

Escondida



## Base Metals briefing and Chilean site tour

Non-ferrous overview

**Andrew Mackenzie** Chief Executive Non-ferrous  
30 September 2012



# Disclaimer



## Forward looking statements

This presentation includes forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 regarding future events, conditions, circumstances and the future financial performance of BHP Billiton, including for capital expenditures, production volumes, project capacity, and schedules for expected production. Often, but not always, forward-looking statements can be identified by the use of the words such as “plans”, “expects”, “expected”, “scheduled”, “estimates”, “intends”, “anticipates”, “believes” or variations of such words and phrases or state that certain actions, events, conditions, circumstances or results “may”, “could”, “would”, “might” or “will” be taken, occur or be achieved. These forward-looking statements are not guarantees or predictions of future performance, and involve known and unknown risks, uncertainties and other factors, many of which are beyond our control, and which may cause actual results to differ materially from those expressed in the statements contained in this presentation. For more detail on those risks, you should refer to the sections of our annual report on Form 20-F for the year ended 30 June 2012 entitled “Risk factors”, “Forward looking statements” and “Operating and financial review and prospects” filed with the U.S. Securities and Exchange Commission (“SEC”). Any estimates and projections in this presentation are illustrative only. Our actual results may be materially affected by changes in economic or other circumstances which cannot be foreseen. Nothing in this presentation is, or should be relied on as, a promise or representation either as to future results or events or as to the reasonableness of any assumption or view expressly or impliedly contained herein.

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BHP Billiton results are reported under International Financial Reporting Standards (IFRS) including Underlying EBIT and Underlying EBITDA which are used to measure segment performance. This presentation also includes certain non-IFRS measures including Attributable profit excluding exceptional items, Underlying EBITDA interest coverage, Underlying effective tax rate, Underlying EBIT margin and Underlying return on capital. These measures are used internally by management to assess the performance of our business, make decisions on the allocation of our resources and assess operational management. Non-IFRS measures have not been subject to audit or review

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# Disclaimer



## Mineral Resources

This presentation includes information on Exploration Results (Potential Mineralisation) and Mineral or Coal Resources (inclusive of Ore Reserves). Mineral Resources are compiled by: S O'Connell (MAusIMM) – Olympic Dam, J McElroy (MAusIMM) – Saskatchewan Potash, L Soto (MAusIMM), M Cortes (MAusIMM) and R Preece (FAusIMM) – Escondida mineral district, J Céspedes (MAusIMM) – Cerro Colorado and Spence, R Preece (FAusIMM) – Antamina and Base Metals North America Pinto Valley, and A Edwards (MAusIMM) – Cannington. This is based on Mineral Resource information in the BHP Billiton Annual Reports for 2008 and 2012 for all assets. All reports can be found at [www.bhpbilliton.com](http://www.bhpbilliton.com).

Exploration Targets (Potential Mineralisation) are compiled by: Olympic Dam: M Carew (MAusIMM); Potash: J McElroy (MAusIMM); Escondida, Spence, Cerro Colorado, Base Metals North America Pinto Valley and Resolution: J des Rivieres (IGI); – (Olympic Dam, Potash and Escondida were previously reported in the BHP Billiton's Bank of America Merrill Lynch Global Metals, Mining & Steel Conference Presentation, 15 May 2012, and Spence and Cerro Colorado were previously reported in the BHP Billiton's, Building momentum in Base Metals Presentation, 27 June 2012).

All information is reported under the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2004' (the JORC Code) by the above-mentioned persons who are employed by BHP Billiton and have the required qualifications and experience to qualify as Competent Persons for Mineral or Coal Resources or Exploration Results under the JORC Code.

The compilers verify that this report is based on and fairly reflects the Exploration Targets and Mineral Resources information in the supporting documentation and agree with the form and context of the information presented.

# Disclaimer

Mineral Resource classification (100% basis) for each province, where relevant, are contained in Table 1.

**Table 1**

Province		Measured Resource (Mt)	Indicated Resource (Mt)	Inferred Resource (Mt)	Range of Potential Mineralisation (Bt)			BHP Billiton interest
					Low	Mid	High	%
Escondida district	FY2012	4,069 @ 0.72% Cu	4,986 @ 0.57% Cu	12,635 @ 0.47% Cu	16 @ 0.4-0.6% Cu	23 @ 0.4-0.6% Cu	43 @ 0.5-0.6% Cu	57.5
	FY2008	1,819 @ 0.84% Cu	2,984 @ 0.70% Cu	4,233 @ 0.53% Cu				57.5
Cerro Colorado	FY2012	96 @ 0.66% Cu	317 @ 0.64% Cu	82 @ 0.58% Cu	1.3 @ 0.35-0.45% Cu	1.7 @ 0.35-0.45% Cu	3.2 @ 0.35-0.45% Cu	100
	FY2008	135 @ 0.70% Cu	93 @ 0.62% Cu	129 @ 0.56% Cu				100
Spence	FY2012	232 @ 0.91% Cu	1,315 @ 0.47% Cu	1,260 @ 0.37% Cu	0.8 @ 0.4-0.5% Cu	1.2 @ 0.4-0.5% Cu	1.9 @ 0.4-0.5% Cu	100
	FY2008	196 @ 1.16% Cu	190 @ 0.70% Cu	13 @ 0.43 Cu				100
Antamina	FY2012	169 @ 0.83% Cu 0.6% Zn, 9 g/t Ag 0.03% Mo	990 @ 0.91% Cu 0.6% Zn, 10 g/t Ag 0.02% Mo	706 @ 0.73% Cu 0.4% Zn, 9 g/t Ag 0.01% Mo				33.75
	FY2008	186 @ 0.94% Cu	751 @ 1.01% Cu	585 @ 0.83% Cu				33.75
Base Metals North America Pinto Valley	FY2012	63 @ 0.33% Cu	200 @ 0.35% Cu	6 @ 0.21% Cu	3 @ 0.35-0.45% Cu	4 @ 0.35-0.45% Cu	6 @ 0.35-0.45% Cu	100
	FY2008	515 @ 0.14% Cu	203 @ 0.35% Cu	6 @ 0.21% Cu				100
Resolution	FY2012				2 @ 1.4-1.6% Cu 400 ppm Mo	3 @ 1.5-1.7% Cu, 400 ppm Mo	4 @ 1.3-1.5% Cu 400 ppm Mo	45
Cannington	FY2012	59 @ 211g/t Ag, 5.8% Pb, 3.3% Zn	22 @ 119g/t Ag, 3.8% Pb, 2.5% Zn	17 @ 90g/t Ag, 3.1% Pb, 2.0% Zn				100
Olympic Dam	FY2012	1,474 @ 1.03% Cu, 0.30 kg/t U <sub>3</sub> O <sub>8</sub> , 0.35 g/tAu	4,843 @ 0.84% Cu, 0.27 kg/t U <sub>3</sub> O <sub>8</sub> , 0.34 g/tAu	3,259 @ 0.70% Cu, 0.23 kg/t U <sub>3</sub> O <sub>8</sub> , 0.25 g/tAu	1.2 @ 1.08% Cu	2.4 @ 1.08% Cu	3.6 @ 1.08% Cu	100
Potash	FY2012	0.35-	3,320 @ 25.7% K <sub>2</sub> O	131 @ 26.9% K <sub>2</sub> O	2.7	5.4	8.1	100

# Chilean site tour program



## Day 1: Sunday, 30 September 2012

Welcome and safety induction	Brendan Harris
Non-ferrous overview	Andrew Mackenzie
Well positioned to deliver low risk copper growth	Peter Beaven
Base Metals performance overview	Margaret Beck
Low risk, high return projects	Peter Beaven
Our confidence in the long term outlook for copper	Shaun Verner
Coloso Port site tour	Pedro Damjanic
Chile update	Maria Olivia Recart
Santiago project hub	Carlos Mesquita
Examining the broader portfolio	Peter Beaven

## Day 2: Monday, 1 October 2012

Escondida presentation	Edgar Basto
Escondida site tour	

## Day 3: Tuesday, 2 October 2012

Pampa Norte presentation	Ivan Arriagada
Spence site tour	

# Key themes

- A strong, experienced and well established management team
- A high quality and uniquely diversified portfolio
- Building strong momentum in our Base Metals business
- Targeting a substantial reduction in costs
- Our longer term development options

# Non-ferrous leadership team

Strong, experienced and well established



**Chief Executive Non-ferrous**  
Andrew Mackenzie



**President Base Metals**  
Peter Beaven



**President Diamonds & Specialty Products**  
Timothy Cutt



**President Uranium**  
Dean Dalla Valle



**President Minerals Exploration**  
Daniel Malchuk

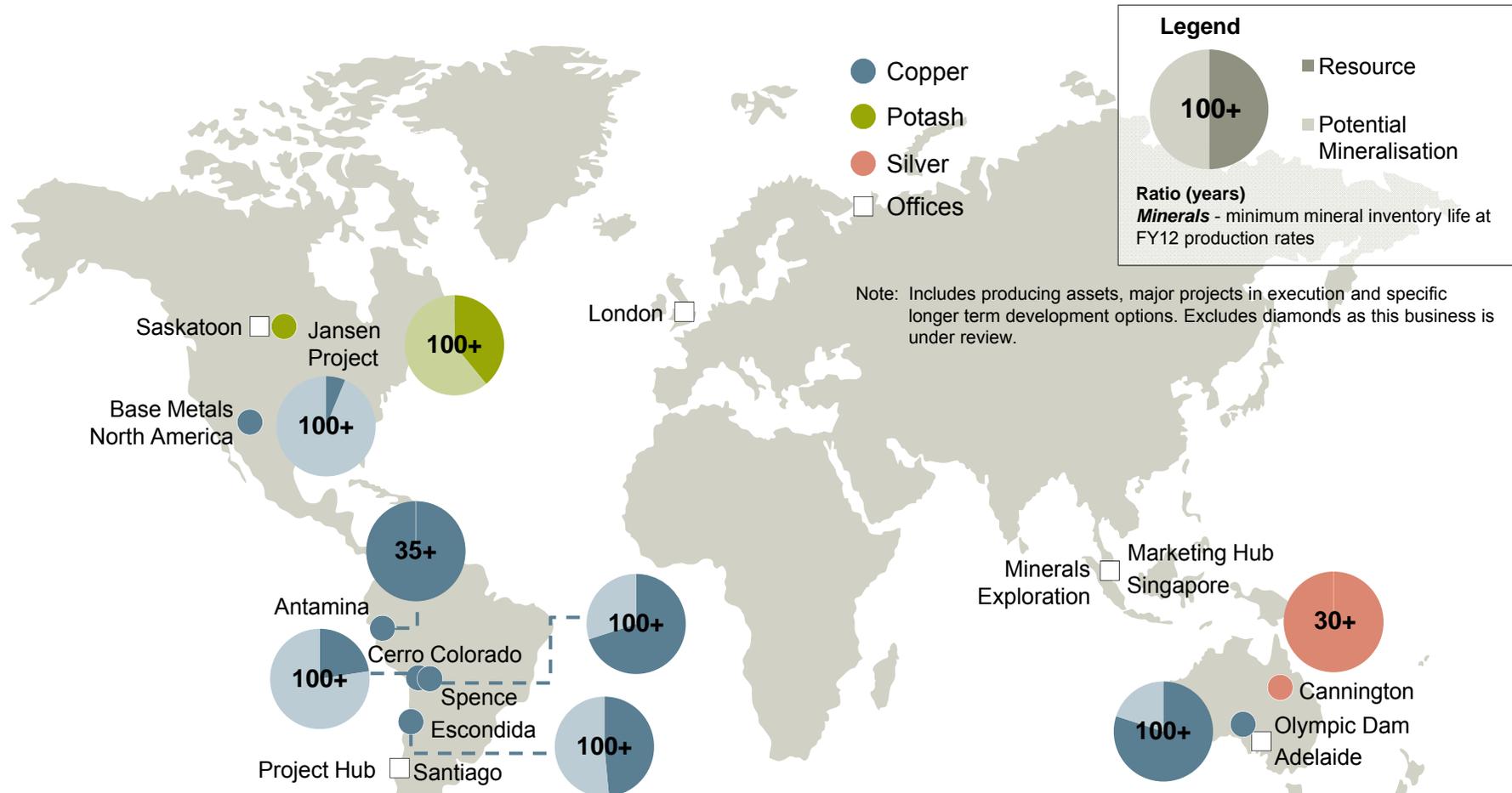


**Head of Group Project Management Services**  
Philip Montgomery



**Project Director Organisation Design Protocol**  
Stefan Buys

# A high quality and uniquely diversified portfolio

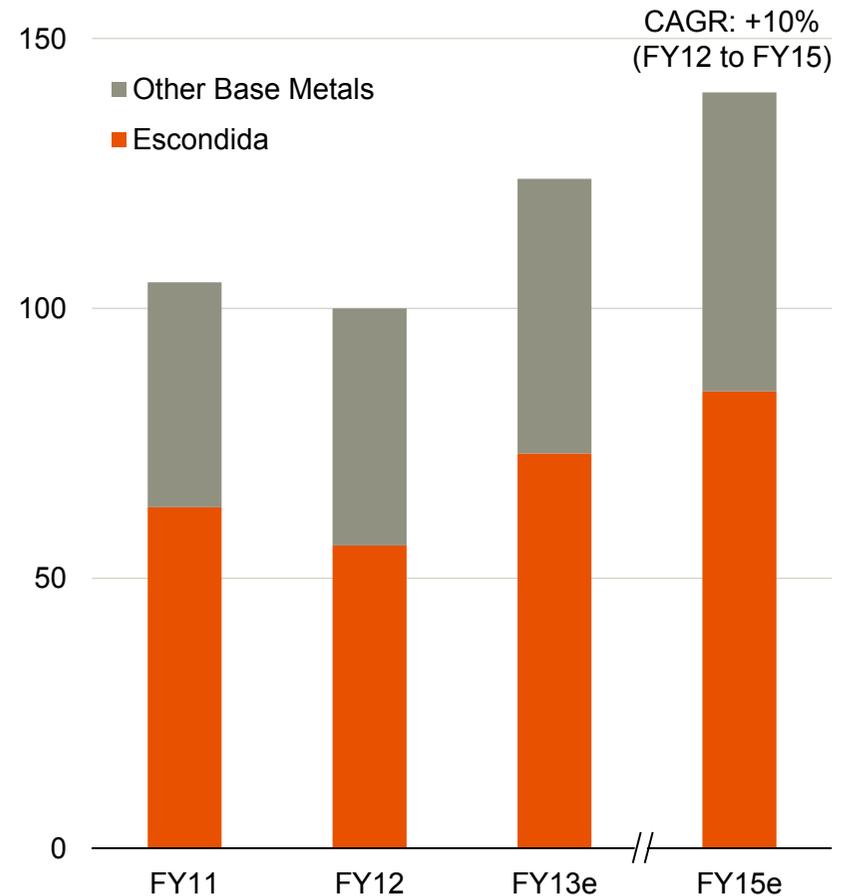


The Inventory Life is estimated from the mineral inventory (sum of Potential Mineralisation and Mineral Resources) stated on a 100% basis. The detailed breakdown of Mineral Resources for all assets are shown in the BHP Billiton FY12 Annual Report. Potential mineralisation values in the pie charts above is the mid case of a range of values that are presented in the Disclaimer slide of this presentation. The range of Potential Mineralisation is estimated from geological information including boreholes, outcrops and geophysical information. The potential quantity is conceptual in nature, there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource. It should not be expected that the quality of the Potential Mineralisation is equivalent to that of the Mineral Resource. The minimum mineral inventory or Inventory Life in years is the mineral inventory divided by the FY12 production rate (for Potash this is the expected FY20 production rate and for Base Metals North America Pinto Valley it is the nominal production rate) and does not imply that any mine planning has been completed. Refer to disclaimer on slides 3 and 4 as presented on 30 September 2012.

# Building strong near term momentum

- Low risk, high return brownfield projects and the release of latent capacity underpin the strong near term outlook
- Multiple low risk projects on time and on budget
  - two projects (Escondida Ore Access and Antamina Expansion) delivered first production in FY12
  - low complexity Pinto Valley restart expected by end CY12
  - Escondida Organic Growth Project 1 on schedule to be commissioned in CY15
- Total copper production is forecast to grow at a CAGR of +10% to end FY15
  - copper production growth of more than 350 ktpa (BHP Billiton share) to end of FY15

## Copper production growth<sup>1</sup> (index, FY12=100)

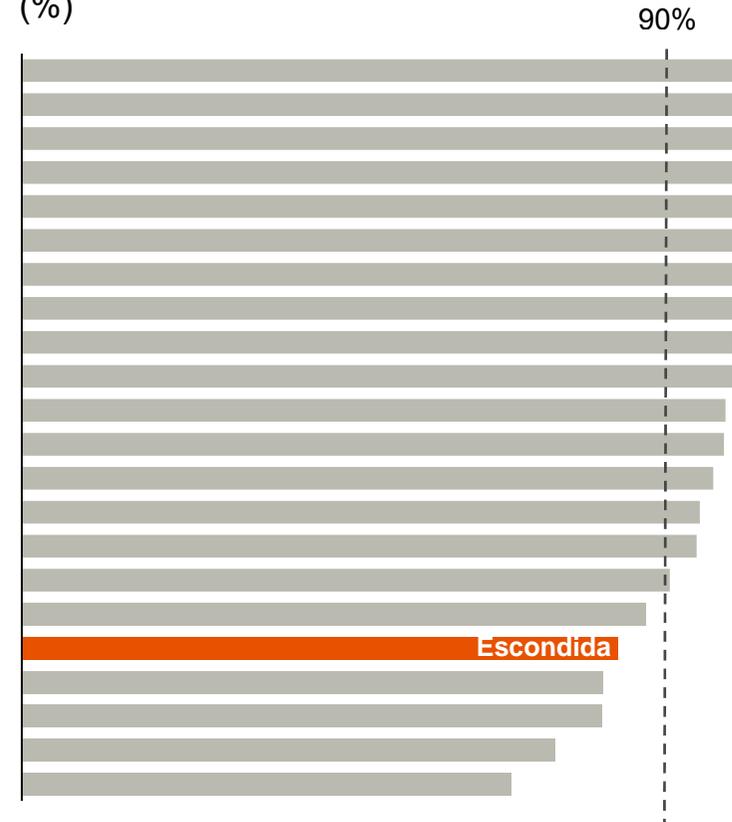


Note: Excludes Uranium CSG.  
1. BHP Billiton share.

# Targeting a substantial reduction in costs

- Cost inflation continues to impact the global mining industry
- We are committed to reducing costs in FY13
- We will achieve this by
  - diluting our costs over a larger base as substantial latent capacity is released at a number of major operations and recently completed projects ramp-up
  - reducing general overhead costs and our business development spend
  - increasing operating and capital productivity

Effective asset utilisation<sup>1</sup> in FY12 (%)



1. Excludes assets where major projects are in commissioning phase or in the process of ramp-up (Worsley, Antamina, WAIO and NSW Energy Coal). Excludes the non-operated Richards Bay Minerals operation, the EKATI diamond mine (both part of the D&SP CSG) and Onshore US (Petroleum CSG). Spence and Cerro Colorado capacity based on forecast annualised production; Manganese Ore and South Africa Coal capacity adjusted for available rail allocation; and Queensland Coal adjusted for the closure of Norwich Park.

# Longer term development options

## Well placed to meet growing potash demand

- A major presence in the Saskatchewan potash basin
- The longer term outlook for potash remains attractive
- Two shafts that will support at least an 8 mtpa operation at Jansen will be fully excavated by end FY14
- Regulatory approvals are being progressed
  - Saskatchewan Ministry of Environment has approved the EIS
  - mining lease conversions are in progress
- Detailed front-end mine planning and engineering for Jansen is well advanced
  - focus is on reducing project risk and maximising investment returns
  - expected to operate at the very bottom of the global cost curve in its expanded state
  - a modular (two phase) development program is likely to reach full capacity within 10 years of final investment approval
- Final investment decision remains subject to Board approval



# Longer term development options

Project economics will determine the way forward at Olympic Dam

- Following a major capital review, we decided to study an alternative, less capital intensive design of the Olympic Dam open pit expansion that involves new technologies
- An alternative design has the potential to substantially improve the economics of the project
  - heap leach and other technological solutions are being studied
- These studies will require extensive analysis
- An investment decision is far from imminent



**Our heap leach test program in Adelaide is well advanced**

# Key themes

- A strong, experienced and well established management team
- A high quality and uniquely diversified portfolio
- Building strong momentum in our Base Metals business
- Targeting a substantial reduction in costs
- Our longer term development options

Escondida



# Well positioned to deliver low risk copper growth

**Peter Beaven** President Base Metals  
30 September 2012



# Key themes

- Our confidence in the long term outlook for copper
- A leading producer of Base Metals with a world class resource base
- Strong performance in health, safety, environment and the community
- Targeting significant unit cost savings
- Delivering low risk, high return copper growth
- Our valuable longer term development options
- Our extensive and successful brownfield exploration program

# Base Metals Executive Committee

An established, experienced and diverse leadership team



**President  
Base Metals**  
Peter Beaven



**President  
Pampa Norte**  
Ivan Arriagada



**President  
Escondida**  
Edgar Basto



**VP Finance**  
Margaret Beck



**President  
North  
America**  
Wayne Isaacs



**VP Human  
Resources**  
Alex Jaques



**VP Strategy  
and  
Development**  
Randy Jones



**VP HSEC**  
Stephen Kittel



**VP Major  
Projects**  
Carlos  
Mesquita



**VP External  
Affairs**  
Maria Olivia  
Recart



**President  
Cannington**  
Laura Tyler



**VP Marketing**  
Shaun Verner

# Base Metals – an important driver of value



## Committed to copper

Copper remains a particularly attractive industry for BHP Billiton

## Well positioned

Base Metals is well positioned with a diversified portfolio of high quality assets in established and stable geographies

## Delivering performance

Strong operating and project capability which is enhanced by our Santiago project hub

