

9 December 2013

To: Australian Securities Exchange<sup>1</sup>  
London Stock Exchange

cc: New York Stock Exchange  
JSE Limited

## INVESTOR BRIEFING

BHP Billiton Chief Executive Officer, Andrew Mackenzie, will present at the Company's Petroleum investor briefing in Houston, USA on Monday, 9 December 2013.

When discussing his presentation, Mr Mackenzie said: "We are pleased to host an important shareholder event in Houston and look forward to discussing the exciting outlook for our Petroleum business.

"Our high quality, diversified resource portfolio and proven strategy have delivered outstanding results for our shareholders and we aim to extend this strong track record.

"Our production guidance remains unchanged and we expect to deliver growth of 16 per cent, in copper equivalent terms, over the next two years."

When discussing strategy, Mr Mackenzie said: "The Company's productivity agenda has the potential to create more value than anything else we do. With all of our operations now on a common information management platform, we can replicate best practice and improve operational performance across the Group. By generating more volume from our existing equipment and lowering unit costs, we will continue to build on the US\$2.7 billion reduction in controllable cash costs delivered in the 2013 financial year.

"Our productivity agenda extends to our development projects where we are pursuing a higher rate of return on incremental investment by significantly increasing internal competition for capital and driving project costs down. A 25 per cent reduction in capital and exploration expenditure is planned for this financial year and our level of investment will decline again next year.

"The quality and breadth of our portfolio will also allow us to further simplify our business, while retaining the benefits of diversification. A focus on our four key pillars and their major operations will ultimately deliver higher growth, higher margins and stronger investment returns. We have completed six major transactions delivering proceeds of US\$6.5 billion, with US\$2.2 billion received this financial year."

Mr Mackenzie concluded by saying: "If we keep getting the basics right and deliver on our commitments, we will substantially increase free cash flow and grow total returns for our shareholders."


A copy of the materials to be presented on Monday, 9 December 2013 is attached.

---

<sup>1</sup> This release was made outside the hours of operation of the ASX market announcements office.

The tour will continue on Tuesday 10 December 2013, with the remaining material released on that day.

Further information on BHP Billiton can be found at: [www.bhpbilliton.com](http://www.bhpbilliton.com)



**Nicole Duncan**  
Company Secretary  
BHP Billiton Limited

### **Media Relations**

#### ***Australia***

Emily Perry  
Tel: +61 3 9609 2800 Mobile: +61 477 325 803  
email: [Emily.Perry@bhpbilliton.com](mailto:Emily.Perry@bhpbilliton.com)

Fiona Hadley  
Tel: +61 3 9609 2211 Mobile: +61 427 777 908  
email: [Fiona.Hadley@bhpbilliton.com](mailto:Fiona.Hadley@bhpbilliton.com)

Eleanor Nichols  
Tel: +61 3 9609 2360 Mobile: +61 407 064 748  
email: [Eleanor.Nichols@bhpbilliton.com](mailto:Eleanor.Nichols@bhpbilliton.com)

#### ***United Kingdom***

Ruban Yogarajah  
Tel: +44 20 7802 4033 Mobile: +44 7827 082 022  
email: [Ruban.Yogarajah@bhpbilliton.com](mailto:Ruban.Yogarajah@bhpbilliton.com)

Jennifer White  
Tel: +44 20 7802 7462 Mobile: +44 7827 253 764  
email: [Jennifer.White@bhpbilliton.com](mailto:Jennifer.White@bhpbilliton.com)

#### **Americas**

Jaryl Strong  
Tel: +1 713 499 5548 Mobile: +1 281 222 6627  
email: [Jaryl.Strong@bhpbilliton.com](mailto:Jaryl.Strong@bhpbilliton.com)

### **Investor Relations**

#### ***Australia***

James Agar  
Tel: +61 3 9609 2222 Mobile: +61 467 807 064  
email: [James.Agar@bhpbilliton.com](mailto:James.Agar@bhpbilliton.com)

Andrew Gunn  
Tel: +61 3 9609 3575 Mobile: +61 402 087 354  
email: [Andrew.Gunn@bhpbilliton.com](mailto:Andrew.Gunn@bhpbilliton.com)

#### **United Kingdom and South Africa**

Tara Dines  
Tel: +44 20 7802 7113 Mobile: +44 7825 342 232  
email: [Tara.Dines@bhpbilliton.com](mailto:Tara.Dines@bhpbilliton.com)

#### **Americas**

James Agar  
Tel: +61 3 9609 2222 Mobile: +61 467 807 064  
email: [James.Agar@bhpbilliton.com](mailto:James.Agar@bhpbilliton.com)

Matt Chism  
Tel: +1 713 599 6158 Mobile: +1 281 782 2238  
email: [Matt.E.Chism@bhpbilliton.com](mailto:Matt.E.Chism@bhpbilliton.com)



# Primed to deliver strong growth in free cash flow

**Andrew Mackenzie**  
Chief Executive Officer  
9 December 2013



**bhpbilliton**  
resourcing the future

## 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 or implied 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 2013 entitled “Risk factors”, “Forward looking statements” and “Operating and financial review and prospects” filed with the U.S. Securities and Exchange Commission. Forward-looking statements should, therefore, be construed in light of such risk factors and undue reliance should not be placed on forward-looking statements. Forward-looking statements speak only as of the date of this presentation. BHP Billiton will not undertake any obligation to release publicly any revisions or updates to these forward-looking statements to reflect events, circumstances or unanticipated events occurring after the date of this presentation except as required by law or by any appropriate regulatory authority. All 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. Nothing in this presentation should be interpreted to mean that future earnings per share of BHP Billiton Plc or BHP Billiton Limited will necessarily match or exceed its historical published earnings per share.

## Non-IFRS financial information

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, Underlying EBITDA 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.

## UK GAAP financial information

Certain historical financial information for periods prior to FY2005 has been presented on the basis of UK GAAP, which is not comparable to IFRS or US GAAP. Readers are cautioned not to place undue reliance on UK GAAP information.

## No offer of securities

Nothing in this presentation should be construed as either an offer to sell or a solicitation of an offer to buy or sell BHP Billiton securities in any jurisdiction.

## Reliance on third party information

The views expressed in this presentation contain information that has been derived from publicly available sources or provided by third parties and has not been independently verified. No representation or warranty is made as to the accuracy, completeness or reliability of the information. This presentation should not be relied upon as a recommendation or forecast by BHP Billiton.

# Primed to deliver strong growth in free cash flow

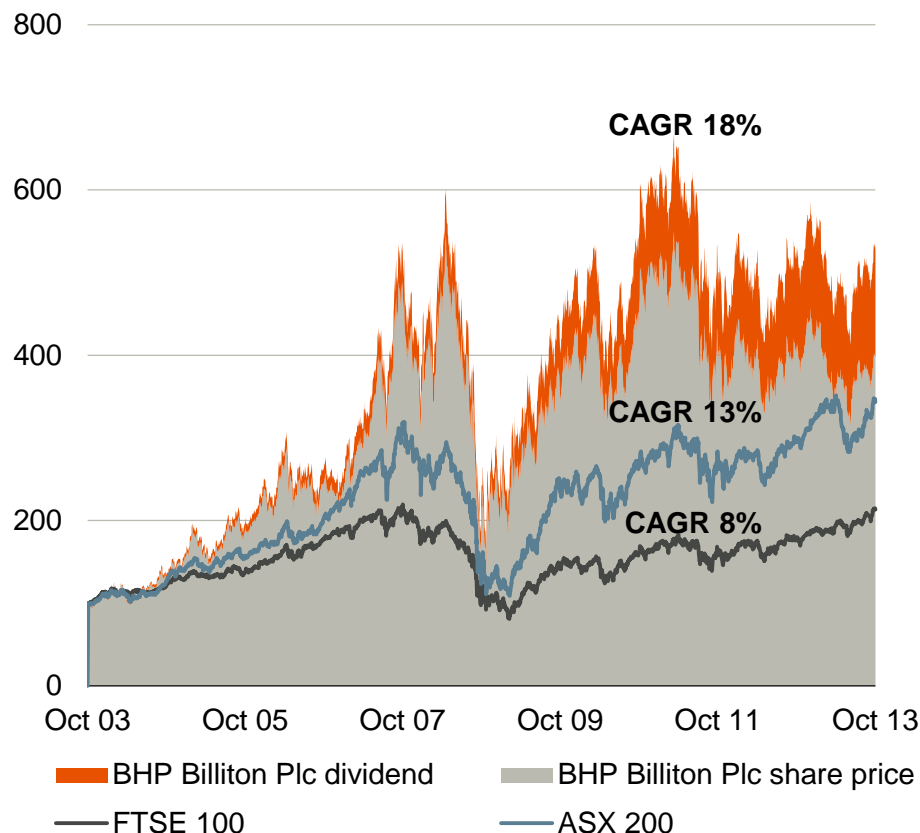
- Extending our strong track record
- The premier diversified resource portfolio
- Unchanged production guidance for our high margin businesses
- Our productivity agenda has strong momentum
- Intense competition for capital is driving investment returns higher
- Portfolio simplification will remain a key differentiator

# Extending our strong track record

- Our high quality, diversified resource portfolio and proven strategy has delivered outstanding results<sup>1</sup>
  - average EBIT margin of 41%
  - a superior return on capital employed
  - a CAGR for our progressive ‘base’ dividend of 18%
  - US\$59.1 billion<sup>2</sup> returned to shareholders, representing 48% of Underlying earnings
- Our productivity based plan has been clearly articulated to shareholders
- We will grow total shareholder returns by doing the basics right and by delivering on our commitments

## Strong growth in total shareholder returns<sup>3</sup>

(TSR, 31 October 2003 = 100)



