

# BHP Billiton Coal CSG Analyst visit Queensland & NSW

Dave Murray  
President – Coal CSG



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## Ore Reserves and Mineral Resources

The information in this presentation that relates to Ore Reserves and Mineral Resources is as at 30 June 2006 and is based on information prepared by the relevant Competent Persons. The Competent Persons agree with the form and context of the Mineral Resources and Ore Reserves presented. The complete tables of Ore Reserves and Mineral Resources as at 30 June 2006 (including the relevant Competent Persons) for Stainless Steel Materials are presented in the BHP Billiton Annual Report 2006 on pages 74 and 75.

## Day 4: Blackwater, travel to Mackay

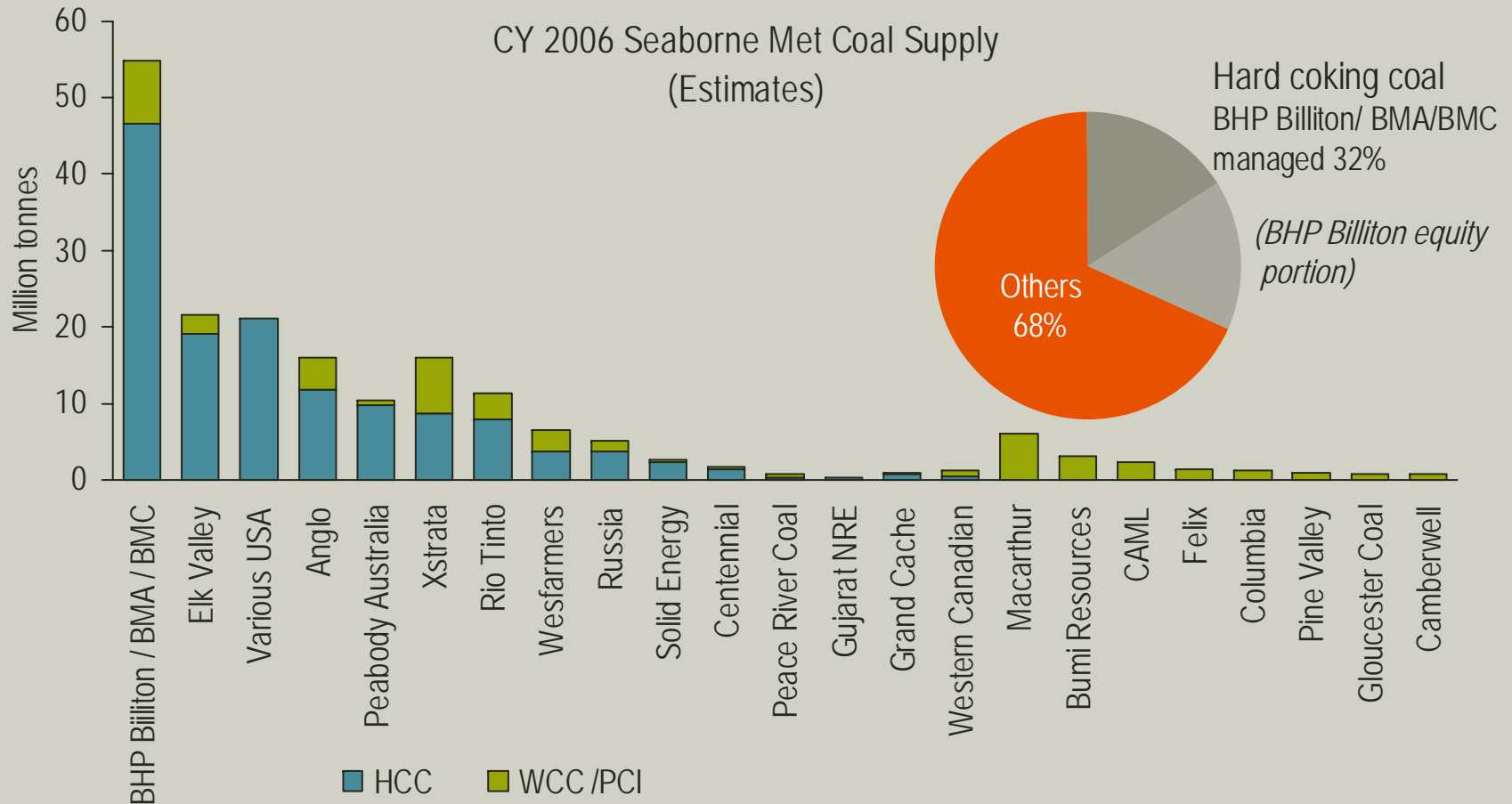
Wed 31 Oct

- 07:30 Bus departs Maraboon Motor Inn, Emerald (induction and PPE on bus)
- 09:00 Introduction – Dave Murray
- 09:15 Met Coal Market – David John
- 10:00 Met Coal Strategy & Growth – Neil Scott
- 10:20 Break – morning tea served
- 10:40 Illawarra Operations – Col Bloomfield
- 11:00 Maruwai Project – Ken Crichton
- 11:20 BMA – John Smith
- 12:20 BBQ lunch served
- 12:50 Blackwater – Mark Chambers
- 13:20 Site tour: Blackwater mine - mining and new CHPP area
- 14:45 Buses depart Blackwater Mine for Emerald Airport
- 15:45 Charter flight Emerald to Mackay
- 17:00 Arrive Mackay
- 19:00 Dinner at George's Thai on the Marina

*Overnight Clarion Hotel, Mackay*

# Dominant player in the seaborne market

Top 3 suppliers = 57% HCC market share, top 6 suppliers (75%) are major miners (excluding USA)



Source: BHP Billiton analysis; BHPB share 100% equity terms

# Leading position in two major exporting basins – a third to follow



BHP Billiton Mitsubishi Alliance and  
BHP Billiton Mitsui JV

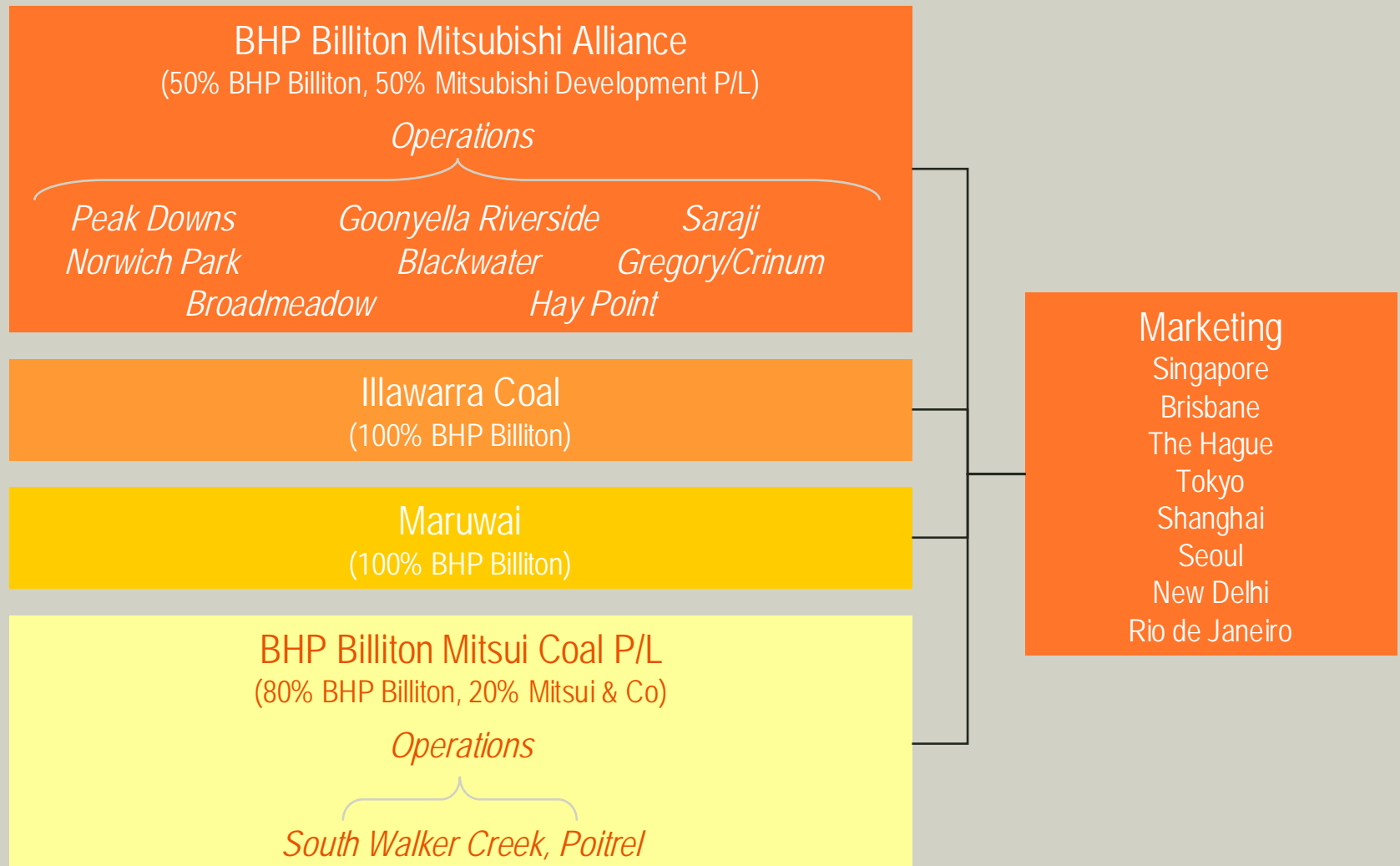
## Maruwai Project



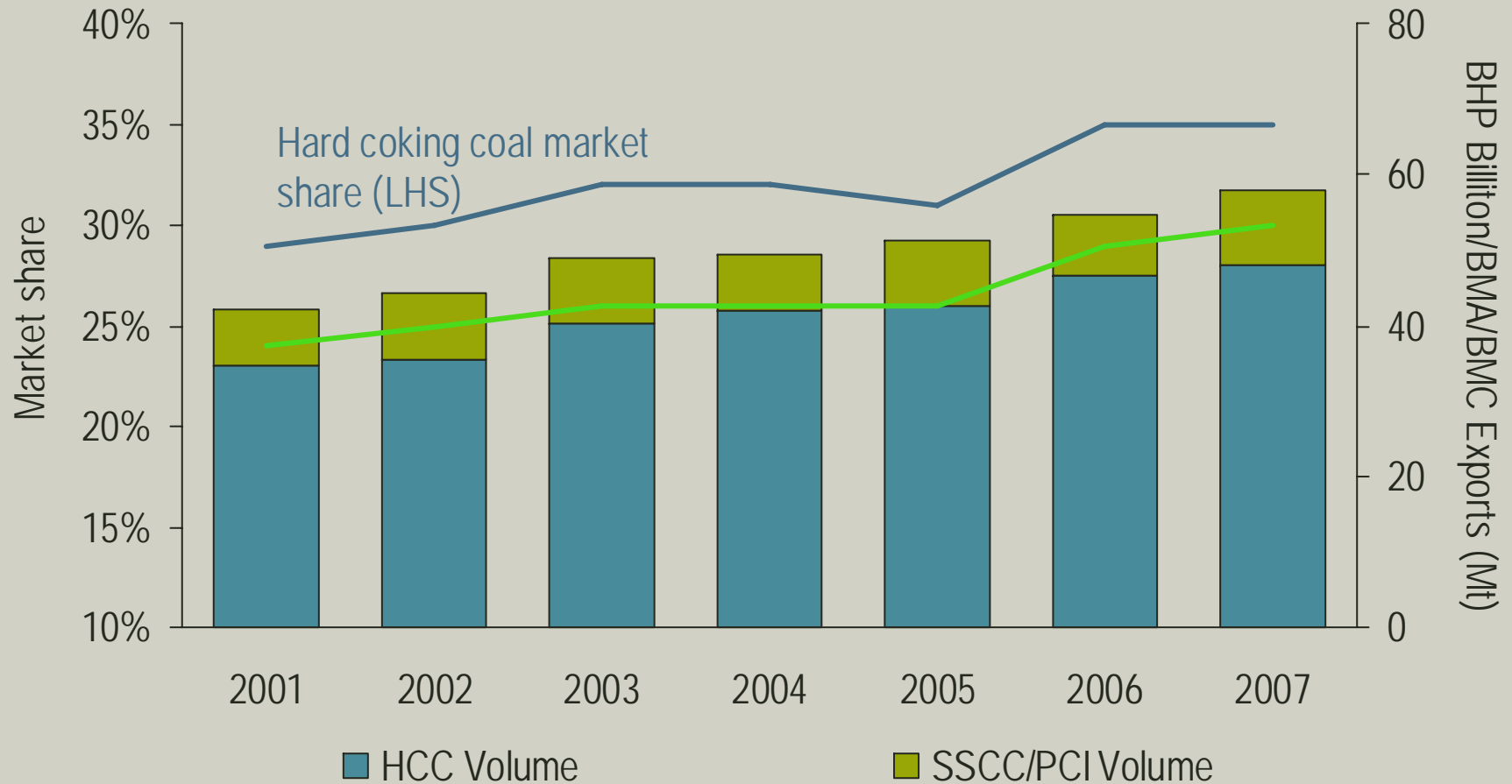
## Illawarra Coal



# Our Met Coal business

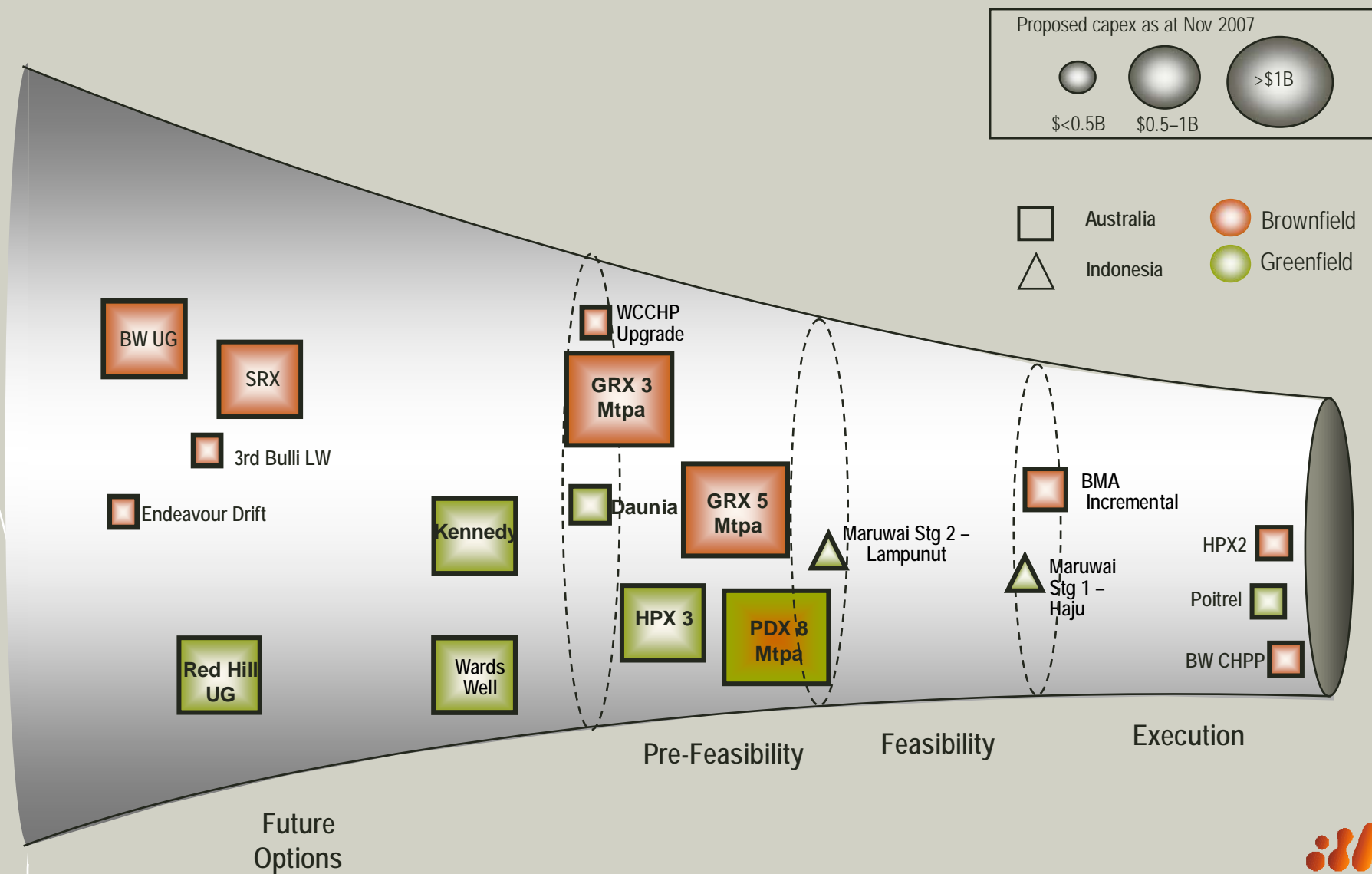


## Grown market share in both hard coking and met coal



Source: BHP Billiton

# The leading portfolio of growth options





# BHP Billiton's value proposition in the met coal market

David John  
VP Met Coal Marketing



# Agenda

How is the Met coal industry structured?