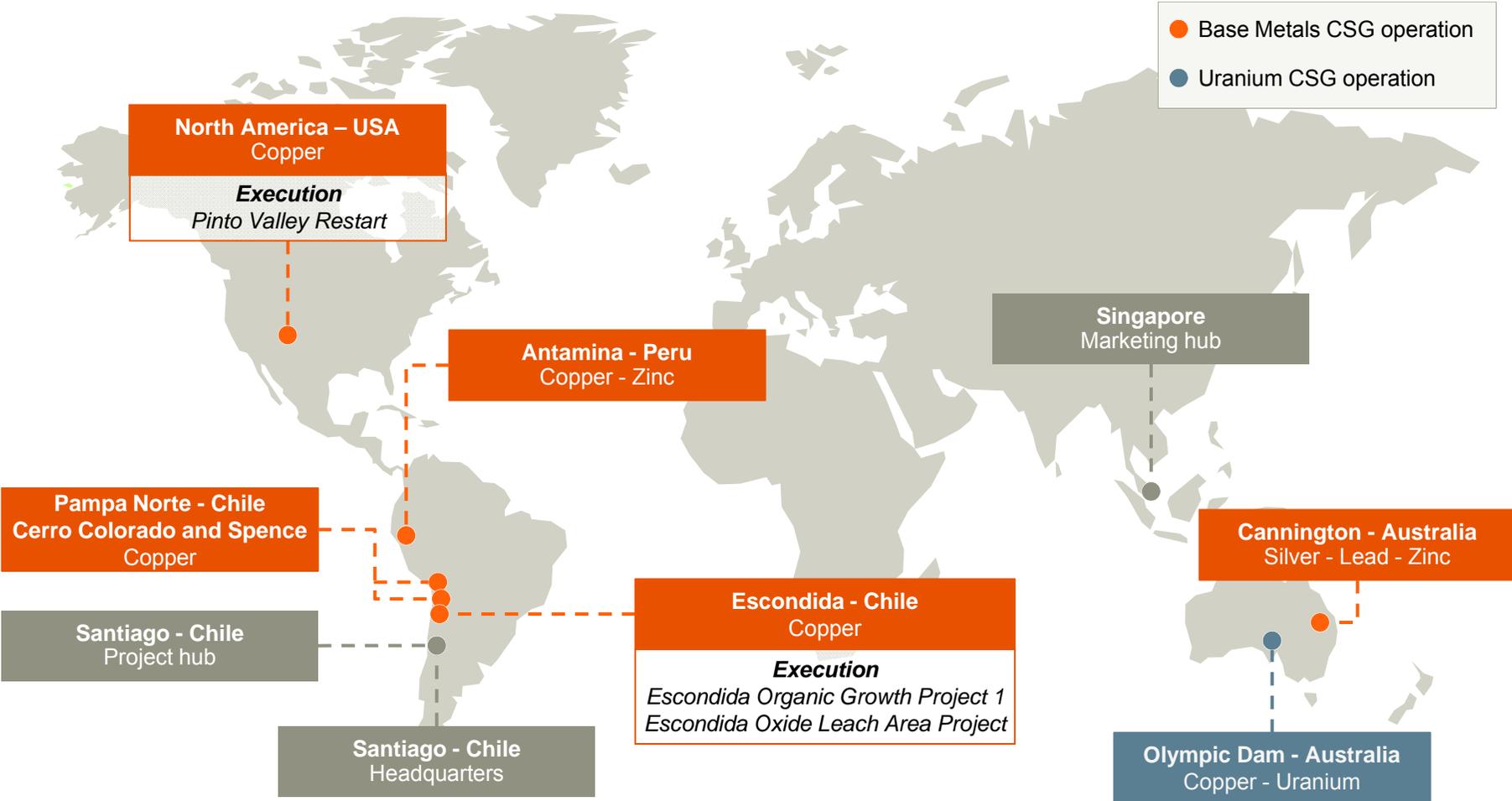
## Operating excellence

Our systems and processes represent a major competitive advantage that will underpin low risk, high return copper growth for the Group

*“Substantial mineralisation totalling 27.1 bt<sup>1</sup> and a significant commitment to Andean copper belt exploration will ensure BHP Billiton remains a leading and highly competitive producer in the long term”*

1. BHP Billiton 2012 Annual report. Refer to disclaimer slides 3 and 4 as presented on 30 September 2012.

# Geographically diverse Base Metals business

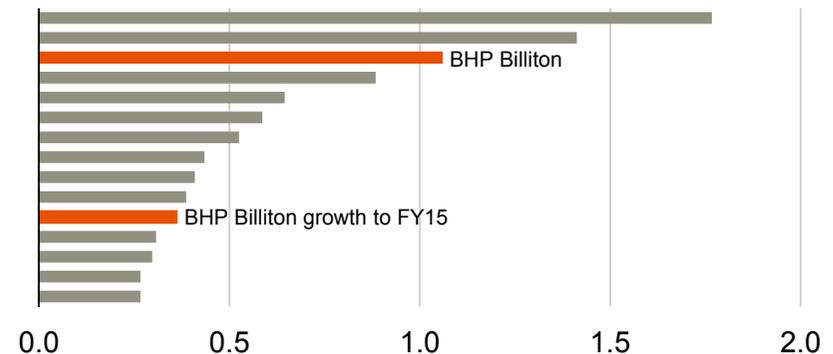


Note: Includes producing assets and major projects in execution.

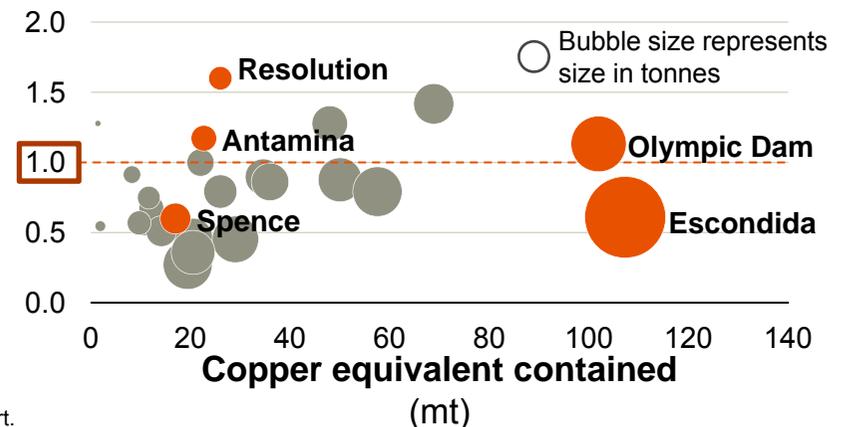
# A leading copper producer

- Third largest global copper producer
  - operator of Escondida, the world’s largest copper mine
- Copper production growth over the next three years is significant in the context of the global industry
- Over 95% increase in total contained copper resource base since FY08<sup>1</sup>
- Underpins longer term production profile
- Extensive greenfield exploration land position in the Andean region

**A significant producer**  
(CY11 contained copper production, mt)



**Substantial footprint for growth<sup>1</sup>**  
(% copper equivalent)



Sources: Wood Mackenzie, Annual Reports, press releases and BHP Billiton FY12 Annual Report.

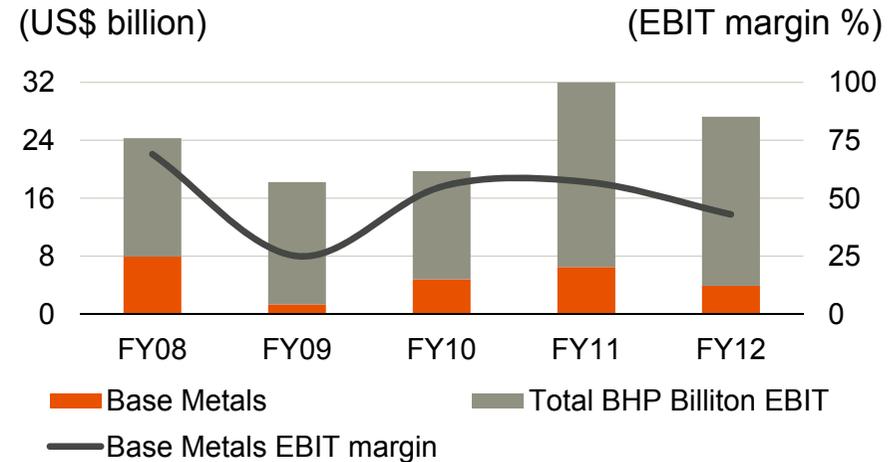
Refer to disclaimer on slides 3 and 4 as presented on 30 September 2012 for information regarding BHP Billiton resources and potential mineralisation.

1. Based on top 20 copper deposits, information was obtained from the BHP Billiton FY12 Annual Report for BHP Billiton resources and from Brook Hunt data for the remainder. Resolution is based on the mid case for potential mineralisation, factored for conversion to resources. Grades are inclusive of by-product credits, adjusted for metal recovery. Copper equivalent units based on three month average spot prices. Refer to disclaimer on slides 3 and 4 as presented on 30 September 2012 for reported by-product grades.

# Base Metals - a major contributor to BHP Billiton

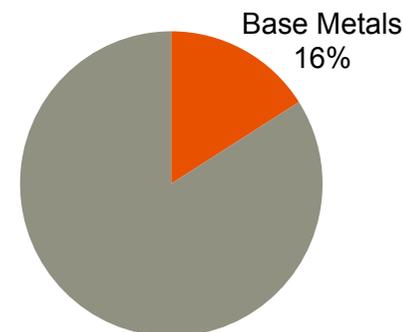
- Significant component of the BHP Billiton portfolio
- Headquartered in Santiago, employing over 8,000 people in five different countries
- Over the last five years Base Metals has contributed
  - US\$25 billion of Underlying EBIT<sup>1</sup>, representing 20% of total BHP Billiton Underlying EBIT
  - US\$20.6 billion of net operating cash flow<sup>1</sup> representing 19% of total BHP Billiton net operating cash flow
  - 16% of total BHP Billiton copper equivalent production

## Contribution to BHP Billiton<sup>1</sup>



## Production<sup>2</sup>

(five year average, copper equivalent units, %)



1. Excludes Uranium CSG and includes third party products.

2. Excludes Uranium CSG and third party products. Copper equivalent units based on FY12 average prices where available.

# Strong performance in health, safety, environment and the community

## Health

- Focus on reducing exposure to silica, noise and acid mist
- Monitoring and managing fatigue

## Safety

- Material Risk Management
- Job Safety Observation
- Field leadership

## Environment

- Reduce environmental footprint (energy and water efficiency)
- Abatement curves for energy, water and carbon

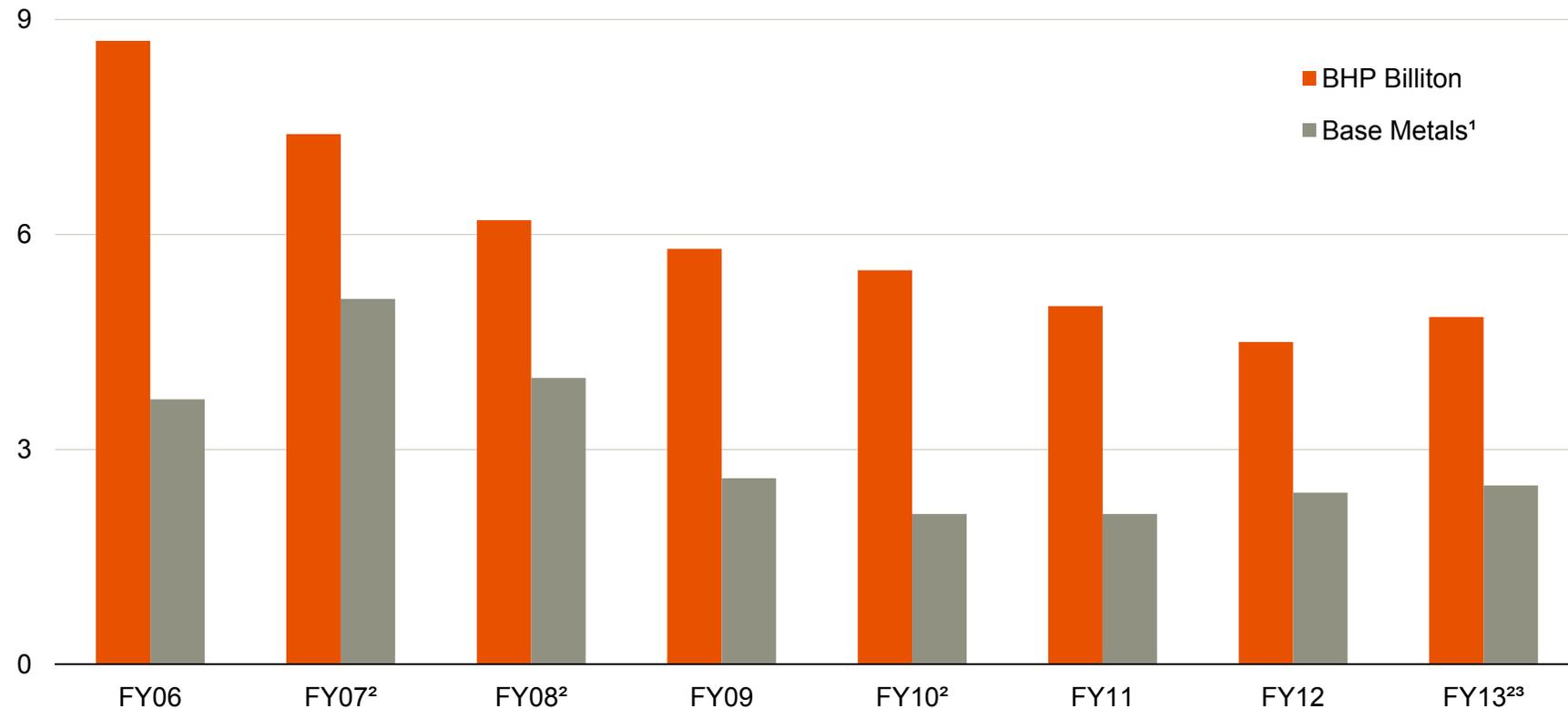
## Community

- Focus on improving quality of life indicators
- Escondida Foundation
- Antamina Fund
- Invested in excess of US\$250 million in local communities over the last five years



# Safety is a core value for BHP Billiton

## Total Recordable Injury Frequency (TRIF) (number of recordable injuries per million hours worked)

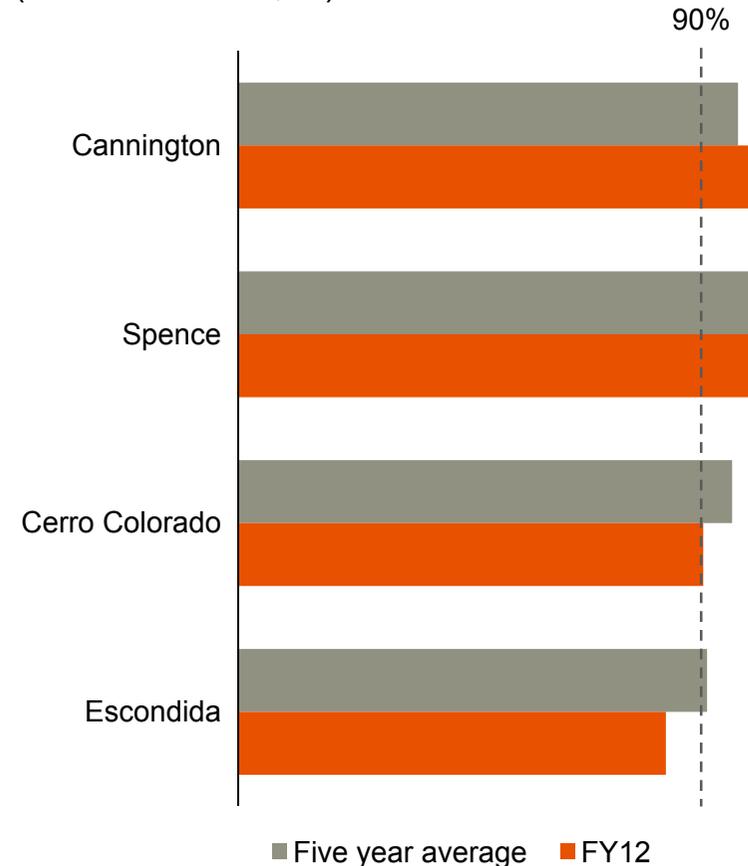


1. Excludes Uranium CSG.
2. Indicates fatalities occurred in the Base Metals Customer Sector Group during the reporting period.
3. TRIF up until 31 August 2012.

# Strong recovery underway at Escondida

- Strong operating performance over past five years, however in FY12 Escondida was affected by temporary challenges including industrial action and wet weather
  - the reversal of one-off events expected in FY13
- Recovery in ore grade and milling rates at Escondida illustrated by the sharp increase in production in the June 2012 quarter
  - continued improvement in volumes consistent with the mine plan will benefit unit costs in FY13
  - low cost, high margin volume growth associated with expansion projects will further leverage economies of scale throughout FY13

## Strong operating performance (asset utilisation<sup>1</sup>, %)



1. Antamina is not shown as the expansion project in FY12 was in the process of ramp-up. Spence and Cerro Colorado capacity based on forecast annualised production.



# Base Metals performance overview

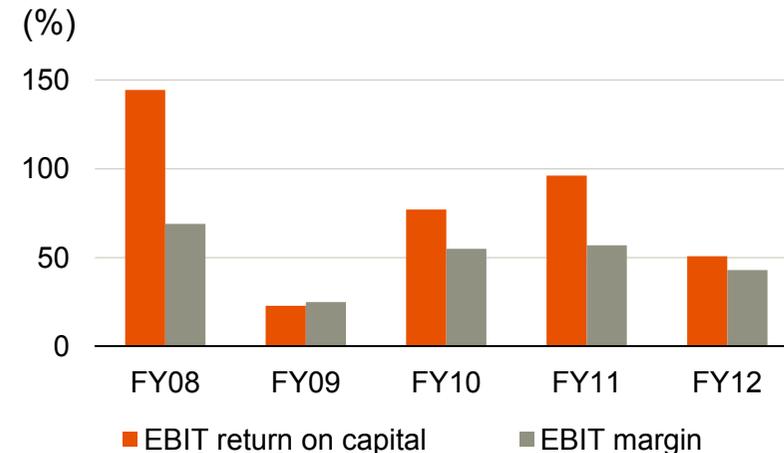
**Margaret Beck** VP Finance  
30 September 2012



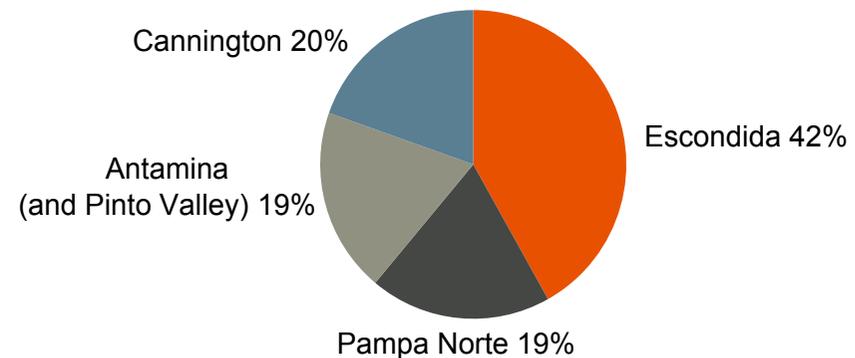
# A high margin business with strong returns

- EBIT contribution from assets diversified by product, country and process
- Over the last five years Base Metals has generated
  - an average EBIT margin of approximately 50%
  - an average EBIT RoC of over 75%
- In FY12 Base Metals contributed 14% of BHP Billiton's Underlying EBIT despite:
  - being negatively affected by industrial action and wet weather
  - copper grades at Escondida reaching an inflection point in the mine plan; and
  - a more than US\$900 million reduction in the contribution associated with provisional pricing

## Strong and stable margins and returns<sup>1</sup>



## FY12 EBIT contribution by asset (Underlying EBIT<sup>2</sup>)



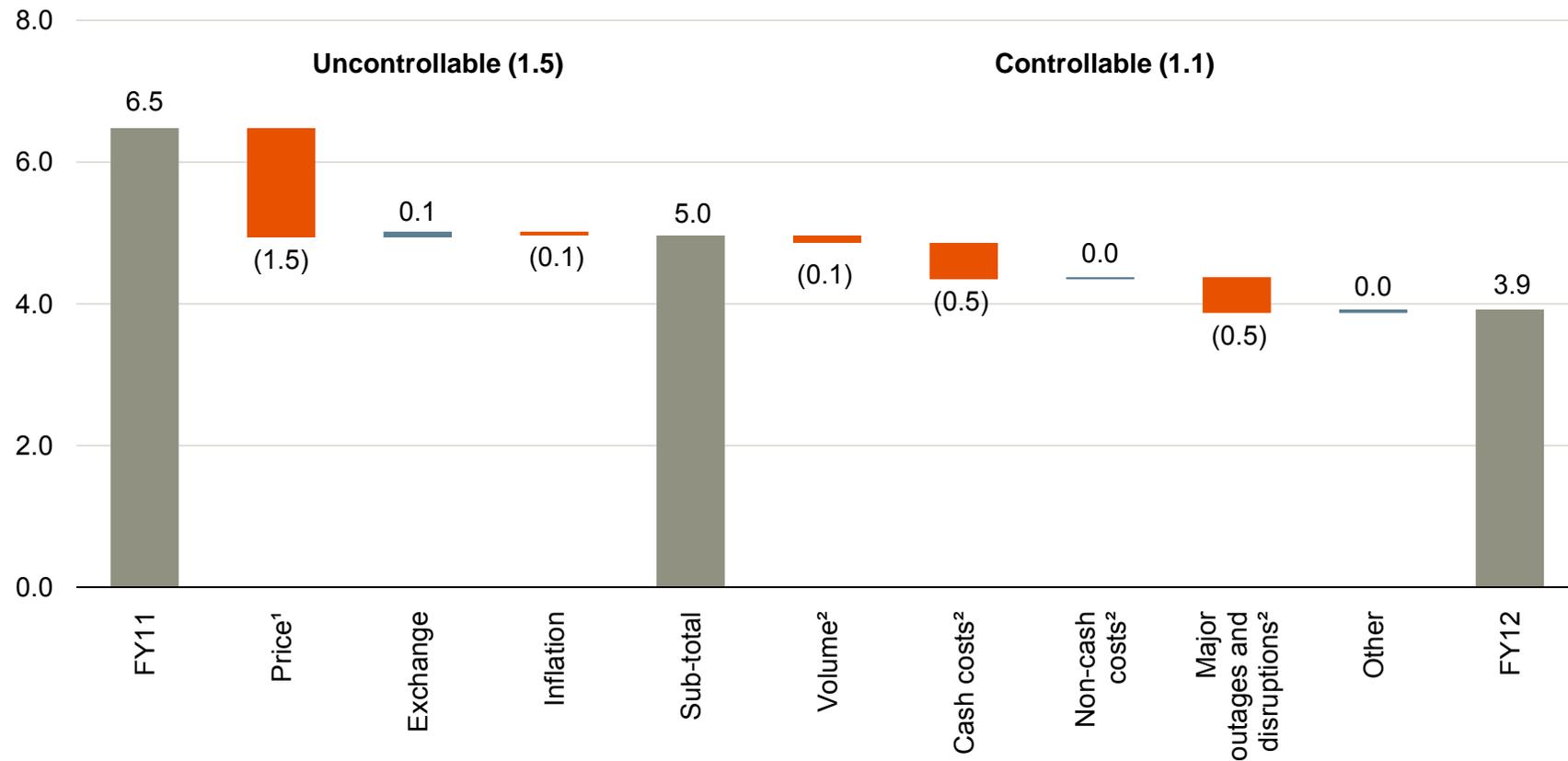
1. Excludes Uranium CSG and third party trading activities.

2. Excludes exploration and business development and divisional activities.

# Underlying EBIT analysis

## EBIT variance

(FY12 versus FY11, US\$ billion)



Note: Excludes Uranium CSG.