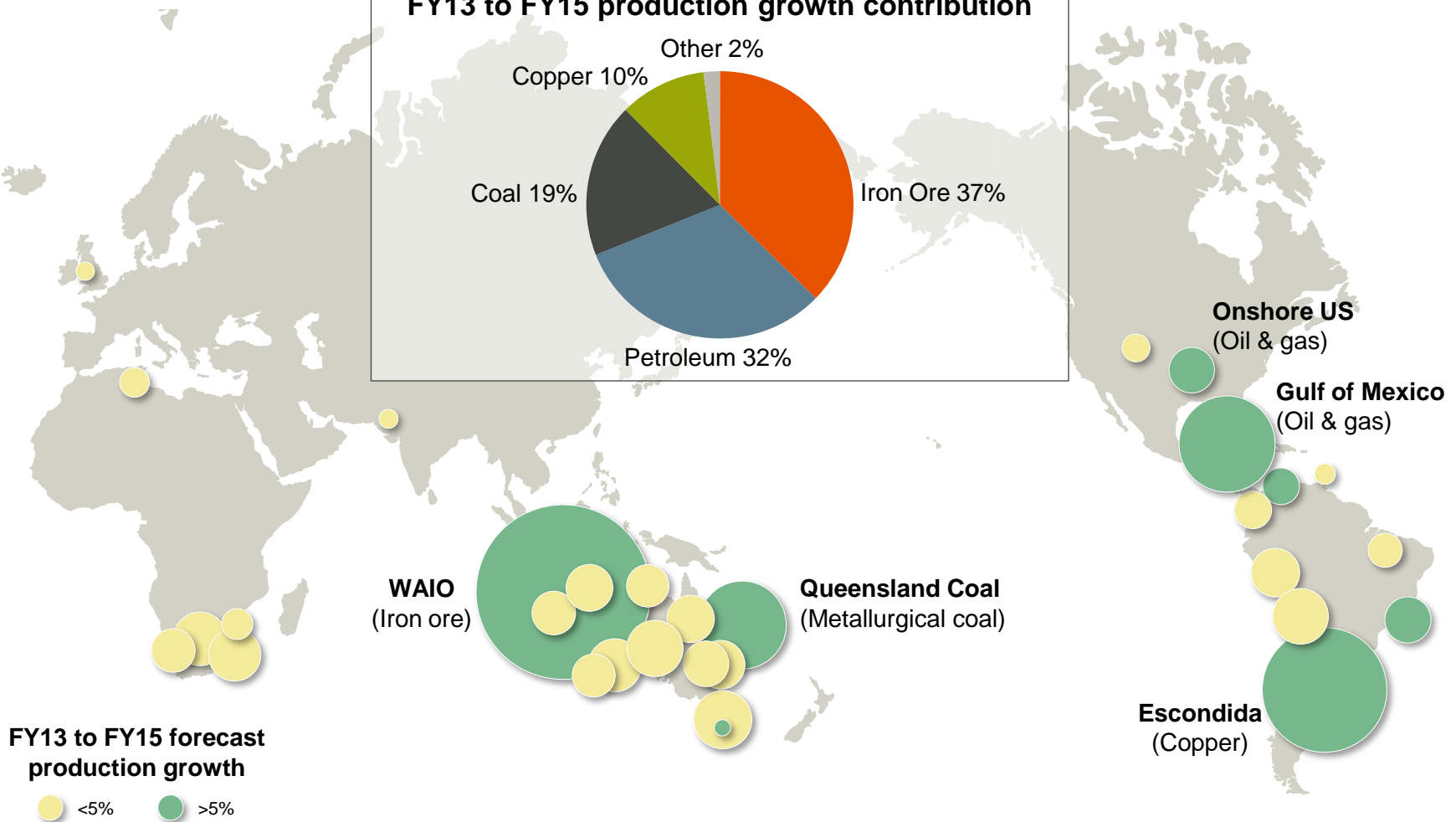
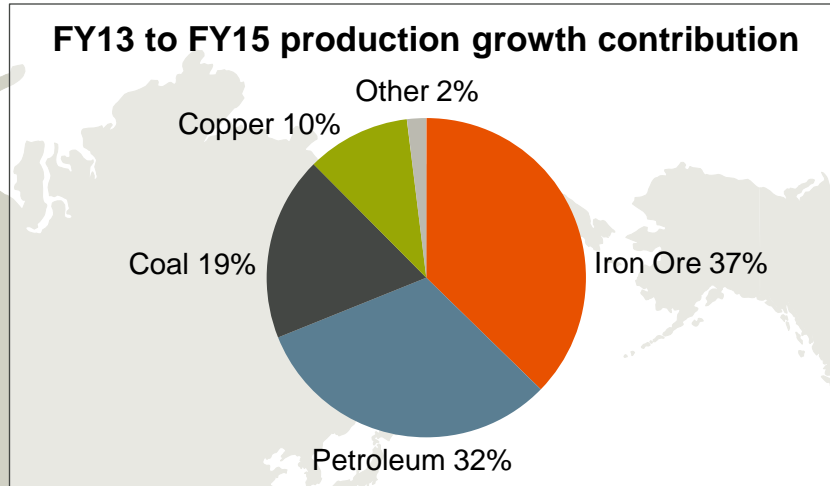
Source: Datastream; BHP Billiton analysis.

1. Calculated over the period from FY04 to FY13 inclusive.

2. Includes buy-backs and dividends.

3. TSR calculated in US dollar terms.

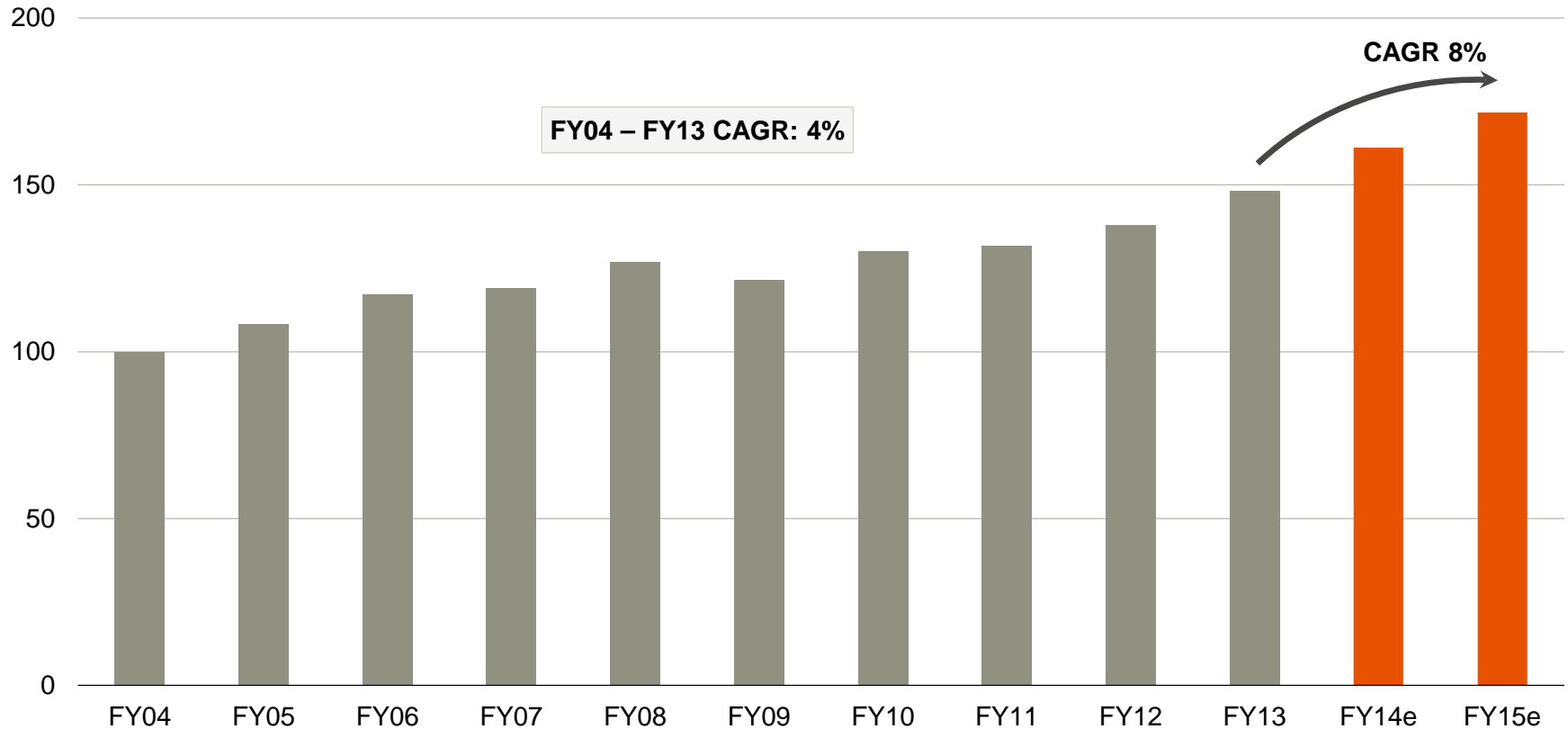
# The premier diversified resource portfolio



Note: Bubble size represents FY13 copper equivalent production from continuing operations.

# Unchanged production guidance for our high margin businesses

## Group production<sup>1</sup> (FY04 = 100)



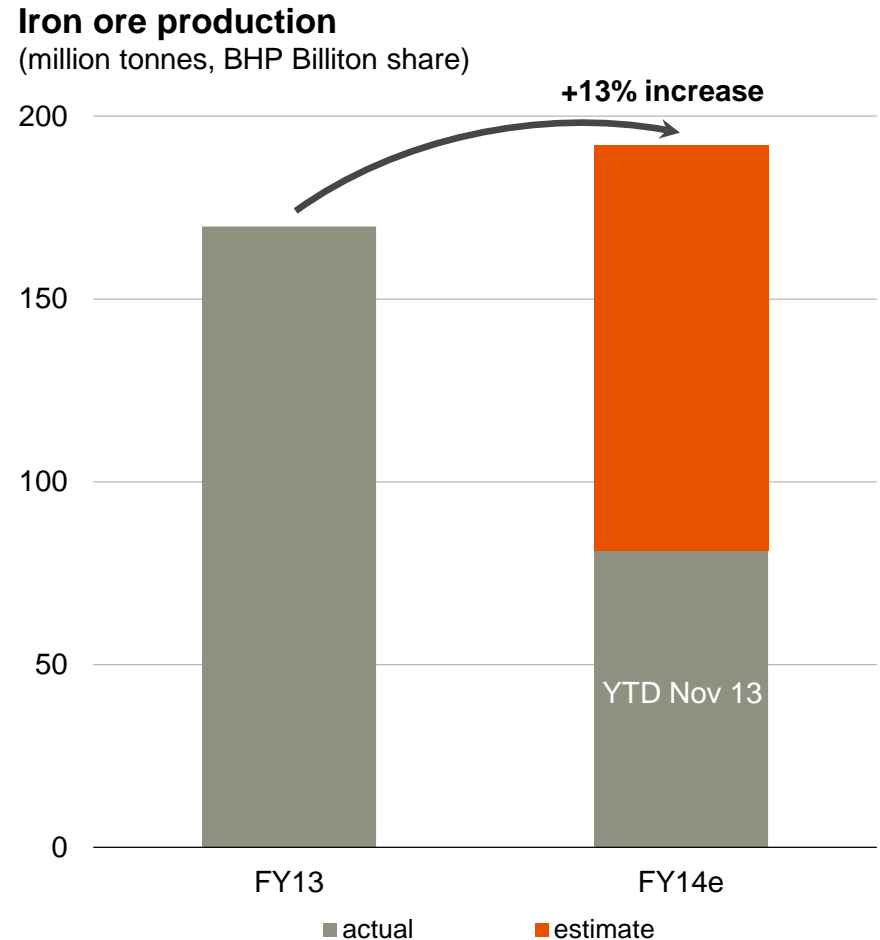
Source: BHP Billiton analysis.