The continuing importance of blast furnaces & HCC in steel making

There's a new order in the demand side

Supply constraints and BHP Billiton's ability to deliver

## How is the Met coal industry structured?

The continuing importance of blast furnaces & HCC in steel making

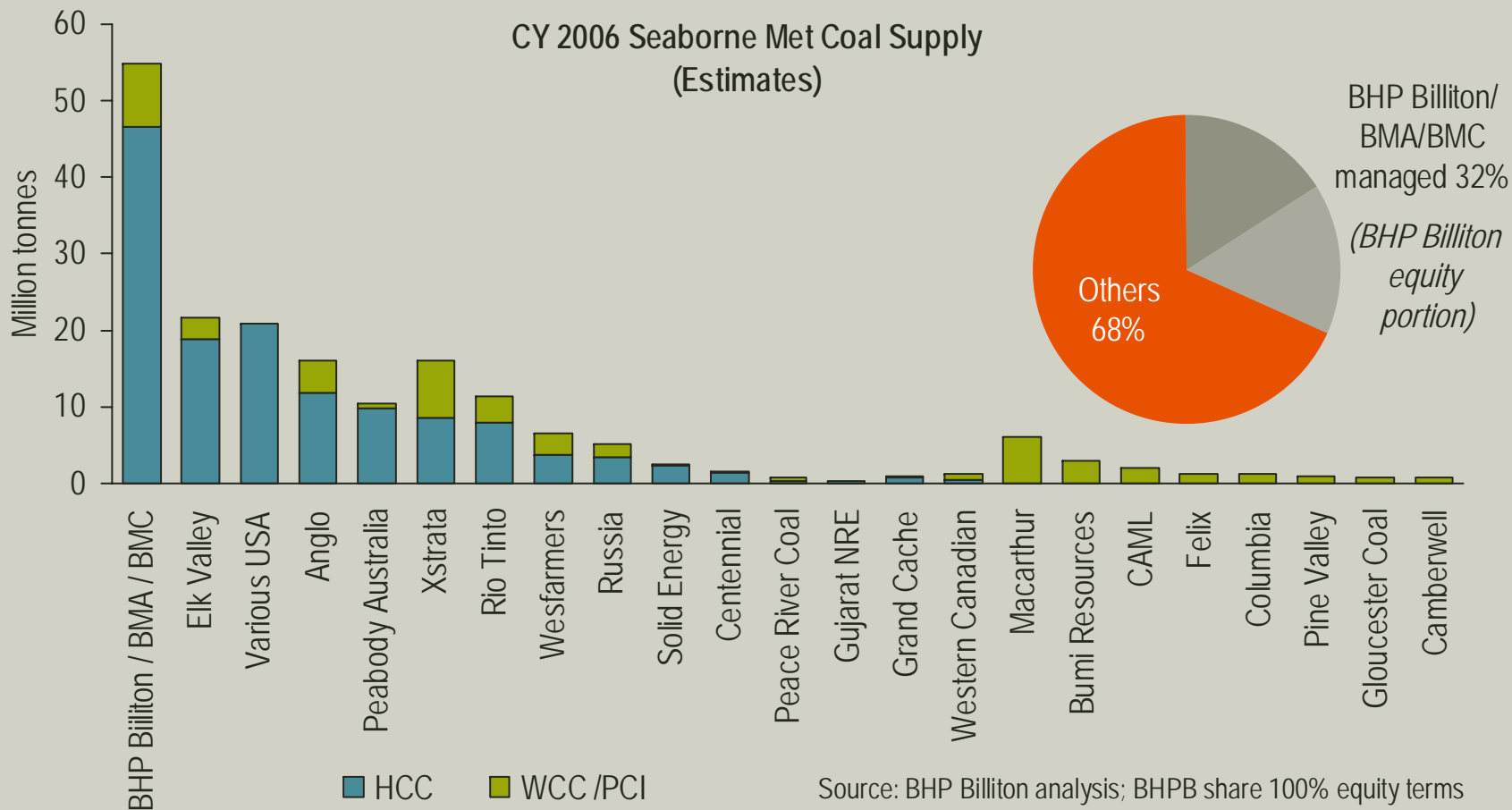
There's a new order in the demand side

Supply constraints and BHP Billiton's ability to deliver

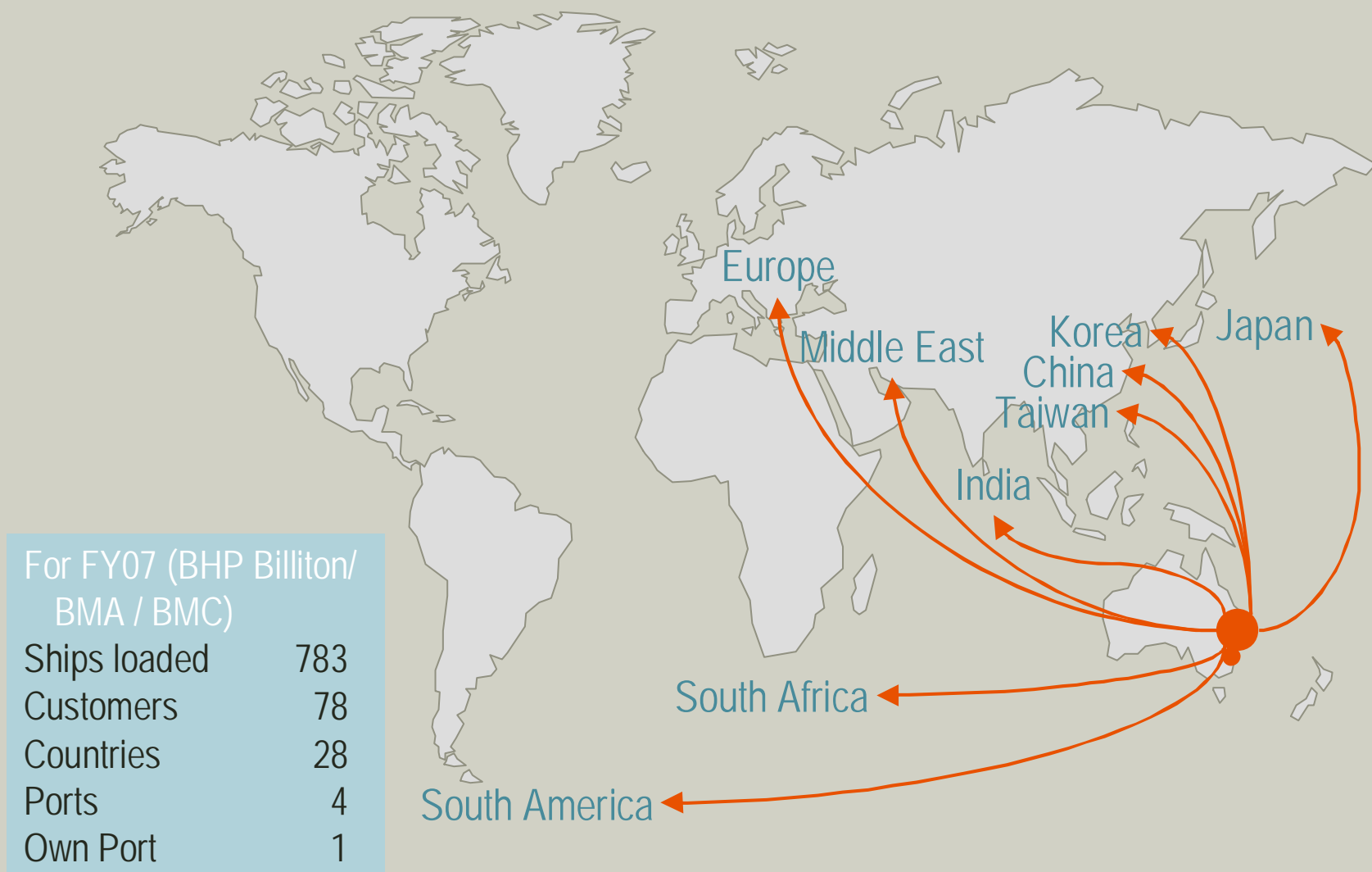
# Dominant player in the seaborne market

Seaborne hard coking coal is a relatively consolidated market:

Top 3 suppliers = 57% HCC market share, top 6 suppliers (75%) are major miners (excluding USA)



# Global coverage



How is the Met Coal industry structured?

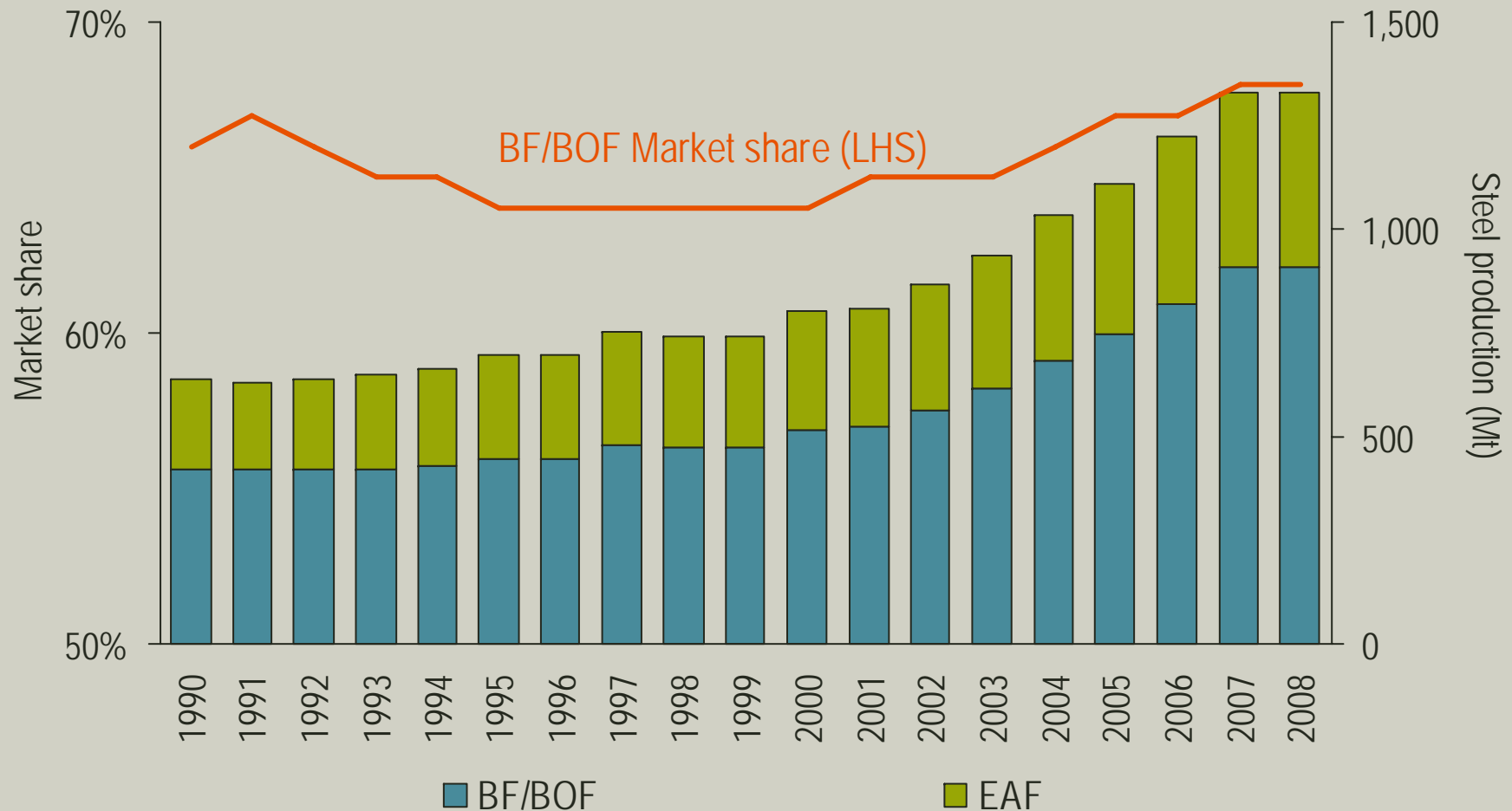
The continuing importance of Blast Furnaces & HCC in steel making

There's a new order in the demand side

Supply constraints and BHP Billiton's ability to deliver

BF/BOF has grown share, EAF requires high quality/low cost scrap and reliable/low cost electricity

## Global steel production by Blast Furnace/BOF & Electric Arc Furnace

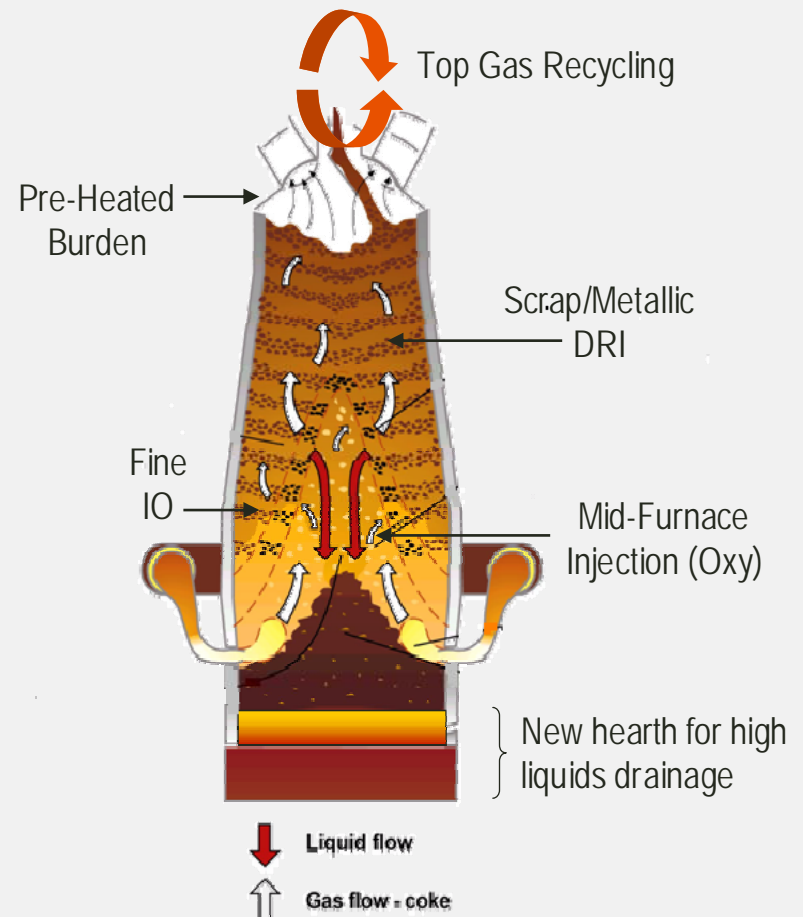


Source: CRU

# Blast furnace productivity is the key driver

- Proven technology
  - Low risk
- Capex/Opex
  - Alternative technologies not offering breakthrough
- Size and flexibility
  - Ability to produce large volumes of hot metal
  - Accept range of coal & iron ore quality
- Ongoing performance improvement
  - Enlargement of Blast Furnaces

