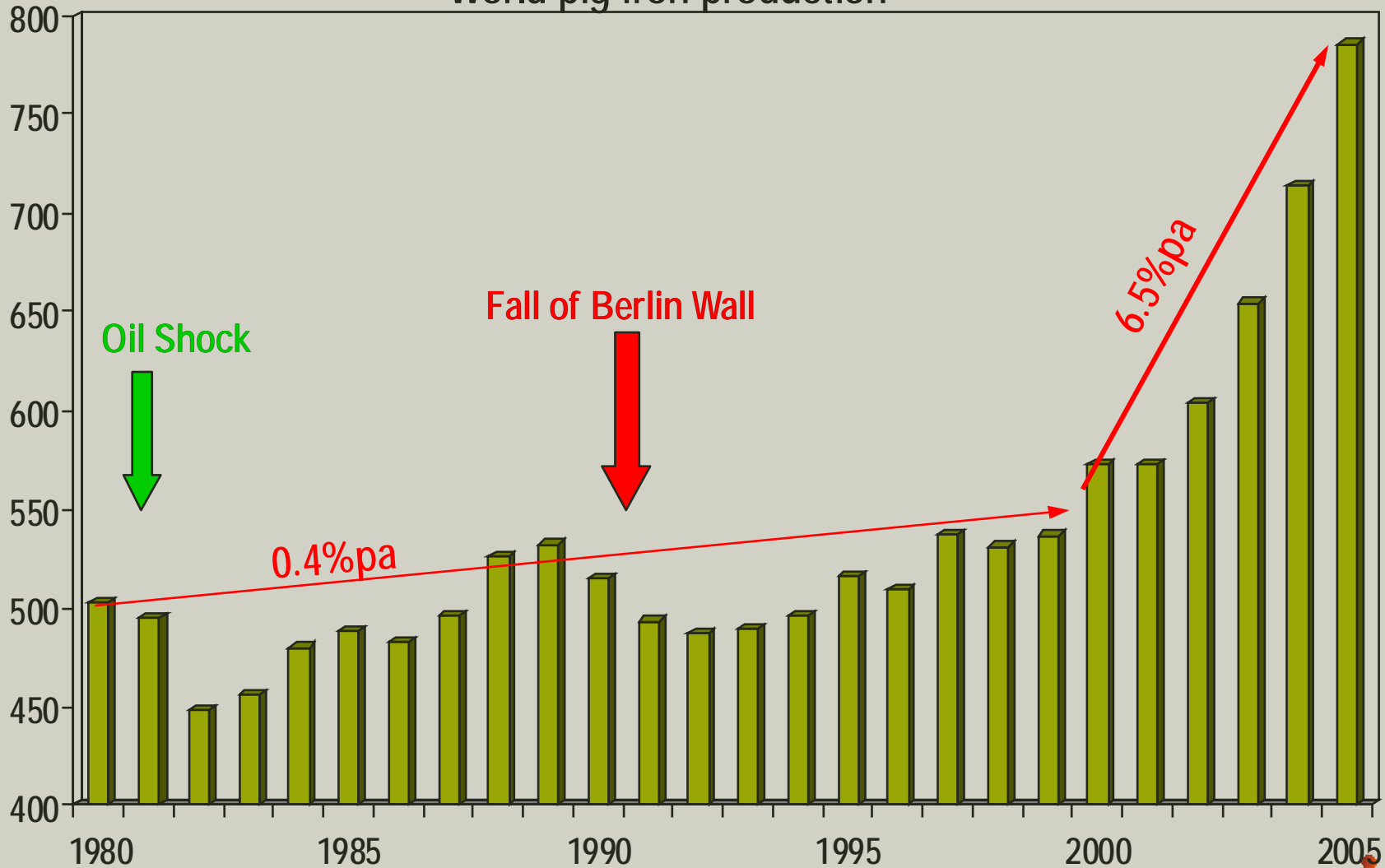
4<sup>th</sup> age of steel firmly established, parallels between post 1995 and post 1945, industrialisation of China, can it be continued with India?  $\frac{3}{4}$  of population < world steel average consumption.