1. Calculated in copper equivalent terms for continuing operations using FY13 average realised prices.



# Iron Ore: targeting the capital efficient tonne

- Tracking well to deliver 13% growth in production this year
  - FY14 production guidance for WAIO recently increased to 212 mt<sup>1</sup>
  - first production achieved at Jumblebar in Q1 FY14, six months ahead of schedule
- Targeting capital efficient growth in WAIO supply chain capacity to 260-270 mtpa<sup>1</sup>
  - our decision to replace shiploaders 1 & 2 will enhance inner harbour reliability and increase loading capacity
  - Jumblebar mine readily expandable from 35 mtpa<sup>1</sup> to 55 mtpa<sup>1</sup>
  - debottlenecking can unlock a further +20 mtpa<sup>1</sup> of capacity across our portfolio of mines



1. 100% basis.

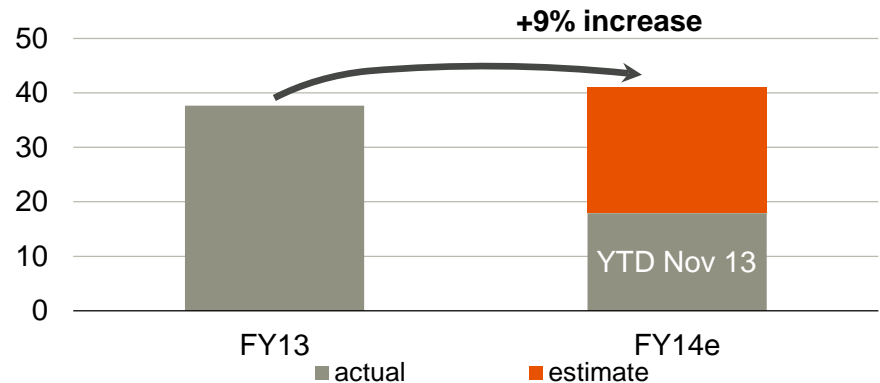
# Coal: running at capacity at Queensland Coal

- Unchanged production guidance
  - metallurgical coal production to grow by 9% to 41 mt<sup>1</sup>
  - energy coal production to remain unchanged at 73 mt<sup>1</sup>
- Queensland Coal continues to run at supply chain capacity
- Illawarra Coal's Dendrobium mine has restarted longwall production following recent operational challenges
- Majority of projects will deliver first production before the end of CY15
  - Caval Ridge remains on track with first production scheduled for CY14
- Queensland Coal capacity is expected to increase to 66 mtpa<sup>2</sup> by the end of CY14

1. BHP Billiton share.  
2. 100% basis.

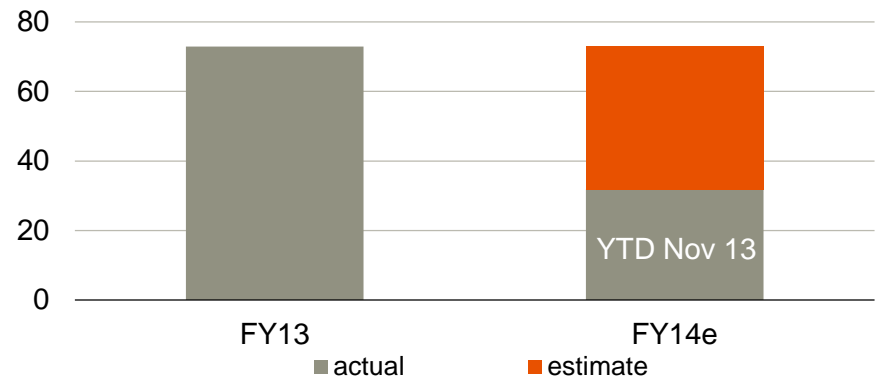
## Metallurgical coal production

(million tonnes, BHP Billiton share)



## Energy coal production

(million tonnes, BHP Billiton share)

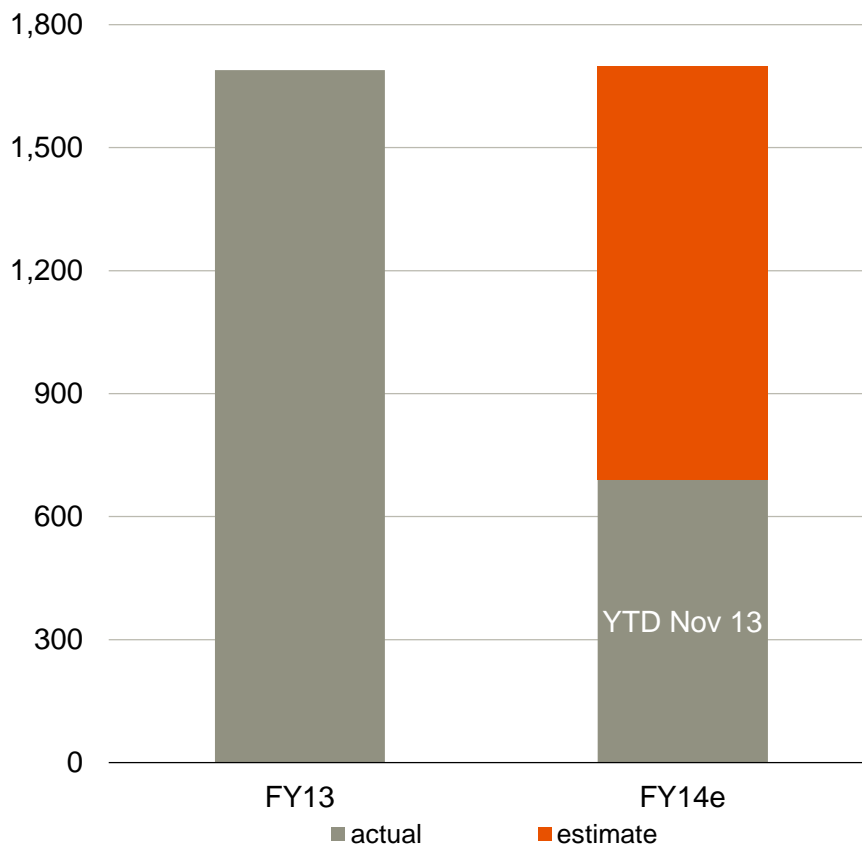


# Copper: on track to produce 1.3 million tonnes at Escondida in FY15

- Unchanged production guidance
  - 1.7 mt<sup>1</sup> of total copper in FY14
  - Escondida to deliver copper production of 1.1 mt<sup>2</sup> in FY14 and 1.3 mt<sup>2</sup> in FY15
- Antamina is expected to achieve record production in H1 FY14
- A strong recovery in production is anticipated at Spence during the remainder of FY14
- A maintenance outage at Olympic Dam in H2 FY14 will deliver an improvement in smelter performance
- Major projects at Escondida remain on schedule and budget
  - OGP1 concentrator will be completed in H1 CY15 and will increase throughput capacity by another 13%

## Copper production

(thousands tonnes, equity share<sup>1</sup>)



1. All figures are equity share except for Escondida which as a result of IFRS 10 is now reported on a 100% basis.  
2. 100% basis.

# Our productivity agenda has strong momentum

- Our productivity initiatives continue to deliver more volume from existing equipment and lower unit costs
- This is one of the most value accretive activities that we can undertake
- 100% of our operations are now on our unique 1SAP system
- We continue to build on the US\$2.7 billion reduction in controllable cash costs achieved in FY13

## Integrated Remote Operating Centre (WAIO)

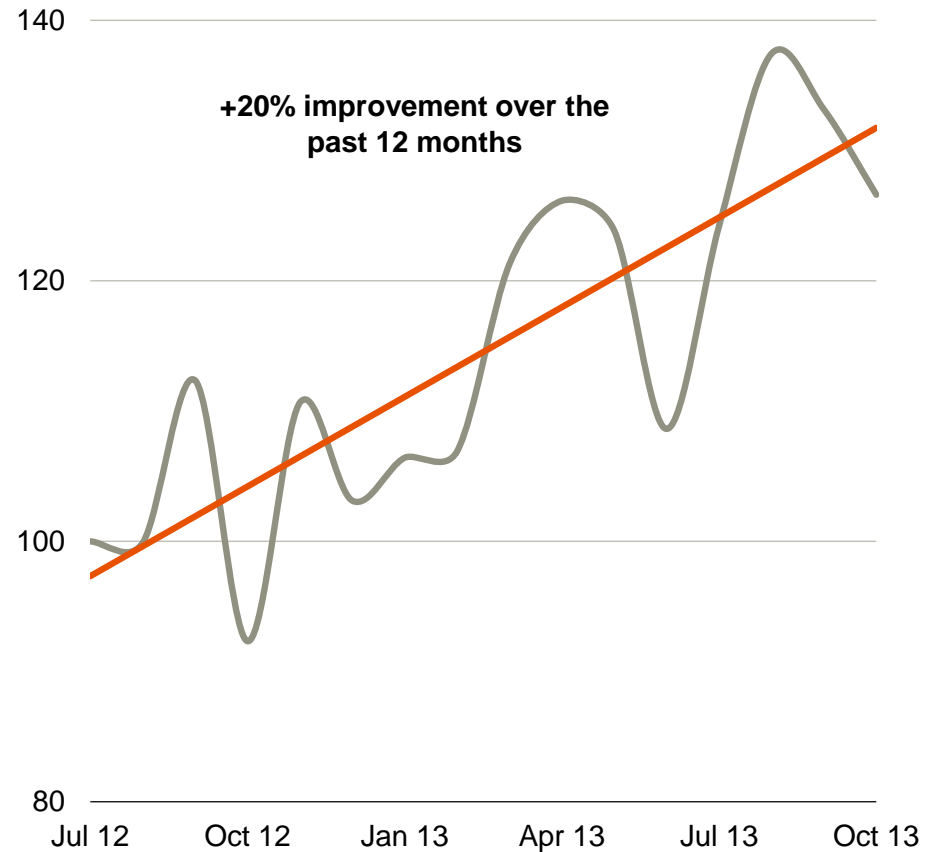


# Our productivity agenda has strong momentum

- Our productivity initiatives continue to deliver more volume from existing equipment and lower unit costs
- This is one of the most value accretive activities that we can undertake
- 100% of our operations are now on our unique 1SAP system
- We continue to build on the US\$2.7 billion reduction in controllable cash costs achieved in FY13
  - +20% increase in shovel productivity achieved at Western Australia Iron Ore over the recent 12 month period