## Areas of active BF technology innovation



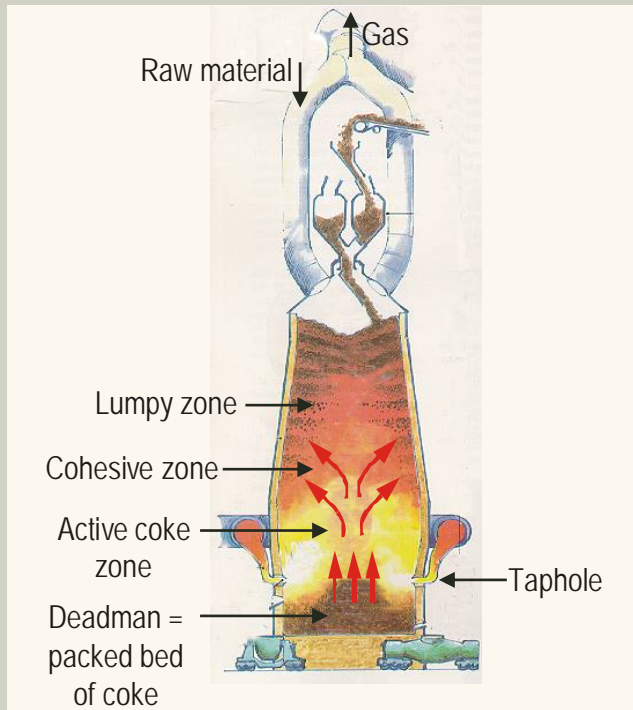
Source: CRU; BHP Billiton analysis



# High quality coking coal is valued for its hot metal productivity

## Coke is essential in the blast furnace

- High Quality HCC produces coke that will:
  - Increase hot metal productivity, and/or
  - Reduce cost by allowing lower quality/lower cost coals to be added to the blend



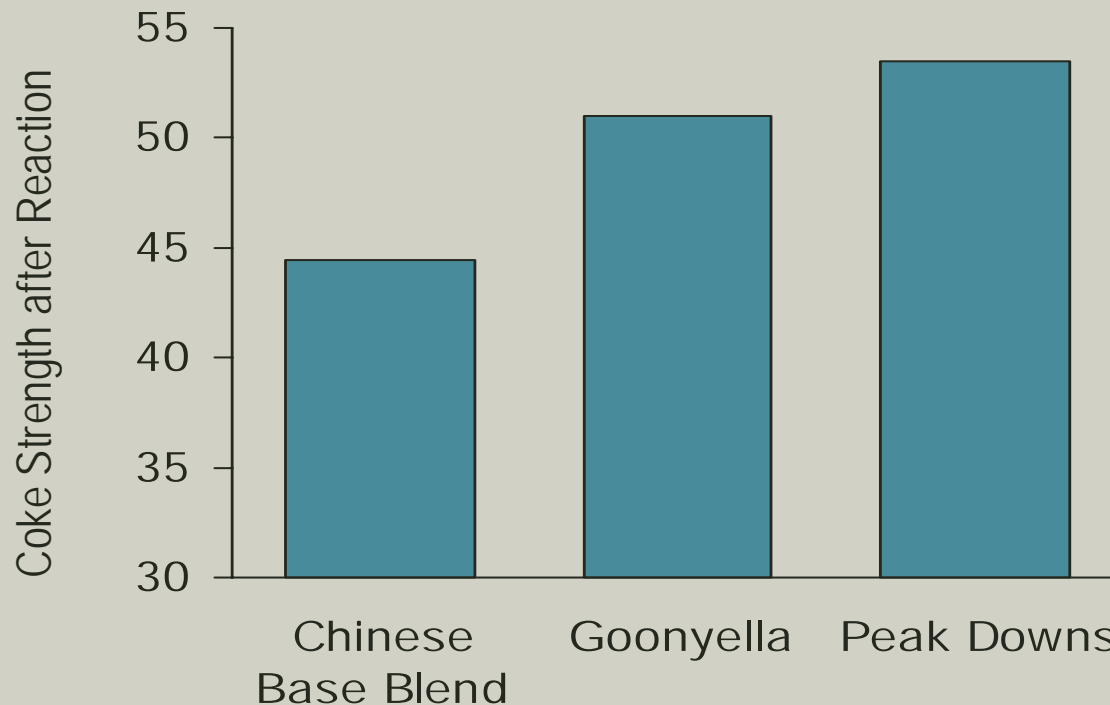
### Role of coke in the blast furnace

Strength	<ul style="list-style-type: none"><li>• Support the iron ore burden</li><li>• Premium coke &gt;60 CSR *</li></ul>
Heat	<ul style="list-style-type: none"><li>• Provide heat to drive reduction of the iron ore</li></ul>
Carbon	<ul style="list-style-type: none"><li>• Provide carbon for reduction of iron ore</li><li>• Premium for low-mid volatile (18-26%)</li></ul>
Ash	<ul style="list-style-type: none"><li>• Coke chemistry a key driver hot metal productivity</li><li>• Premium for low ash (&lt;10%) and low 'basicity'</li></ul>

# Our high quality hard coking coals improve blast furnace productivity

## Case study

- Impact of replacement of 15% Chinese HQHCC by BHPB HQHCC in the blend
- Significant increase in hot metal productivity



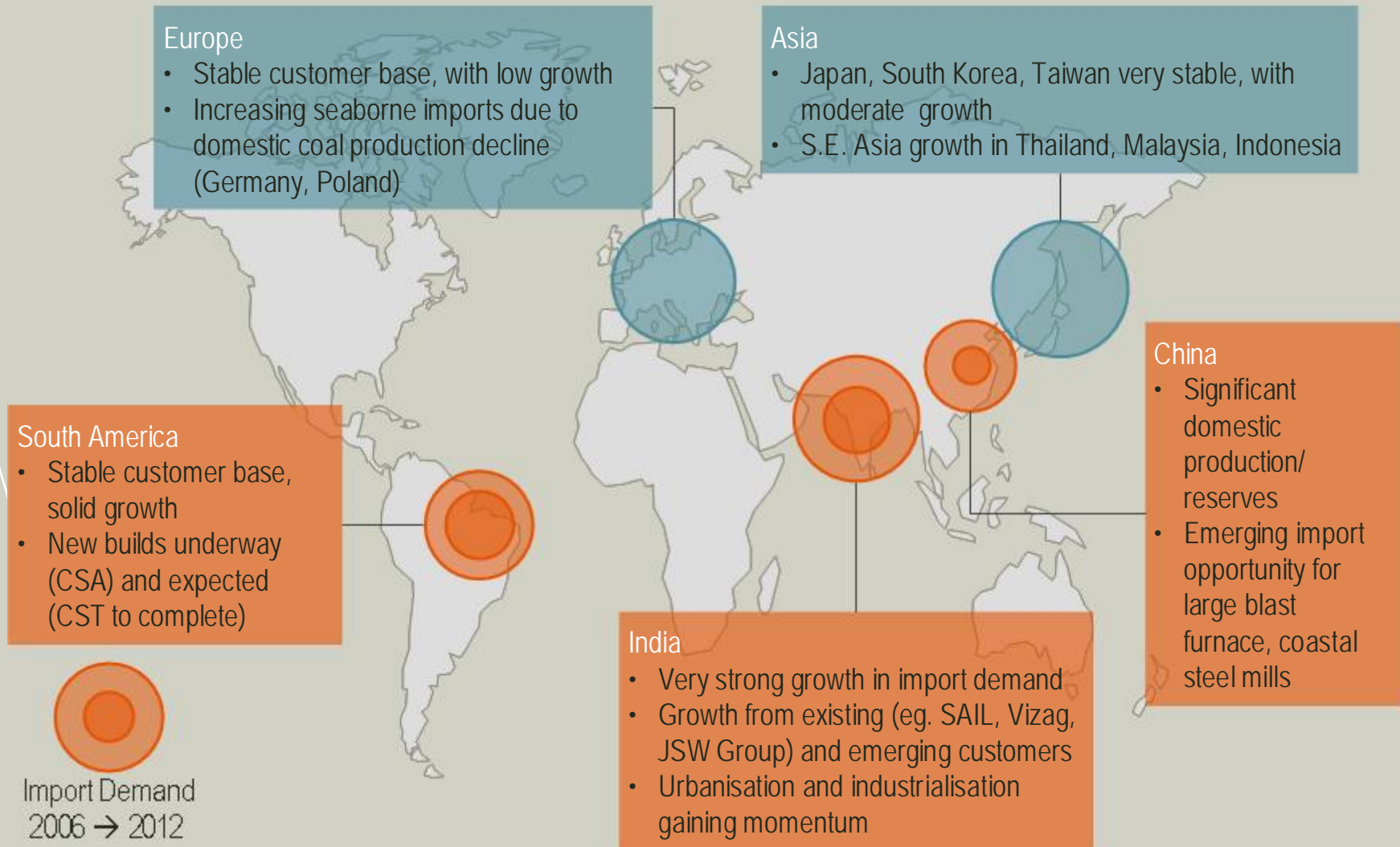
How is the Met Coal industry structured?

The continuing importance of blast furnaces & HCC in steel making

There's a new order in the demand side

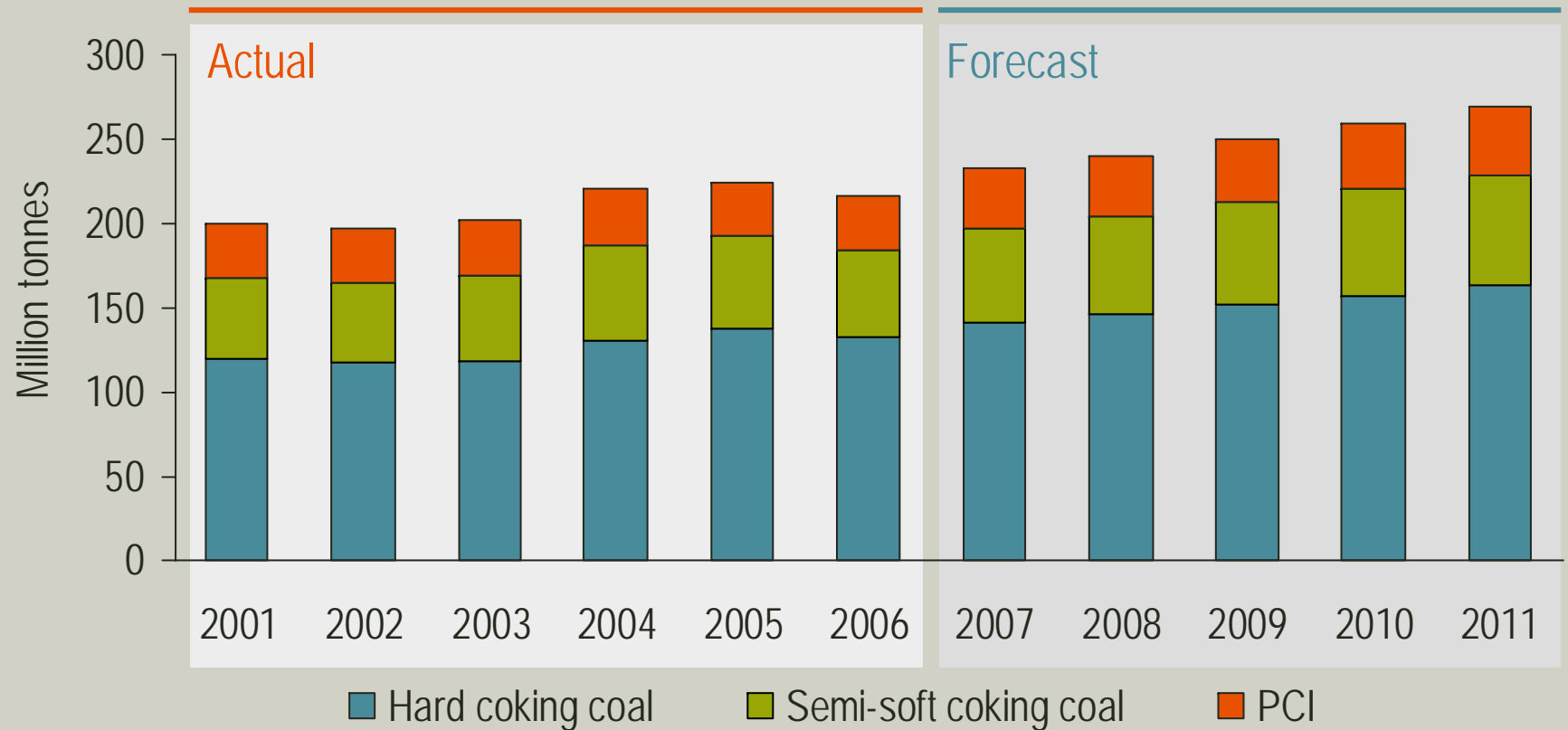
Supply constraints and BHP Billiton's ability to deliver