Source IISI, BHP Billiton

# Metallurgical coal based steel production has followed steel growth

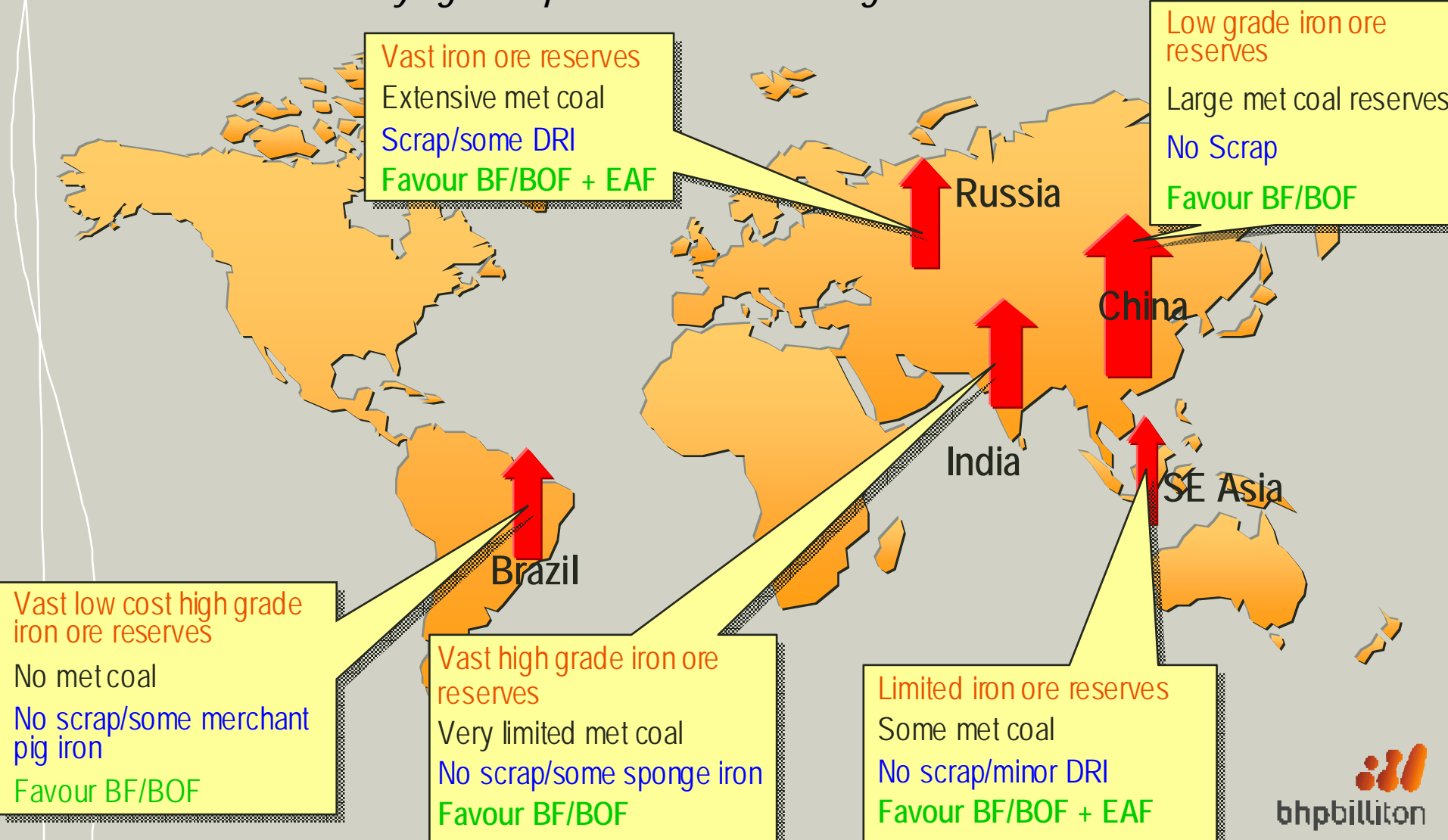
## World pig iron production



Source IISI, CRU, BHP Billiton

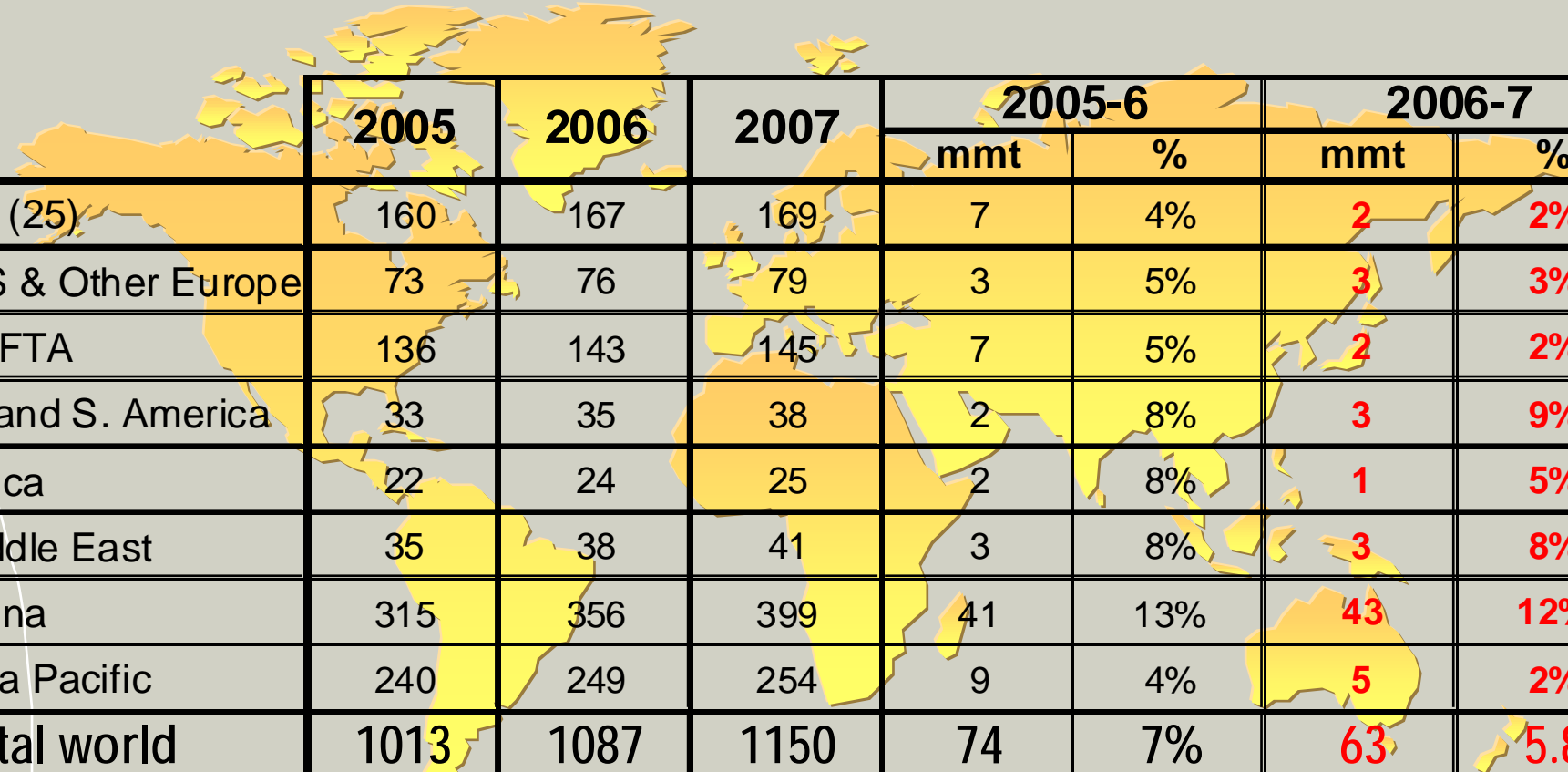
# Future growth will be led by BRICS

*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.*