## WAIO R996 shovel productivity

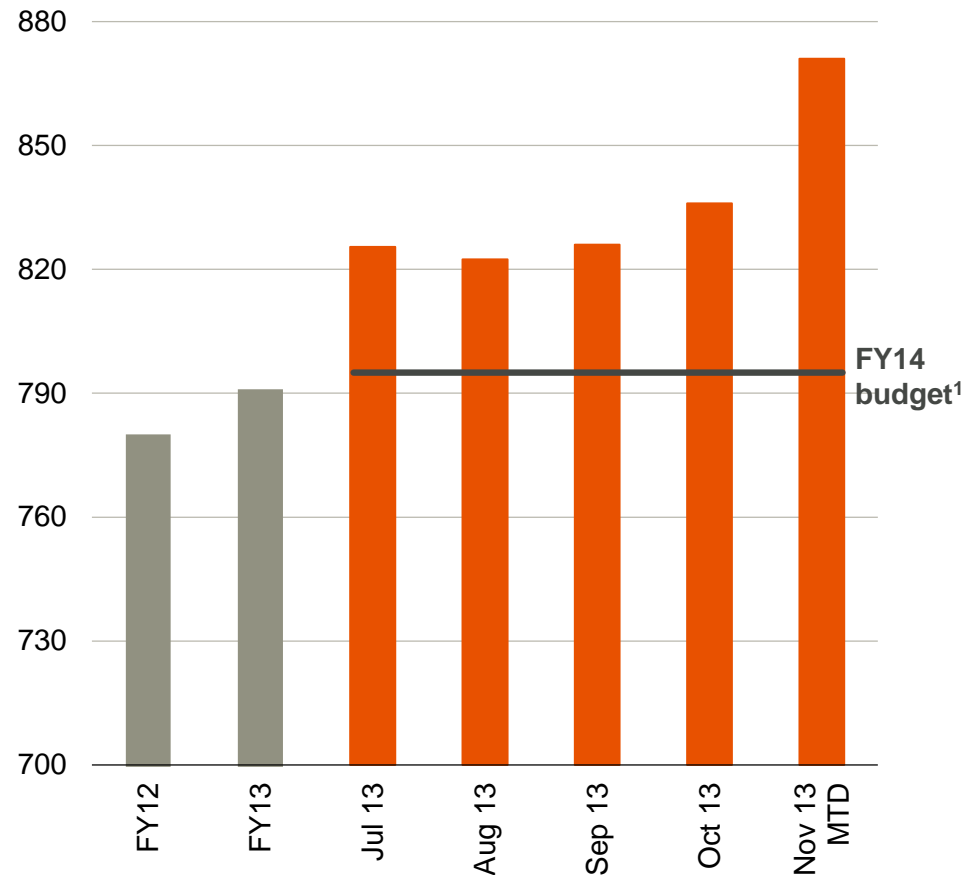
(index, July 2012 annualised total movement = 100)



# Our productivity agenda has strong momentum

- Our productivity initiatives continue to deliver more volume from existing equipment and lower unit costs
- This is one of the most value accretive activities that we can undertake
- 100% of our operations are now on our unique 1SAP system
- We continue to build on the US\$2.7 billion reduction in controllable cash costs achieved in FY13
  - +20% increase in shovel productivity achieved at Western Australia Iron Ore over the recent 12 month period
  - higher feed rates and run hours facilitated a 7% increase in South Walker Creek coal preparation plant production in Q1 FY14

**BMC South Walker Creek CPP throughput**  
(feed rate performance, tonnes per hour)

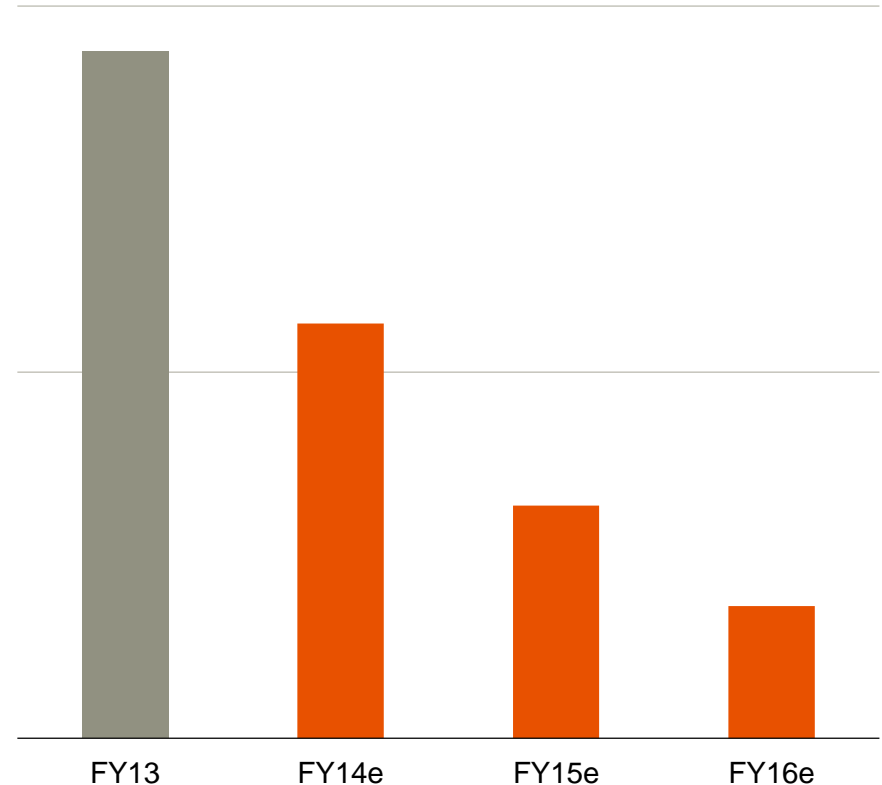


1. Represents the FY14 budget for average feed rate performance.

# Competition for capital will increase returns and deliver strong growth in free cash flow

- Our investment plans have been optimised for value
- Capital and exploration expenditure will decline by 25% in FY14 and further thereafter
- We will continue to invest selectively through the cycle
  - the majority of capital will be directed towards lower risk, high return brownfield projects
- This disciplined approach will generate a higher rate of return on incremental investment and substantial growth in free cash flow

**Expenditure profile for our major projects in execution<sup>1</sup>**  
(US\$ billion)



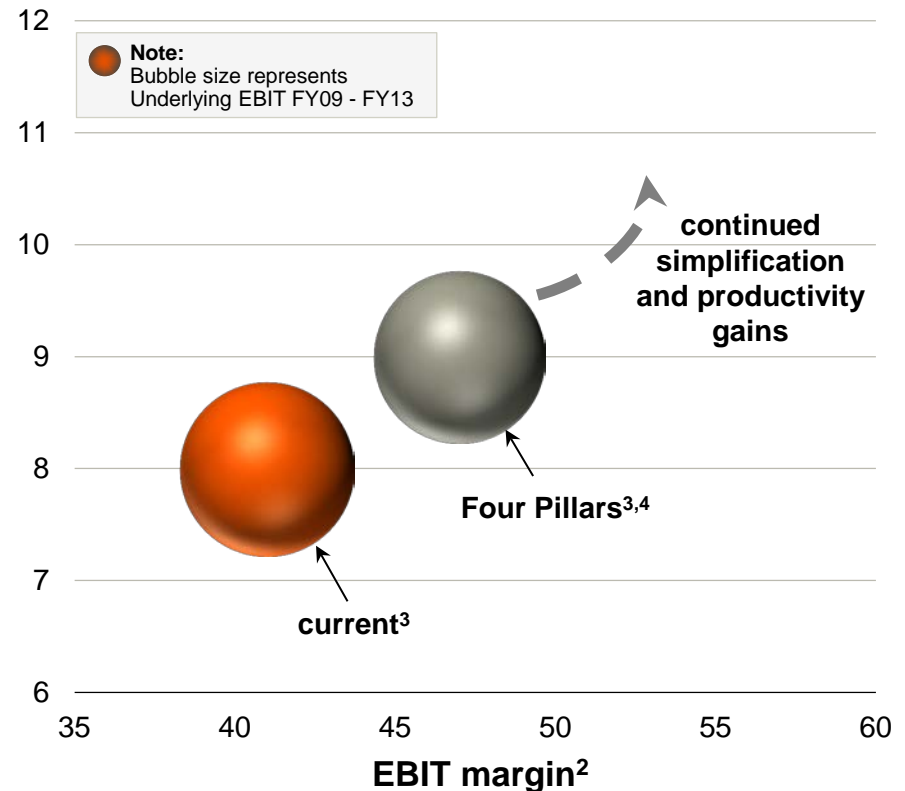
1. Forecast capital expenditure for our major projects as reported in the Exploration & Development Report for 30 June 2013; and includes the Escondida Water Supply Project and investment at Jansen. The expenditure profile has not been adjusted for IFRS 10 and 11 accounting standards. Relates to all announcements of capital expenditure for major projects and pre-commitments.

# Portfolio simplification will remain a key differentiator

- The quality and breadth of our portfolio will enable us to further simplify our business whilst maintaining the benefits of diversification
- A focus on our four key pillars and their major operations will deliver higher growth, higher margins and stronger investment returns
- Since the beginning of FY13, we have completed six transactions for proceeds of US\$6.5 billion
  - US\$2.2 billion received in FY14
- We will retain our focus on shareholder value

## Growth<sup>1</sup>

(% copper equivalent production CAGR)



1. Based on copper equivalent production calculated using FY13 average prices. CAGR relates to FY13 to FY15 growth.  
2. Refers to the average Underlying EBIT margin FY09 to FY13 inclusive. Excludes Group and unallocated items.  
3. Excludes Group and unallocated items, diamonds and titanium minerals.  
4. Four Pillars are Iron Ore, Petroleum, Copper and Coal.