# Demand growth in India, Brazil and China



Source: AME, BHP Billiton analysis

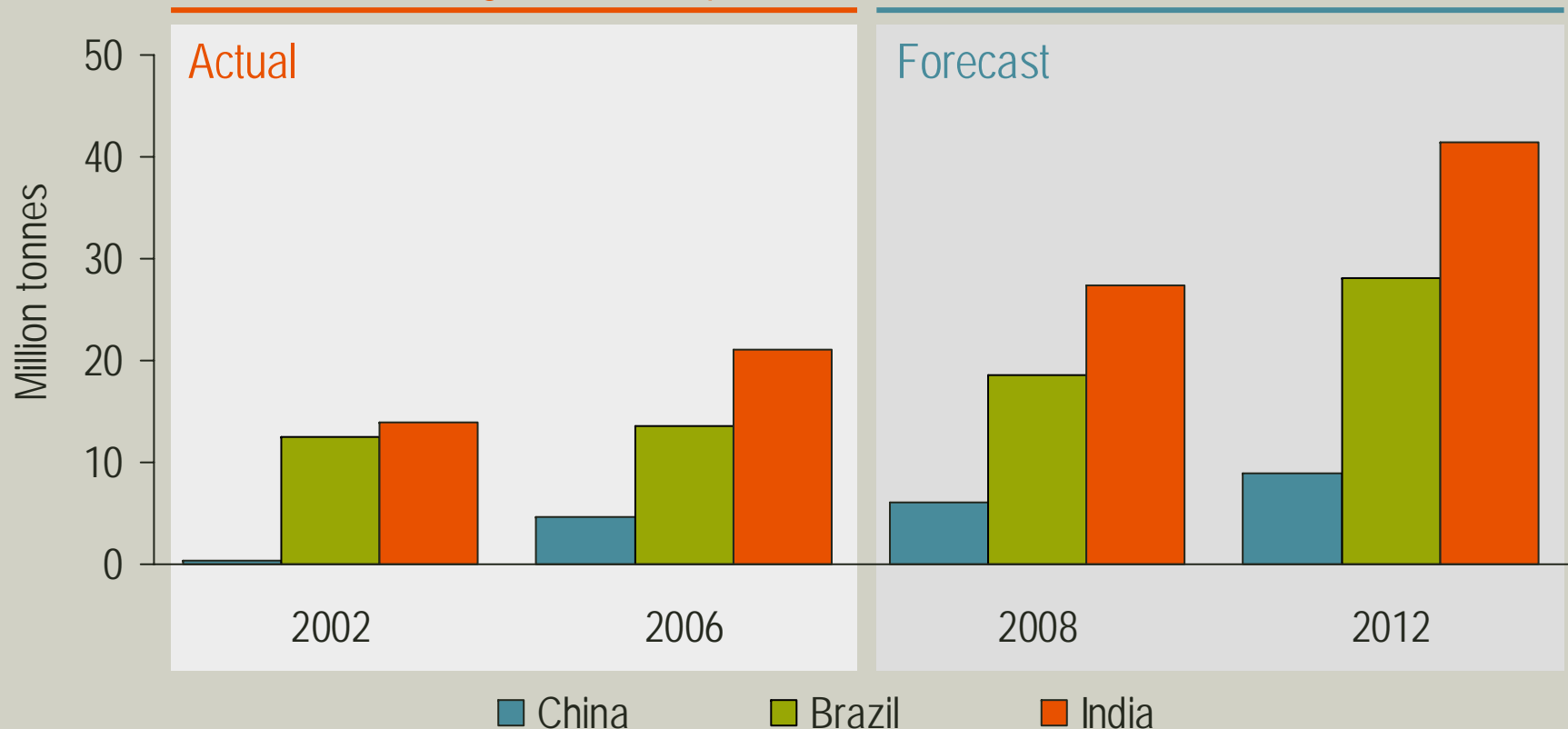
# Global Met Coal seaborne demand



Source: "AME Outlook report for Export Met Coal – 08 2007"

## India, Brazil and China are the key growth markets

### Metallurgical Coal imports 2002 to 2012 – India/Brazil/China



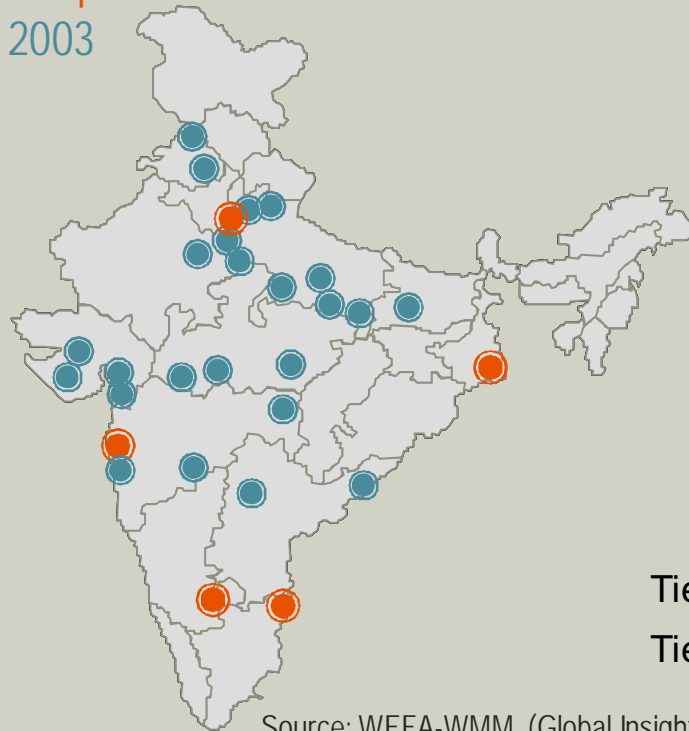
Source: "AME Outlook report for Export Met Coal – 08 2007"

# Urbanisation driving Indian steel consumption

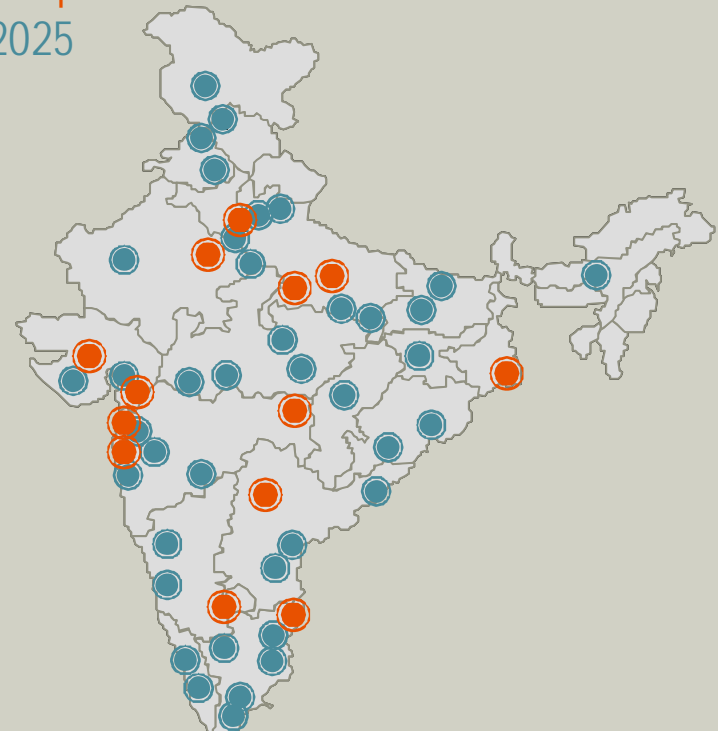
- Rapid urbanisation and industrialisation underway
- 33 Tier 1 & 2 cities in 2003 to 73 by 2025





Snapshot of Tier 1 & 2 cities  
2003



Snapshot of Tier 1 & 2 cities  
2025



Tier 1   
Tier 2 

Source: WEFA-WMM (Global Insight)

Tier 1 city defined as registered population >4.5 m and GDP/capita >US\$3,000

Tier 2 city defined as either registered population >4.5 m or GDP/capita >US\$3,000,

Tier 3 city defined as registered population 1.5-4.5 m and GDP/capita US\$1,500-US\$3,000



# India companies choosing the blast furnaces route

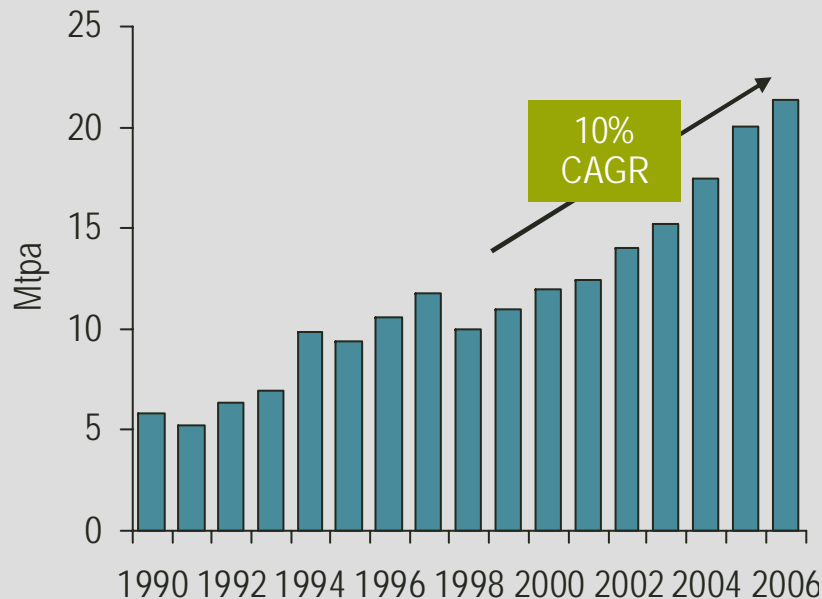
## Case study: Jindal South West Steel, Karnataka

- Existing – Blast furnace and Corex (non-coking coal)
- Expansion program to 10 Mtpa steel:
  - Commissioned BF No. 2 – 1.3 Mtpa steel
  - Building BF No. 3 (pictured) – 2.7 Mtpa steel
  - Seeking approvals for BF No. 4 – 3.2 Mtpa steel

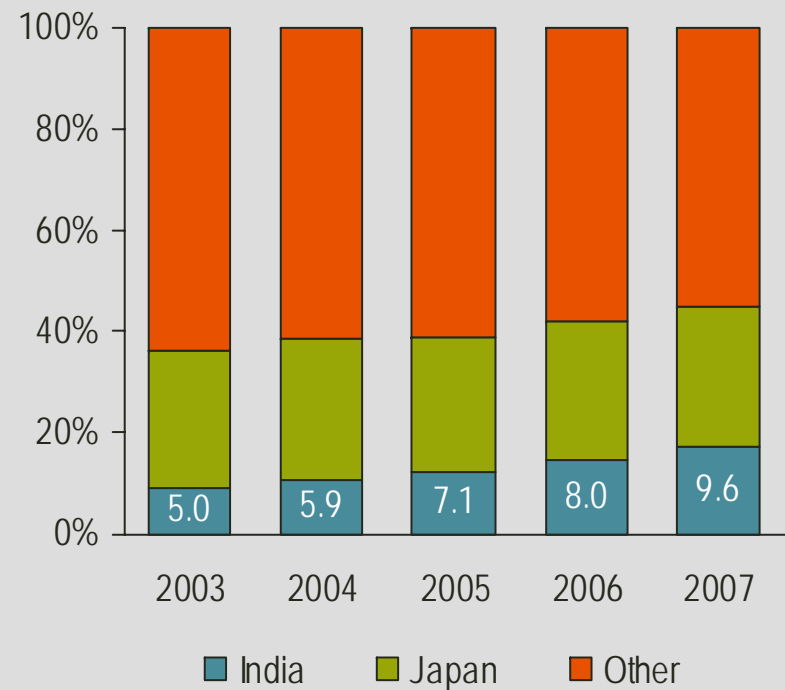


# India has emerged as the second largest customer for BHP Billiton

## Indian coking coal imports



## BHP Billiton metallurgical coal sales



Note: BHP Billiton sales are 100% equity terms, Australian FY; \* Includes Corex Coal and PCI

Source: SAIL Statistical Yearbook, 2002 and 2004; Indian Minerals Yearbook 1998-99; Ministry of Coal

# Brazil new projects are being built

CST – Blast furnace # 3  
3.0 Mt pig iron - July 2007



Gerdau Acominas – Blast furnace # 2  
1.5 Mt pig iron – Dec 2007



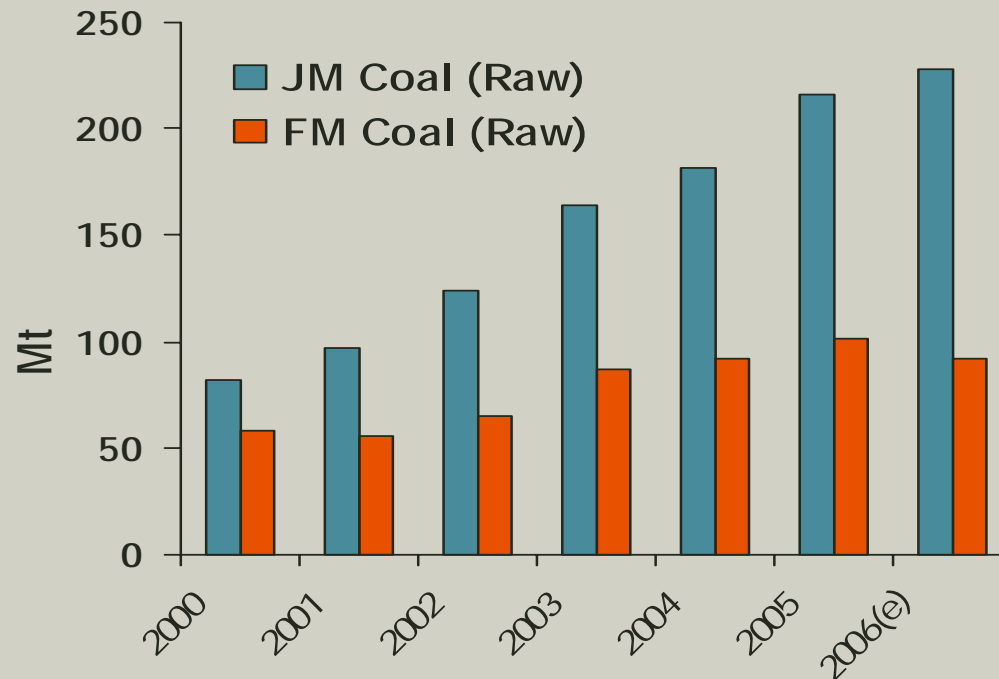
SOL (at CST site) - Coke Oven  
1.6 Mt coke – June 2007



CSA - Integrated Steel Plant  
4.75 Mt pig iron – Q1 2009



# Chinese domestic production growth rate showing signs of slowing for the premium quality coking coal



Note: JM and FM are broadly equivalent to 'High Quality Hard Coking Coal'  
Source: Chinese Ministry of Coal

# Chinese met coal is deep, structurally complex and gassy which is limiting production growth rate

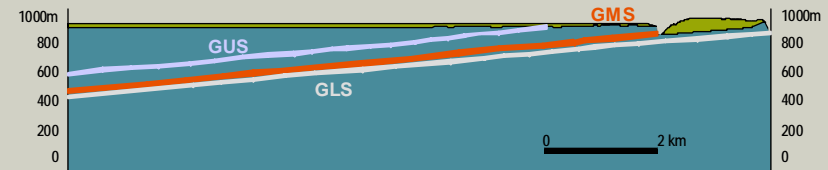
- Deep - No open cut met coal operations in China
- Structural complexity - limiting output rates
- Gassy - methane make >30 cubic metres/tonne
  - Bowen Basin typically 3 - 9 cubic metres/tonne



Simple Cross Section – Liulin Coalfield



Simple Cross-Section – Goonyella



## Liulin

1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_  
 4 \_\_\_\_\_  
 5 \_\_\_\_\_  
 6<sub>u</sub> \_\_\_\_\_  
 6<sub>l</sub> \_\_\_\_\_  
 7<sub>u</sub> \_\_\_\_\_  
 7<sub>l</sub> \_\_\_\_\_  
 8 \_\_\_\_\_  
 9 \_\_\_\_\_  
 10 \_\_\_\_\_  
 11 \_\_\_\_\_

## Goonyella

GUS

GMS

GLS

## Stratigraphy

- Liulin Coalfield, Shanxi - 11 seams, 2 main seams, total thickness 20m in 150m sequence
- Goonyella - 3 main seams, total thickness 20m in 250m sequence

How is the Met Coal industry structured?