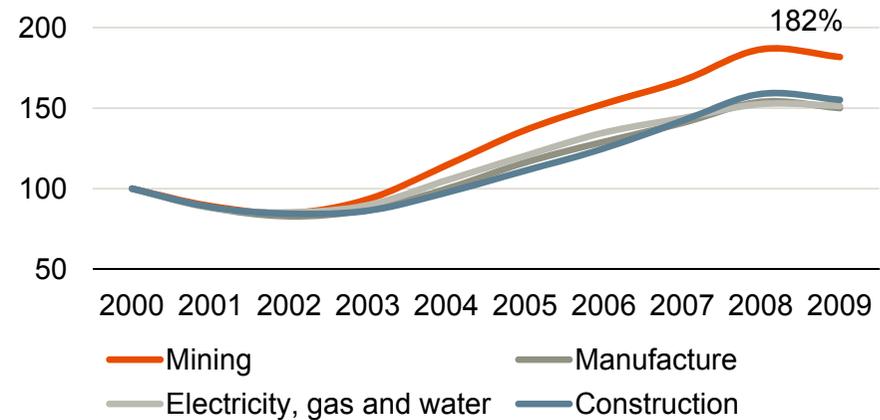
1. Includes net impact of price-linked costs.

2. The impact of wet weather and industrial action at Escondida has been excluded from Volume, Cash costs and Non-cash costs variance; included in Major outages and disruptions.

# Unit costs affected by one-off events and a heated labour market

- Copper unit cash costs increased by 20% in FY12
- Higher costs driven by
  - pressure on labour costs due to tight market in Chile
  - increased acid and fuel prices
  - higher strip ratio at Spence
  - impact of lower volumes on a substantial fixed cost base
    - › industrial action at Escondida
    - › lower grade at Escondida

**Chilean labour cost by industry**  
(index, 2000=100)



Source: COCHILCO; Fundacion Chile; Brook Hunt.

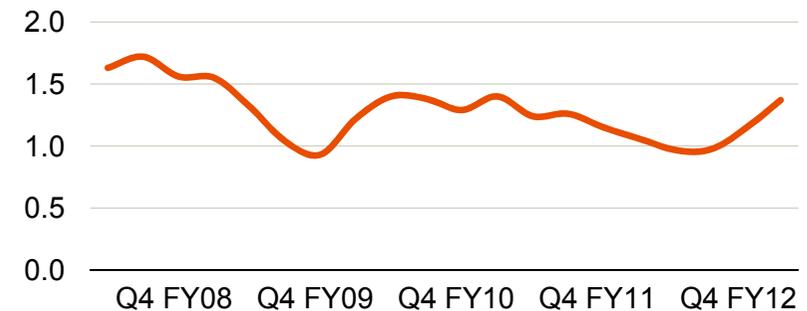
**Base Metals Chilean copper assets breakdown**  
(FY12 cash costs, %)



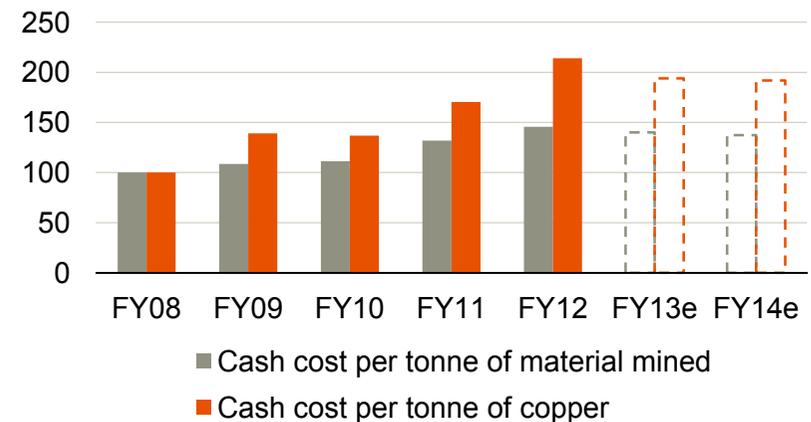
# Targeting significant unit cost savings

- Economies of scale benefits
  - Escondida Ore Access will underpin higher average grades
  - debottlenecking projects will improve throughput
- Reversal of one-off costs incurred in FY12
  - industrial action
  - crushing and conveying maintenance
  - reduction of study and exploration costs
- A substantial reduction in operating costs and non-essential expenditure is targeted in FY13
  - improvements identified through benchmarking with plans in place to close the gaps
- However, challenges remain
  - continued tight labour market in Chile
  - high power costs due to dependence on imported fossil fuels
  - cost of water will increase with transition to desalinated water

**Escondida's average copper grade**  
(% copper)



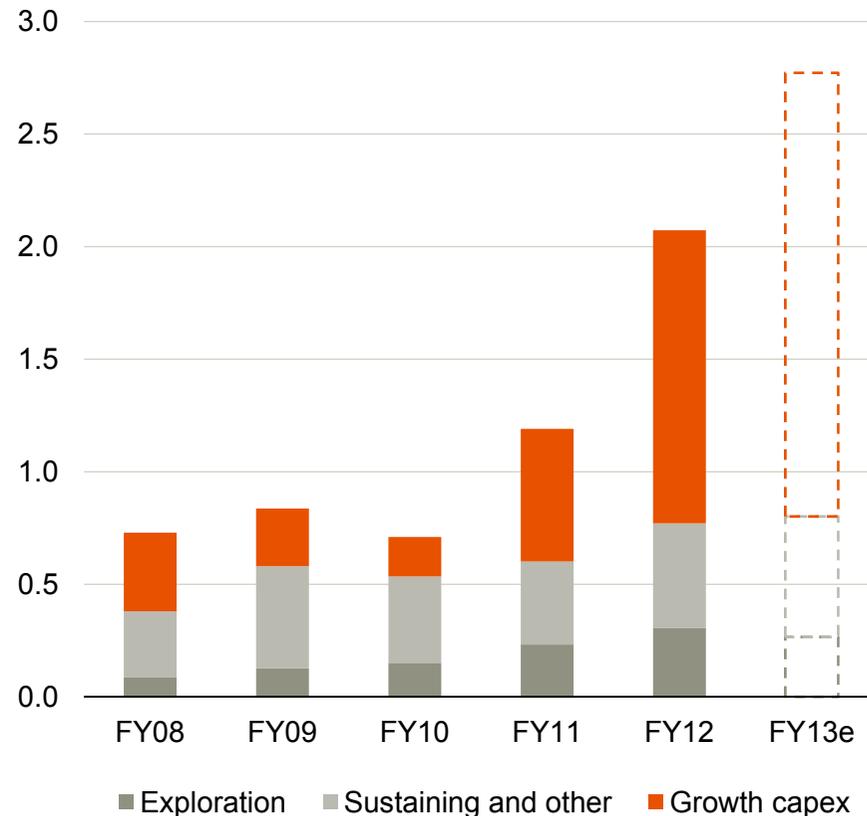
**Grade has a significant influence on unit costs**  
(index, FY08=100)



# Continued investment in high return growth

- Investment in growth to accelerate in FY13 as high return projects (OGP1 and OLAP) progress
- Sustaining capital spend is predictable
  - due to focus on downstream processes
  - targeting a reduction in FY13
- Exploration expense peaked in FY12
  - significant brownfield exploration success
  - focused greenfield exploration program
  - overall reduction targeted in FY13

**Increasing Base Metals capex supports production growth<sup>1</sup>**  
(investment, US\$ billion)



1. Excludes Uranium CSG.



## Low risk, high return projects

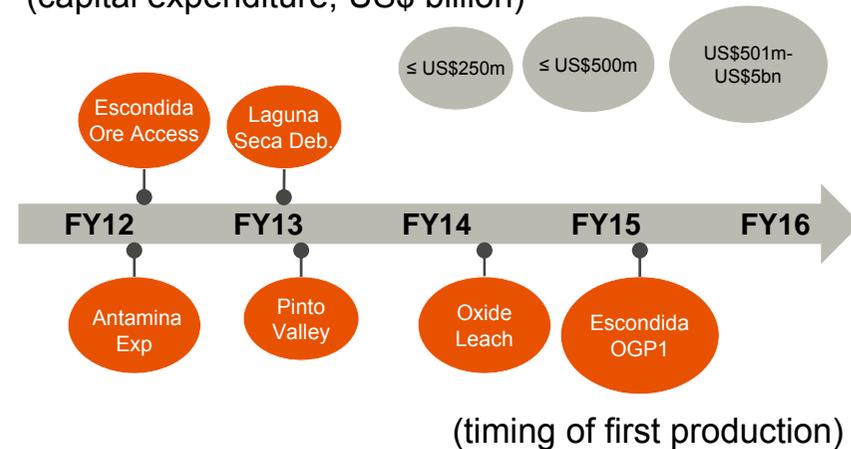
**Peter Beaven** President Base Metals  
30 September 2012



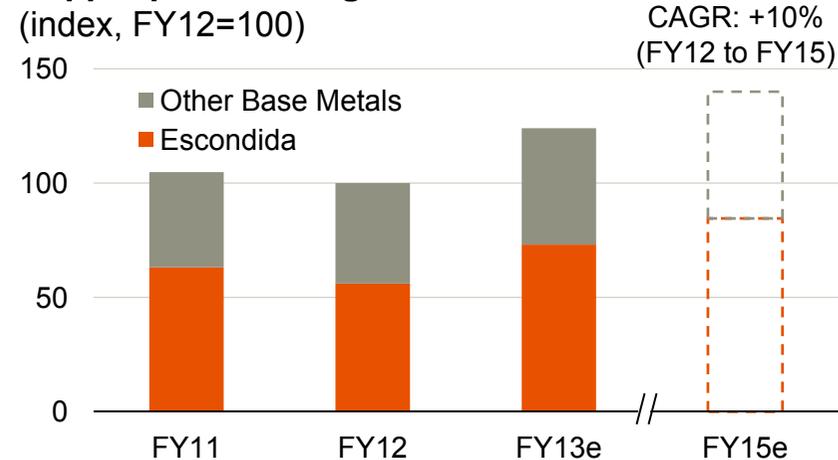
# Delivering low risk, brownfield volume growth

- Two projects achieved first production in FY12
  - Antamina Expansion increased processing capacity by 38% to 130 ktpd
  - Escondida Ore Access enables the mine plan to access to high grade ore (+1% copper)
- Laguna Seca Debottlenecking was completed at the end of September 2012 and increases processing capacity by 15 ktpd at Escondida
- Low risk projects in execution will sustain strong momentum
  - Escondida Oxide Leach substantially extends cathode production
  - OGP1 sustains an elevated level of copper production at Escondida over the remainder of the decade
  - low complexity Pinto Valley restart will deliver 60 ktpa of copper in concentrate

## Projects completed and in execution<sup>1</sup> (capital expenditure, US\$ billion)



## Copper production growth<sup>2</sup>



1. Relates to projects in execution highlighted on slide. Note some projects are completed.  
2. BHP Billiton share.

# Valuable longer term development options

- Progressing pre-feasibility studies for the Spence Hypogene project
  - exploitation of an extensive hypogene resource of more than 2 bt ore<sup>1</sup>
  - potential development of 95 ktpa concentrator to deliver 150 - 200 ktpa of low cost copper production over the first ten years
- Cannington open-cut studies underway
  - significant near surface resource of 22 mt<sup>2</sup>
  - could extend mine life by more than 20 years
- Escondida post OGP1
  - substantial resources support additional concentrate and cathode production
- Antamina further debottlenecking
  - existing SAG capacity of 210 ktpd compared to current throughput of 140 ktpd

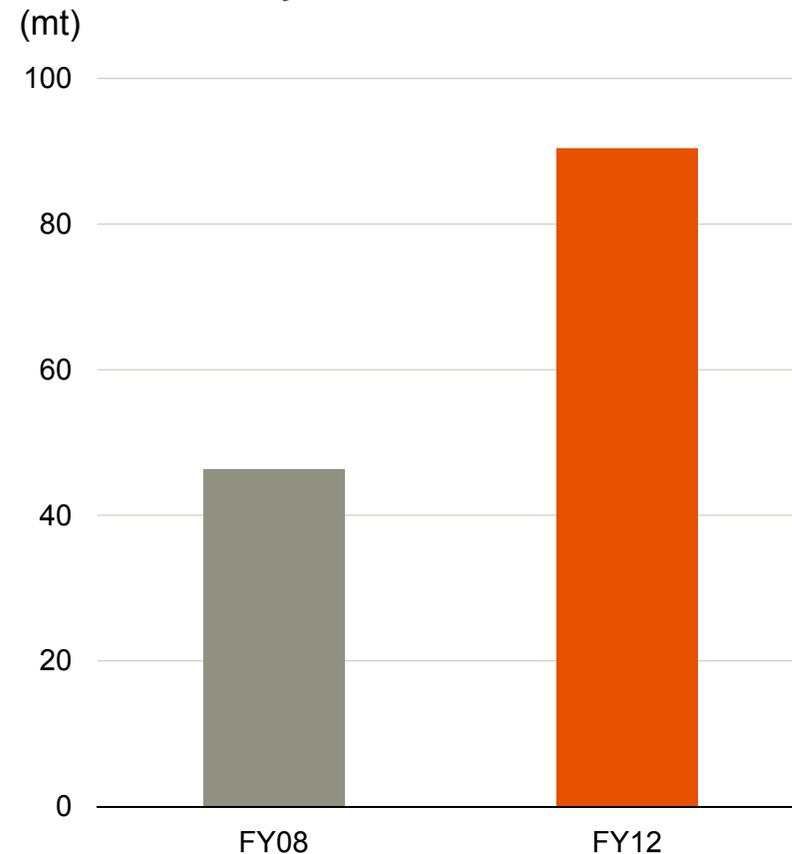


1. Open pit limit for declared Sulphide Mineral Resource as reported in BHP Billiton 2012 Annual report. Refer Table 1 on slide 4 as presented on 30 September 2012.  
2. Cannington open cut Mineral Resources of 22 mt is included in Table 1 on slide 4 as presented on 30 September 2012.

# Significant brownfield exploration success

- Extensive brownfield exploration program at all of our sites
  - approximately 1.5 million metres drilled over the past five years
- Successful exploration has increased our resource base
  - 95% increase in total contained copper since FY08<sup>1</sup>
  - discoveries converted into resources at Pampa Escondida, Escondida Este, Cerro Colorado, Spence hypogene and Antamina
  - doubling in Escondida mineral district resource at a discovery cost of US\$0.001 per pound
  - 388% increase in Pampa Norte resource at a discovery cost of US\$0.003 per pound
- High quality resource base with 27.1 bt @ 0.55% copper<sup>2</sup>

## BHP Billiton's contained copper resource base has increased by over 95% since FY08<sup>1</sup>



1. After depletion. Excludes Cannington and Uranium CSG.

2. BHP Billiton 2012 Annual report. Refer to disclaimer slides 3 and 4 as presented on 30 September 2012.

# Focused commitment to greenfield exploration

- Extensive Andean greenfield exploration land position in the most prospective areas
  - approximately 17,000 km<sup>2</sup> in Chile
  - approximately 11,000 km<sup>2</sup> in southern and central Peru
- Ramping up activity on a number of multi-year exploration programs aimed at testing porphyry copper targets
- Diverse exploration portfolio, with a range of target types and exploration maturity
- More than 50,000 metres of drilling planned during FY13
- Ongoing generative activities aimed at sustaining and building long term exploration pipeline, including third party commercial deals and title applications

## Chilean and Peruvian landholding



# Key themes

- Our confidence in the long term outlook for copper
- A leading producer of Base Metals with a world class resource base
- Strong performance in health, safety, environment and the community
- Targeting significant unit cost savings
- Delivering low risk, high return copper growth
- Our valuable longer term development options
- Our extensive and successful brownfield exploration program



# Our confidence in the long term outlook for copper

**Shaun Verner** Vice President Base Metals Marketing  
30 September 2012



# A centralised approach

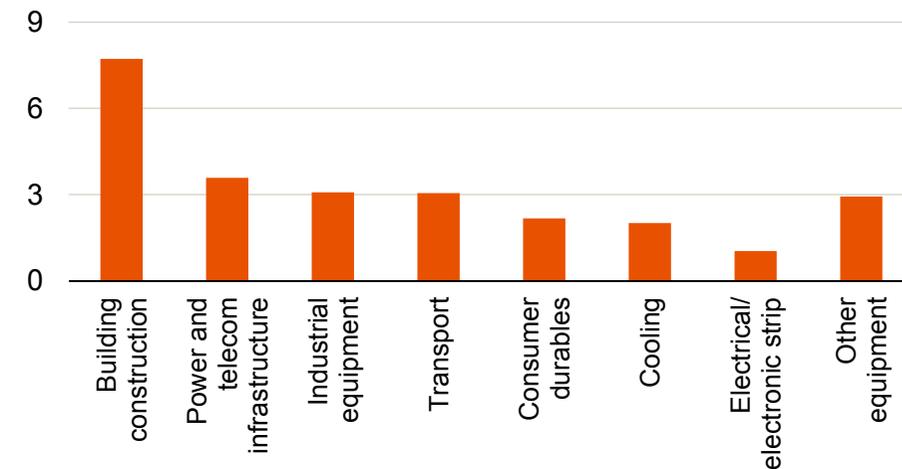
- Marketing is centralised across commodities providing a coordinated view. Our responsibilities include
  - selling our products and purchasing all major raw materials
  - managing the supply chain for our products, from asset to market; and raw materials, from suppliers to asset
  - managing credit and price risk associated with the revenue line
  - achieving market clearing prices for our products
  - defining our view of long term market fundamentals
- Marketing volumes in FY12 (contained metal)
  - copper concentrates: 710 kt
  - copper cathodes: 760 kt
  - lead (silver) concentrates: 240 kt
  - zinc concentrates: 110 kt



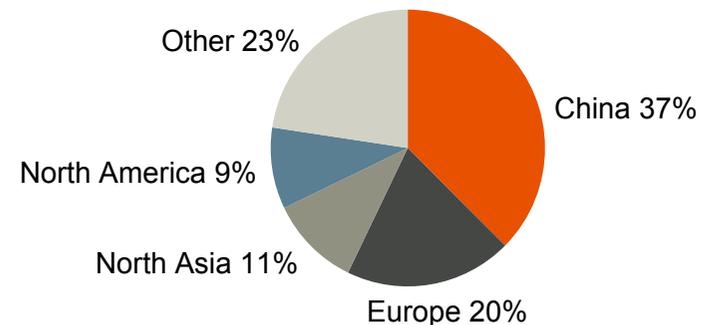
# Demand drivers are diverse across both geography and sector

- Copper demand is dominated by construction, power and electrical applications which have low substitution risk
- Demand is driven by both investment and consumption led growth
  - urbanisation
  - floor space per capita
  - consumables
  - replacement demand
- China is the most significant market, however growth is geographically diverse
  - developing economies need copper in metals intensive construction and infrastructure investment phase
  - developed economies need copper across a wide range of applications in consumption phase

**Demand by key sector 2011**  
(mtpa)



**Demand by region 2011**

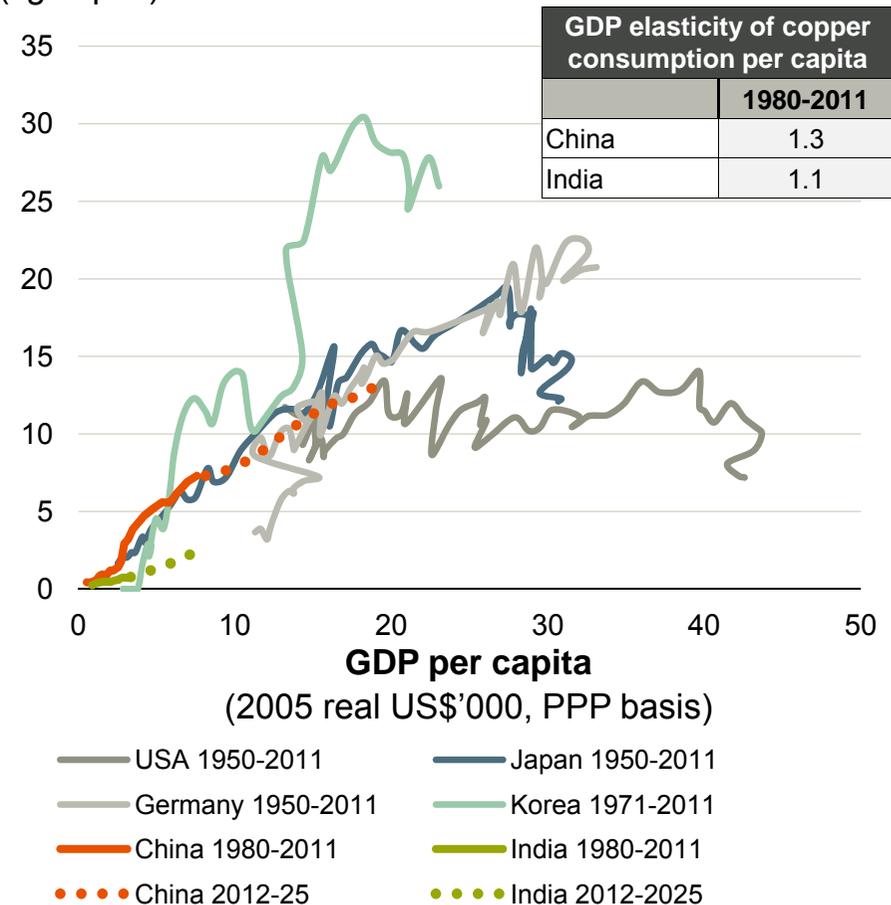


Source: ICA; CRU International; IWCC.

# Demand evolves with economic development

- Emerging economic growth will transition from being investment to consumption led
- Copper plateaus later in the industrialisation cycle when compared with the infrastructure driven commodities
- China and India are still in the early stages of development
- Chinese semis<sup>1</sup> intensity per capita driven by increasing urbanisation, increasing wealth and replacement demand
- Intensity per capita driven primarily by domestic consumption but exports continue to play a part

**Copper semis intensity per capita**  
(kg/capita)



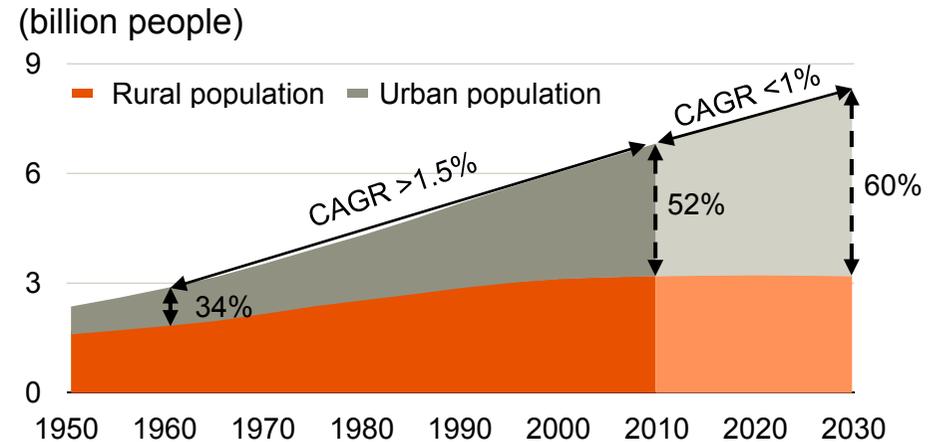
1. Semi fabricated products.