# Primed to deliver strong growth in free cash flow

- Extending our strong track record
- The premier diversified resource portfolio
- Unchanged production guidance for our high margin businesses
- Our productivity agenda has strong momentum
- Intense competition for capital is driving investment returns higher
- Portfolio simplification will remain a key differentiator
- This strategy will generate strong growth in free cash flow



**bhpbilliton**

resourcing the future

Shanghai



# Global energy outlook

**Mark Swinnerton**  
Vice President, Market Analysis  
9 December 2013



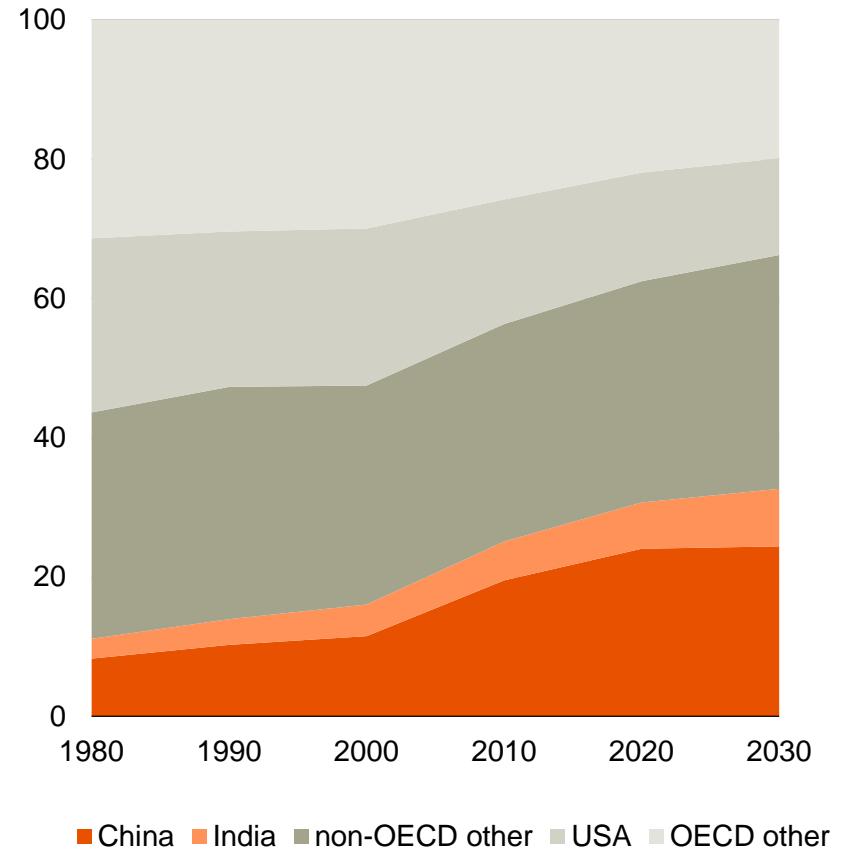
# Key themes

- Global GDP growth will be driven by the emerging economies
- China's growth model is in transition and evidence of progress is building
- India's economic growth will be cyclical and its energy demand will be significant
- Substitution in the energy complex allows for a more robust and secure supply base
- Industry economics and policy will influence longer term energy demand
- Our uniquely diversified energy portfolio is a major differentiator

# A diversified energy portfolio is a key differentiator

- Global energy demand forecast to grow at 1.3% CAGR<sup>1</sup> between 2010 and 2030
- Two thirds of growth to come from Asia, with China and India adding 1,870 GW of generation capacity
- Policy will impact the energy landscape, as environmental and security considerations play into both supply and demand
- Even with rapid substitution towards renewable electricity generation, demand for all energy fuels is expected to grow
- Only a diversified portfolio will provide exposure to the demand growth that is anticipated across the energy complex

**Global energy outlook by region**  
(%)



Source: Energy Balances ©OECD/IEA, 2013, World Energy Outlook ©OECD/IEA, 2012, New Policies Scenario of World Energy Outlook ©OECD/IEA, 2013.  
1. Compound annual growth rate.

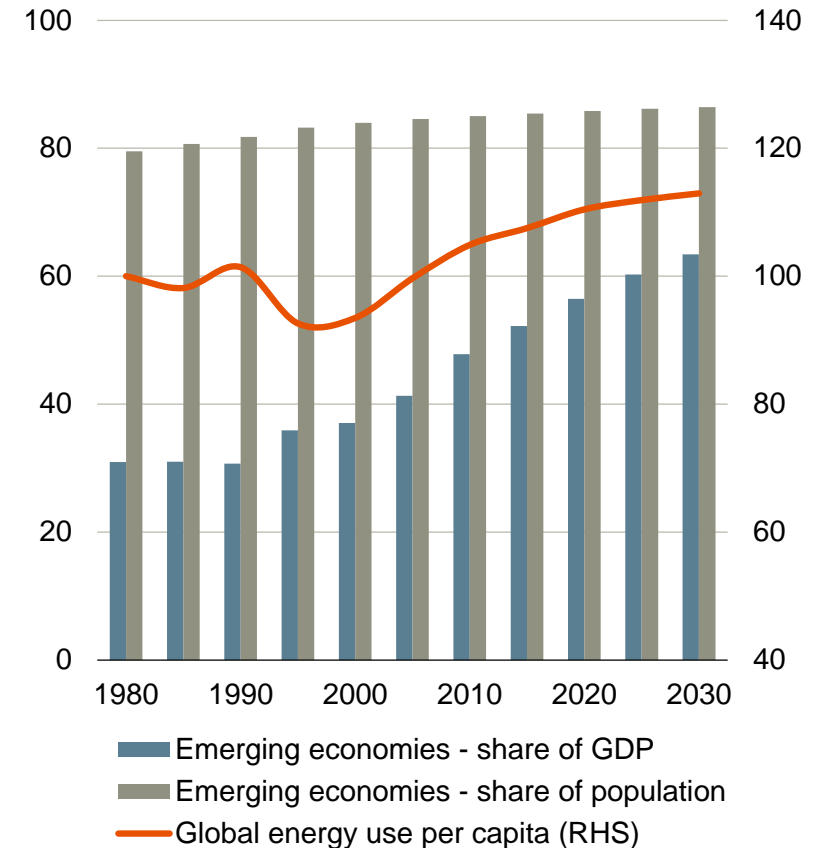
# The emerging world will continue to increase its share of global GDP

- Developed economies underpinned global growth before 2000, however global energy demand per capita progressively contracted
- As China integrated into the global economy, per capita use of energy increased
- This trend is expected to continue as other emerging economies (e.g. India, ASEAN) progressively develop
- A larger percentage of global population achieving higher levels of wealth will impact energy demand
  - potential for over 50 million vehicles to be produced annually in Asia by 2020
  - potential for over 100 million new air conditioner units to be installed in India by 2030

## Share of population and GDP

(% of global)

(index, 1980=100)



Note: "Developed Economies" + "Emerging Economies" = World.

Source: IMF, IHS Global Insight, Energy Balances ©OECD/IEA, 2013, New Policies Scenario of World Energy Outlook ©OECD/IEA, 2013.

# Emerging economies are driving energy consumption growth

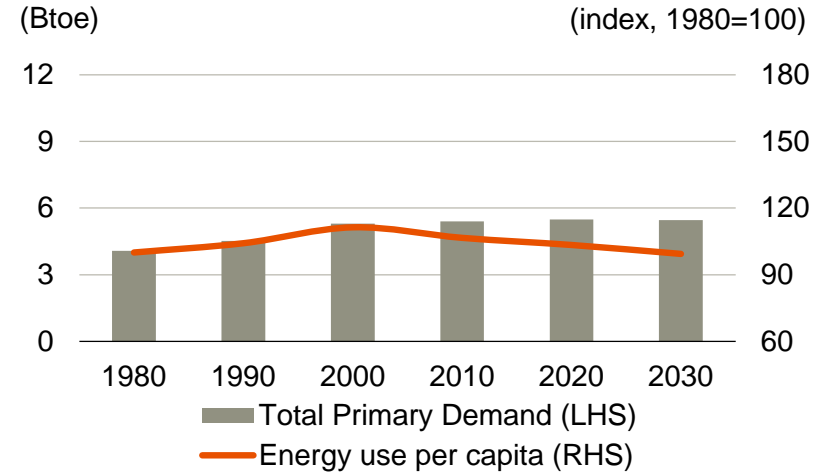
## Developed economies

- Per capita energy consumption has shown limited growth and is projected to decline as energy efficiency measures intensify
- Increase in energy consumption is driven by population growth more than wealth

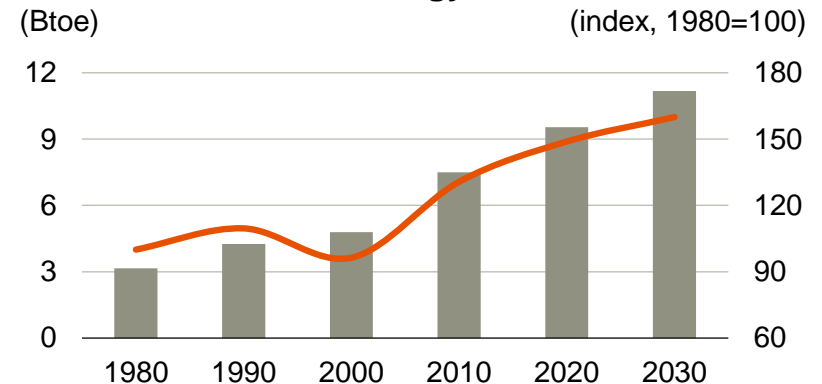
## Emerging economies

- Energy demand is driven by economic activity and population growth
- Activities are increasingly energy intensive
- Energy efficiency measures are weaker due to barriers to implementation, including cost

## OECD forecast energy demand



## Non-OECD forecast energy demand



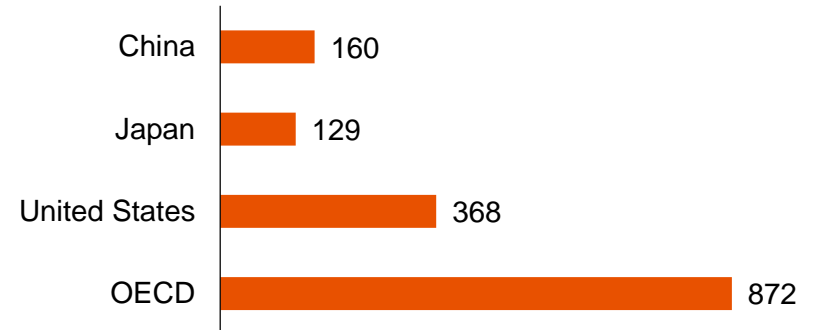
Note: "Developed Economies" + "Emerging Economies" = World.

Source: IMF, IHS Global Insight, Energy Balances ©OECD/IEA, 2013, New Policies Scenario of World Energy Outlook ©OECD/IEA, 2013.

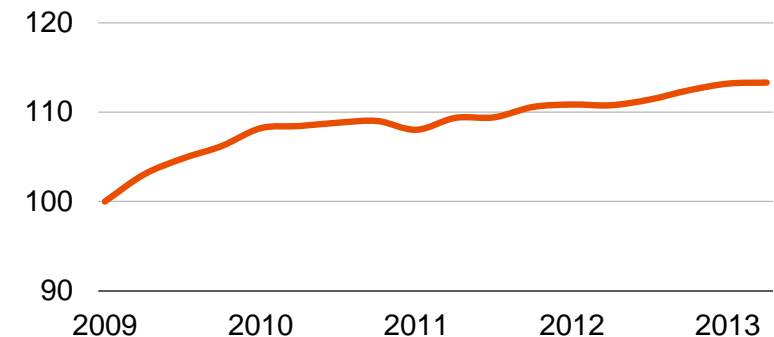
# The developed world will continue to push the productivity frontier

- Research and development continues to be driven by developed economies
- The developed world is home to some of the most innovative and productive companies
- Conditions for manufacturing in the United States have become more favourable
  - supportive exchange rate (down 30% from the peak in early 2002)
  - strong productivity performance
  - total consumer spending in the United States is still four times larger than China

## Research and development spending in 2010 (US\$ billion, 2005 PPP)



## USA manufacturing productivity (index 2009=100)



Note: Productivity index - output per hour manufacturing.  
Source: OECD, BLS.