The continuing importance of blast furnaces & HCC in steel making

There's a new order in the demand side

Supply constraints and BHP Billiton's ability to deliver

# Global seaborne hard coking coal supply dominated by Australia (62%), Canada and USA

Growth will come from Australia and new basins in challenging regions

- Alberta / BC
- Logistics high cost
- Limited long term

- Appalachia
- Mature terrain
- "Swing" supplier with high price
- Long term decline

Major  
operating  
basins

Source: AME, BHP Billiton analysis

- Moatize (CVRD)
- First coal 2010
- Mid Volatile coking coal
- High component energy coal

- Elga
- High cost operating environment
- High component energy coal

- Tavan Tolgoi
- Hard coking coal
- Chinese market

- Maruwai
- BHP Billiton controlled
- Stage 1 CY2008

- Bowen Basin
- Ongoing infrastructure constraints
- Dominates industry growth pipeline

# Ports constrain supply in Australia and Canada

## Australia

### DBCT

- Current expansion work is limiting throughput
- Whole of system perspective required to determine throughput

### Abbot Point

- Planned expansion from 16 to 30 Mtpa by 2010\*

## Canada

- Additional semi-hard coking coal tonnage

BHP Billiton / BMA retains an option to expand Hay Point



# Summary

## Industry Structure

- Global business with global coverage
- Consolidated supply

## Blast Furnaces & hard coking coal in steel making

- Blast furnace productivity is driving market share growth
- HQHCC is valued for its productivity gains

## A new order in the demand side

- Traditional European & Asia markets are stable
- Fundamental changes underway in India, Brazil & China

## Supply Constraints

- Global seaborne HCC supplies dominated by Australia & Canada
- Port capacity is restricting supply growth



**BHP Billiton perfectly placed to deliver outstanding value:**

- **Being the largest supplier, with the greatest ability to increase HQHCC sales**
- **In a global market where demand is growing**

# Coal CSG

Neil Scott  
Chief Development Officer



# Compelling sustainable competitive advantages

## Large

- Leading supplier in seaborne met coal market, major supplier in energy coal
- Multi-operation, multi-product, multi-geography

## Long life

- Resource position will deliver > 50 years life in premium products

## High margin

- Predominantly 1st/2nd quartile operations + premium quality products

## Expansion options

- Growth options amongst the best in the sector

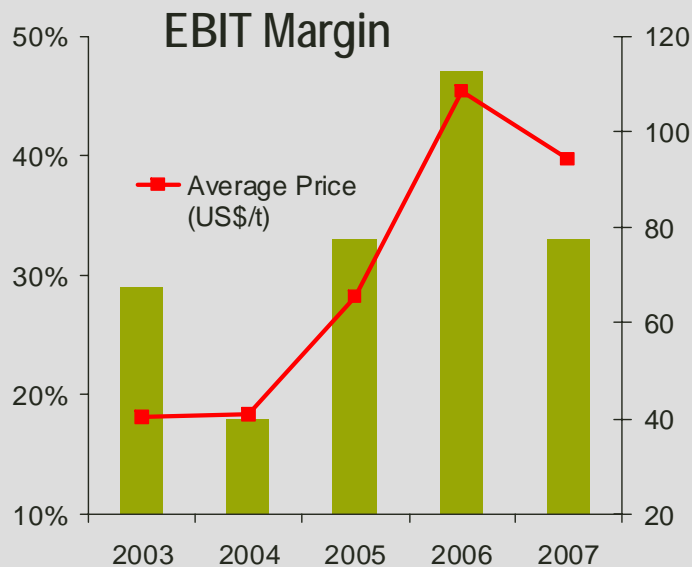
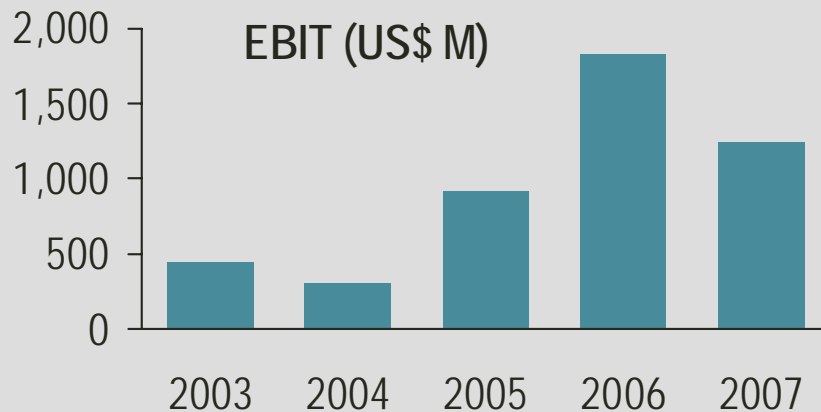
## Operational Reliability

- Full range of coal quality; Mix of open cut and underground; Operate own port complex

## Our Focus

1. Safely run all assets at full potential
2. Move existing resources to market
3. Create options for the future

## A strong performer over time



- Sales volume increased by 9%
- Higher prices reflecting strong demand
- Business improvement initiatives
- Offset in part by increases in
  - Contractor stripping rates
  - Reconfiguring Illawarra mine plan
  - Consumables (diesel and explosives)
  - Royalties

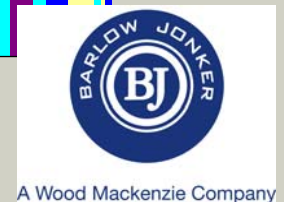
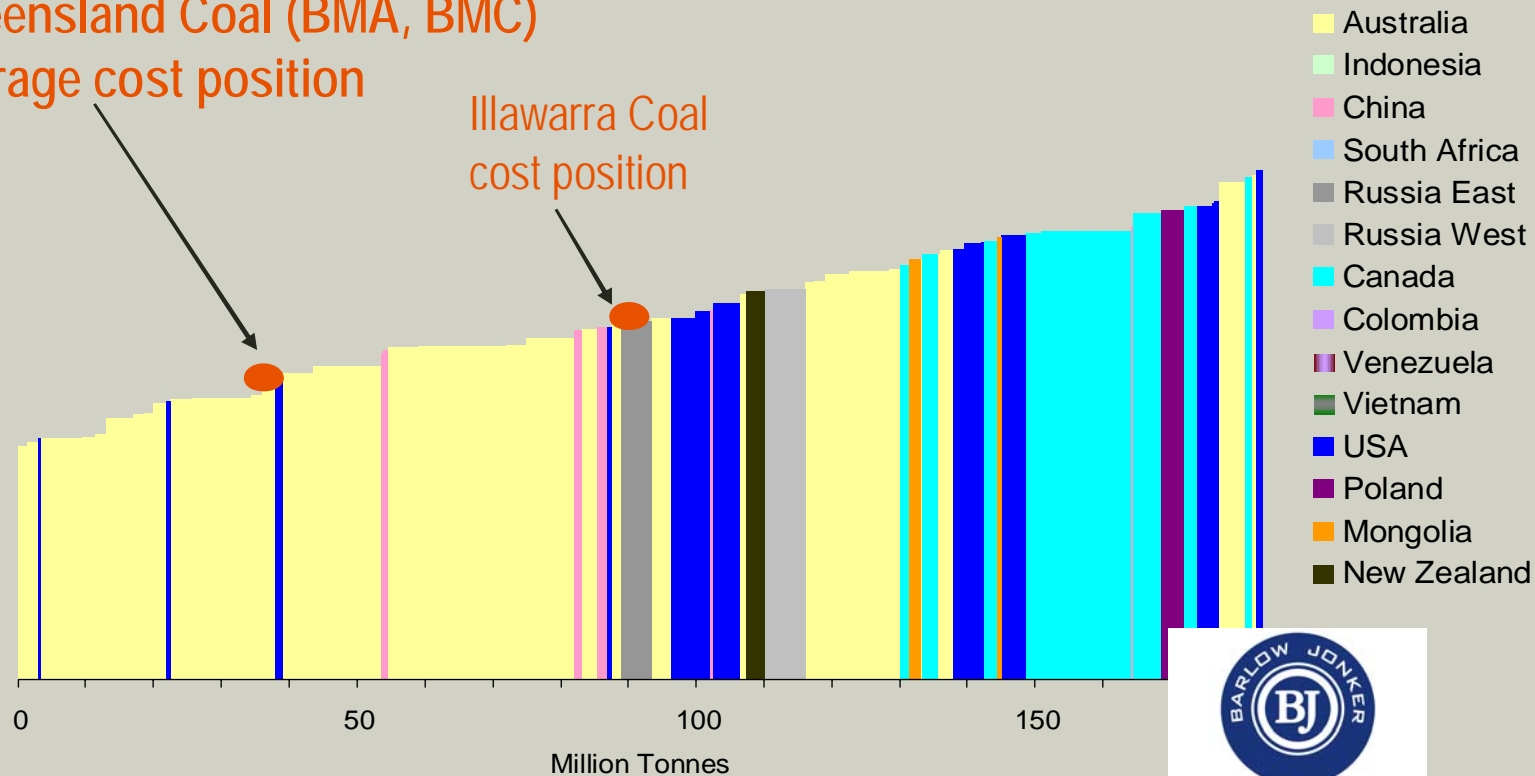


# Coal operations well positioned on the cost curve

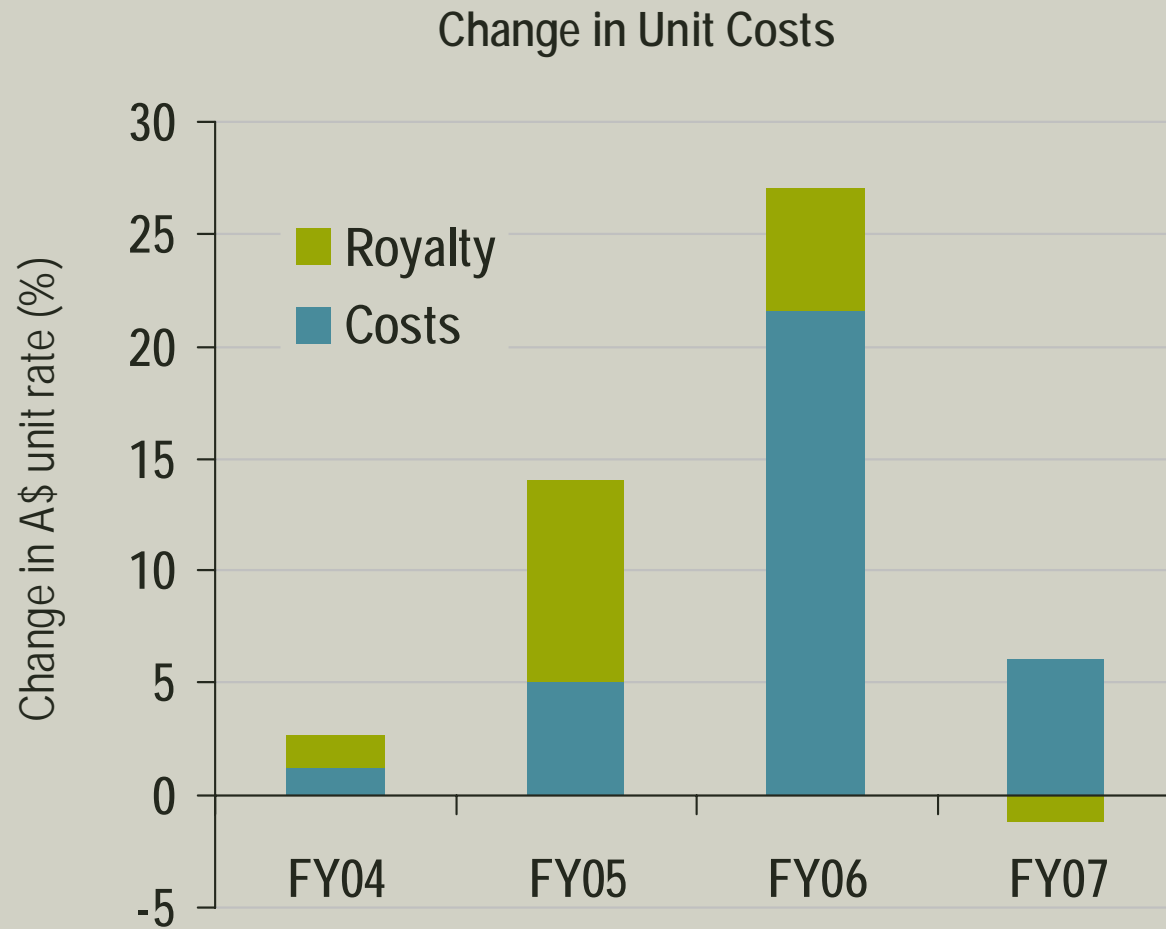
World Export Hard Coking Coal FOB Cash Cost Curve