Source: BHP Billiton; World Bank; CRU.

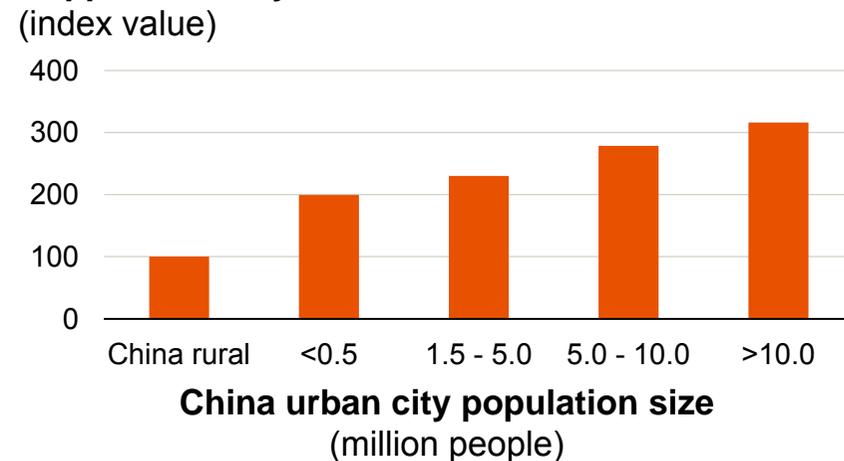
# Long term drivers of demand remain intact

- Global population growth has continued, as has growth in the share of urban population
- Urban population is expected to grow globally from 3.6 billion (2010) to 4.3 billion (2020) to 5.0 billion (2030)
- Rural population is expected to remain flat from 2010
- Per capita wealth increases more quickly in urban environments
- Commodity demand growth is set to continue as urban populations increase
- Chinese copper intensity doubles from rural to smallest urban centre; and more than triples from rural to large urban centre

## Urbanisation is the key driver of global demand



## Copper intensity increases with urbanisation

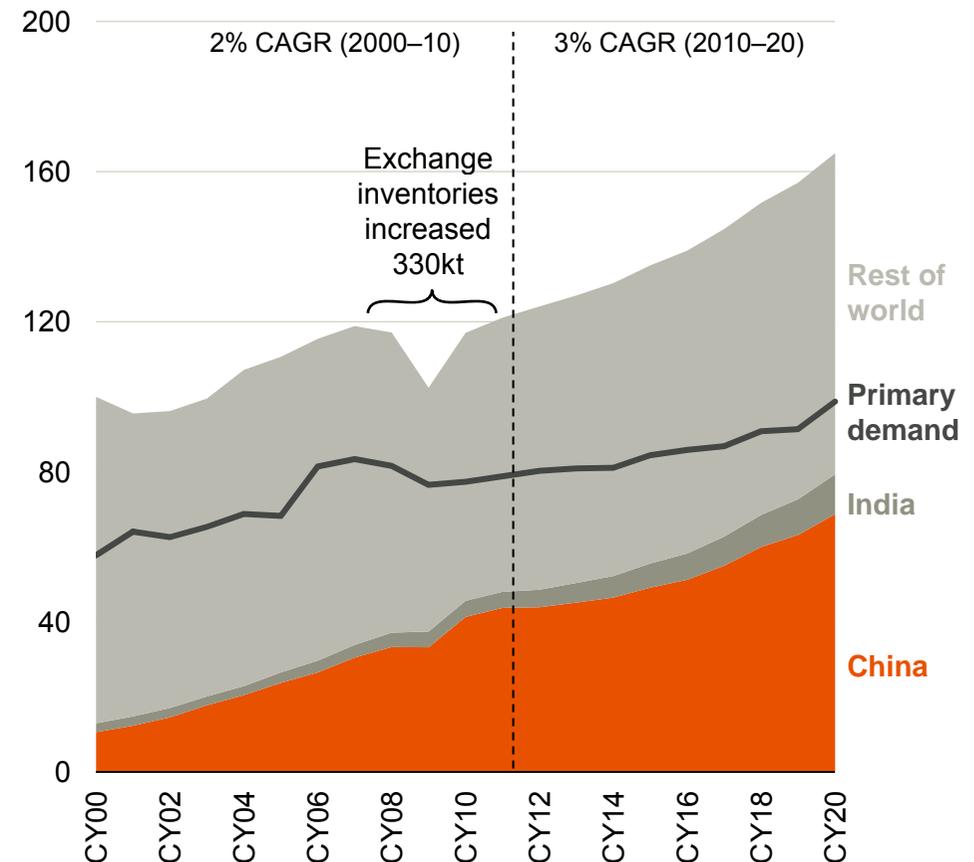


Source: United Nations (Population Division, Department of Economic and Social Affairs).

# Strong primary demand growth expected despite increasing secondary supply

- Total semis demand expected to grow at 3% CAGR over the next decade
- Primary drivers will be China at approximately 5% CAGR and India at approximately 10% CAGR
- Rest of world demand growth is balanced between developing economies in Asia, Africa and Latin America and maturing demand profiles in Europe and North Asia
- Despite increasing secondary supply, primary demand growth remains robust

**Copper semis demand**  
(index, 2000=100)

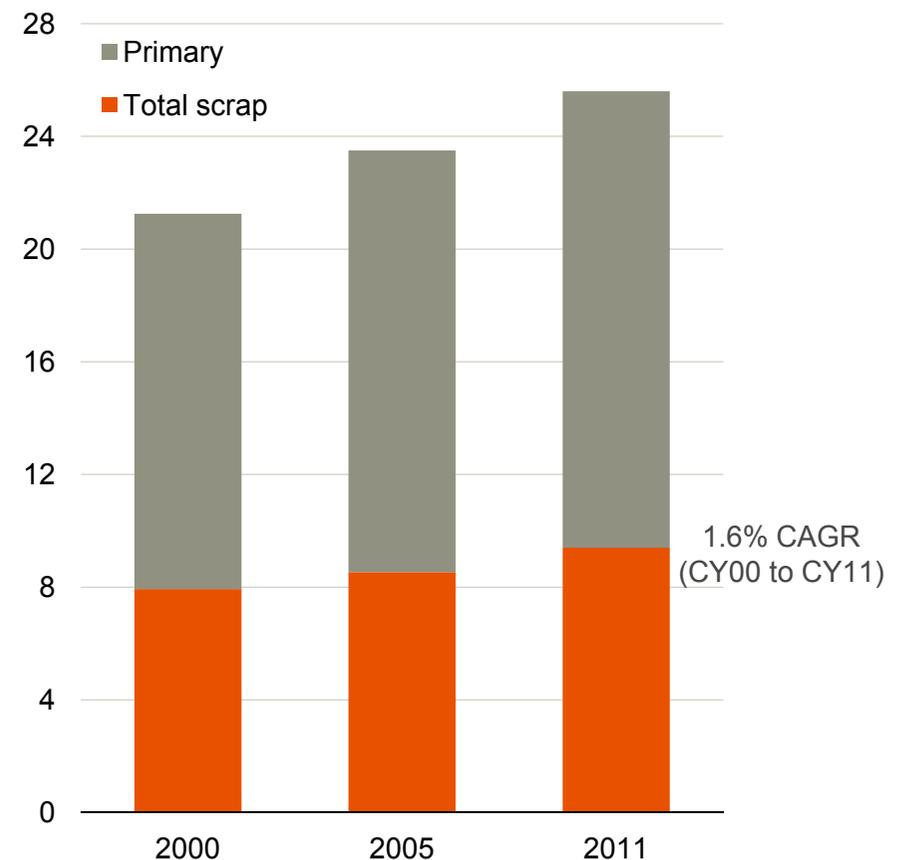


Source: ICA, CRU; Wood Mackenzie.

# Secondary supply is increasing, but China remains short copper units

- While the size of the future scrap pool has increased significantly, the contribution of secondary units to global copper supply has only experienced modest growth
- Secondary supply from recycling is a function of product life-cycle, collection rates and recovery rates
- In China the recycling rate is already higher than the rest of the world due to a lower cost base and extensive collection infrastructure
- Chinese collection and recovery rates are expected to increase marginally over the coming decade
- This is offset by an extension to life-cycles in power infrastructure and construction applications
- Despite an increasing share of demand satisfied by secondary supply, China remains short copper units and primary supply is required

Scrap contribution to global copper supply (mt)



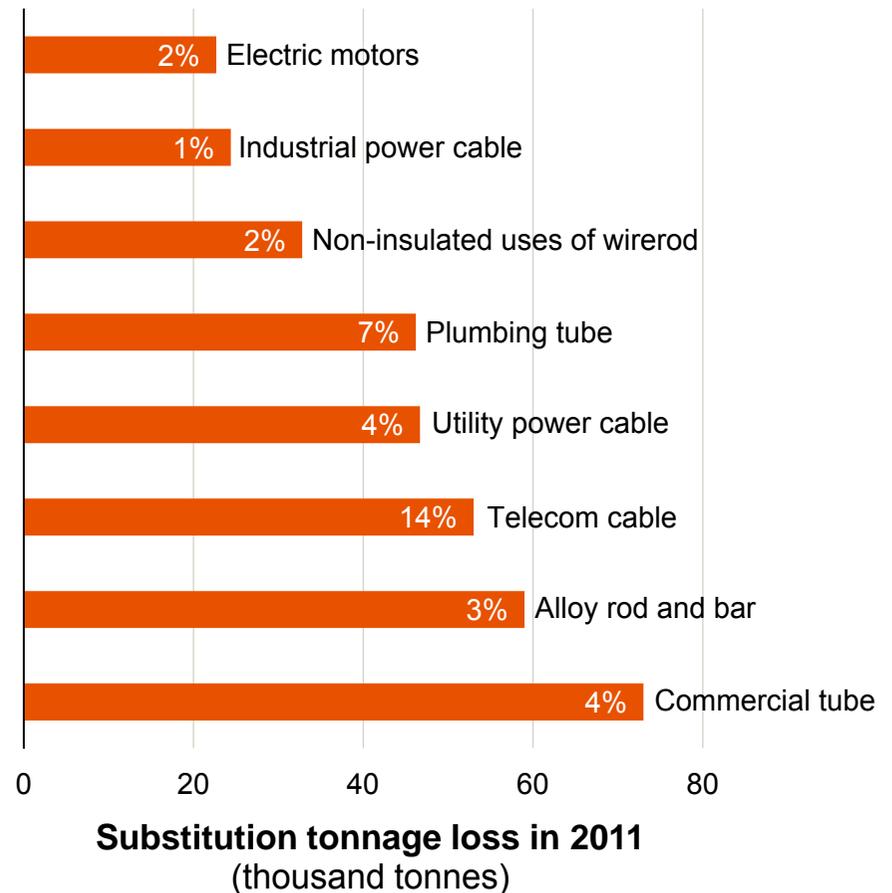
Source: Wood Mackenzie; CRU.

# Copper: a material of choice and substitution risk is lower in key market sectors

- Overall substitution tonnage loss remains small at approximately 2% of the global market
- Limited impact in high volume sectors (wire, cable and electrical applications)
- Even at a price ratio of 4:1 between copper:aluminium, substitution has not significantly increased penetration
- Copper is the material of choice
  - it is energy efficient and carbon sensitive in a rising energy cost environment
- Detailed analysis shows that the copper industry is also evolving to defend market share

## Substitution losses by product

(% share of product market lost in 2011)

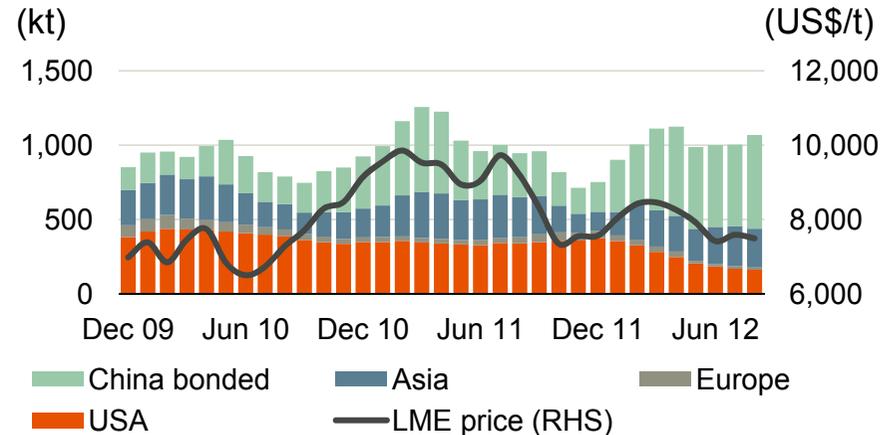


Source: ICA; CRU International.

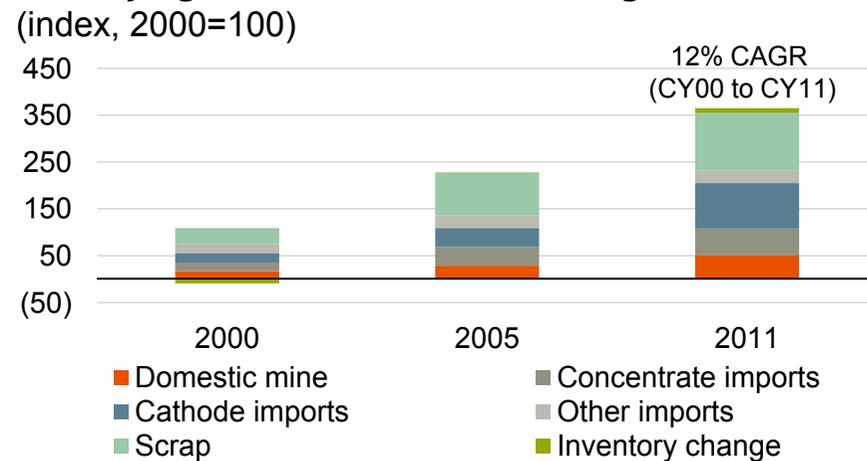
# Exchange stocks are low, Chinese bonded stocks fill the gap

- Exchange stocks are at historically low levels as a percentage of demand, representing less than two weeks of global consumption
- The historical relationship between exchange stocks and price has broken down
- Shanghai bonded stocks have become more prominent as
  - China’s proportion of global demand has increased
  - spot demand versus long term contract demand in other regions has decreased
- Stocking and de-stocking cycles both drive and respond to the SHFE/LME price arbitrage

**Copper exchange/bonded stocks versus price**



**Underlying Chinese demand is strong**



Source: LME; SHFE; Comex; NBS; China Customs.

# Short term cyclical stock changes are not indicative of long term demand trends

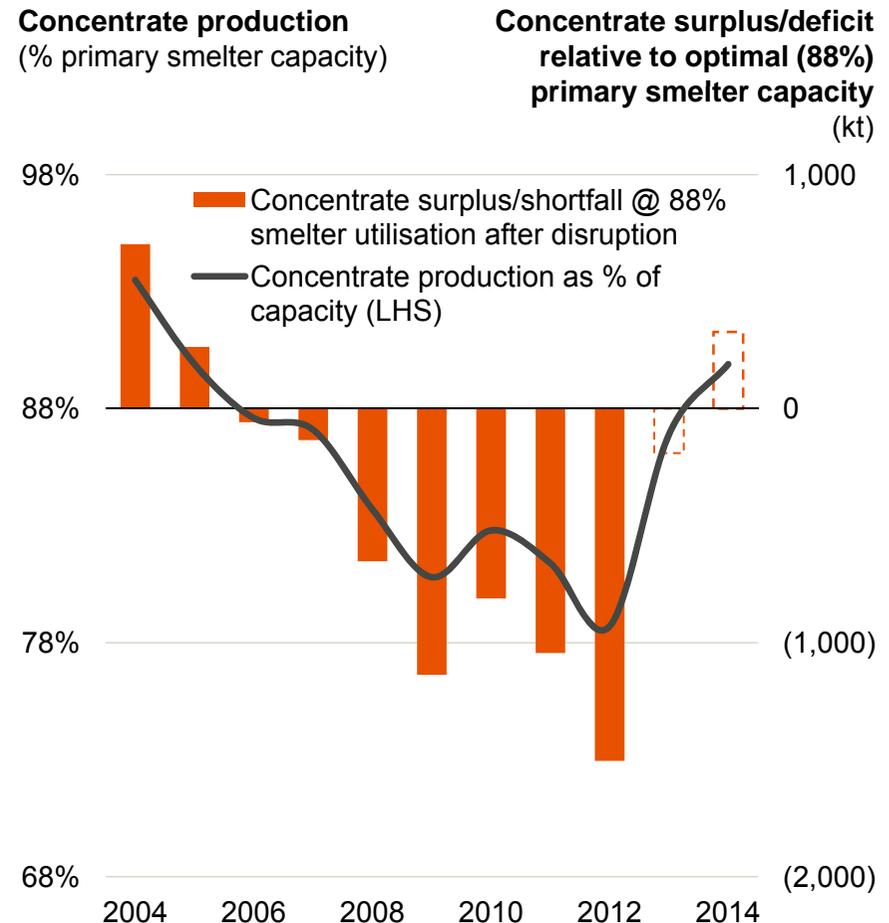
- Chinese refined metal purchasing patterns are volatile
- Refined supply from domestic production and imports tend to peak and trough on downstream demand expectations, often amplifying short term inventory flow
- China is the most active spot market globally, but long term contracts are now more prevalent
- Consumers, traders and producers have different drivers for activity
- The long term demand trend for copper units is very positive, but short term volatility will continue



Source: NBS; China Customs; BHP Billiton analysis.

# Concentrate availability is recovering but disruptions and delays will continue

- The global copper concentrate market is transitioning from a period of structural deficit towards a more balanced market
- TCRCs have more recently been driven by scarcity of concentrate
- Key sensitivity relates to potential for supply disruptions (average ~800 ktpa lost production over past five years)
- Forecast surplus continues to decline and be deferred as supply growth falls short of expectations
- China remains the location for lowest cost smelting but they continue to rely on approximately 3 mtpa of copper cathode
- Concentrate qualities are becoming more complex and premium concentrate such as Escondida will become increasingly valuable



Source: Wood Mackenzie, CRU

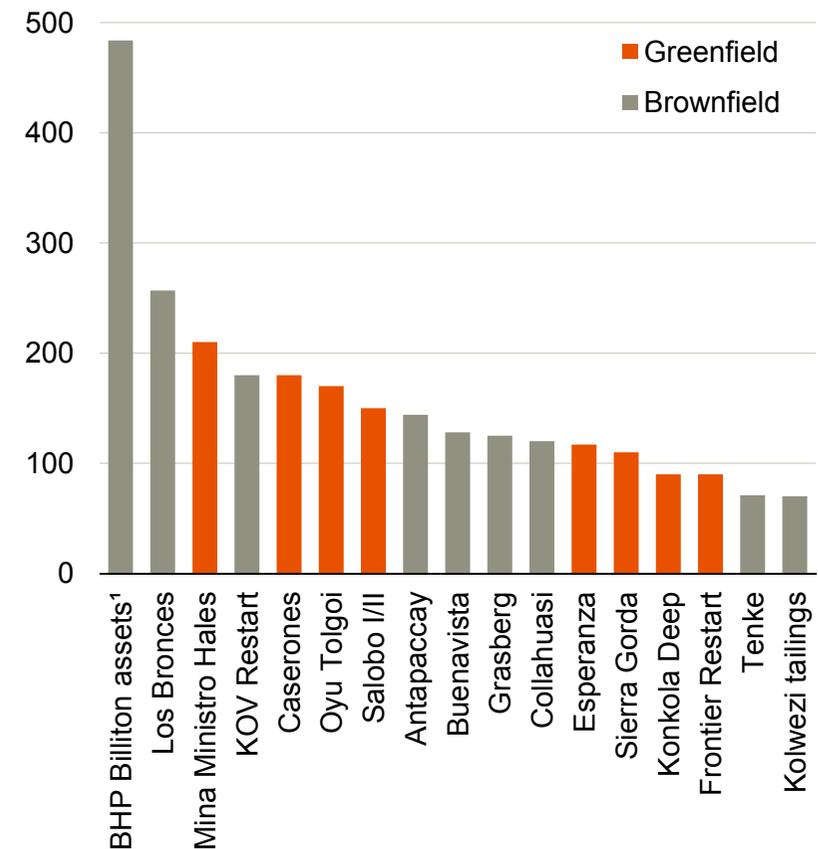
Note: The Wood Mackenzie methodology for deriving the outlook is the added or subtracted requirement for copper-in-concentrate over and above the base case plus highly probable plus an allocation from probable projects.

# Structural challenges remain in the longer term despite the short term potential for the market to rebalance

- In addition to the strong near term volume growth expected in our own portfolio, higher prices have incentivised a supply response from the industry
  - a number of new projects have or are scheduled to deliver new production in the short term
- This could lead to the curtailment of higher cost operations or an increase in exchange stocks

## A selection of growth projects

(average incremental production, ktpa)

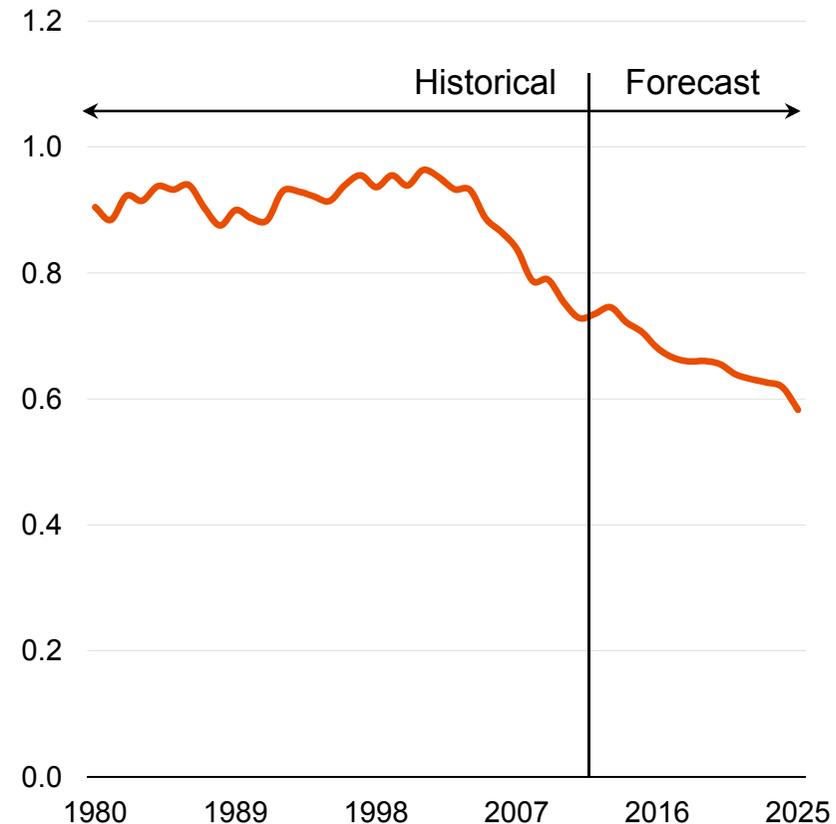


Source: Wood Mackenzie. BHP Billiton assets shown on 100% basis.  
1. BHP Billiton Base Metals Assets, 100% basis for Escondida and Antamina.