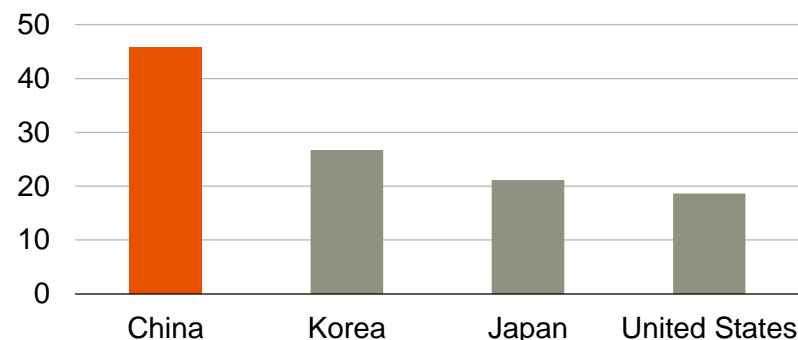


# China's growth model is in transition

- The share of investment in China's economy is high
- This is in part driven by a high savings rate that generates significant funds for investment
- Over time, the savings rate will revert to more typical levels due to
  - demographic changes
  - lower marginal returns from investment
- To avoid the middle income trap China must shift the focus from rapid capital accumulation to productivity and domestic consumption

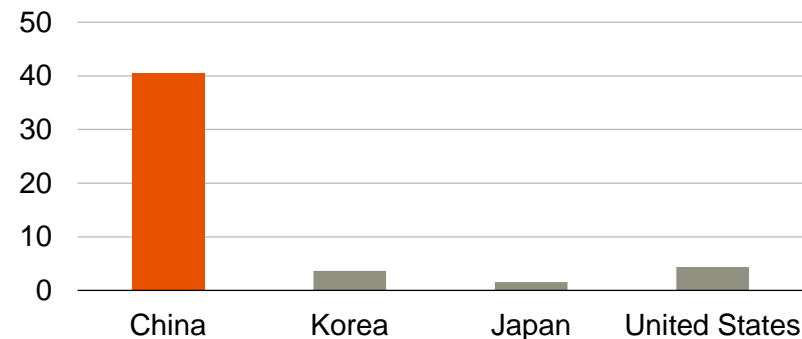
## Share of investment 2012

(share of GDP, %)



## Household savings rate

(% of disposable income, average of 2007-2011)

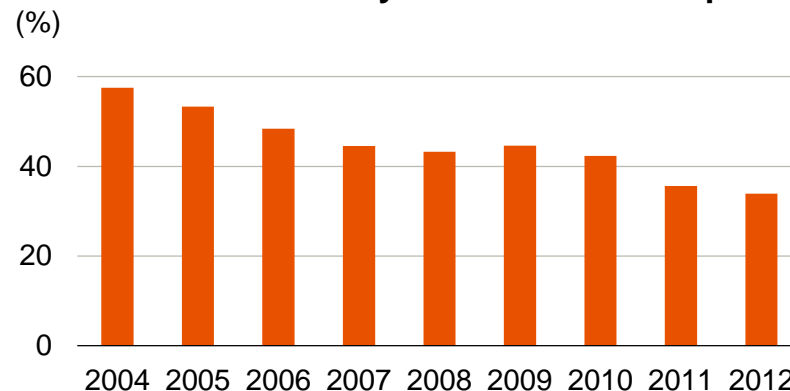


Source: Investment – IHS Global Insight, Household Savings – NBS, OECD.

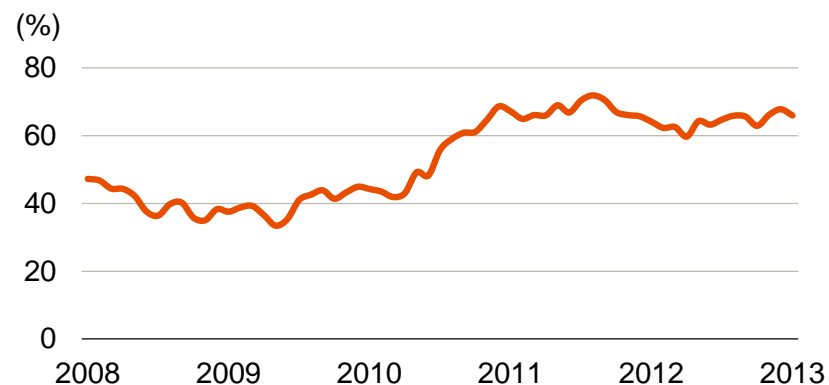
# The government in China is driving reform

- The outcome of the 3rd Plenary Session of the 18th Communist Party of China Central Committee was positive with a list of comprehensive reforms announced
- The role of markets and the private sector will be prioritised to enable efficient resource allocation (energy, land and labour)
- Interest rates will continue to be reformed so that the financial system allocates capital to its most productive use

## Share of investment by state-owned enterprises (%)



## Share of loans above the benchmark rate (%)



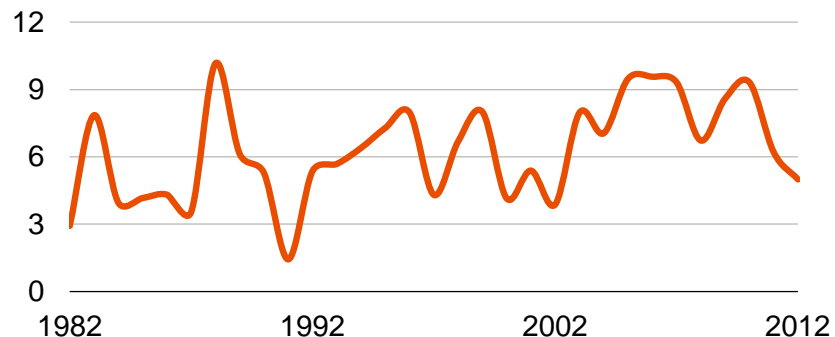
Source: NBS; PBoC.

# India has lost momentum in the short term

- GDP growth has slowed in recent years however it remains within the historical range
- The slowdown is attributable to capacity constraints and inflation
- Despite slower growth the economy has made progress in recent years
  - capital stock continues to accumulate
  - progress on energy pricing reforms
  - public service electronic identification scheme enabling direct entitlement payments
- Further policy initiatives appear to be on hold until elections are held next year

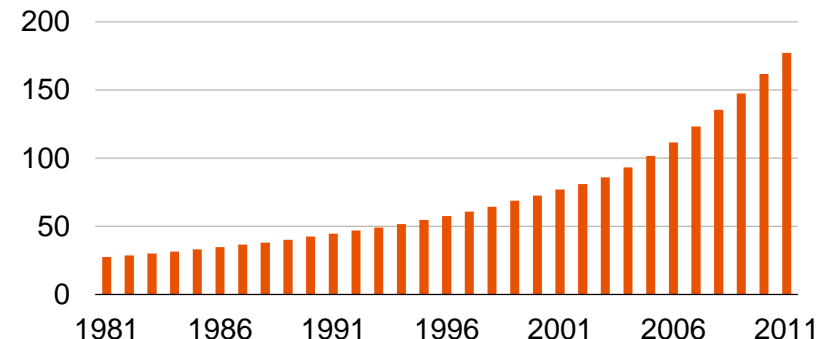
## GDP growth

(year-on-year % change)



## Real capital stock

(INR trillion)



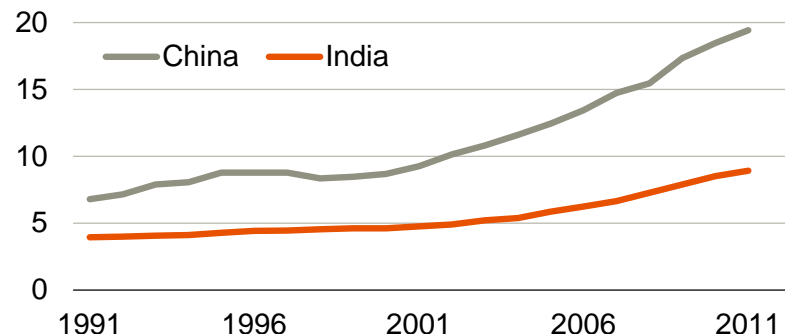
Note: 2004-05 INR. "2012" = FY ending March 2013.  
Source: CSO.

# India still has significant long term potential

- India's current wealth per capital is similar to China in 2000
- Demographics are favourable for growth
- The industrial sector will be key to India's development
  - as wealth rises, demand for industrial goods will increase
  - insufficient exportable services exist to facilitate the import of large volumes of industrial goods
  - for example, Information Technology and Business Services, while highly successful, represent less than 5% of the economy

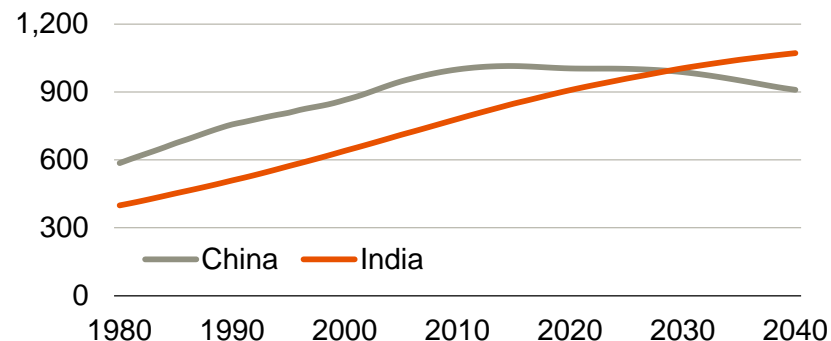
## Per capita GDP relative to US

(US = 100)



## Working age population

(million persons)



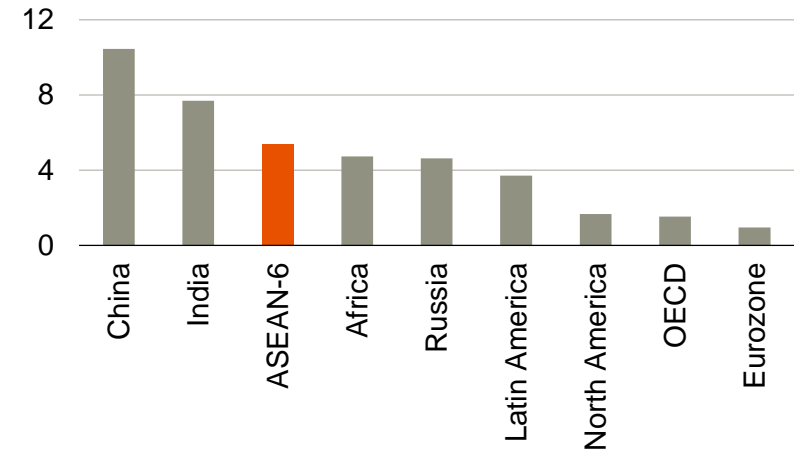
Note: Population aged 15-65.