Queensland Coal (BMA, BMC)  
average cost position

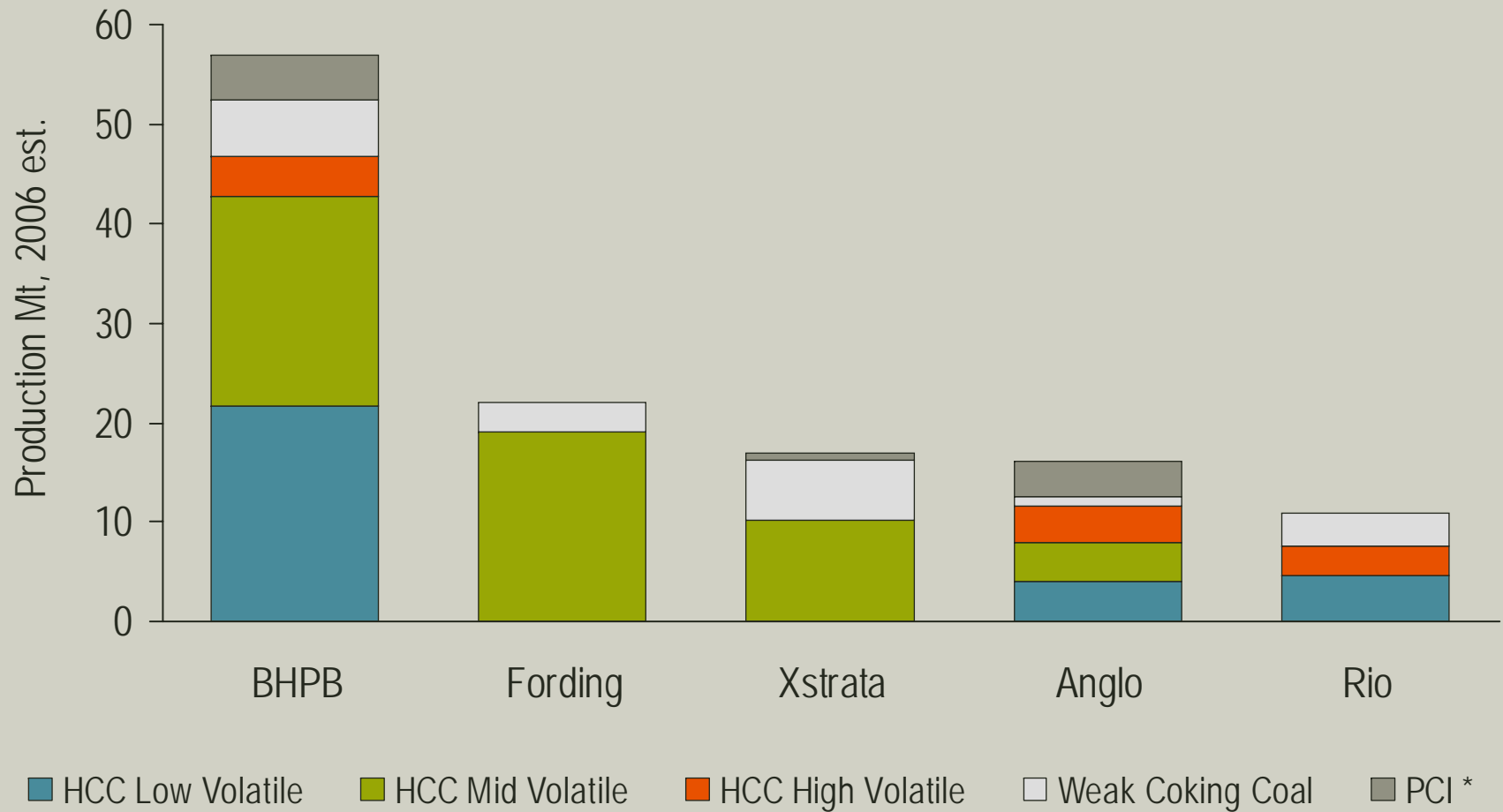
Illawarra Coal  
cost position



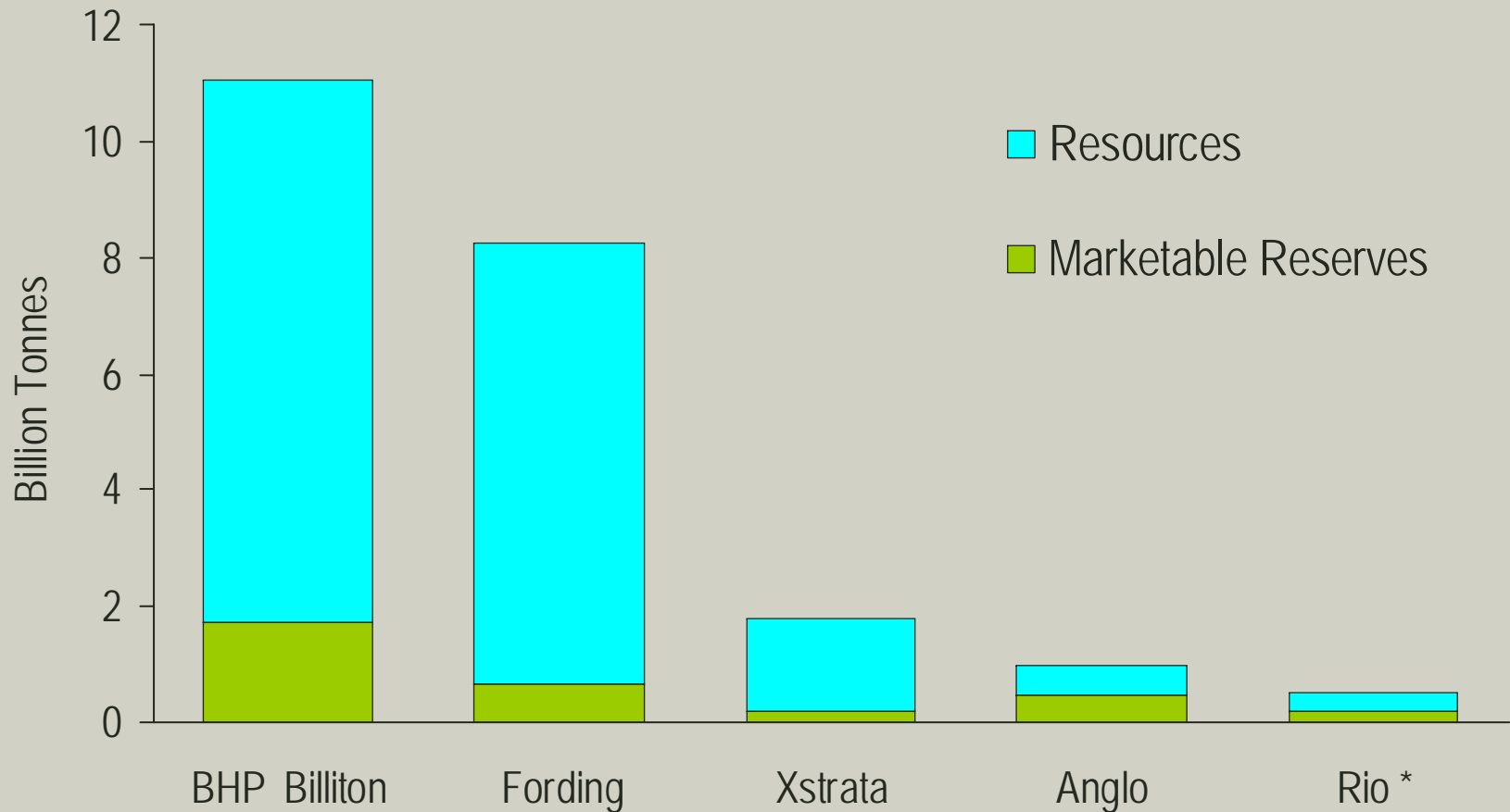
## Managing costs in periods of high demand



## Dominant portfolio of high quality Hard Coking Coals



# BHP Billiton Met Coal has the largest reserve and resource position in the sector



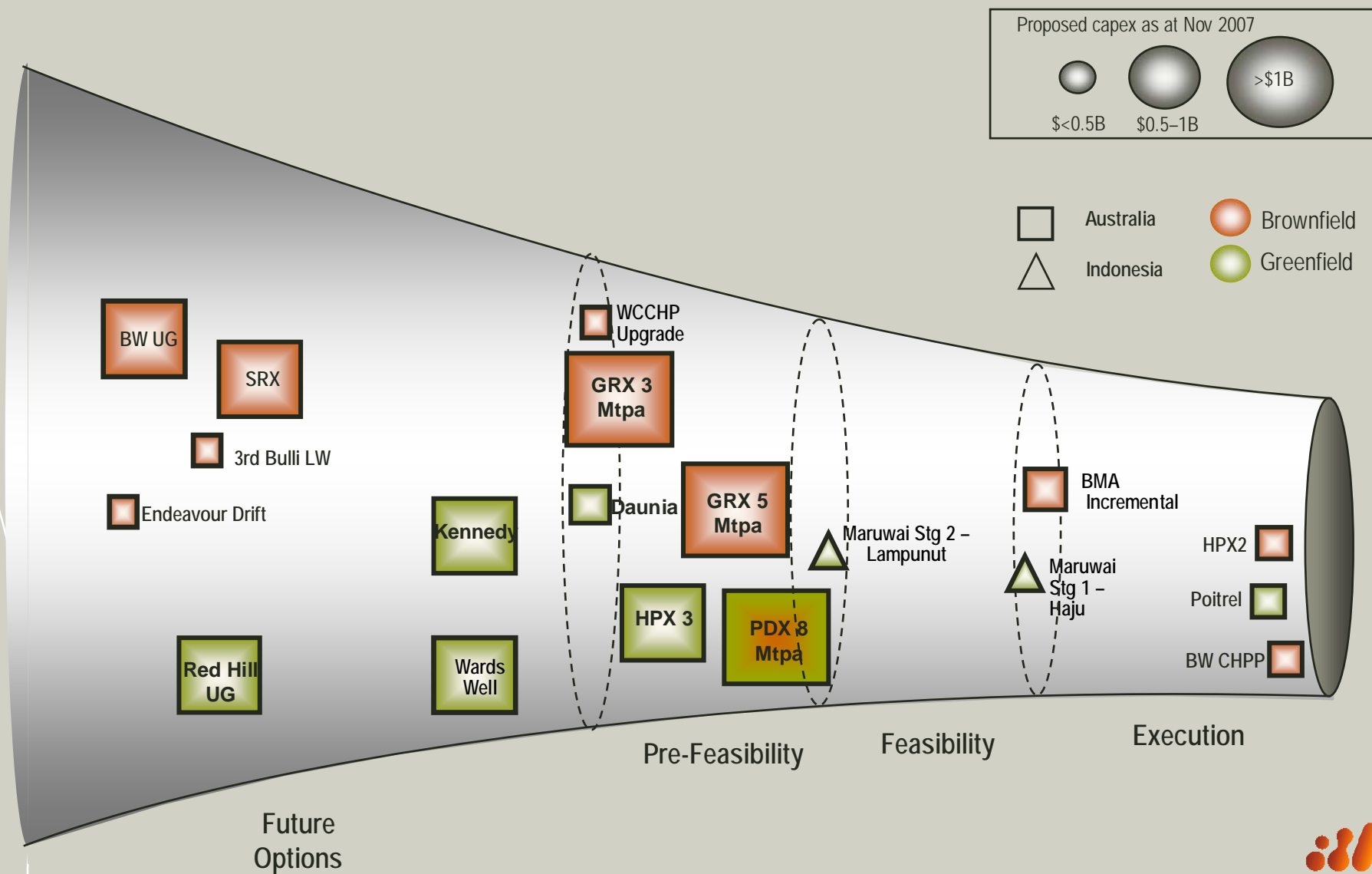
Note: BHP Billiton figure includes 100% BMA, BMC, Illawarra, Maruwai

\* Rio figure only Hail Creek

Source: BHP Billiton Annual Report ; Company Annual Reports



# The leading portfolio of growth options



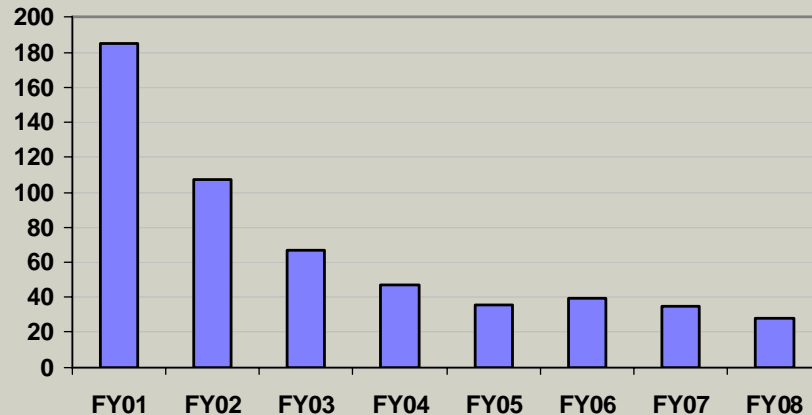
# Coal CSG

Colin Bloomfield  
President Illawarra Coal



# HSEC – Safety and Environmental Responsibility

TRIFR \*



Careful focus on catastrophic hazards

Injury rates 80% reduction - low for underground coal mines

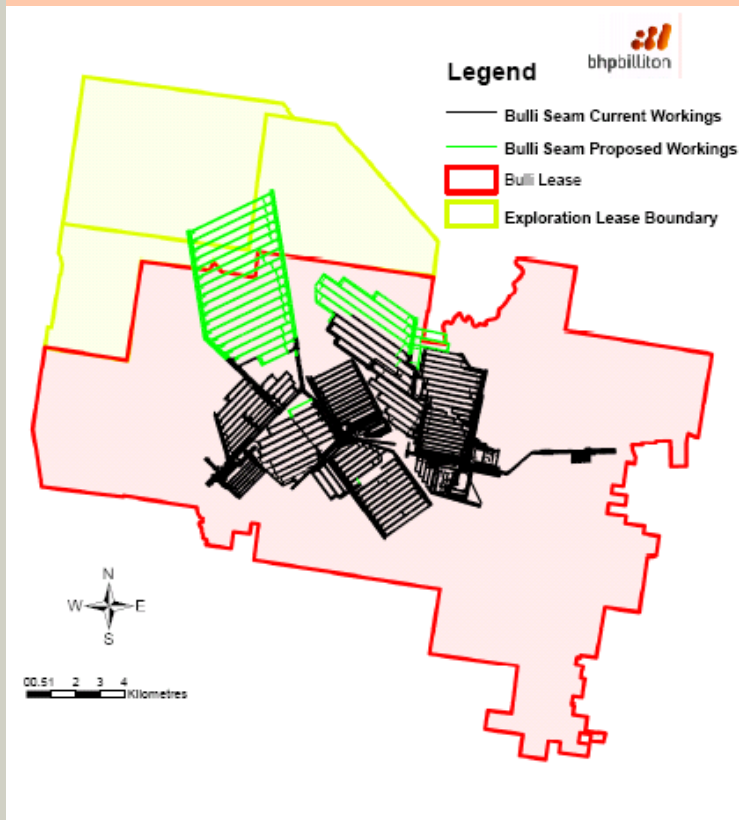
Premier lemma opened our WestVAMP facility

World's first plant generating electricity from methane in mine ventilation air



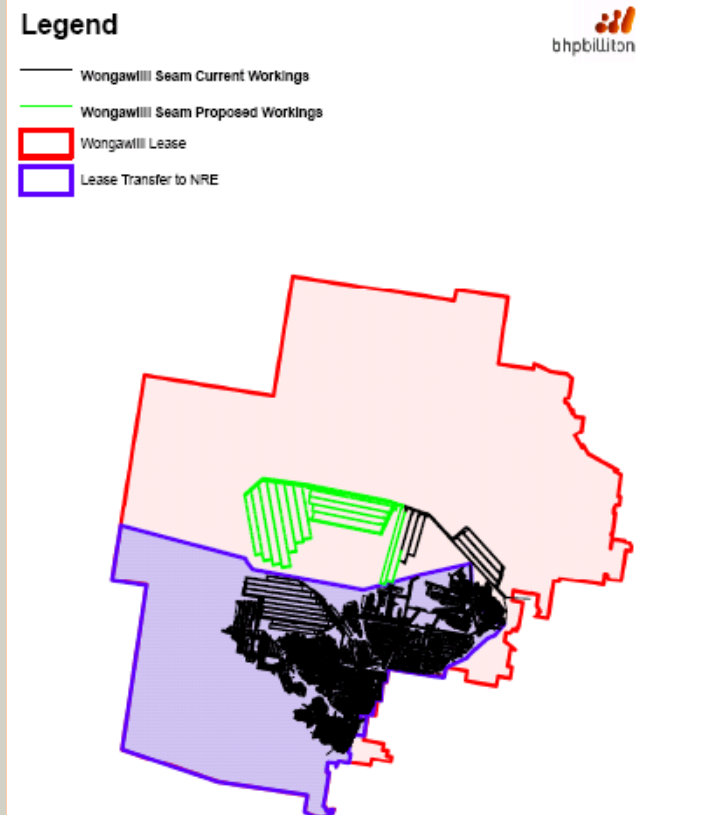
# Illawarra Coal Resources Exceed 1 Billion Tonnes