# Supply-side challenges: grade decline a major constraint

- Copper grades have declined at an average rate of 2.8% per annum over the last decade
- Lower grades have an impact on productivity, increasing costs as production decreases
- New discoveries have not been able to reverse the long term trend
- At the same time new technologies and improved processes have unlocked value in lower grade resources but at a higher cost

**Industry average head grade**  
(% copper in process feed)

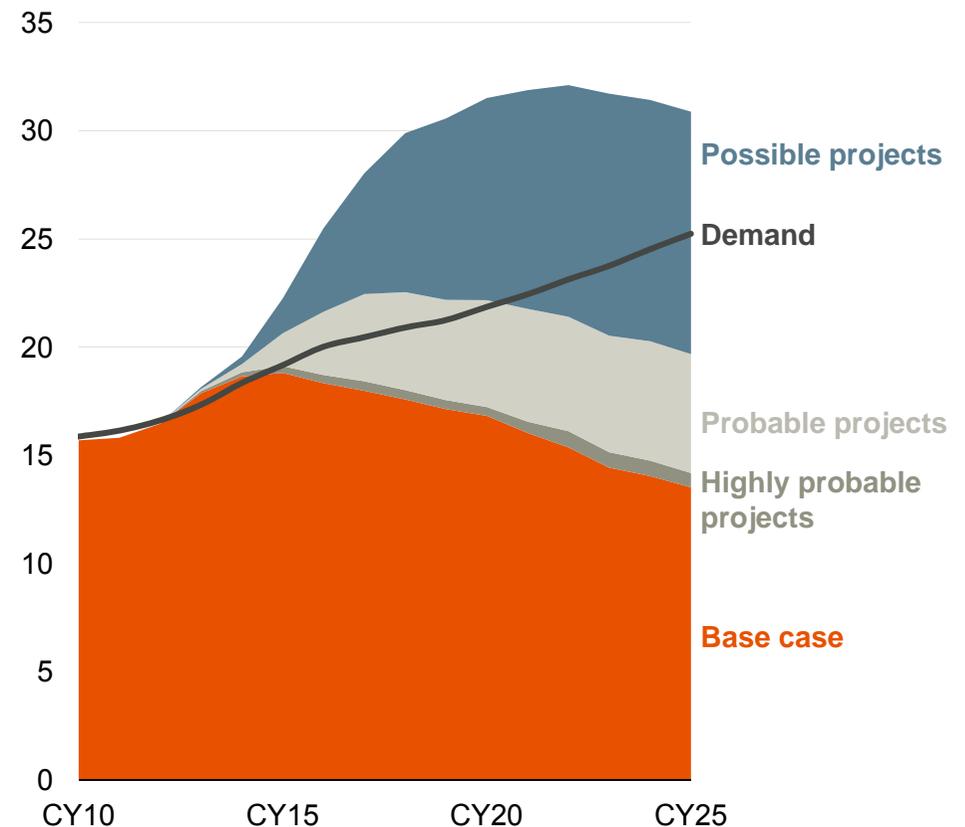


Source: Wood Mackenzie, Q2 2012 update.

# Resource depletion infers that significant inducement of new supply is required

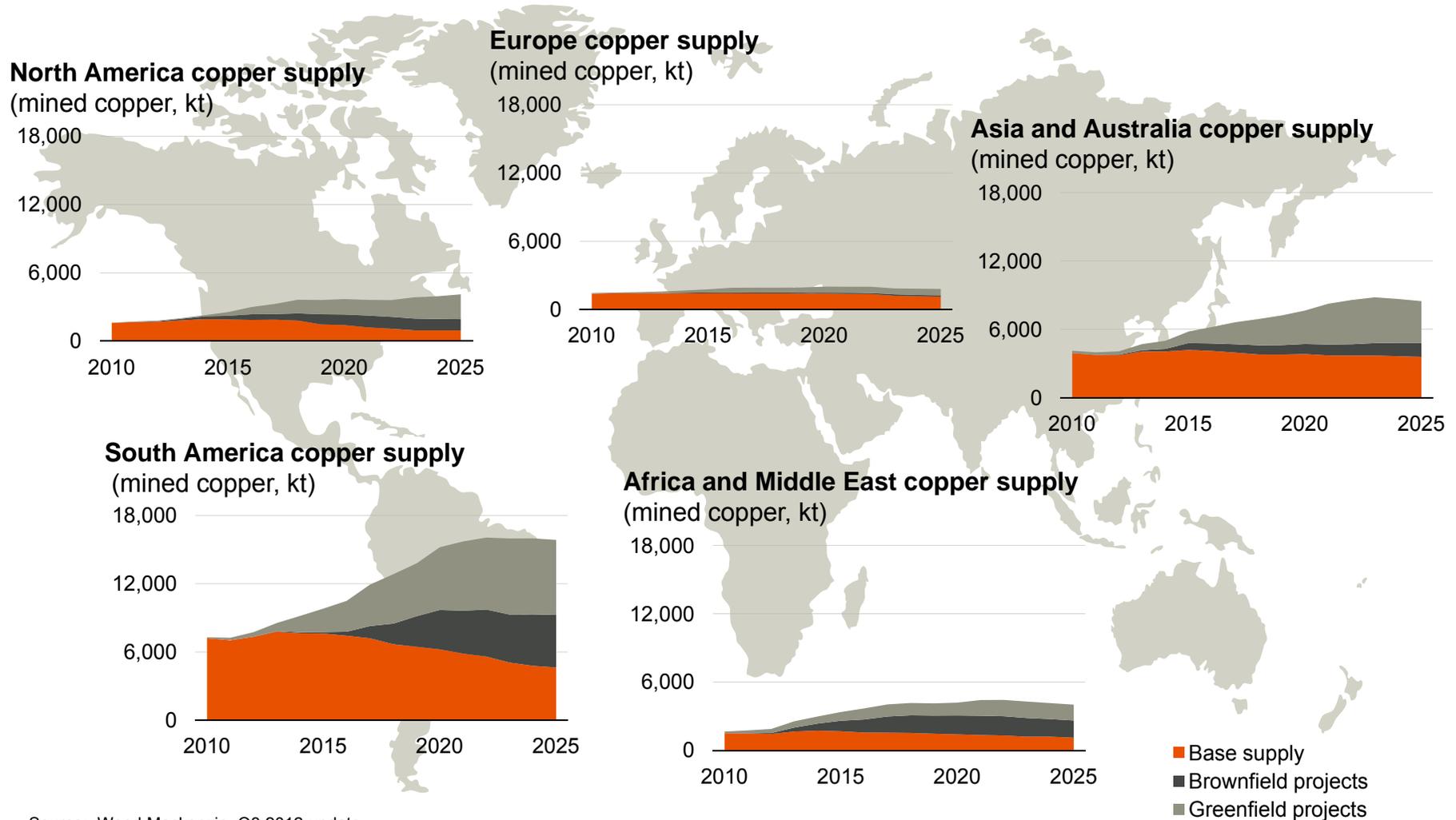
- Current production will continue to decline due to depletion of resources and lower ore grades
- Resource nationalisation, environmental regulations, capital and operating expenditure escalation, infrastructure constraints and taxation/royalty increases continue to challenge the supply response
- Substantial investment in brownfield and greenfield capacity will be required to cover the demand gap
- Therefore, on average, prices will need to remain high enough to induce new supply

**Copper mine production**  
(mt)



Source: Wood Mackenzie, Q2 2012 update.

# South America will provide the majority of additional supply, albeit with greenfield risk



Source: Wood Mackenzie, Q3 2012 update.

Escondida



## Chile update

**María Olivia Recart** VP External Affairs  
30 September 2012



**bhpbilliton**  
resourcing the future

# Key themes

- Copper is particularly important to the Chilean economy
- The operating environment must remain competitive to encourage investment in the industry
- Chile is facing three main challenges, for which we are relatively well positioned
  - higher power costs
  - limited availability of water and the substantial requirement for desalination
  - a broad labour shortage and underlying cost inflation

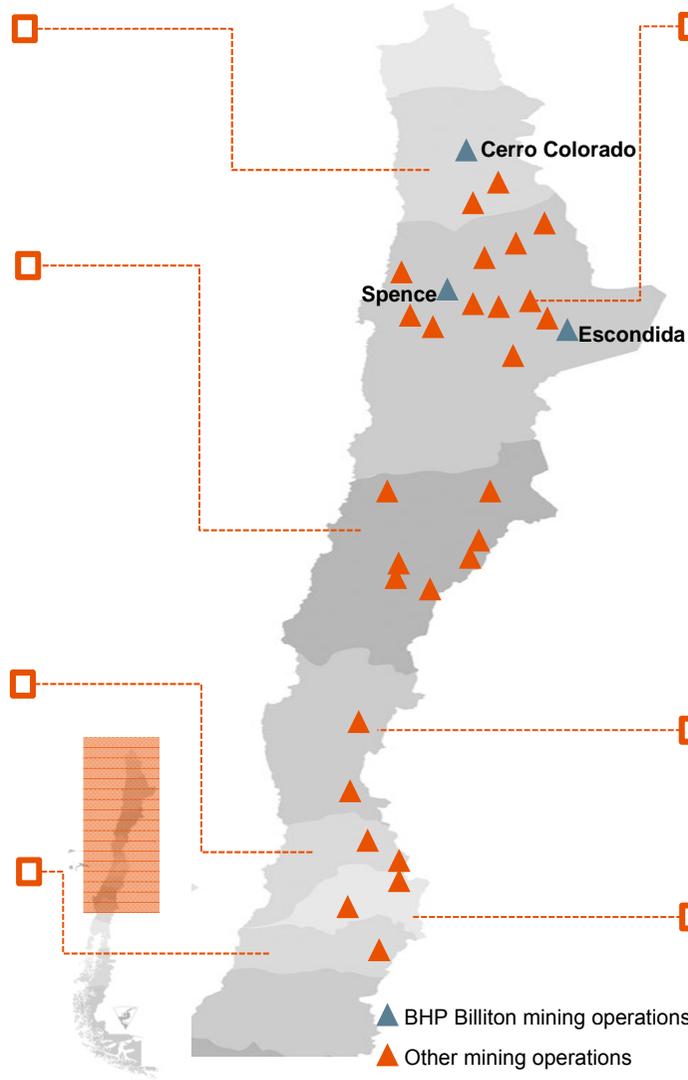
# Mining operations in Chile

Operation	Product
Cerro Colorado	Copper
Doña Inés de Collahuasi	Copper-Molybdenum
Quebrada Blanca	Copper

Operation	Product
Mantoverde	Copper
Salvador	Copper-Molybdenum
La Coipa	Gold-Silver
Maricunga	Gold
Ojos del Salado	Copper-Gold
Candelaria	Copper-Gold
Caserones	Copper-Molybdenum

Operation	Product
El Soldado	Copper
Andina	Copper-Molybdenum

Operation	Product
El Teniente	Copper-Molybdenum



Operation	Product
El Abra	Copper
Radomiro Tomic	Copper
Chuquicamata	Copper-Molybdenum
Michilla	Copper
Spence	Copper
El Tesoro	Copper
Esperanza	Copper-Gold
Gaby	Copper
Mantos Blancos	Copper
Lomas Bayas	Copper
Zaldívar	Copper
Escondida	Copper
El Peñón	Gold-Silver

Operation	Product
Carmen de Andacollo	Copper
Los Pelambres	Copper-Molybdenum

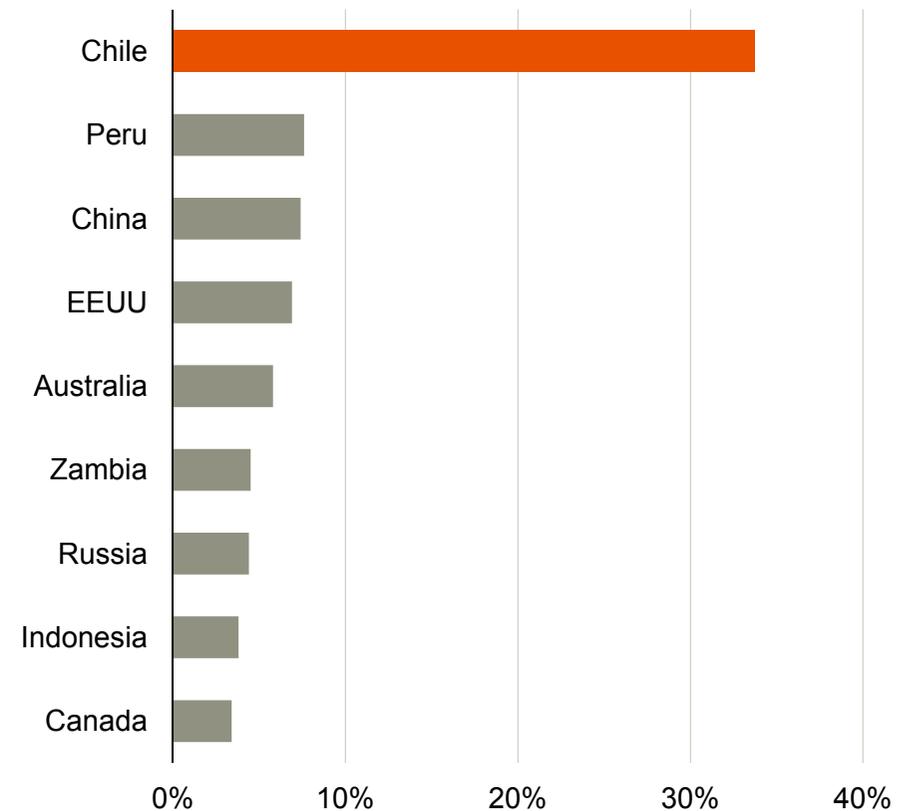
Operation	Product
Los Bronces	Copper-Molybdenum
Florida	Gold-Silver

Source: Mining Council.

# Chile: the global leader in copper production

- In the past two decades, Chile has consolidated its position as the world leader in copper production
- Global market share has grown from 17% in 1990 to 34% in 2011, making Chile the largest copper producer in the world by a significant margin
- Chile also accounts for the largest share of known world copper reserves (27.5%)

**Global copper production (2011)**

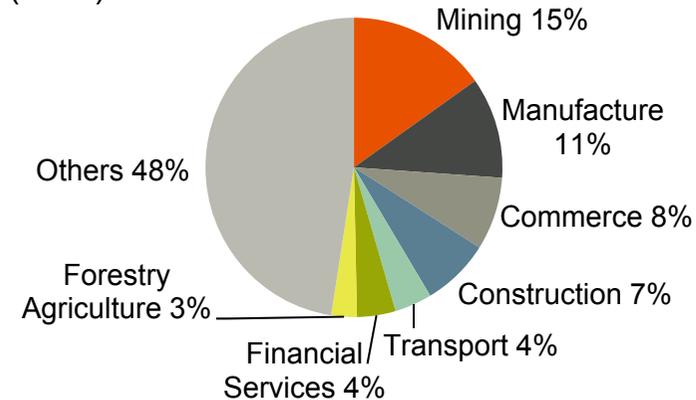


Source: USGS.

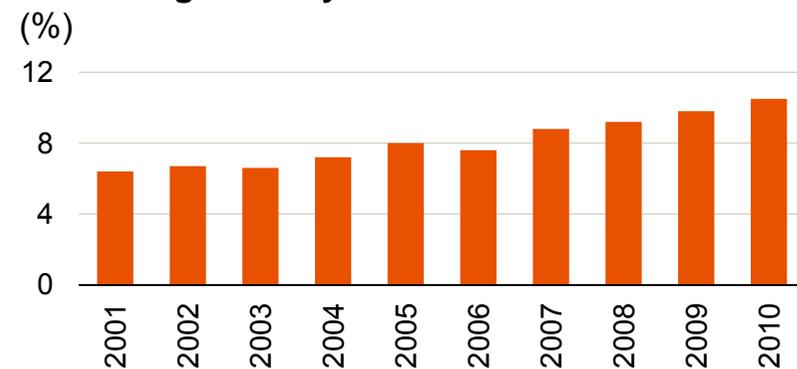
# Mining is critical to the Chilean economy

- Mining is the most significant wealth generator for the Chilean economy
  - 15% of the country's GDP in 2011
  - 50% of exports in 2011
  - 25% of tax revenues in 2011<sup>1</sup>
- Mining represents a stable source of quality employment given long mine lives and significant investment lead times
- In 2010, the industry generated 11% of total employment (707,000 jobs), including direct and indirect activities
- GDP growth in mining regions was double the rate of the other regions in the country

**Contribution to GDP (2011)**



**Percentage of total employment generated by the mining industry**



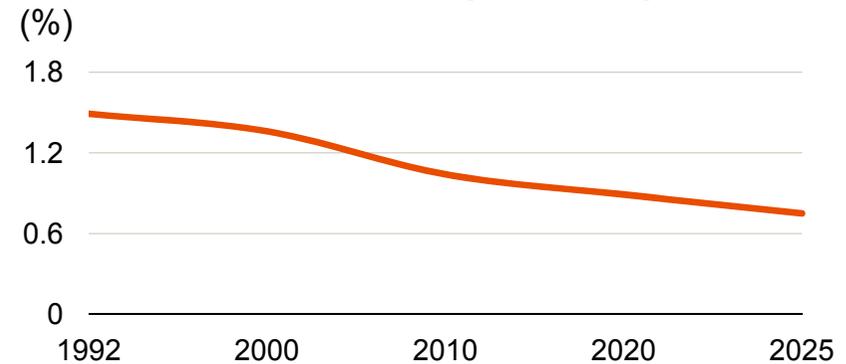
1. Includes Codelco (state owned), private mining and mining royalty.

Source: Sernageomin; INE, COCHILCO.

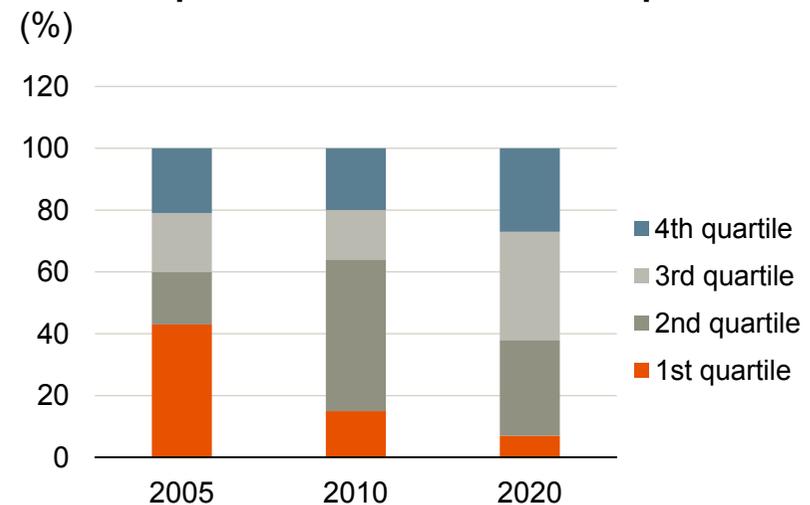
# Competitiveness is under threat for the next generation of projects

- The average copper grade of Chilean operations has experienced a steady decline
- Chile has had a strong competitive position with more than 40% of its assets in the 1st quartile, however by 2020 that figure is forecast to decline to less than 10%
- The decline in competitiveness could threaten investment
- Key enablers are required to enhance the country's cost competitiveness with regards to power, water and labour

**Chilean operations – average copper grade**



**Chilean operations – cash cost curve positioning**



Source: Wood Mackenzie, Brook Hunt, Mining Council.

# The mining industry is facing three main challenges

## Higher power costs

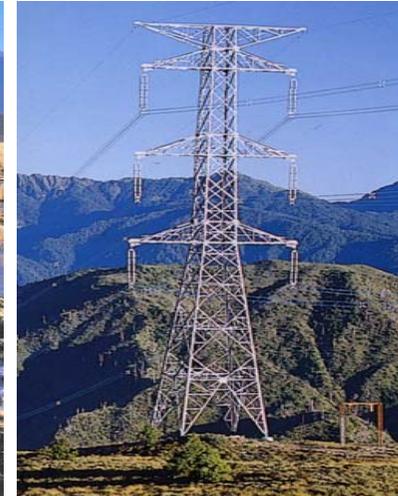
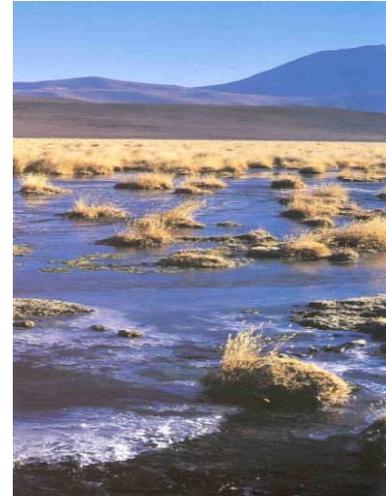
- A lack of natural gas availability leads to a dependence on diesel for electricity generation

## Limited availability of water

- A lack of water resources in northern Chile puts pressure on consumption and the availability of water at a reasonable cost

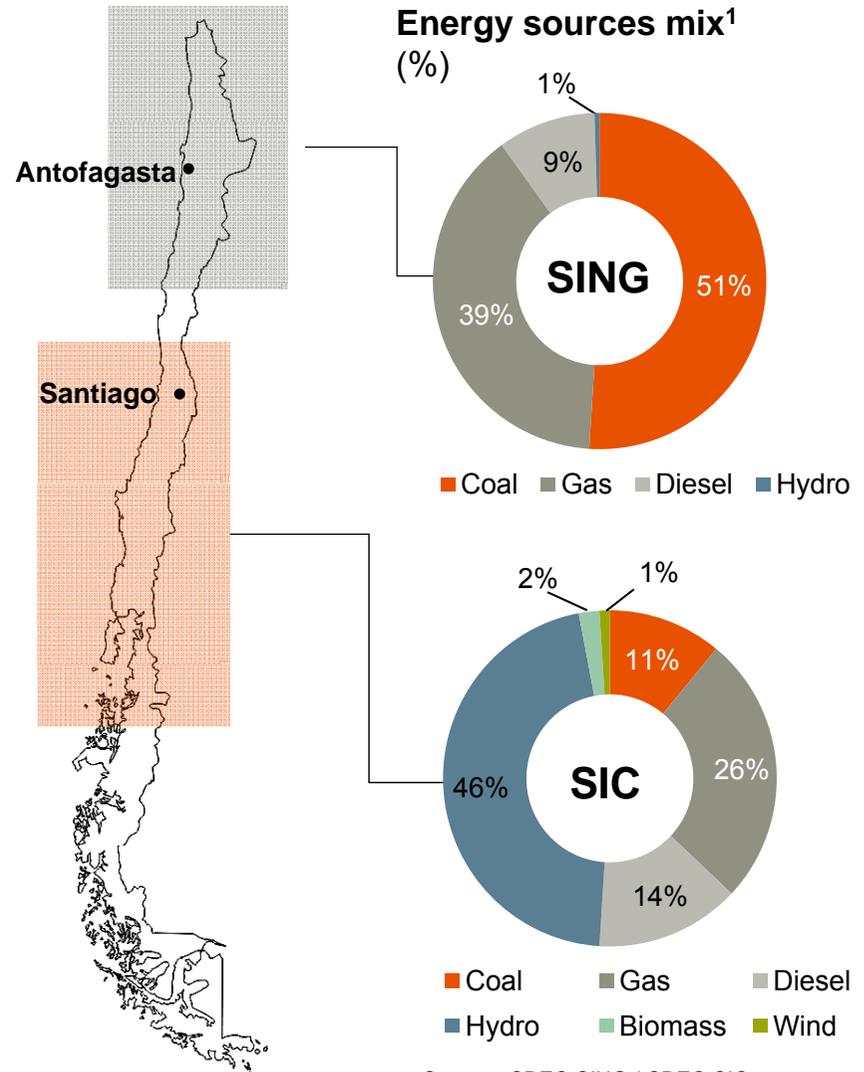
## Labour inflation

- Competition for skilled labour has led to a sustained increase in wages



# Power network in Chile

- Most of the installed capacity in the country is based on coal with limited gas generation and a portion of high cost diesel to meet demand
- Two main grids exist in Chile:
  - Northern (SING) and Central (SIC)
  - 90% of the power in the SING is used for industrial (primarily mining) purposes
  - principal customers of the SIC are residential populations of the larger cities
- Installed capacity:
  - SING: 4,579MW
  - SIC: 13,316MW
- All BHP Billiton operations are part of the SING



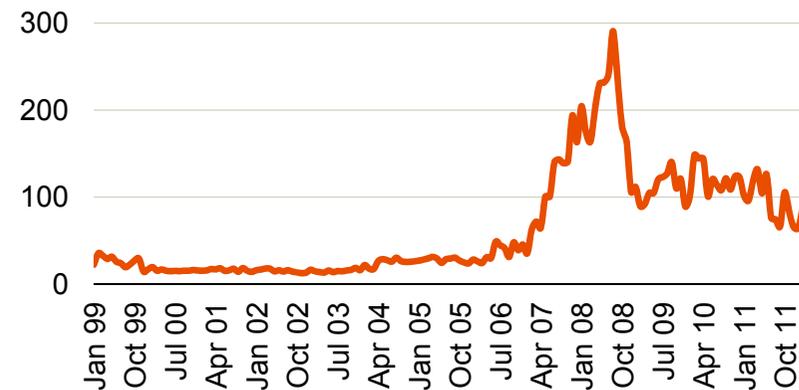
Source: CDEC-SING / CDEC-SIC.