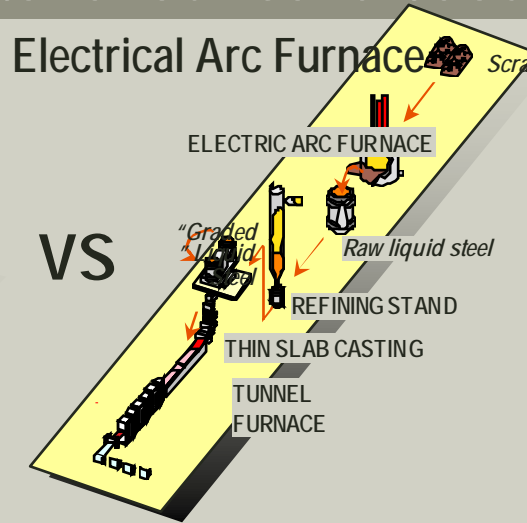
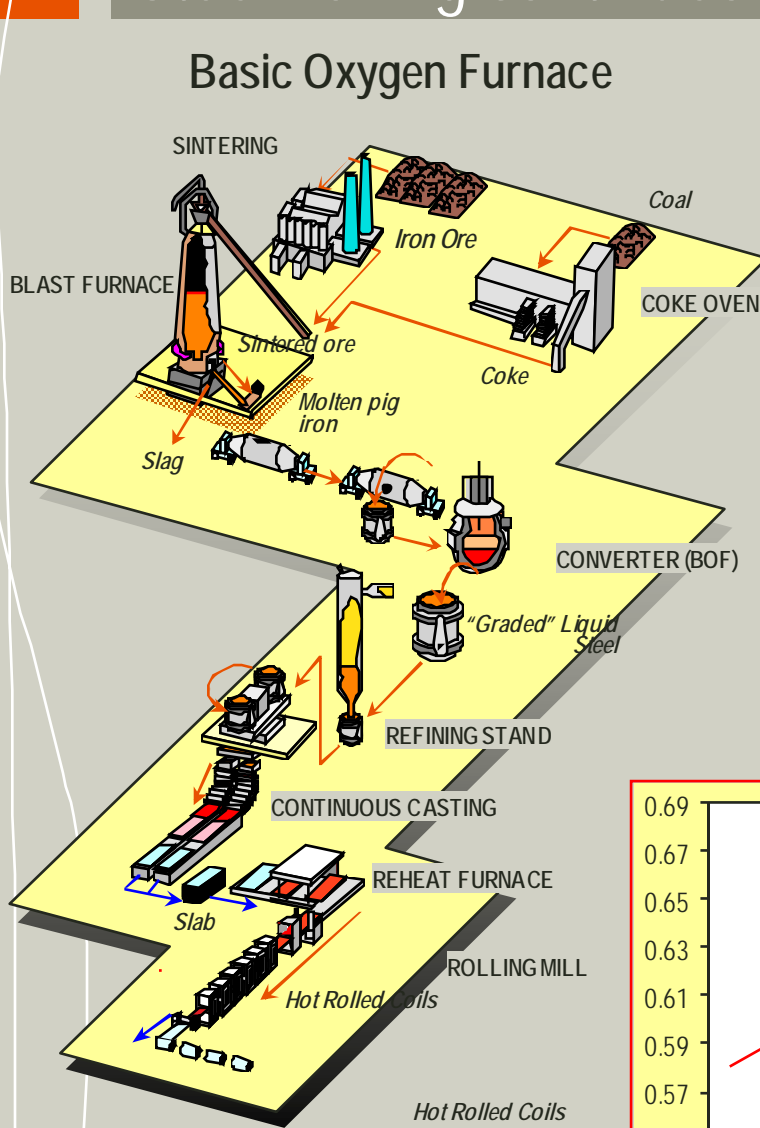
# Short term steel demand outlook is very positive

Predictions for steel consumption growth are more positive for 2006/7 than for 2005; ROW expected to see significant growth to complement China – the majority of growth in 2005.