## Bulli Seam



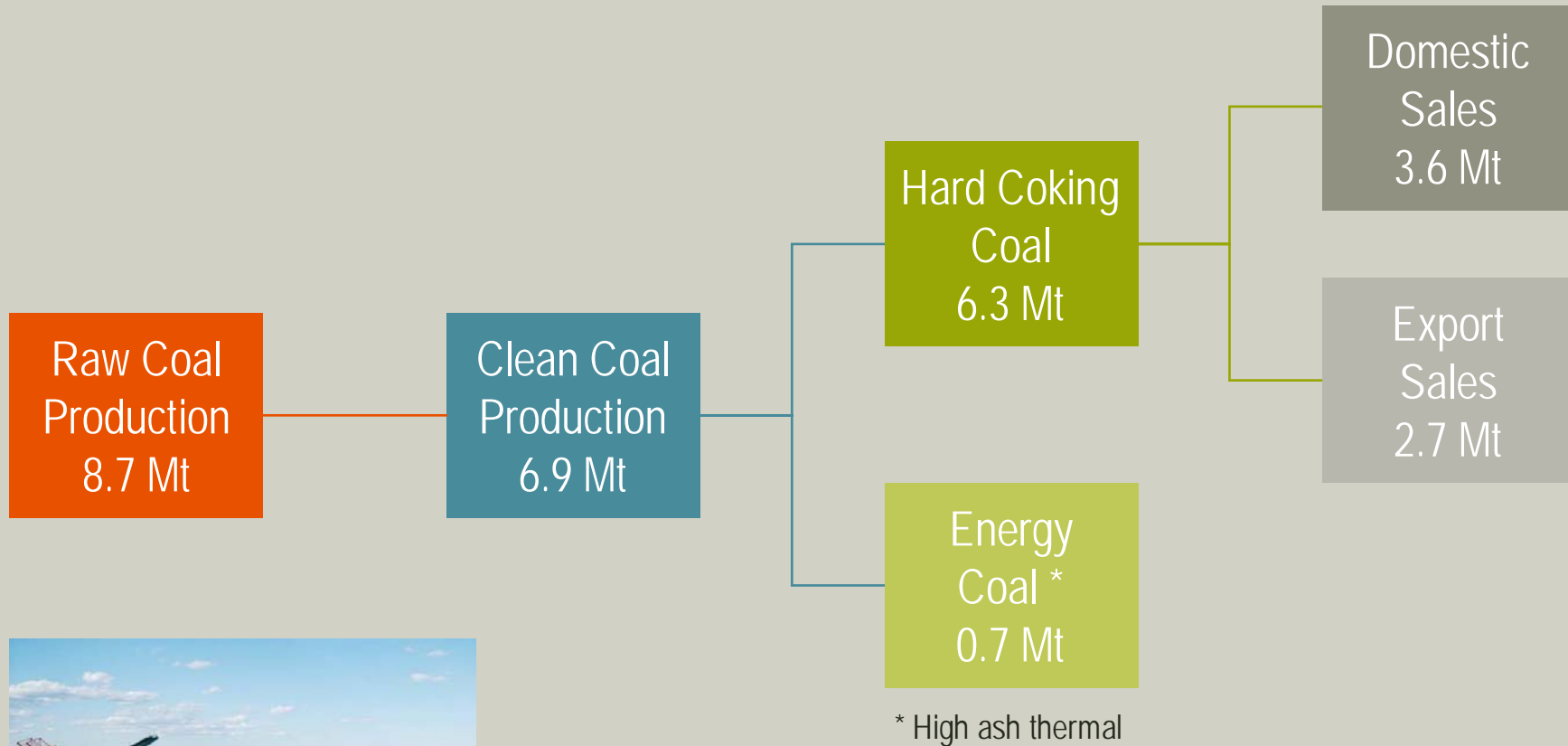
Reserves 53 Mt  
Resources 631 Mt

## Wongawilli Seam

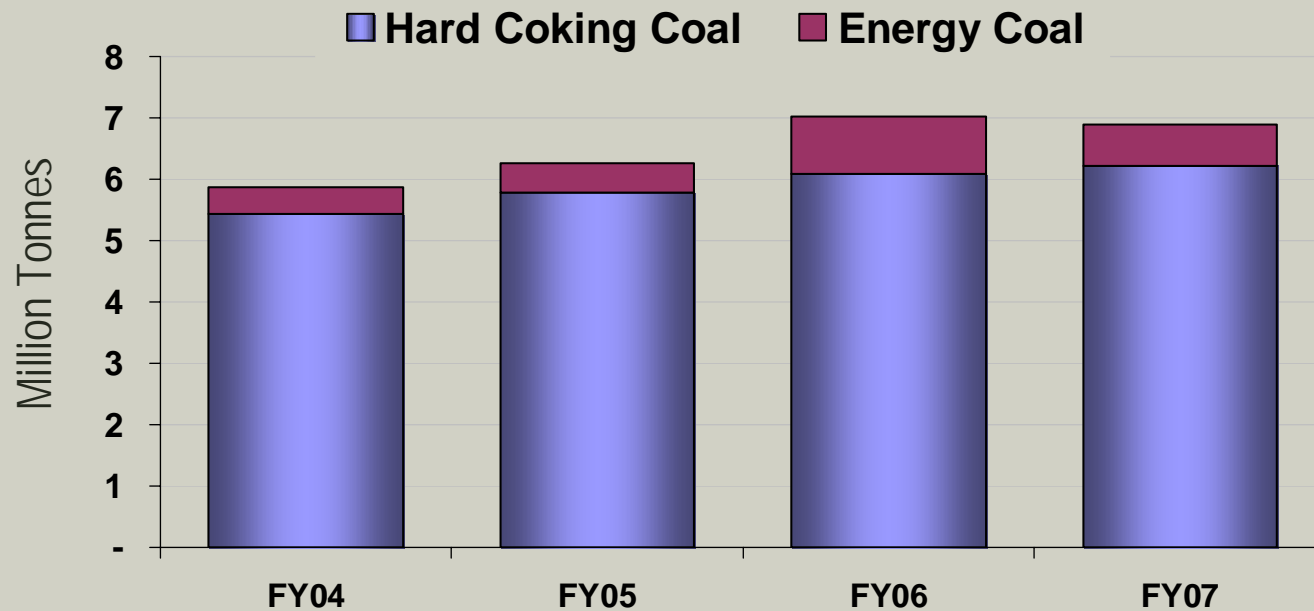


Reserves 45 Mt  
Resources 545 Mt

# Illawarra Coal FY07 production and sales

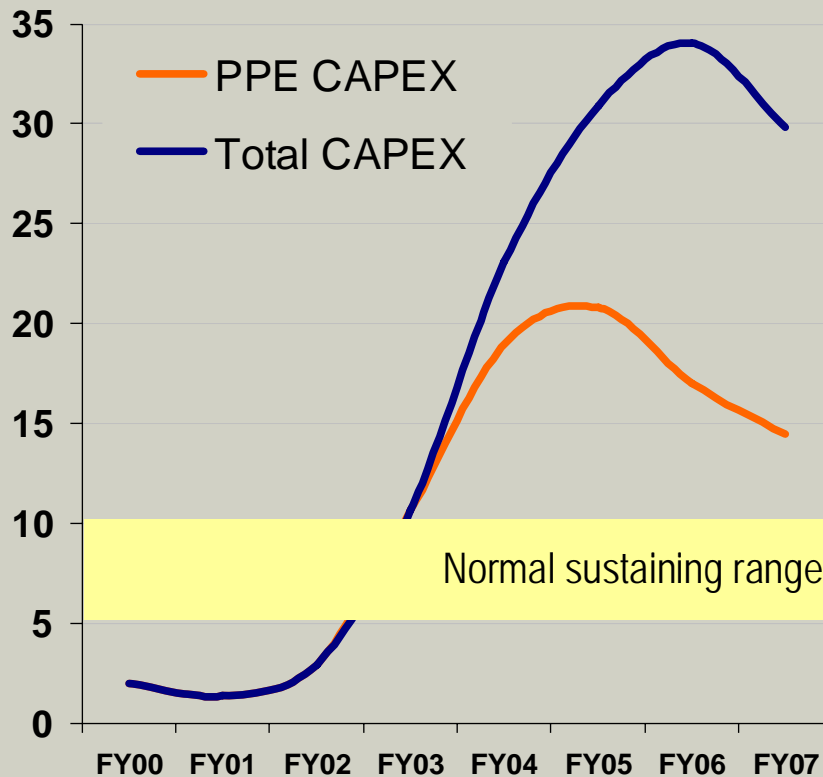


## Illawarra Coal production FY04-FY07



# Significant re-investment cycle nearing completion

## Capital Expenditure (US\$ per Tonne)



## Major Projects Completed

Dendrobium Mine

Longwalls

- Appin
- West Cliff

CPP Upgrades

- West Cliff
- Dendrobium

Mine Services

- Power
- Ventilation





## Mine plans altered to improve sustainability



Original Layout

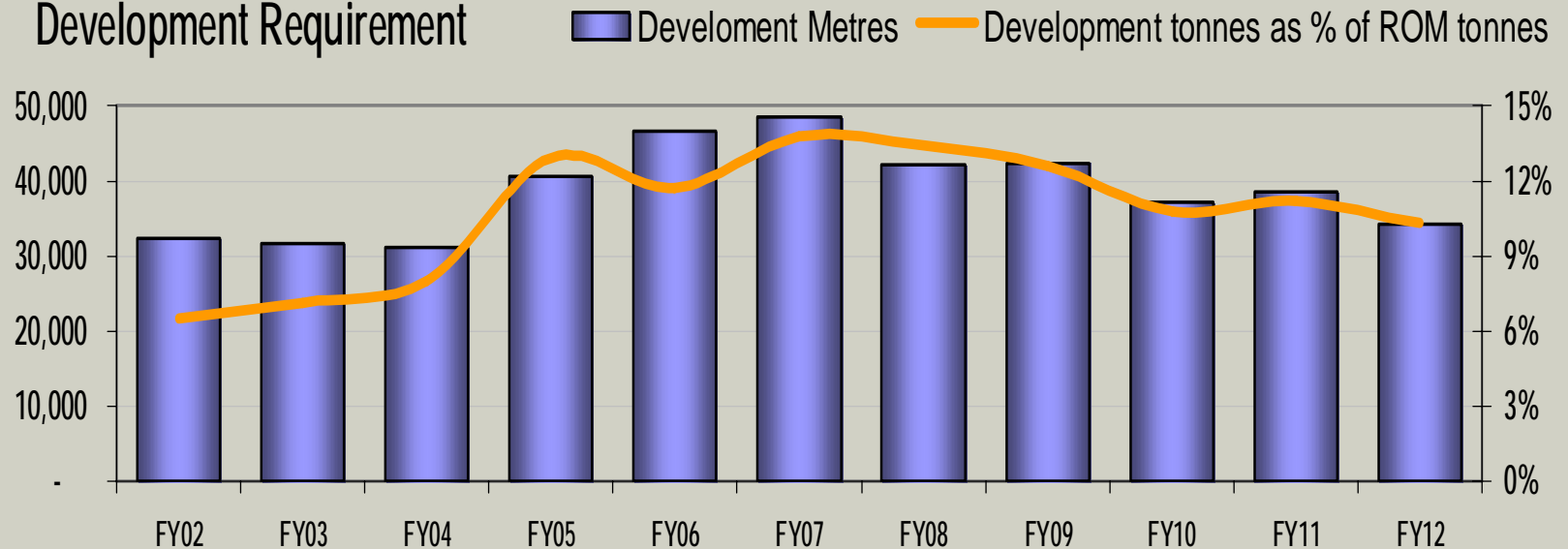


Revised Layout

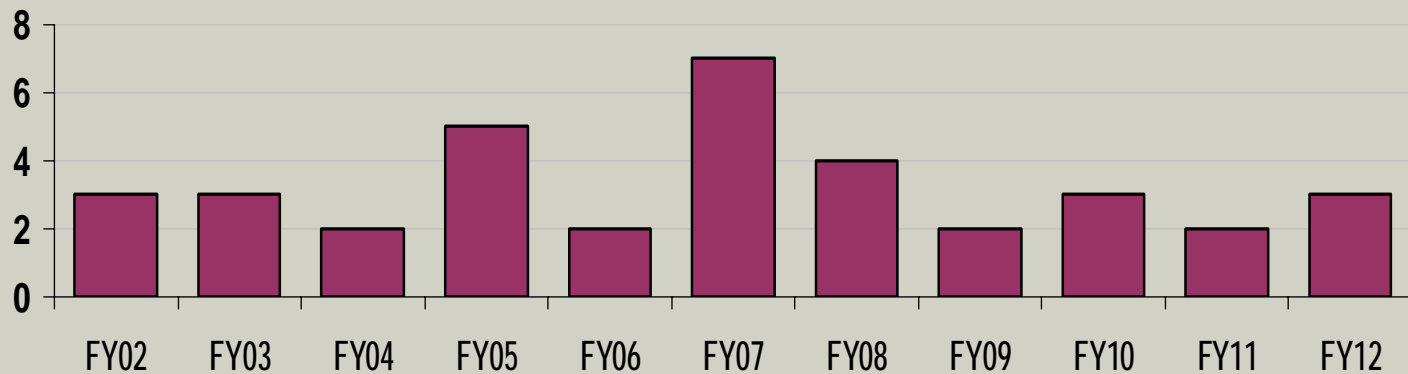


# Longwall block size drives costs

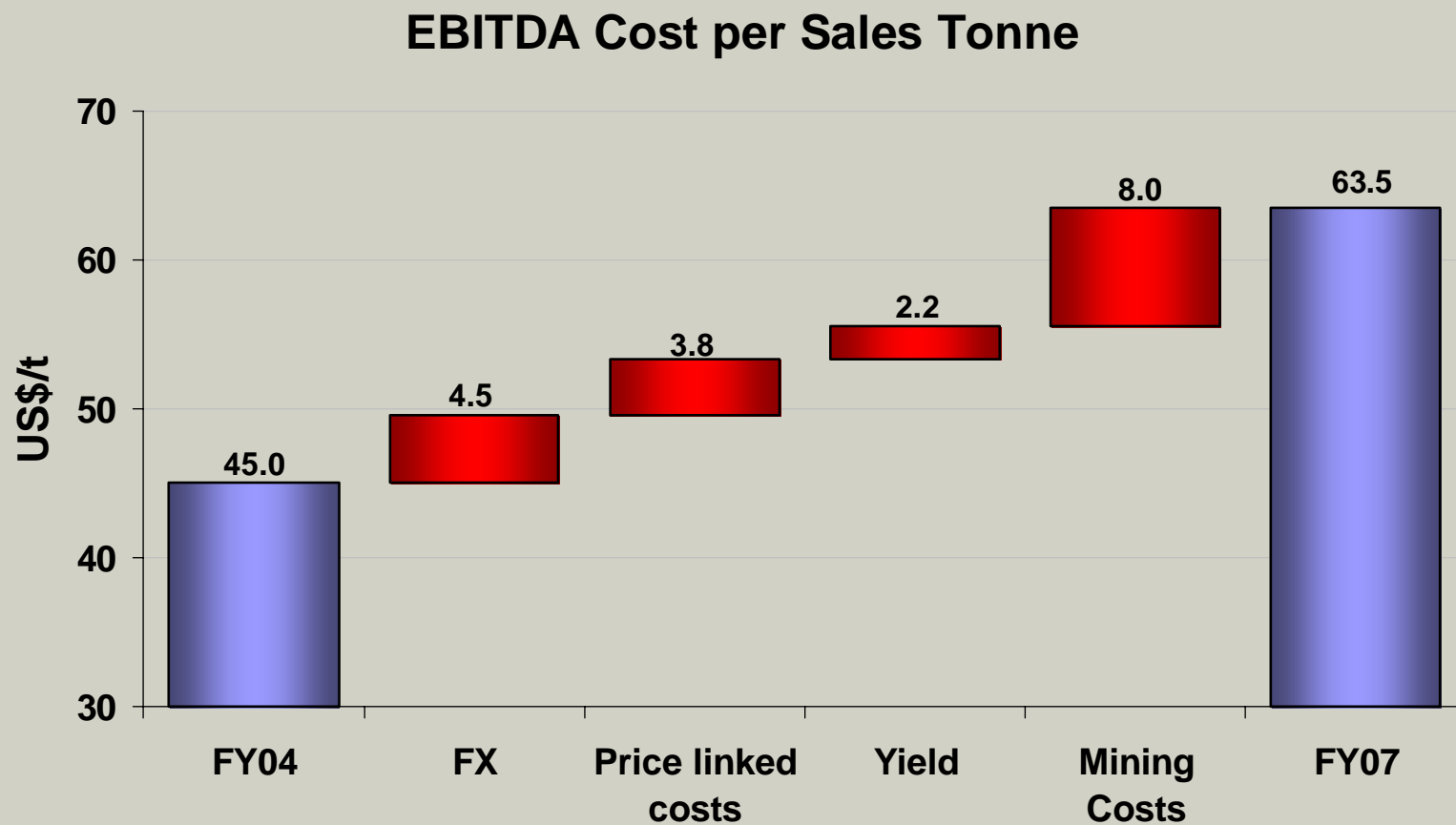
## Development Requirement



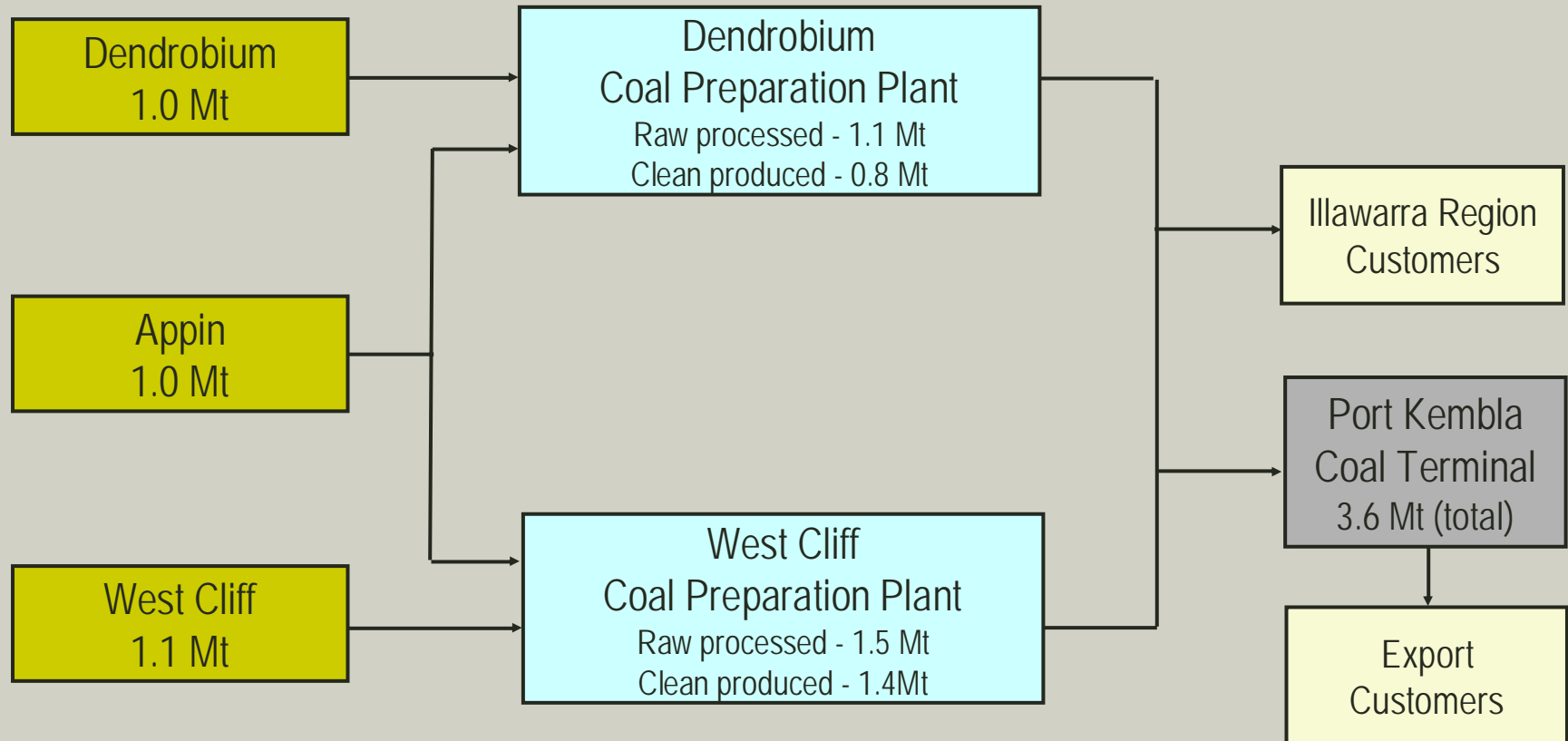
## Longwall Changeouts



## Breakdown of cost increase FY04–FY07



## How did Illawarra Coal perform in Q1FY08?



*Record Quarterly Production of 2.2 Mt*



## Illawarra Coal overview

- Large, long life hard coking coal resource
- Substantial investment made in establishing a sustainable mining plan
- Recapitalisation of the asset largely complete
- Reliable operating platform will deliver a lower cost profile

# Coal CSG

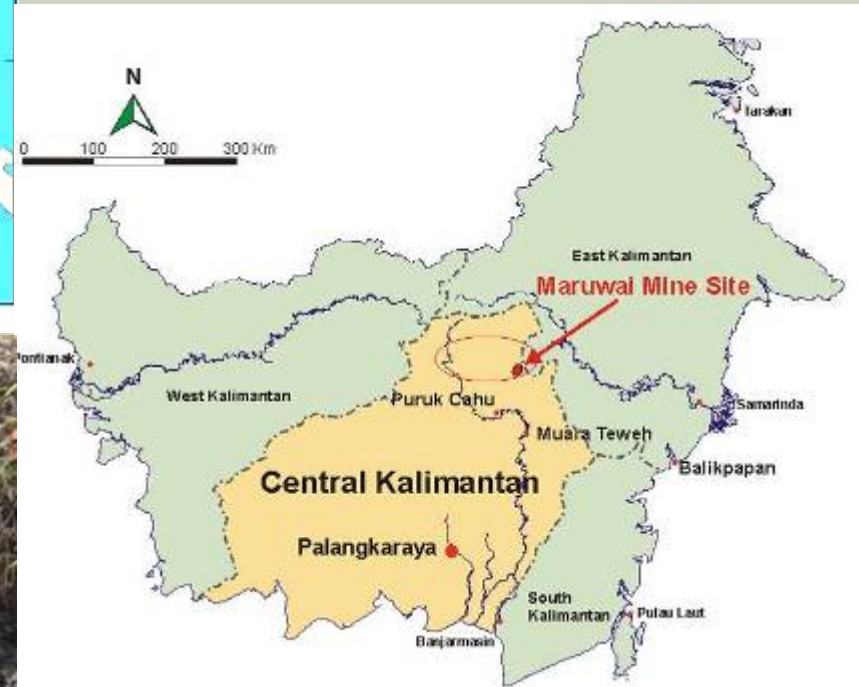
Ken Crichton

Project Director Maruwai Project