1. Represents energy capacity.

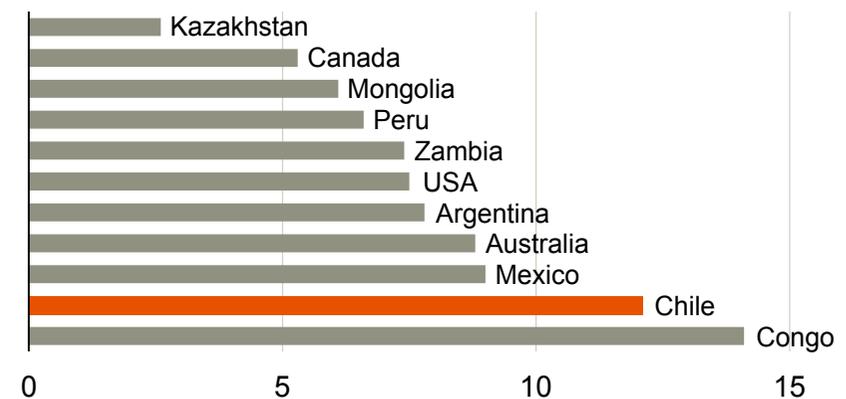
# Evolution of power costs in the north

- Current market conditions and the dependence on burning imported fossil fuels has made Chile one of the most expensive countries in the world in terms of the cost of power
- Cost pressure is most likely to continue into the near future
- There is potential for some replacement of diesel generation with gas turbines
  - the introduction of gas turbines could lower the marginal cost of power but is not expected to change the current cost structure in a material way

**Historical marginal cost in SING**  
(US\$/MWh)



**Cost estimation, 2020**  
(c/KWh)

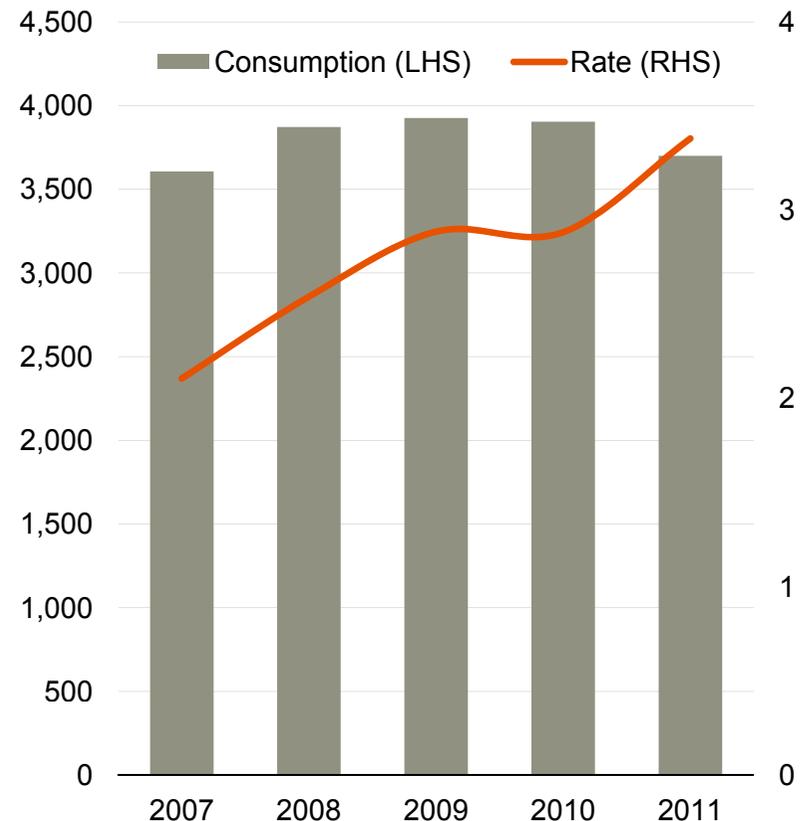


Source: Brook-Hunt; International Energy Agency.

# Securing our power needs for the medium term

- Our power requirements are fully secured through contracts with generators from the SING system for the next four years
- Over the last 12 months, we have been negotiating power contracts to cover our demand beyond 2016
- We are currently negotiating power supply based on the third party development of a 500MW gas-fired (combined cycle) power plant at Mejillones – The Kelar Project
- Energy beyond 2016 will most likely come from a combination of coal, gas and renewable sources

**BHP Billiton Chile – power consumption**  
(GWh/year) (MWh/tonne copper)



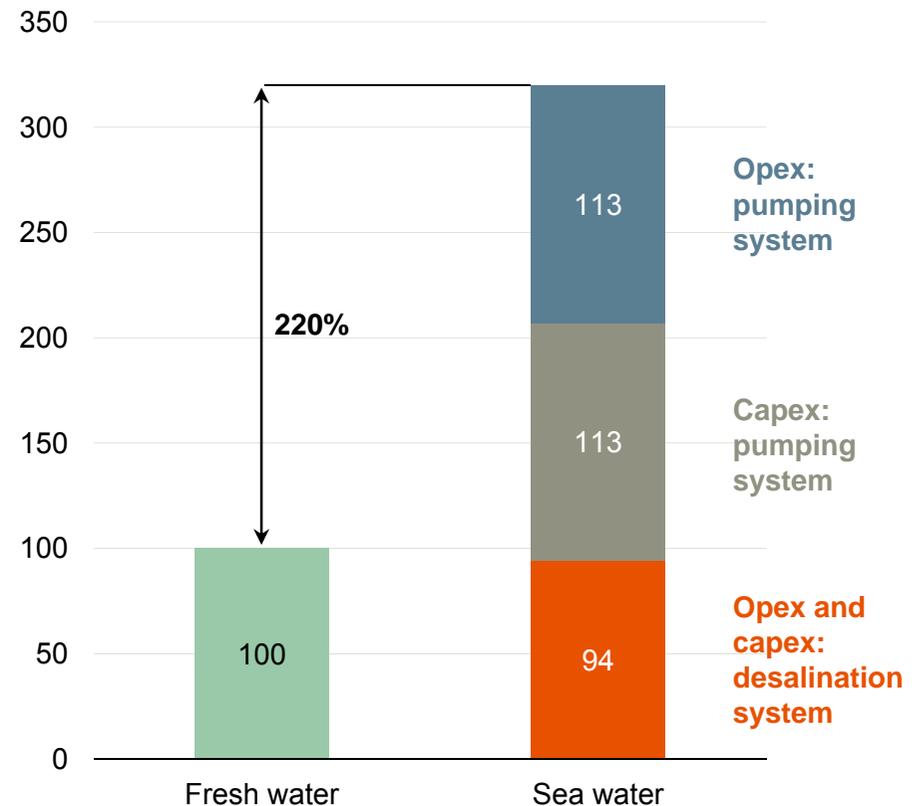
Source: Sustainability Reports – BHP Billiton Chile.

# The water challenge

- Surface and groundwater are scarce in Northern Chile
- The depletion of the aquifers together with the increase in demand from the communities requires new sources of water (most likely desalination)
- This strategy will result in a significant increase in the cost of water supply, estimated at +220%
- The main operating cost is the power to operate the pumping systems, therefore costs are dependent on the altitude and location of the operation

## Desalinated sea versus aquifer sourced fresh water – average cost of the industry<sup>1</sup>

(%)

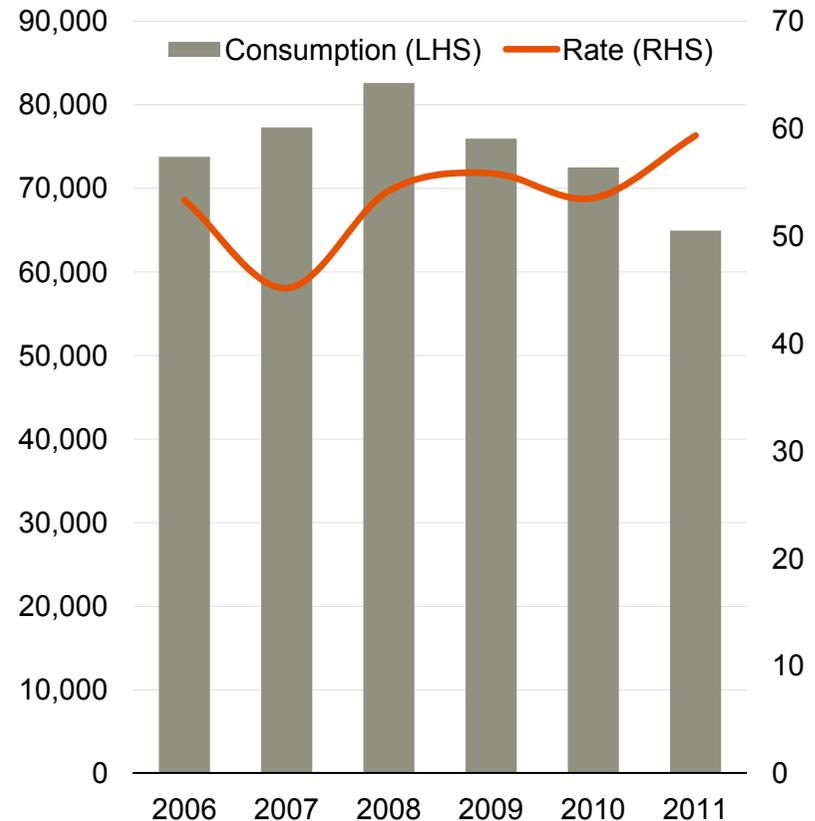


Source: Brook Hunt; CRU, Mining Council.  
1. Baseline: Actual fresh water cost = 100%.

# Sourcing our future water supply requirements

- The majority of our water supply currently comes from well fields
- Coloso supplies a maximum of 20% of Escondida water requirements
  - Escondida installed a 500 l/s desalination plant in the Port of Coloso in 2006
- Our water strategy considers desalinated water as the main source of future supply
  - currently studying the expansion of the Coloso desalination plant to meet Escondida's future water demands

**BHP Billiton Chile – water consumption**  
(thousands of m<sup>3</sup>) (m<sup>3</sup>/tonne copper)

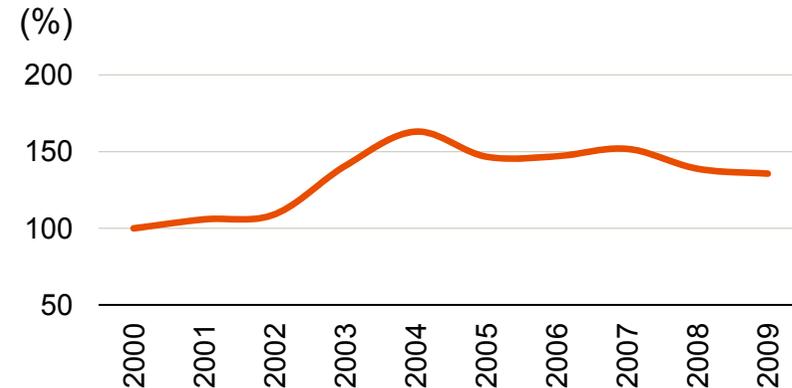


Source: Sustainability Reports – BHP Billiton Chile.

# Addressing labour challenges in the mining industry

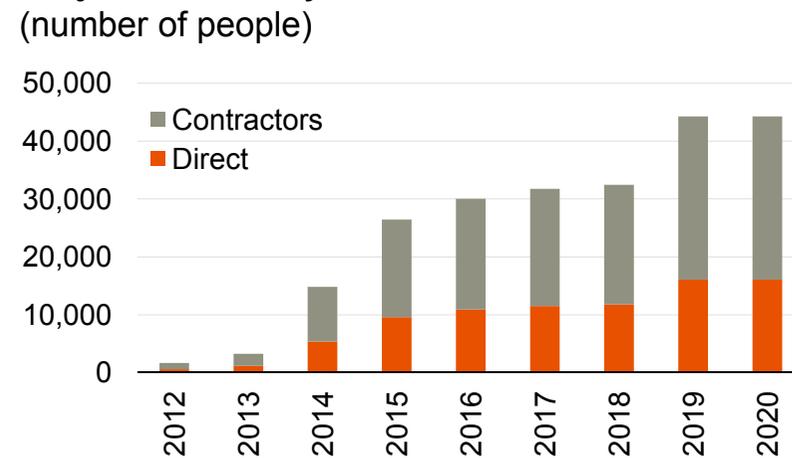
- Demand for skilled labour has increased significantly
- Labour costs have increased over 80% in the last 10 years
- The rapid addition of unskilled labour to the workforce has resulted in a reduction in productivity levels
- Mining companies and contractors will require up to 45,000 additional employees (an increase of 64%) from 2012 to 2020
- The largest gaps are in skilled operators and maintainers
- Escondida has founded a mining training center and is now training an average of approximately 15,000 skilled miners per year

## Labour productivity<sup>1</sup>



1. At constant grade and strip ratio.

## Projected industry labour demand in Chile



Source: COCHILCO; Fundacion Chile; Brook Hunt.

# Key themes

- Copper is particularly important to the Chilean economy
- The operating environment must remain competitive to encourage investment in the industry
- Chile is facing three main challenges, for which we are relatively well positioned
  - higher power costs
  - limited availability of water and the substantial requirement for desalination
  - a broad labour shortage and underlying cost inflation



## Santiago project hub

**Carlos Mesquita** Vice President Major Projects  
30 September 2012

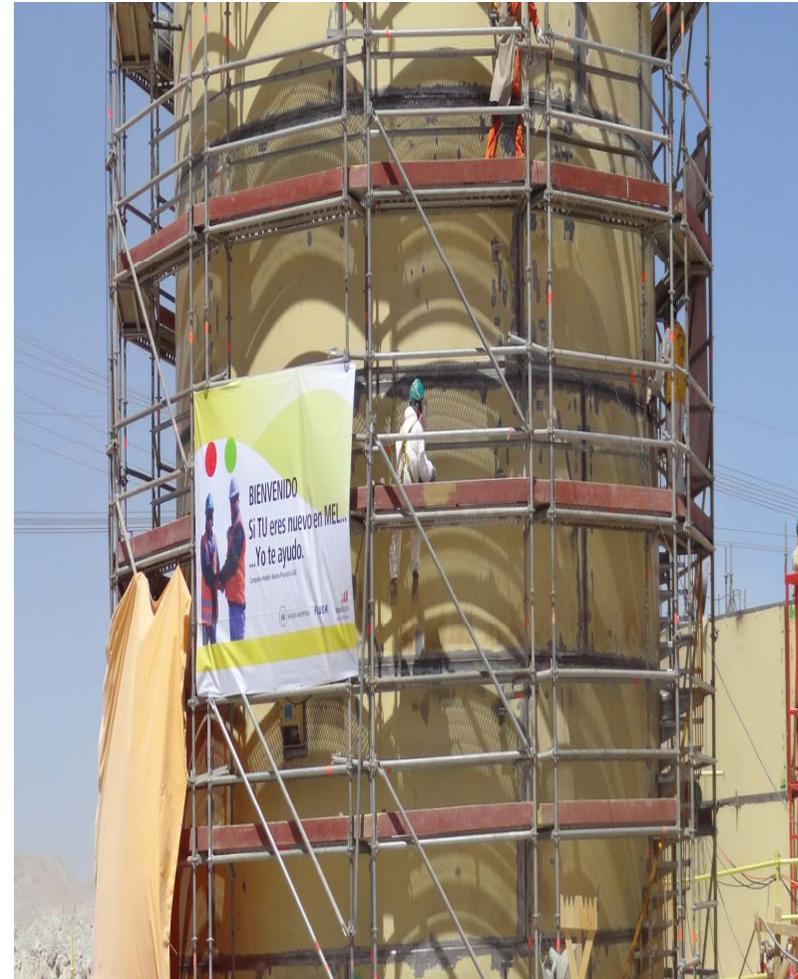


# Key themes

- The Santiago project hub drives the Base Metals organic growth pipeline
- The hub was established to ensure excellence in project delivery
- We have delivered
  - strong safety performance
  - outstanding front-end loading performance
  - our projects on time and on schedule
- Industry wide challenges are being addressed by standardisation, replication and a solid productivity improvement program

# Why a hub in Base Metals?

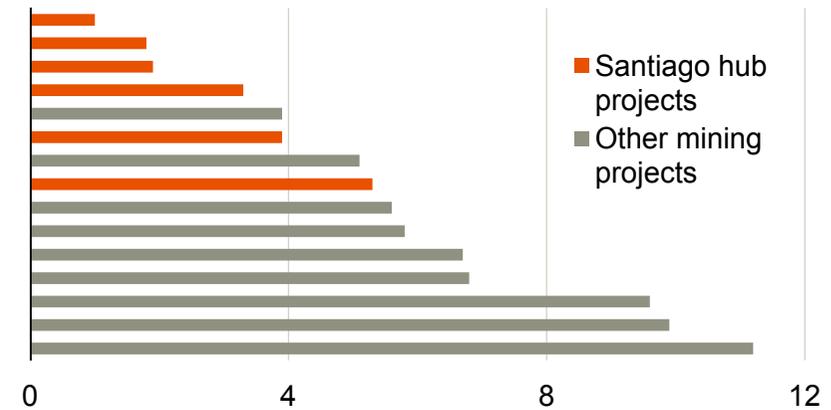
- The hub is a strategic solution which underpins the delivery of the Base Metals growth pipeline
- It focuses on replication and standardisation to improve productivity and capital efficiency
- Continuity of people and processes enables
  - continuous development of best practices and processes
  - development of specialist project teams
  - sourcing and leveraging people skills across the suite of projects
  - reduction in costs



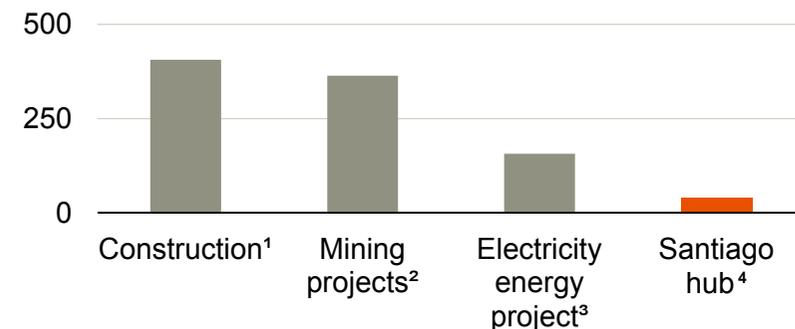
# Industry leading safety performance

- Hub projects TRIF superior relative to other mining projects in the world
- Hub projects LTI better relative to other sectors in Chile
- Leading the implementation of Material Safety Risk Management for projects in BHP Billiton
- Robust reporting culture focused on potential incidents and leading indicators
- Safety culture and best practices from previous hub projects transferred to new projects in execution

**Total Recordable Injury Frequency as at FY12**  
(number of recordable injuries per million hours worked)



**Lost time injury (LTI) severity rate**  
(days/million man hours)



1. Construction data from Camara Chilena de la Construcción 2012.

2. Nine mining projects in Chile between 2009 – 2010 [Los Bronces, Chuquicamata, Teniente (3), Andina (2), Esperanza, Pelambres].

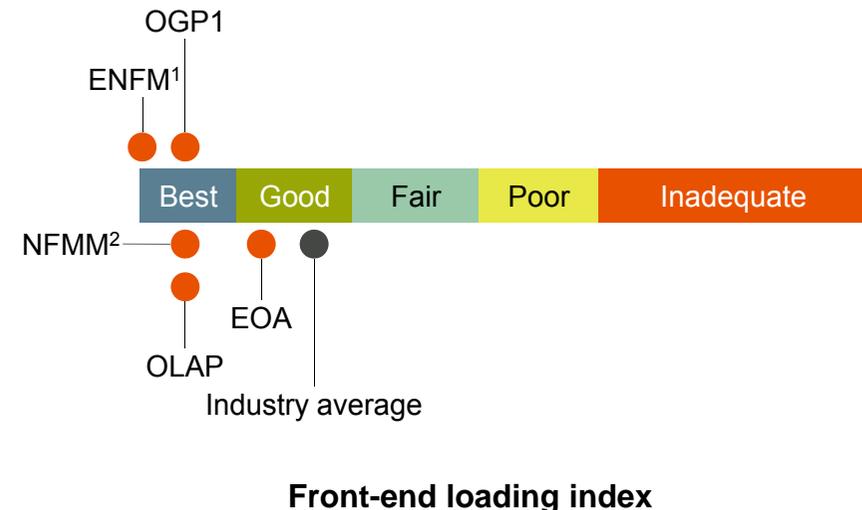
3. Project executed between 2009 – 2010 [Tingiririca Energía – Pacific Hydro].