Source: Penn World Table Version 8.0; UN Population 2012.

# ASEAN members are performing well and will play a key role in future growth

- South East Asia has displayed strong growth over the past decade
- The largest four countries by population in ASEAN represent over 500 million people
- For these four countries, the combined average GDP per capita remains under US\$5000, indicating significant upside potential

**GDP growth between 2002 - 2012**  
(% CAGR)

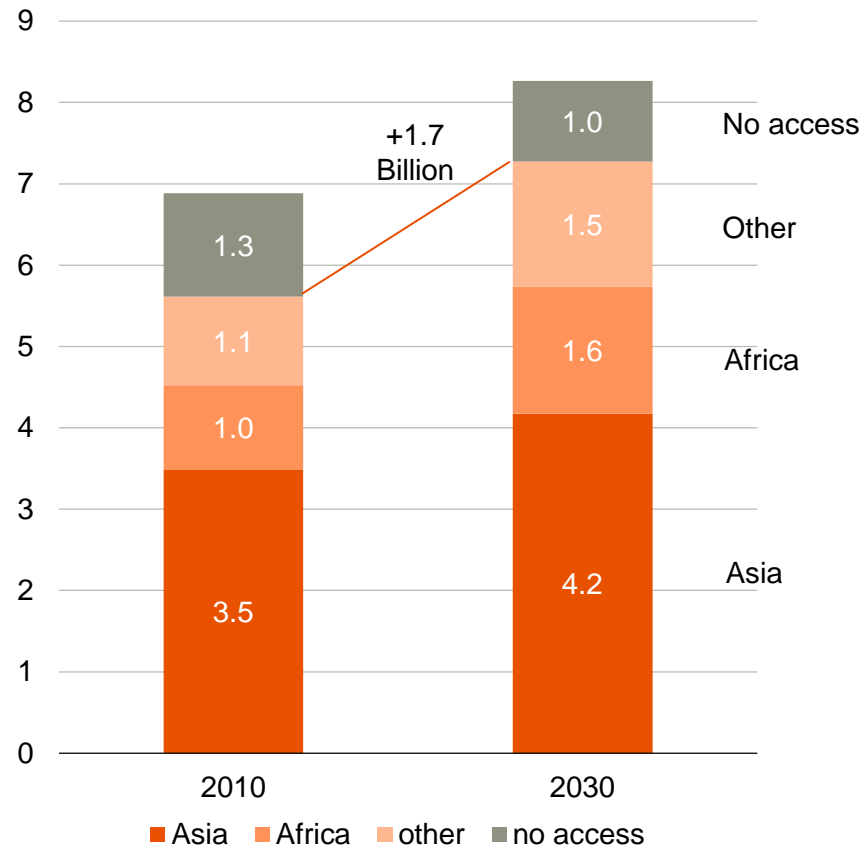


Country	2012 Population (millions)	2002-2012 GDP Growth (CAGR)
Indonesia	245	5.7%
Philippines	97	5.2%
Vietnam	90	7.0%
Thailand	70	4.2%
Malaysia	29	5.1%
Singapore	5	6.0%

Source: IHS Global Insight.

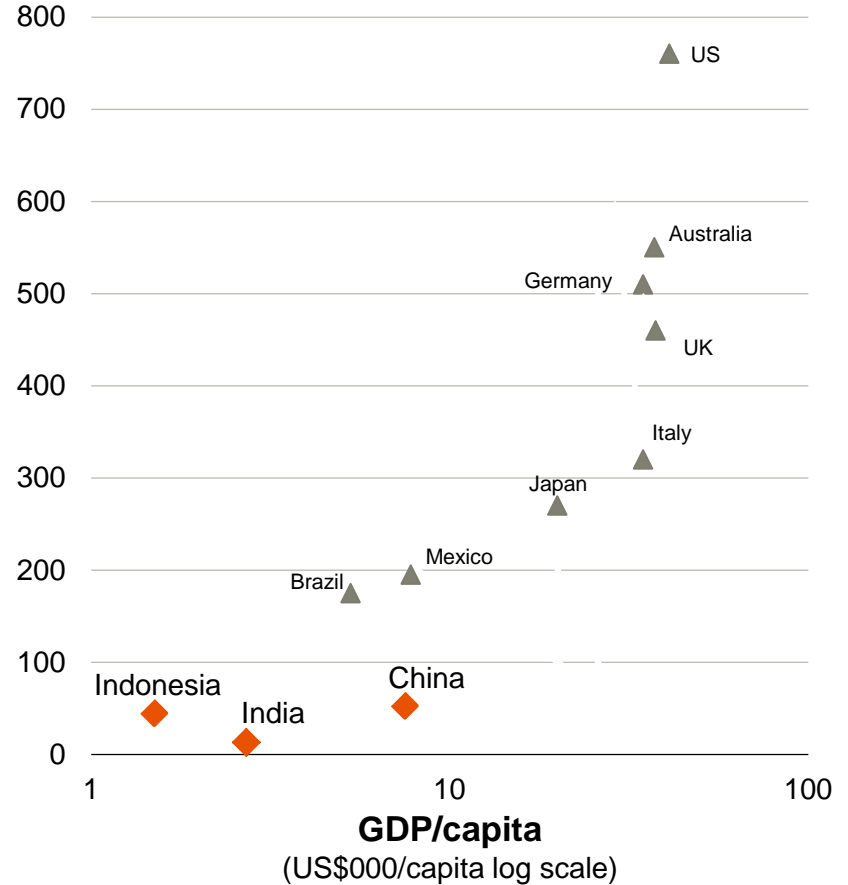
# Global energy consumption will be driven by electrification and transport

**Population with access to electricity**  
(billion people)



Source: World Energy Outlook ©OECD/IEA, 2012; IMF; IHS Global Insight.

**Passenger car penetration**  
(number of vehicles per thousand population)



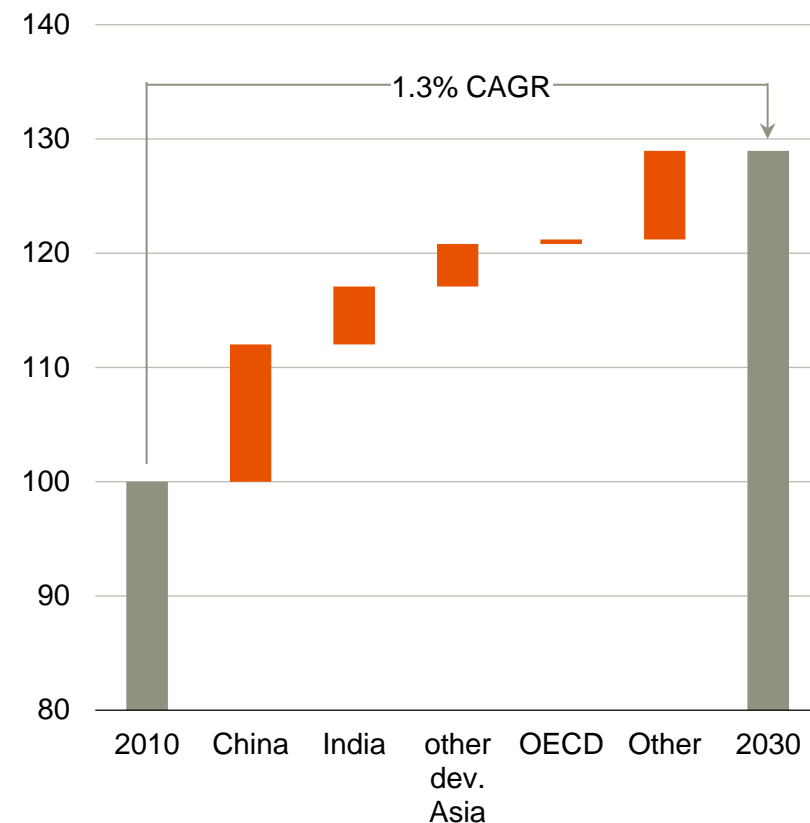
Note: 2011 penetration and GDP/capita in China, 2010 in India, 2009 in remaining.  
Source: BBVA; HSBC Research; BHP Billiton analysis.

# Asia represents the bulk of energy consumption growth

- Primary energy demand is expected to grow by 1.3% p.a to 2030, presenting opportunities across multiple sectors, fuels and regions
- Energy demand growth in China and India to 2030 is equivalent to the amount of energy consumed in the United States today
- Electricity generation is expected to grow by 2.3% to 2030
  - China will require 1,340 GW of new capacity, more than twice current global wind and solar capacity
  - India will require over 530 GW of new capacity, more than the current gas capacity of the United States

## Primary energy demand growth by region

(Btoe, index 2010 = 100)



Source: World Energy Outlook ©OECD/IEA, 2012; New Policies Scenario of World Energy Outlook ©OECD/IEA, 2013.

# Substitution within the energy complex has allowed for a diverse base of supply

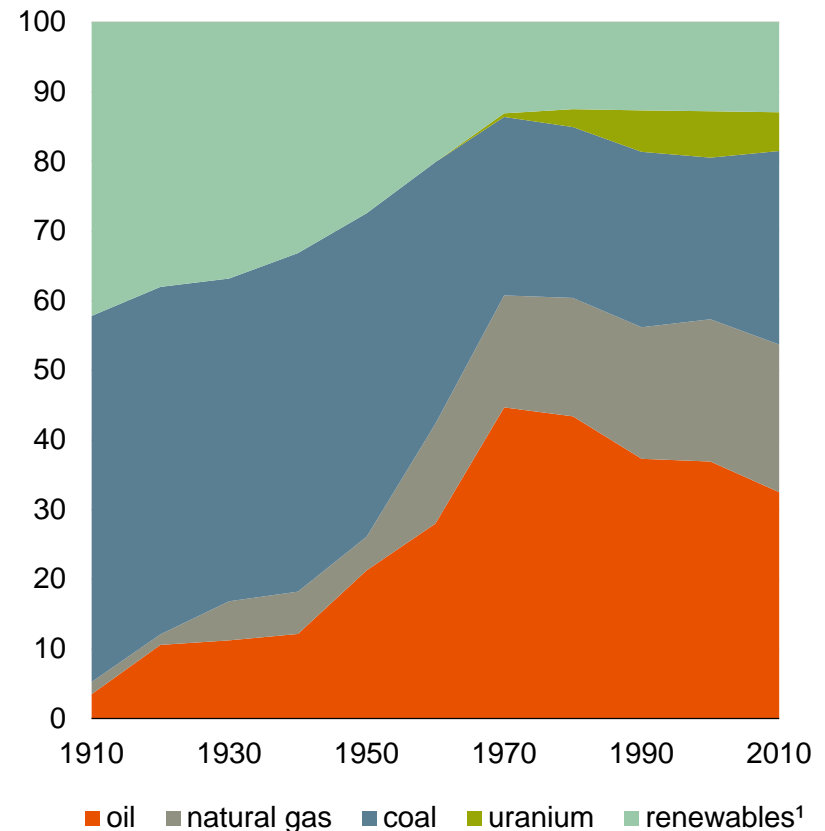
## Economic drivers of the energy mix

- Technology factors have influenced demand and supply
  - electricity has substituted for biomass
  - hydraulic fracturing has altered competitiveness of gas vs. coal
- The closure of the economic arbitrage can take extended time