	2005	2006	2007	2005-6		2006-7	
				mmt	%	mmt	%
EU (25)	160	167	169	7	4%	2	2%
CIS & Other Europe	73	76	79	3	5%	3	3%
NAFTA	136	143	145	7	5%	2	2%
C. and S. America	33	35	38	2	8%	3	9%
Africa	22	24	25	2	8%	1	5%
Middle East	35	38	41	3	8%	3	8%
China	315	356	399	41	13%	43	12%
Asia Pacific	240	249	254	9	4%	5	2%
<b>Total world</b>	<b>1013</b>	<b>1087</b>	<b>1150</b>	<b>74</b>	<b>7%</b>	<b>63</b>	<b>5.8</b>

# Steelmaking continues to favour coke based BF route

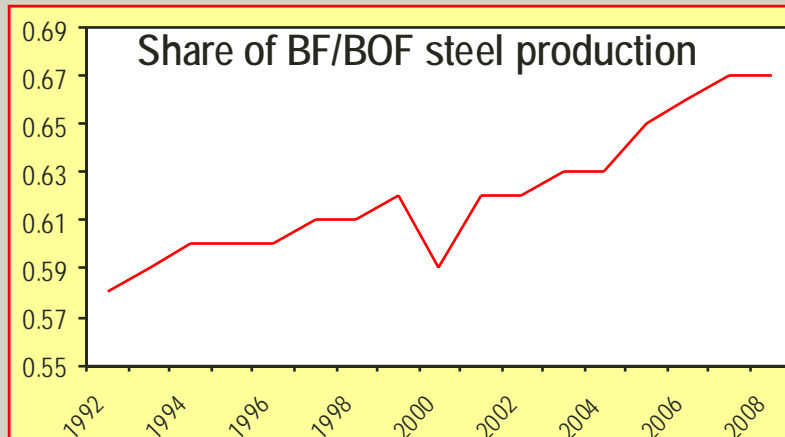


VS

Major steelmaking route for high quality steels



↓ Liquid iron  
↑ Gas flow up

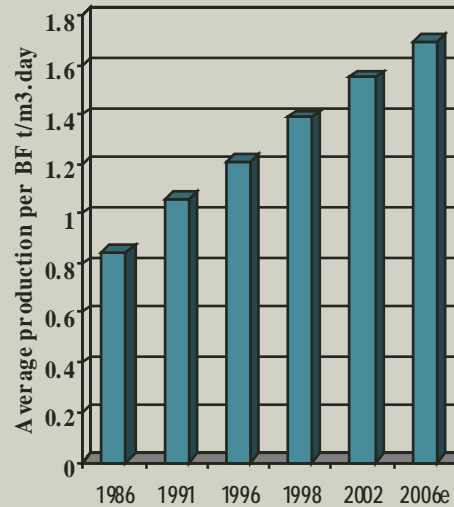
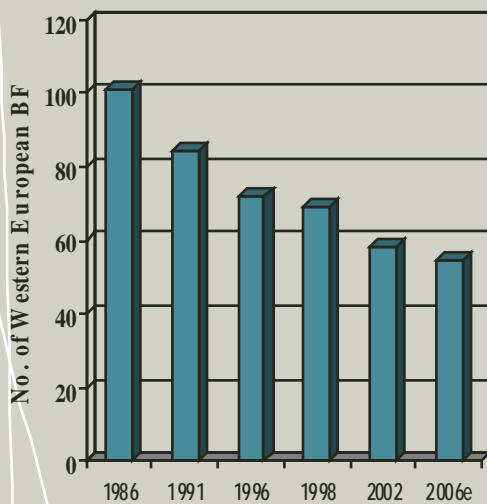