4. Six projects in execution 2011 - 2012 [EOA, CCP, EBPE III, LSD, OLAP, OGP1].

# Outstanding front-end loading performance independently verified

- Front-end loading represents the detailed definition of a capital project to meet business objectives, prior to project execution
- High correlation with quality front-end loading and project success
- To ensure success, the focus of front-end loading includes
  - building a knowledge database: manpower quality and availability, productivity, ore characterisation and HSEC standards
  - design and engineering: strong emphasis on standardisation and replication, operations buy-in and alignment with project team
  - detailed project execution plan: activities and accountabilities clearly defined
- Project hub front-end loading performance is superior compared to industry benchmarks

Front-end loading is more important for minerals mega-projects



Source: IPA.

1. Escondida Norte Facilities Management project.

2. New Facilities Mine Maintenance project.

# Excellence in delivery: Escondida Ore Access

- Project scope
  - relocation of the in-pit crushing and conveyor infrastructure
  - provides access to high grade ore (over 1% copper head grade)
- Key milestones
  - project completed one month ahead of plan and on budget
  - estimated investment amount US\$554 million (100% terms)
    - › facilities US\$518 million
    - › mine equipment US\$36 million
- Hub benefits
  - experienced workforce from previous projects
  - workforce retention and career planning
  - infrastructure optimisation due to synergies with other hub projects

Crusher relocation



# Excellence in delivery: Laguna Seca Debottlenecking

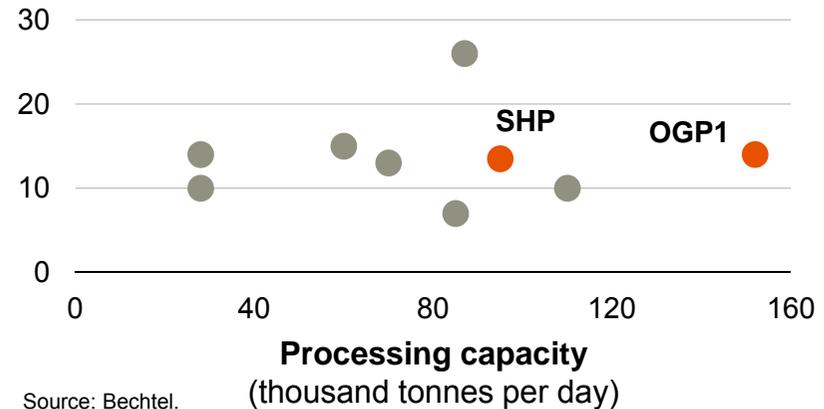
- Project scope
  - installation of an additional ball mill, regrind mill and pebble crusher at the existing Laguna Seca concentrator
  - increases throughput by 15 ktpd and improves overall recoveries
- Key milestones
  - completed at the end of September 2012
  - on budget and on schedule
  - estimated investment amount US\$300 million (100% terms)
- Hub benefits
  - excellent safety performance: more than three million man hours with no permanent injuries
  - experienced EPCM workforce
  - workforce transitioned to the execution of early works for the next project (OGP1)



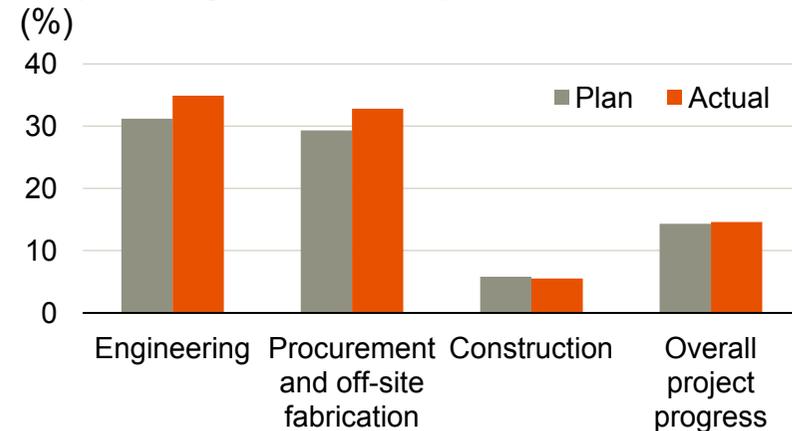
# Setting the standard for our concentrators: OGP1

- Project scope
  - construction of a new concentrator with 152 ktpd processing capacity
  - located adjacent to the existing Laguna Seca concentrator
  - high return project with attractive capital intensity compared with competing projects despite substantial industry wide inflation
  
- Key milestones
  - estimated investment amount US\$3.8 billion (100% terms)
  - commissioning scheduled for CY15
  
- Hub benefits
  - OGP1 will be the standard design for Base Metals' concentrators
  - experienced workforce from previous successful projects
  - maximisation of cross-project synergies

**Concentrator facilities – capital intensity<sup>1</sup>**  
(US\$000/tonne per day)



**Project progress summary**



1. Considering only Bechtel projects. The capital intensity calculation is based on costs related to the basic concentrator process facilities only and excludes costs related to infrastructure such as reclaim conveying systems, tailings, administration buildings and warehouses.

# Standard design and attractive capital intensity: Oxide Leach Area Project

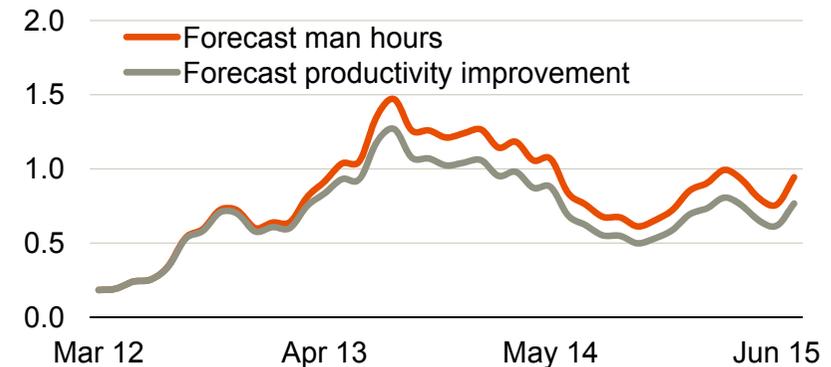
- Project scope
  - construction of a new dynamic leach pad of 1.2 million m<sup>2</sup>
  - located close to the existing EW facilities
  - high return on investment with attractive capital intensity
- Key milestones
  - estimated investment amount US\$721 million (100%)
  - leached ore dump mechanical completion estimated H1 CY14
- Hub benefits
  - standard design based on current operating leaching parameters and proven technology
  - implementing proven dynamic leach pad technology currently in operation at Spence
  - workforce retention from previous successful projects



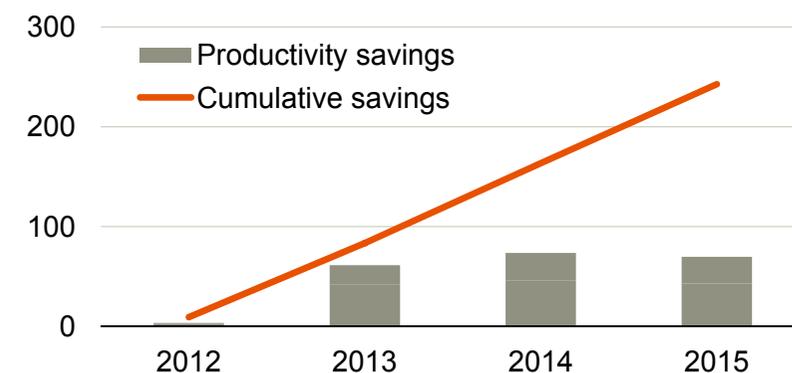
# Solid productivity improvement program to deliver cost savings

- The current Chilean labour market reflects a shortage of skilled and experienced workers
- Productivity indices in Chile are lower when compared to other countries
- Key initiatives in place in order to improve manpower productivity
  - independent and external benchmark assessments
  - incentive bonuses linked to performance
  - non-workable and workable time optimisation
  - standard accreditation and certification processes
- Net productivity improvement during the period 2013 to 2015 is expected to be up to 20%

**Projected direct hour reduction**  
(millions of hours)



**Projected annual cost savings (100% terms)**  
(US\$ million)



# Key themes

- The Santiago project hub drives the Base Metals organic growth pipeline
- The hub was established to ensure excellence in project delivery
- We have delivered
  - strong safety performance
  - outstanding front-end loading performance
  - our projects on time and on schedule
- Industry wide challenges are being addressed by standardisation, replication and a solid productivity improvement program



# Examining the broader portfolio

**Peter Beaven** President Base Metals  
30 September 2012





# Cerro Colorado

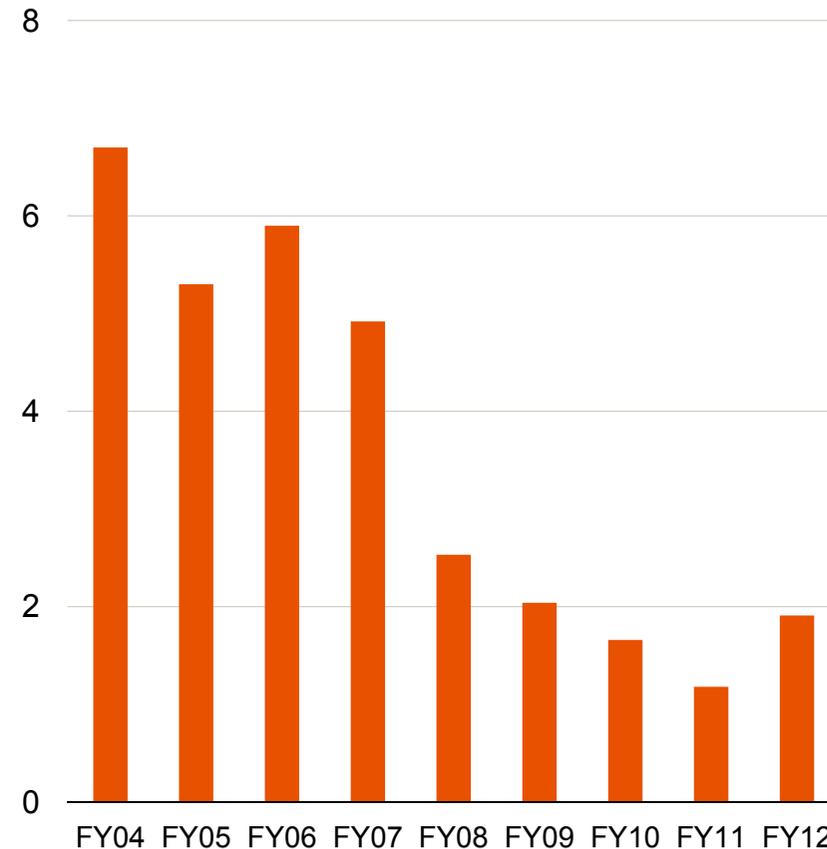
BHP Billiton 100%



# Leading safety performance

- Number of recordable incidents amongst the lowest in the industry
- Focus on Material Safety Risk and Critical Controls
  - to ensure that performance standards for critical controls are designed and operating effectively
- Leading indicators (e.g. Significant Incidents Reporting) used to monitor exposure management and control of risks in the field
- Promoting a culture of reporting potential incidents and hazards exposure

**Total Recordable Injury Frequency (TRIF)**  
(number of recordable injuries per million hours worked)



# Cerro Colorado: operations overview

## Mine

- Material moved – 257 ktpd
- 41 mine trucks
- 2 shovels
- 9 front-end loaders

## Processing

- Throughput increased from 52 ktpd to 55 ktpd in CY11
- Dry area
  - 2 primary crushers
  - 2 secondary crushers
  - 5 tertiary crushers
- Agglomeration
  - 7 agglomeration drums
- Stacking and ripios reclaim
  - 42 mobile conveyor belts (stacking)
  - Ripios reclaim with trucks
- SX/EW – 130 ktpa cathode capacity<sup>1</sup>

## Transportation

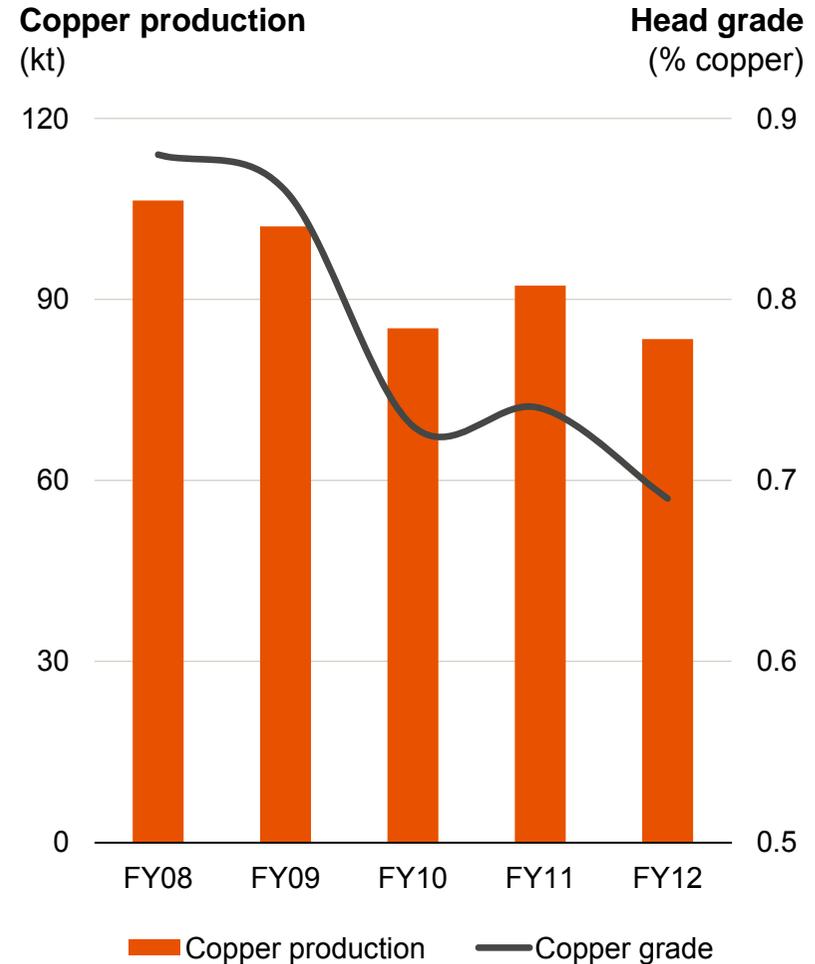
- Cathodes are transported by truck to the port of Iquique



1. Cerro Colorado capacity is 92 ktpa based on forecast average annualised production.

# Production affected by grade decline

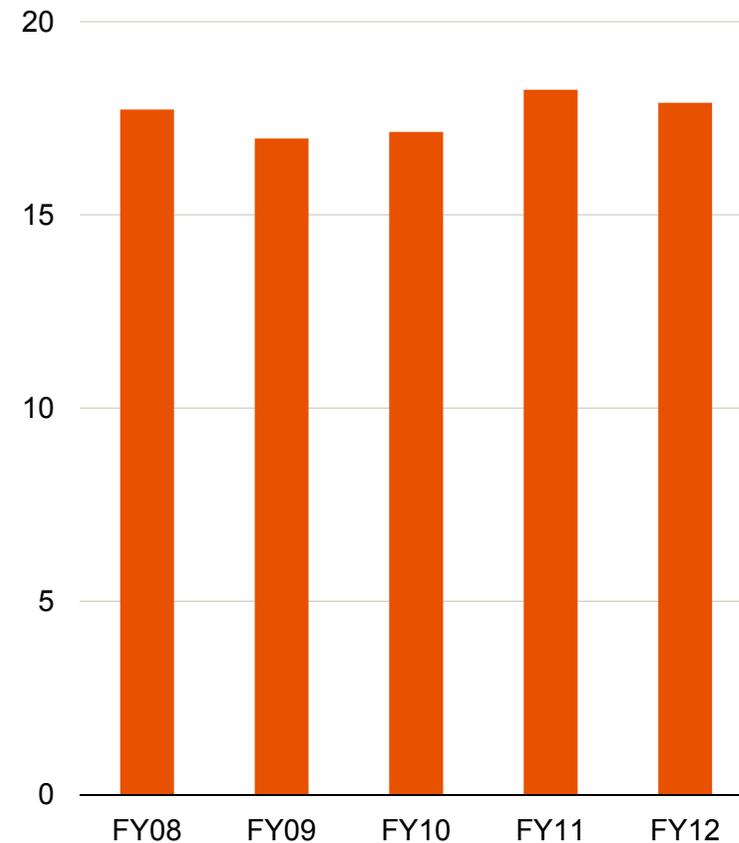
- Contributed 19% of Base Metals copper cathode production in FY12
  - volumes were affected by grade decline and an unusually wet Andean winter
- Debottlenecking project recently completed
  - mitigates grade decline
- Copper production is expected to increase marginally in FY13



# Cerro Colorado has added valuable processing capacity

- Cerro Colorado debottlenecking project delivered an increase in plant processing capacity from 52 ktpd to 55 ktpd
  - investment of US\$16 million
  - completed in the December 2011 quarter
- Project consisted of an increase in conveyor belt capacity (speed) and a new stacker and tripper

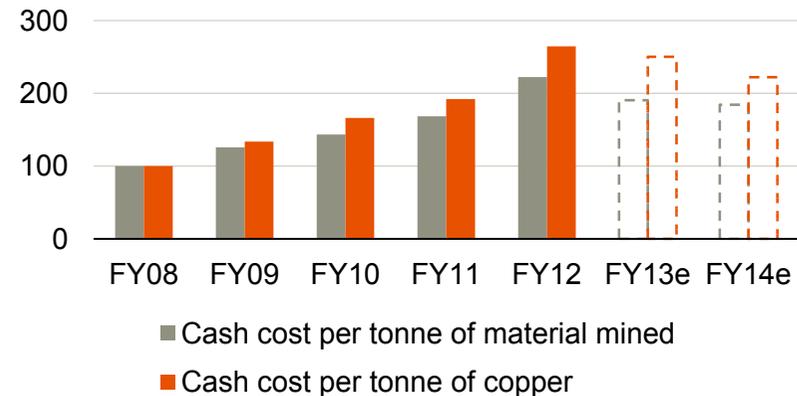
Throughput  
(mt)



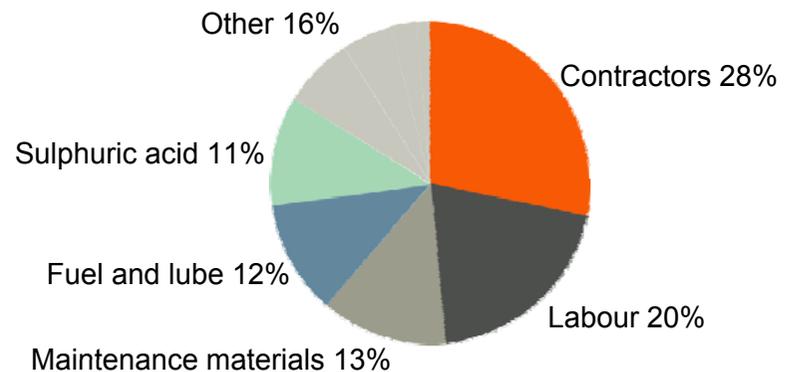
# Cerro Colorado unit cost breakdown

- Unit cash costs increased in FY12
  - lower grade and recovery
  - adverse weather impacts
  - higher prices for labour, power, fuel, acid and explosives
- FY13 unit cash costs forecast to decrease
  - increase in plant processing capacity after debottlenecking project implementation
  - increased operating efficiencies and a reduction in non-essential expenditure
- However, challenges remain
  - grade decline
  - continued tight labour market in Chile
  - high power costs

**Grade has a significant influence on unit costs**  
(index, FY08=100)



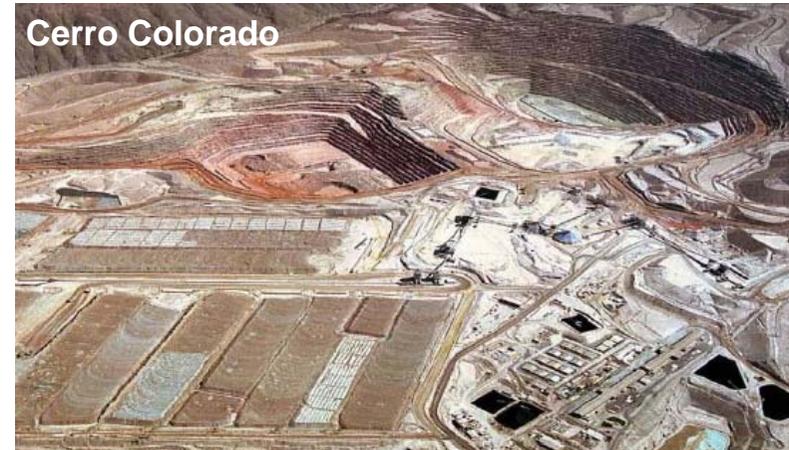
**Cost breakdown**  
(FY12)



# Longer term development options

## Cerro Colorado

- Porphyry copper deposit – oxide and sulphide supergene mineralisation
- Enriched and oxidised porphyry copper deposit that presents dominantly in situ copper oxide
- Successful brownfield exploration resulted in a 17%<sup>1</sup> increase in the leachable mineral resource to 495 mt @ 0.63% copper<sup>2</sup>
- Hypogene mineralisation at Cerro Colorado is in the early stages of characterisation
  - potential for exploitation through either leaching or concentration



1. Increase in mineral resource from 30 June 2011 to 30 June 2012.

2. BHP Billiton 2012 Annual Report. Refer to disclaimer slide 3 as presented on 30 September 2012.

3. Plan view of Hypogene sulphides underlying the declared supergene mineral resources. This material is included in the Potential Mineralisation stated on slide 4.