# Maruwai Project, Central Kalimantan, Indonesia - discovered by BHP Billiton in the 1990s

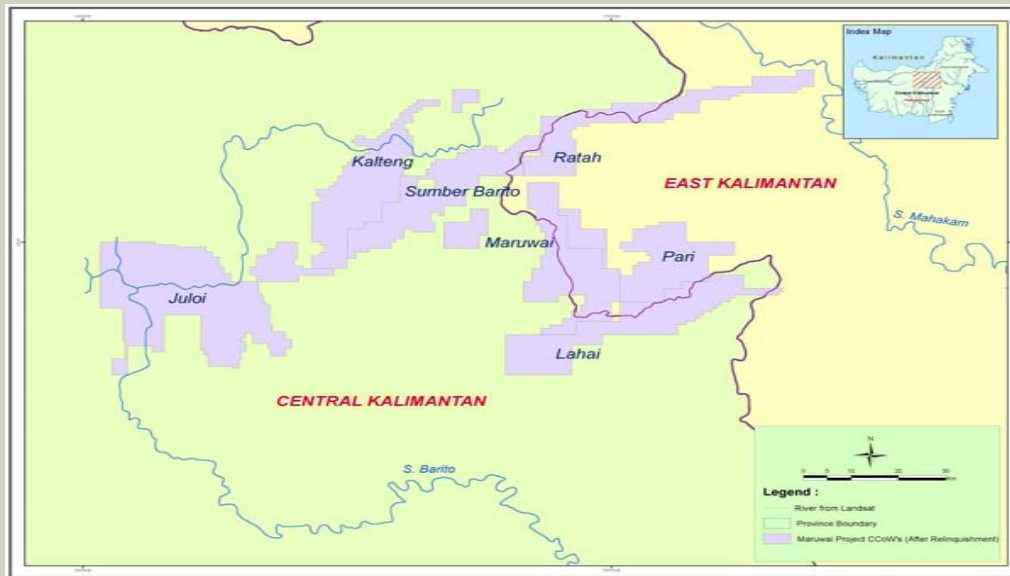
*Full range of thermal, semi-soft, semi-hard and high quality hard coking coal resources identified*





# Committed to HSE&C best practice

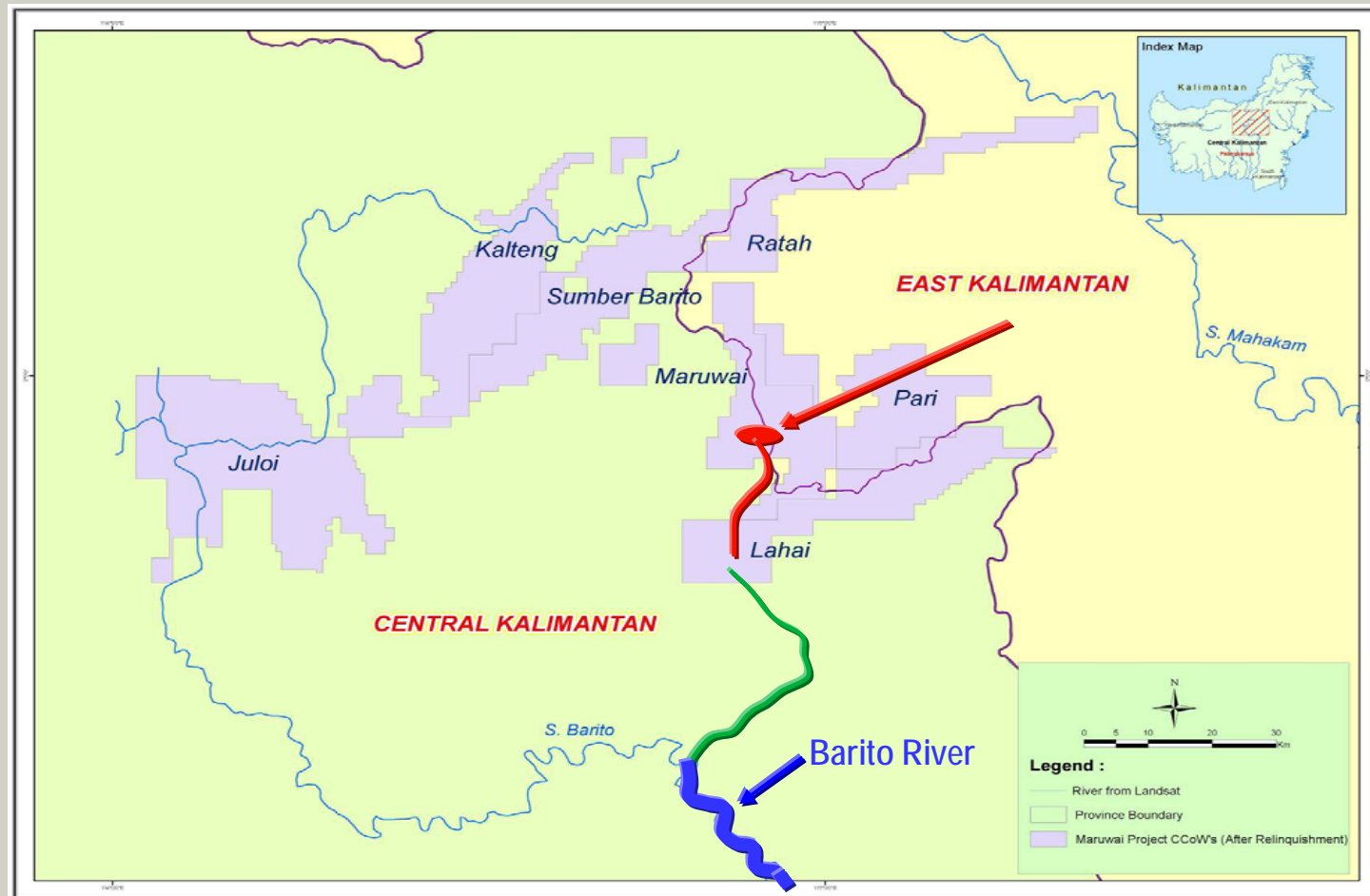
*Tenure provides the basis for investment, our commitment to best practice health, safety, environment and community (HSE&C) ensures sustainable long term development*



# Staged approach will allow us to build operational and HSEC capability

Stage 1 Maruwai: Haju Mine – first coal Q4 CY2008, 1 Mtpa building to 2 Mtpa, semi-soft coking coal

Stage 2 Maruwai: Lampunut - Feasibility stage, first coal CY2010, ultimate capacity 5 Mtpa, high quality hard coking coal. Utilise Haju infrastructure.





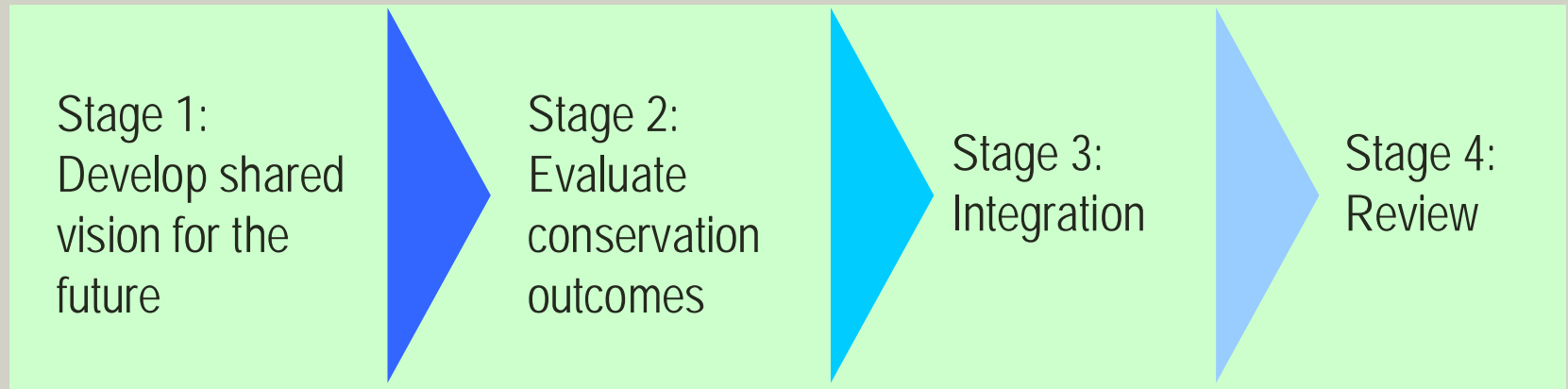
# Barge/transshipment logistics are extensively utilized throughout Kalimantan

*During 2006 80-90 Mt of thermal coal was exported from Indonesia via barge and/or transshipment method*



Note: Not BHP Billiton operations. Photographs shown to illustrate typical transport logistics for Kalimantan and likely configuration for the Haju Mine/Maruwai operations

# Our sustainability strategy is critical to long term viability of the Indonesian projects



# Building on our previous experience in Indonesia

## Case Study: Successful Mine Closure at Petangis Mine, Kalimantan Indonesia



**1997**



**1999**



**2004**





bhpbilliton