Source: IISI

# Trends in Blast Furnace coke quality favour use of HQHCC

- Changes to fewer, larger more productive BF's

## European Blast Furnace Changes

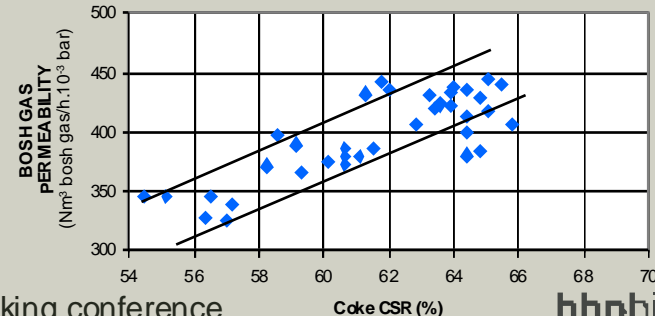
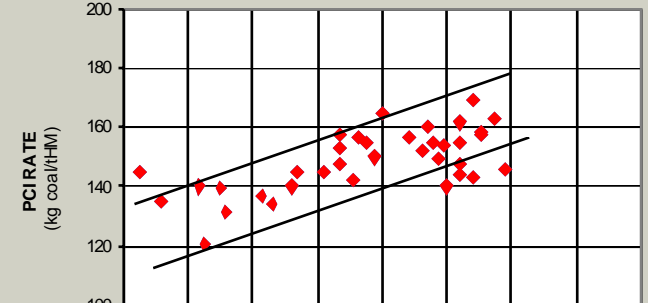
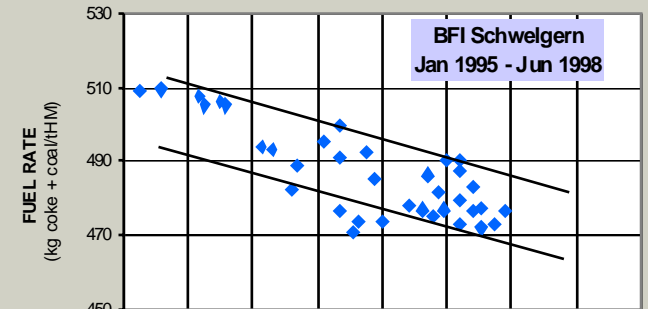


- HQHCC coals have excellent CSR properties
  - Produce excellent high quality coke for large BF's
  - Selected plants 70% of coal requirements

**• Use of high quality coking coals lead to improved coke properties and quality**

- Improved Coke Quality

- Marked improvement in coke strength CSR
- CSR leads to improved BF performance





# Advantages of coke based BF steelmaking

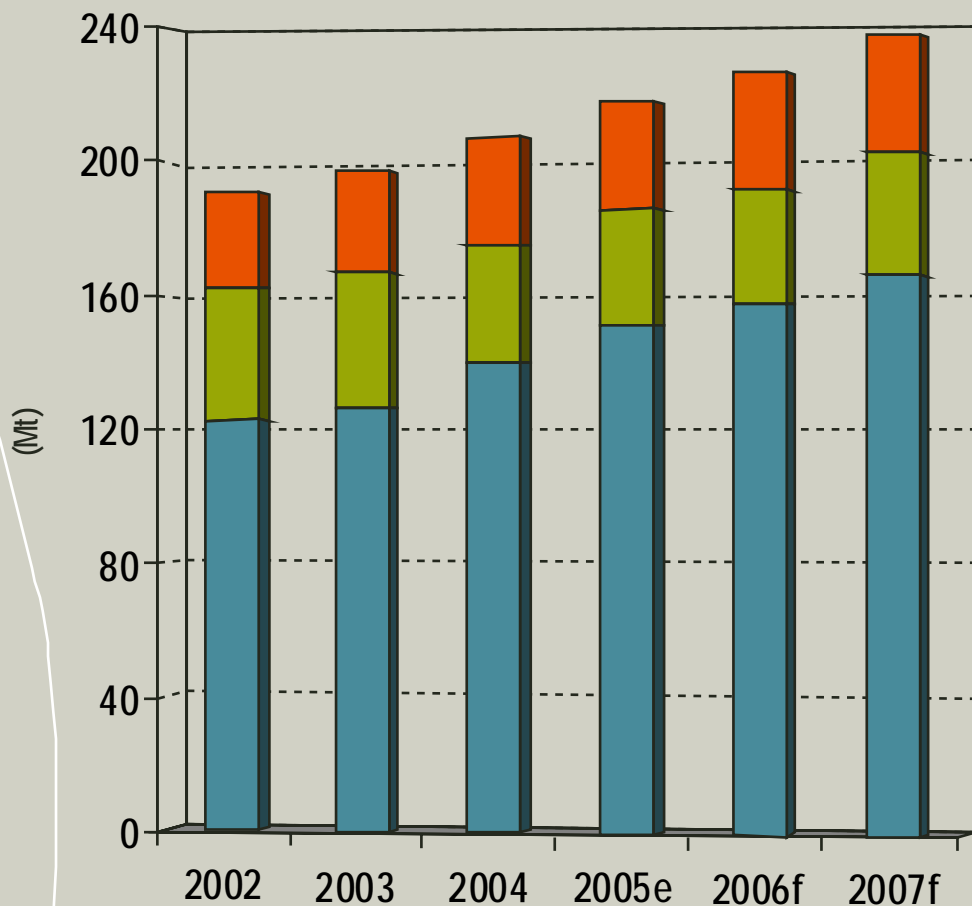
- Can make full range of steels
  - Construction to Advanced High Strength steels
- Economies of scale
  - Small MBF to  $>5,000\text{m}^3$
- Energy efficiency
  - Significant efficiency gains, greenhouse benefits
- World has large experience with BF technology
- Ability to utilise wide range of raw materials
  - Domestic and imported

# 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, Eastern Europe
  - USA, esp. low volatile HCC
- Rise of China as an important met coal importer in the 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
  - Rising PCI levels will require higher quality coke = more HCC
  - Kyoto supporting moves to lower fuel rates = move away from SSCC to HCC