## Antamina Joint Venture

BHP Billiton 33.75%



# Antamina is operated as a joint venture company

- Peruvian company incorporated in 1996
- Shareholders
  - BHP Billiton 33.75%
  - Xstrata 33.75%
  - Teck Resources 22.50%
  - Mitsubishi Corporation 10.00%
- Operated as a joint venture company with a shareholder advisory board
- Located in the Peruvian Andes at 4,200 m to 4,700 m above sea level
- 270 km north east of Lima in the Ancash region
- 302 km concentrate pipeline to Port Punta Lobitos, located 300 km north of Lima

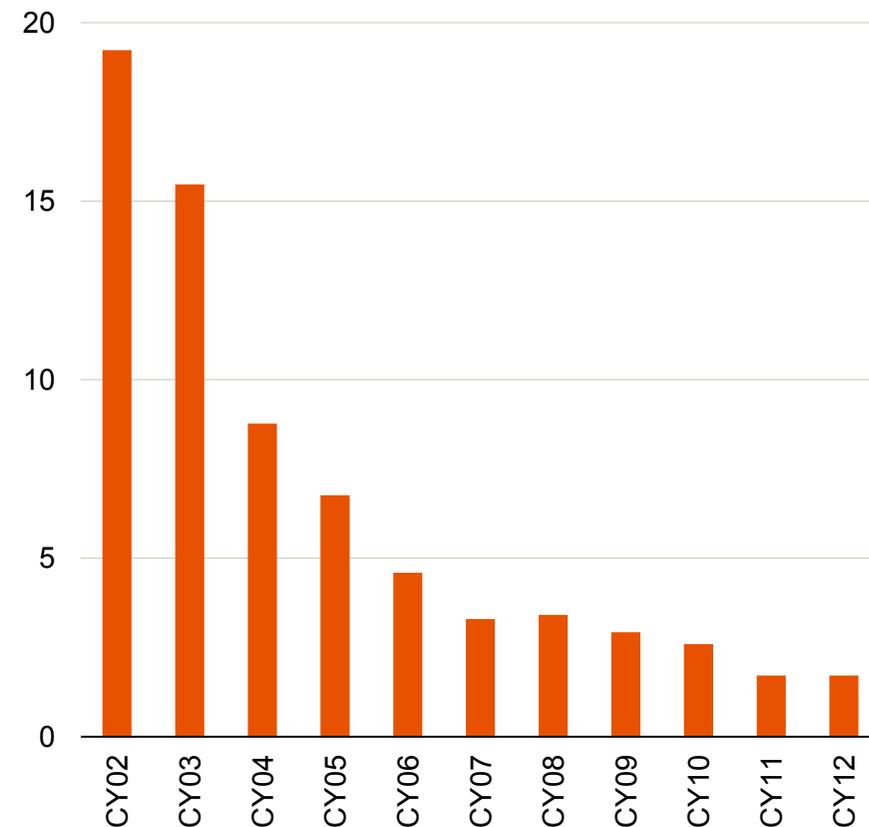
Antamina



# Outstanding safety performance in a challenging location

- Consistent reduction in safety indices due to several initiatives
  - implementation of safety behavior program
  - family safety visits
  - hand safety campaign lead by contractors
  - radio station safety messages
- Focus on Material Safety Risk and Critical Controls

**Total Recordable Injury Frequency (TRIF)**  
(number of recordable injuries per million hours worked)



# Social responsibility is a priority

## Social investment

- The Voluntary Contribution Agreement (3.75% of net income) ended in 2010 with total Antamina contributions of US\$263 million
- Over US\$150 million has been spent in the region of influence and the remaining funds are fully committed
- A new tax regime has been in place since 2011

## Communities and Government

- Antamina continues to be viewed as an important benefactor to the communities in the region
  - a recipient of several social responsibility awards



# Antamina: operations overview

## Mining equipment

- 230 mtpa material moved
- 6 shovels
- 108 trucks

## Processing

- Current average feed optimised at approximately 130 ktpd
- 2 x SAG mills (approximately 210 ktpd max capacity)
- 4 x ball mills
- Sequential bulk flotation of copper and zinc concentrate

## Transportation

- Copper and zinc concentrates by pipeline to port
- Molybdenum and lead/bismuth concentrate bagged and transported by road

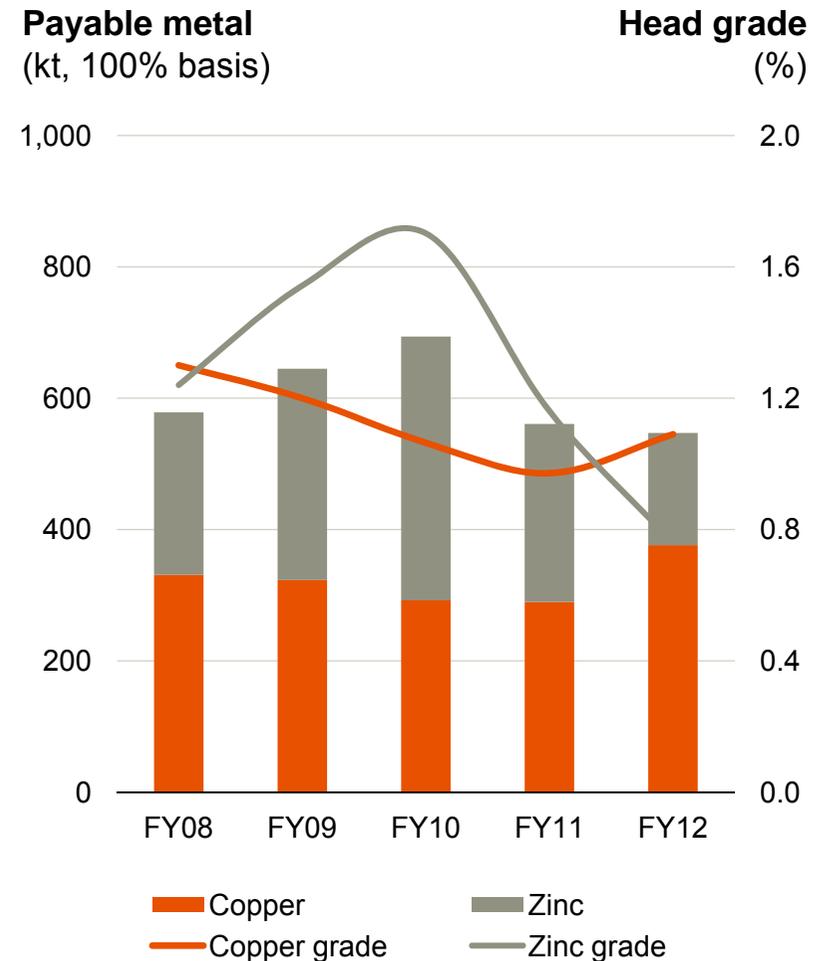
## Products

- Copper and zinc concentrates
- Molybdenum and lead/bismuth concentrates
- Silver credits



# An increasing proportion of copper production

- Polymetallic skarn ore body (copper, zinc, molybdenum, silver and lead)
- A world class leading base metal operation on a copper equivalent basis
- Now producing a higher proportion of copper versus zinc (a ratio of approximately 70:30)
- Production guidance for CY12 of approximately 425 kt of copper and 200 kt of zinc (100% basis)
- Positioned at the bottom of the cost curve benefiting from by-product credits



# Antamina is realising its growth potential

- Total resources of 1.9 bt with copper @ 0.84% and zinc @ 0.53%<sup>1</sup>
- Expansion project increased ore processing capacity to 130 ktpd for capex of US\$1.3 billion (100% basis)
  - delivered incremental production from Q1 CY12
  - generates strong investment returns
- Processing expansions under review with the potential to fill existing milling capacity



1. BHP Billiton 2012 Annual report. Refer to disclaimer slides 3 and 4 as presented on 30 September 2012.



# Cannington

BHP Billiton 100%



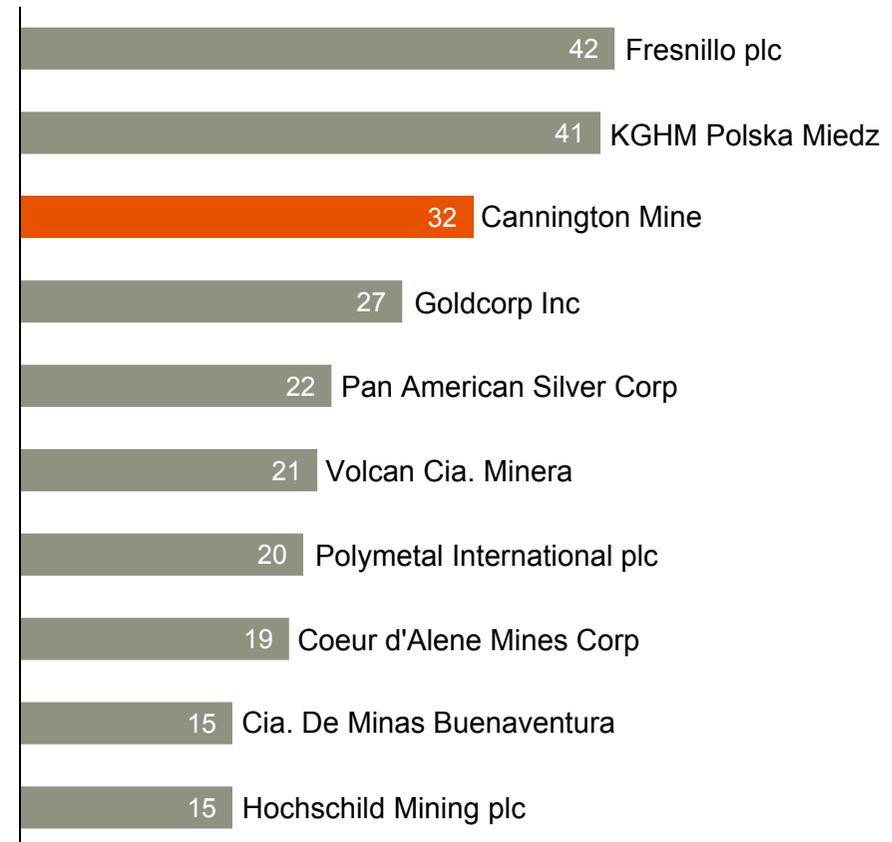
**bhpbilliton**

resourcing the future

# Cannington: the world's largest silver and lead mine

- Single underground operation with processing capacity of over 3 mtpa
- One of the lowest cost producers of silver and lead
- Access to markets through BHP Billiton owned port infrastructure
- Two saleable products (lead and zinc concentrates)
  - high metal content
  - low impurities
- Highly cash generative asset
  - average EBITDA to operating assets of 3.5 times over the last 5 years

## Top 10 silver producers (CY11 production, million ounces)



Source: Company reports, contained silver in production.

# Strong HSEC performance and a good community citizen



## Safety

- Risk based TRIF reduction strategy
- Focus on lead indicators

## Environment

- Fugitive emissions reduction focus
- Best practice water and land management

## Community

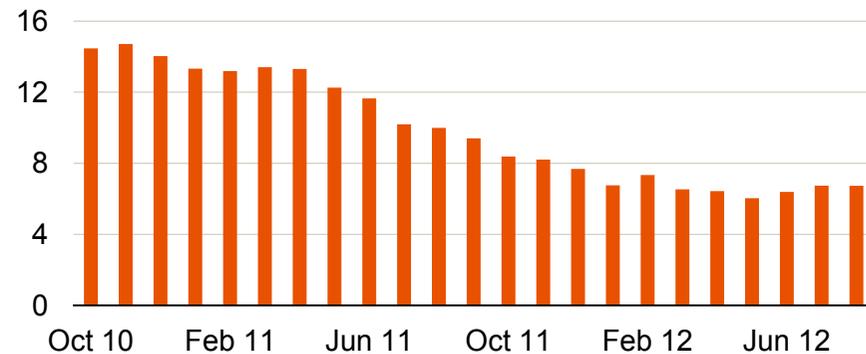
- Targeted community investment model
- 2012 Queensland Corporate Philanthropist of the Year award

## Health

- Tier 3 Engine upgrade to minimise diesel particulate exposure
- Use of dust suppressants to minimise the lead exposure

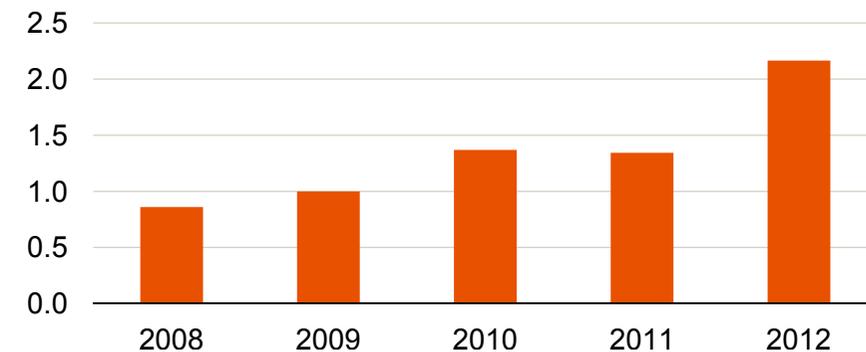
## Total Recordable Injury Frequency (TRIF)

(number of recordable injuries per million hours worked, 12 month rolling)



## Community contributions

(US\$ million)



# Cannington: operations overview

## Mining equipment

- 6 underground trucks
- 2 surface trucks
- 8 loaders
- 3 development jumbo drills
- 3 production drills
- 1 x 400 tph hoist

## Processing

- 1 x 8.5 m AG Mill
- 2 x 1500 vertimills
- Lead and zinc flotation circuits

## Transportation

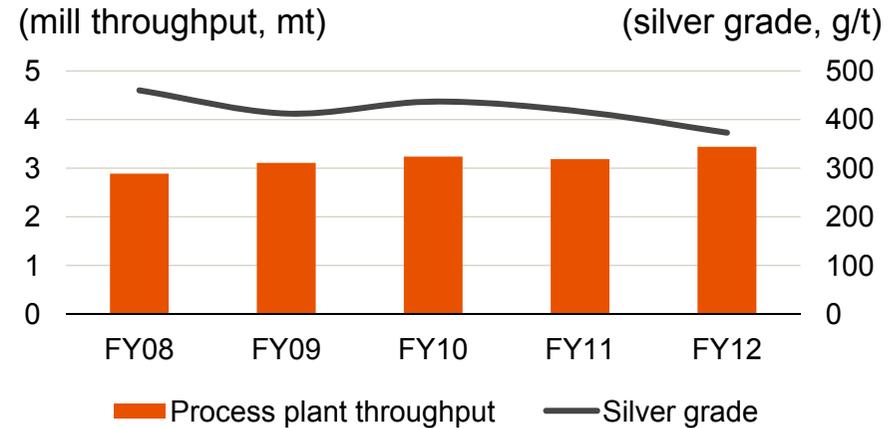
- Mine site concentrate storage facility
- Yurbi train loading facility (180 km by road from Cannington mine)
- Townsville Port Facility (800 km by rail from Yurbi)



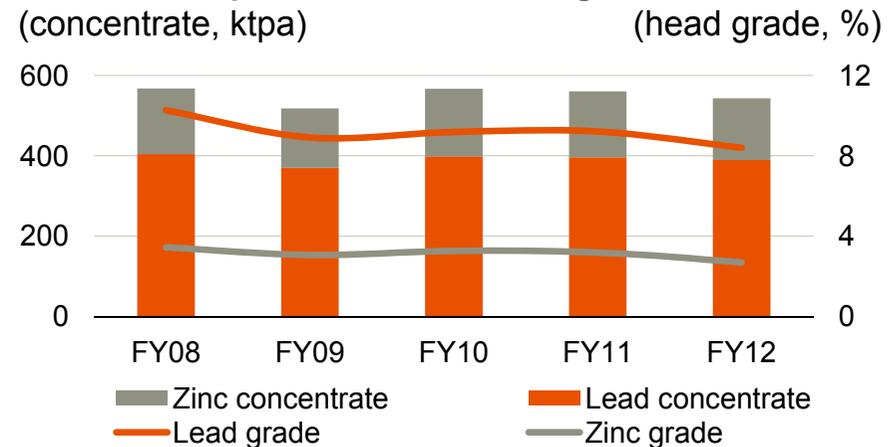
# Stable operational performance and concentrate delivery

- Stable underground mine production with focus on silver and lead grade delivery
- Incremental increase in process plant throughput through installation of a second vertimill
- Concentrate production levels maintained despite the decline in the head grade over the previous five years
  - 19% reduction in silver grade
  - 18% reduction in lead grade
  - 21% reduction in zinc grade

**Mill throughput and silver grade**



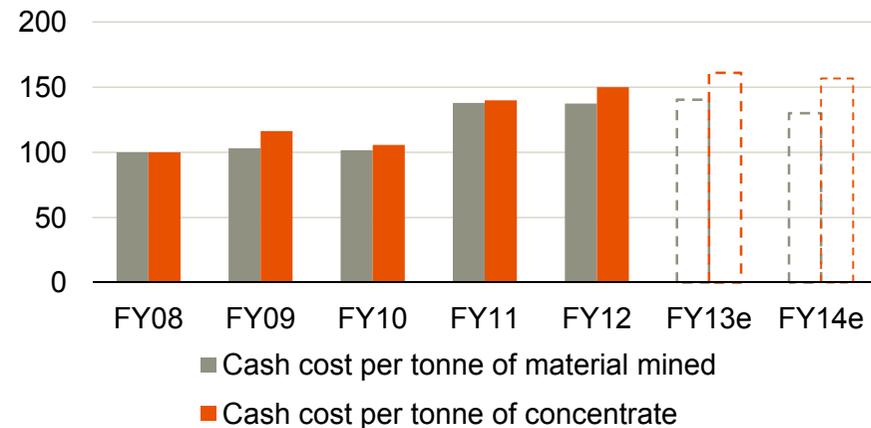
**Concentrate production and feed grade**



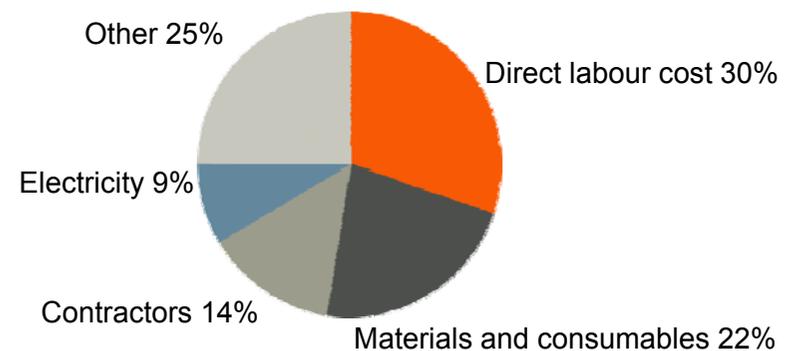
# Cost mitigation strategies are being implemented

- Concentrate unit cash costs have increased by 7% in FY12
  - increased labour costs in Queensland
  - higher input costs including gas and diesel
  - grade decline
- Increased operating efficiencies are targeted in FY13 with a reduction in non-essential expenditure
- However, FY13 unit costs are forecast to increase
  - further grade decline
  - an increase in mining complexity due to an increasing number of stopes

**Cannington unit cost**  
(index, FY08=100)

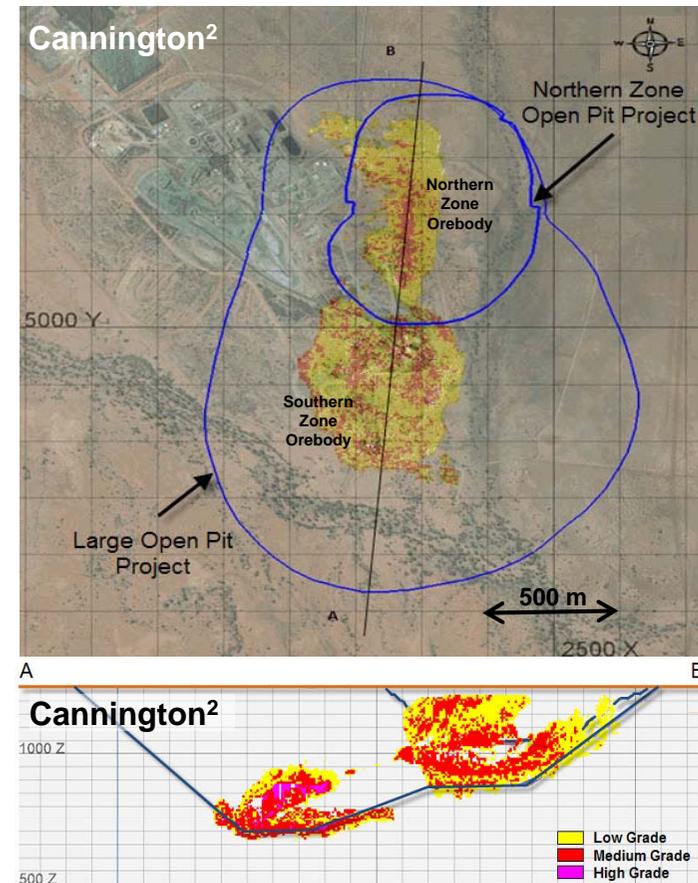


**Cost breakdown**  
(FY12)



# Cannington's resource provides significant scope to increase the life of mine

- Open cut development and potential processing expansions at the pre-feasibility study stage
  - the potential to access low-grade resource of 22 mt<sup>1</sup> in the northern zone
  - a second phase expansion in the southern zone with the potential to extend the mine life by over 20 years
- Potential to increase processing capacity from 3.2 mtpa to 6.0 mtpa
- Ready access to outbound supply chain capacity utilising existing road, rail and port infrastructure
- Early indications suggest this is a low risk, very high return development option with a rapid payback period



1. Open cut Mineral Resources contained within the Northern Zone pit limit and the Southern Zone, exclusive of underground resources and reserves reported in the BHP Billiton 2012 Annual Report. Cannington open cut Mineral Resources of 22 mt is included in the Table 1 on slide 4 of the Non-Ferrous Overview as presented on 30 September 2012. Refer to disclaimer on slides 3 and 4.
2. Vertical projection of the Cannington mineral inventory, classified as Measured, Indicated or Inferred as per the 2004 JORC Code, and depleted by previous production stopes. Northern Zone pit limits are based on a current feasibility-stage project and is used as the basis for Open Cut Mineral Resource declaration. The Southern Zone open pit limit is currently in concept-stage study and is not used as a basis for resource declaration.

Pinto Valley



## Base Metals North America

Pinto Valley: BHP Billiton 100%

Resolution JV: BHP Billiton 45%



# Pinto Valley: a low technical risk and low complexity restart

- Restart announced in February 2012 with expected start up of operations by end CY12
- Investment of US\$195 million for a low risk, low complexity and rapid payback project (facilities in place)
- Produces copper and molybdenum concentrate
  - capacity of 60 ktpa of copper in concentrate
- Five year production plan in place with further extension options available



# Pinto Valley Restart project: on schedule and budget

- The initial mining fleet has been purchased and is being delivered on schedule
- Plant upgrades include:
  - new electrical switchgears for ball mills
  - structural steel integrity improvements
  - upgrade of control systems
- Hiring and the training of personnel is progressing on schedule for the re-start
- Approximately 55% complete<sup>1</sup>



1. As at 31 August 2012.

# Longer term development options

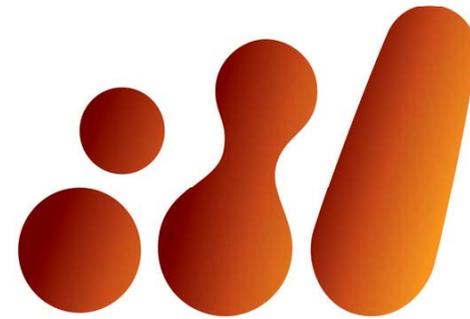
## Resolution

- Joint Venture, 45% BHP Billiton, 55% Rio Tinto (operator)
- Located in Arizona, United States
- Currently in the pre-feasibility study phase
  - assessing a substantial underground copper mine and processing facility
- Continue to advance the sinking of the number 10 Shaft in order to accurately assess the mineralisation and geotechnical conditions
- Approval from the US Congress for a Federal Land Exchange to access the ore deposit remains an important milestone



# Base Metals key themes

- A strong, experienced and well established management team
- A high quality and uniquely diversified portfolio
- Building strong momentum in our Base Metals business
- Targeting a substantial reduction in costs
- Our longer term development options



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resourcing the future