# Global Increase in met coal demand 2006 - 2007

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



2004-2007 increases:

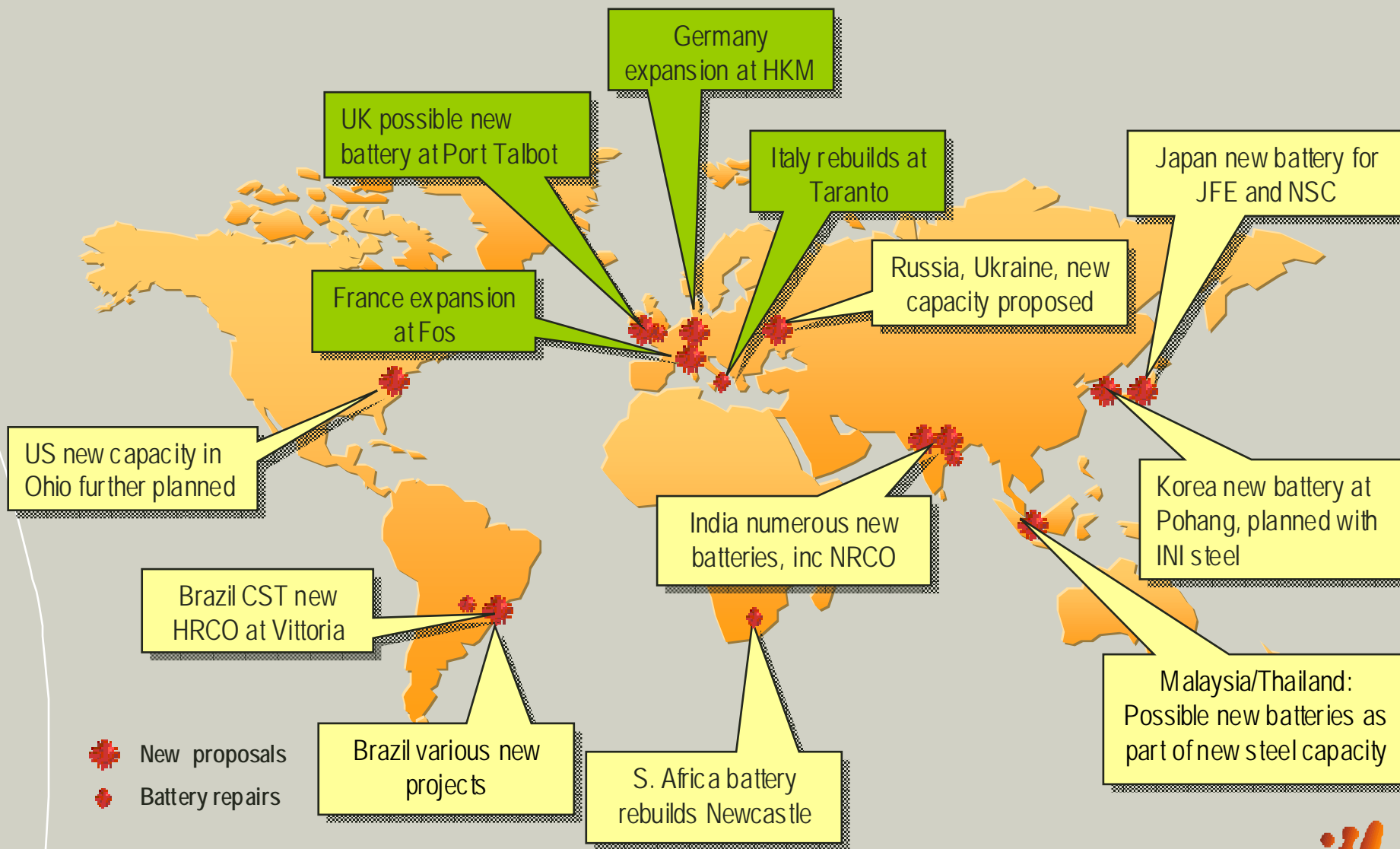
PCI increase +3Mt, (3% pa)

Semi-soft increase +0Mt (0% pa)

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

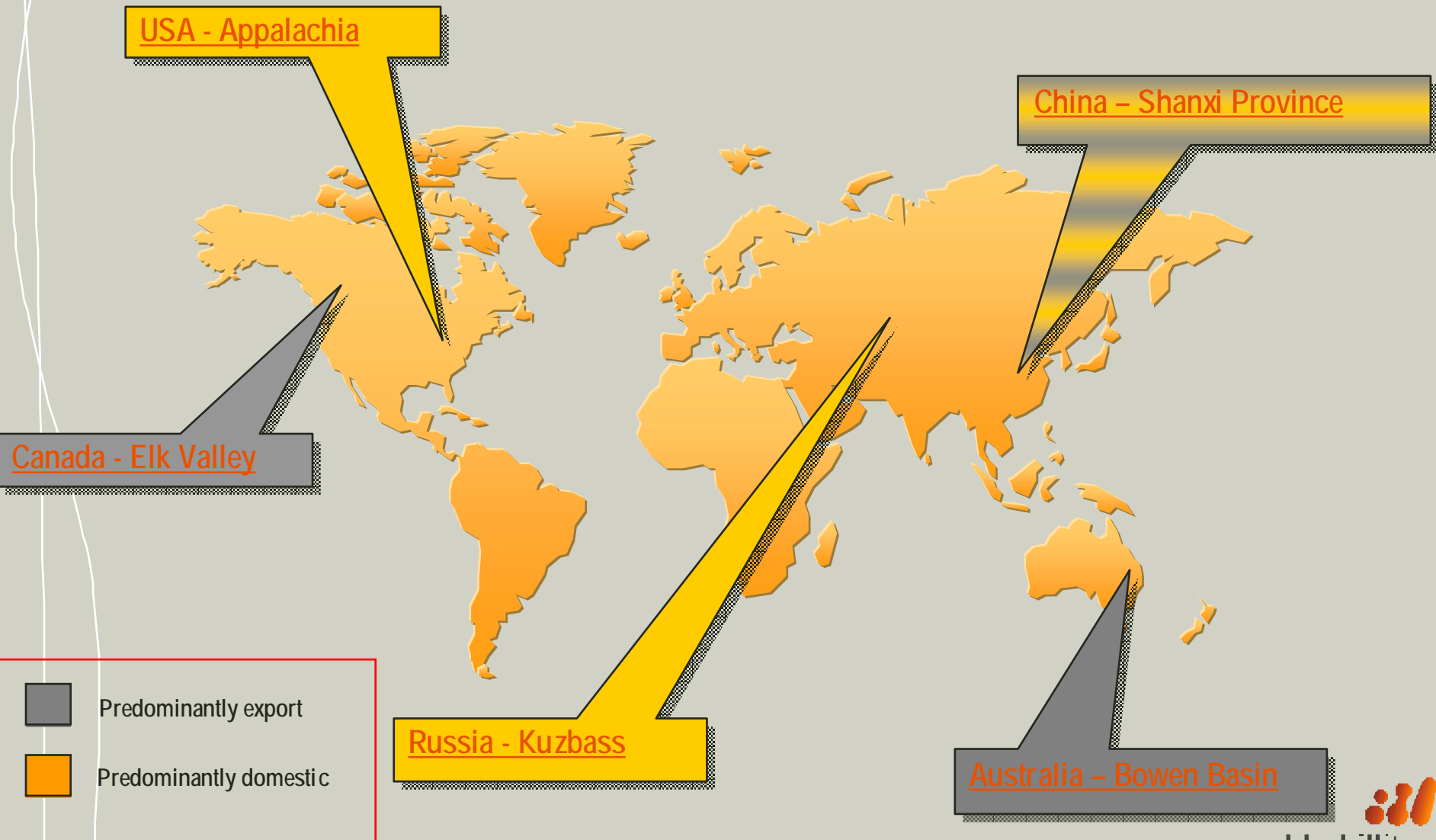
Source Industry analysts, industry sources, BHP Billiton

# New coke capacity is under construction/being planned



Source: Market sources and announcements

# Major high quality global met coal producing regions



# 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 2005
- 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

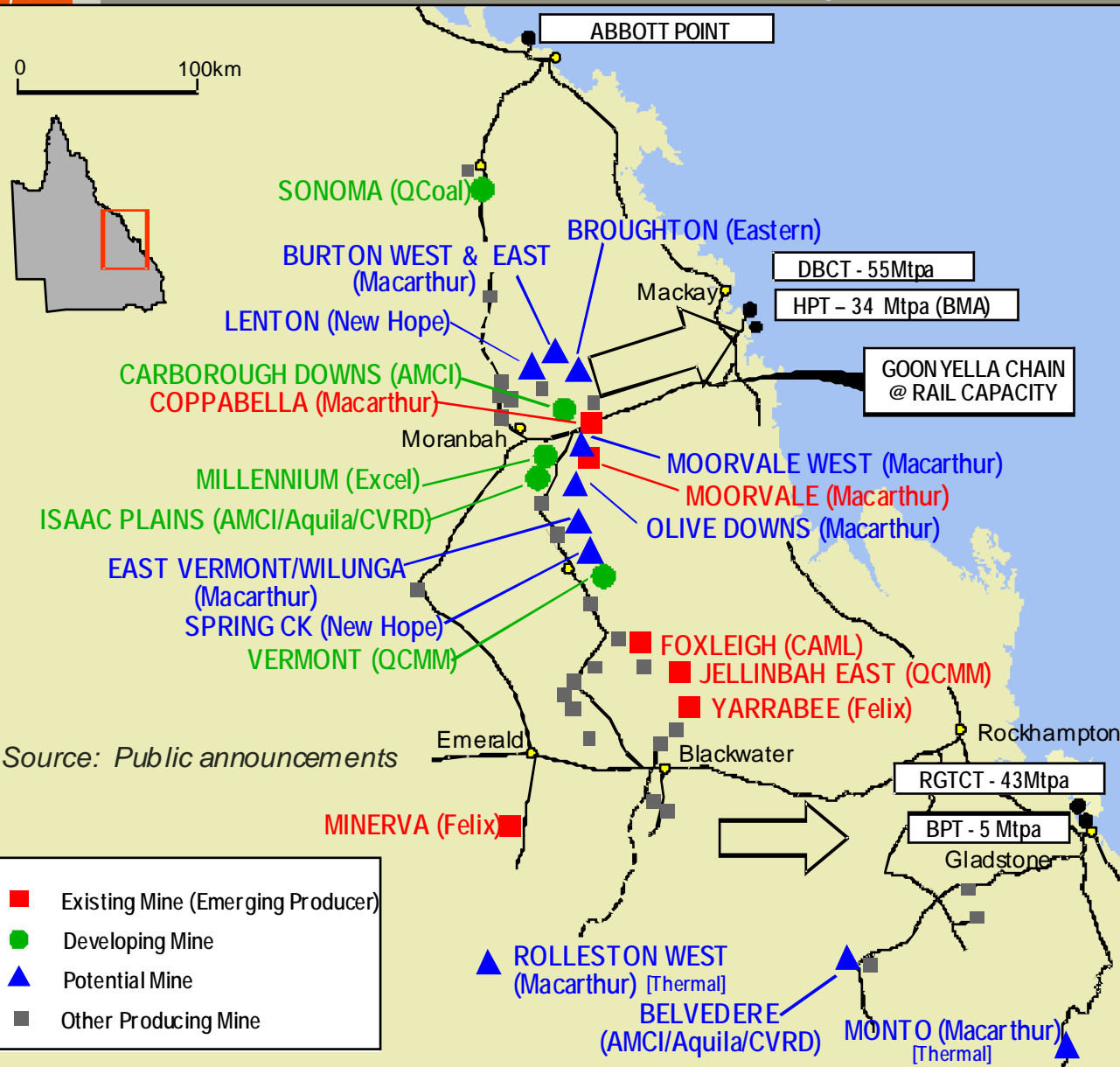
- **Russia**

- 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

# Queensland selected new projects

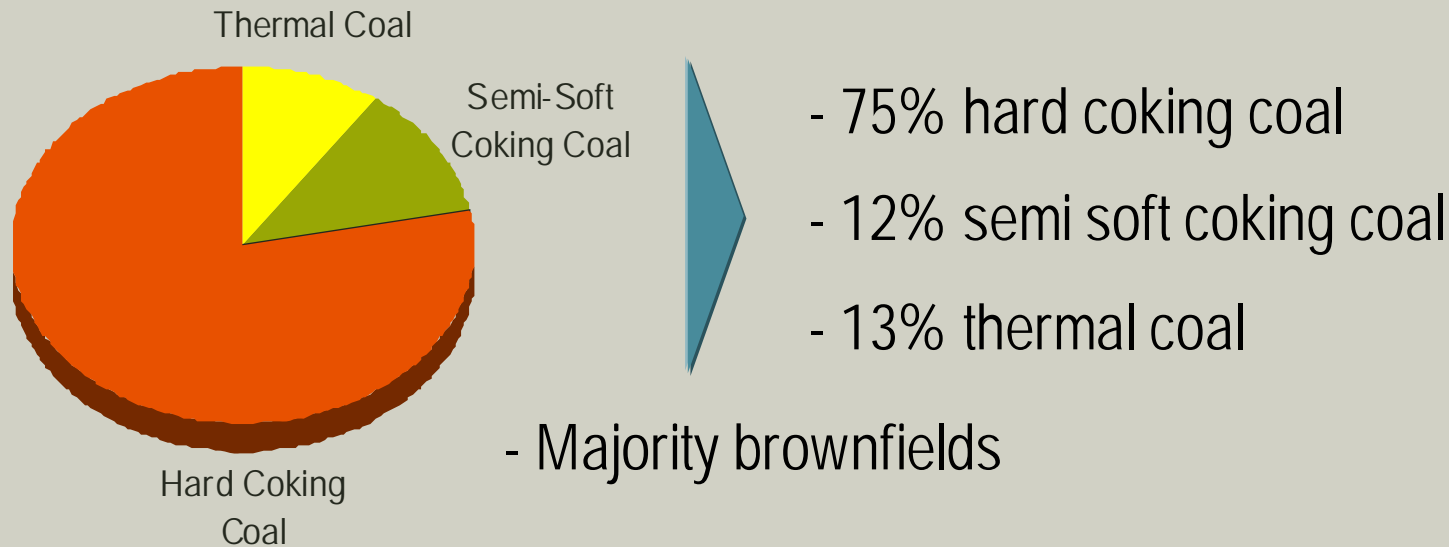


Australia and Canada

Majority of new projects are WCC/SSCC and PCI coals

# 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 longwall and potential expansions in Illawarra
- new coking coal basin in Kalimantan, Maruwai



# BHP Billiton's expansion progress

- 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
- Dendrobium NSW in operation since April 2005
- Poitrel open cut approved and under construction
- Maruwai project moved into feasibility stage
- 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



## Dendrobium

– commenced production April 2005



## Poitrel – under construction



Crushing station



Ultra-fines microcell tanks

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



## Concluding Remarks

- The global steel industry remains on a fast growth track
- Coke based BF steelmaking is forecast to remain the key process for the global steel industry requiring 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 market growth for coking coal, delivering global iron and cokemakers the confidence and assurance for their future requirements



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