## Policy drivers of the energy mix

- Environmental regulation is used to dampen demand growth for certain technologies and fuels
- Long term carbon regulation is paramount for the energy complex
- The drive for energy security has led to a more diversified supply complex

Global energy mix (%)

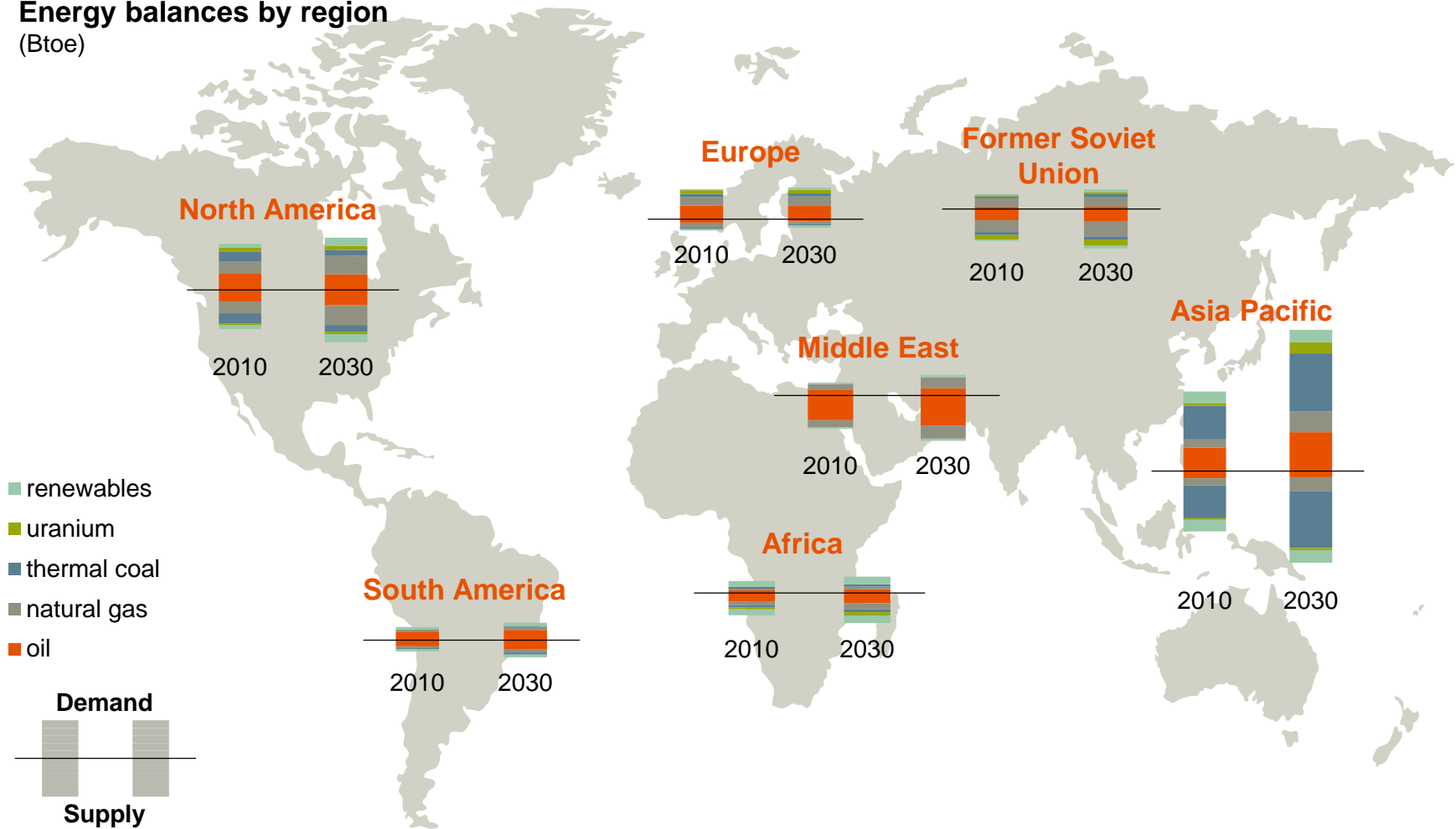


Source: Energy Balances ©OECD/IEA, 2013; World Economic Forum.  
1. Includes biomass.



# Choice of energy is influenced by availability of domestic resources

## Energy balances by region (Btoe)

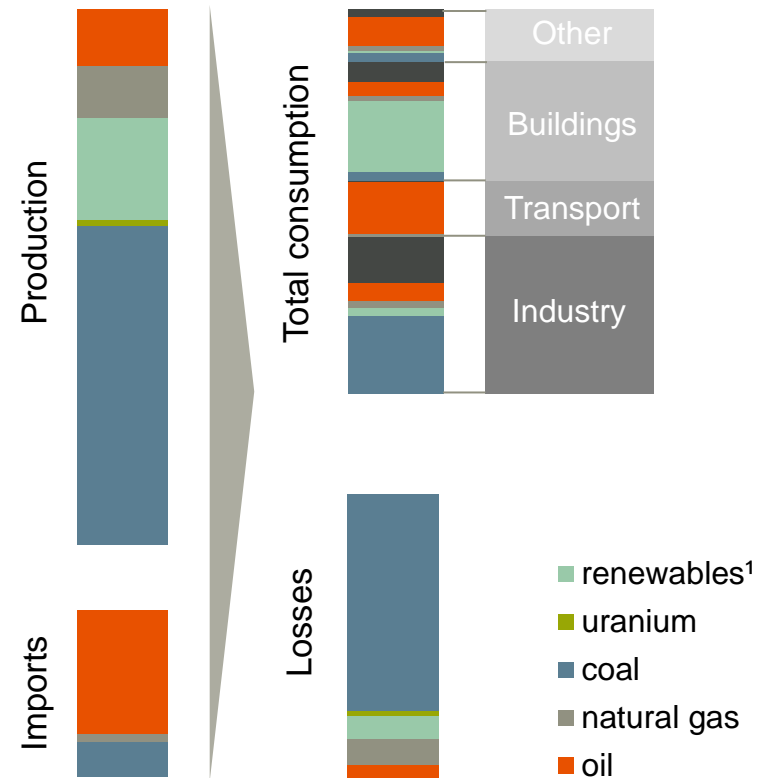


Source: BHP Billiton analysis.

# Choice of energy is also influenced by the type of end use consumption

- Types of end use consumption influence the selection of fuels
  - transport is reliant on oil
  - certain industries are limited to direct coal consumption, like steelmaking
  - biomass represents a large share of energy consumption in buildings
- Total energy consumption in emerging Asia will increase by two-thirds to 2030
  - transport will gain share
  - power will increase its share to represent a quarter of all energy demand

Energy balance in emerging Asia in 2010



Note: Stock changes, statistical differences and transfers are excluded. Other includes agriculture and non-energy use. Emerging Asia is defined as non-OECD Asia.

Source: World Energy Outlook ©OECD/IEA, 2012; Extended Energy Balances ©OECD/IEA, 2013.

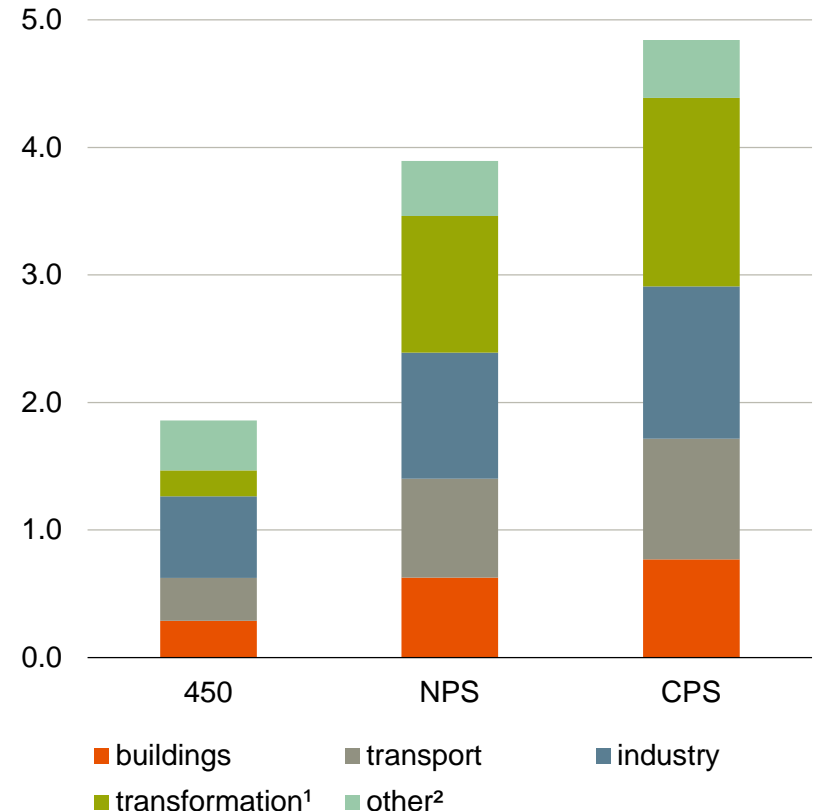
1. Includes biomass.

# Uncertainties exist in the energy complex

- A number of economic and policy decisions will significantly influence demand
  - such as demographics and the rate of economic growth
- Supply conditions can be unpredictable given the uncertain nature of the resource base
- Managing the response to carbon emissions and climate change represents a key challenge for the energy sector
- Technology and efficiency are inherently uncertain in their development

## IEA energy scenarios

(global growth in consumption of energy to 2030, Btoe)



Note: World Energy Outlook scenarios include 450 Scenario (450), New Policies Scenario (NPS) and Current Policies Scenario (CPS).

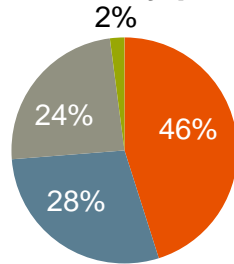
Source: World Energy Outlook ©OECD/IEA, 2012; Extended Energy Balances ©OECD/IEA, 2013

1. Transformation includes power generation sector and other energy sectors as defined by IEA.

2. Other includes agriculture and non-energy use..

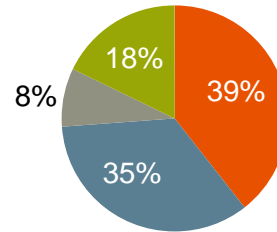
# BHP Billiton possesses a uniquely diversified energy portfolio

Revenue by product



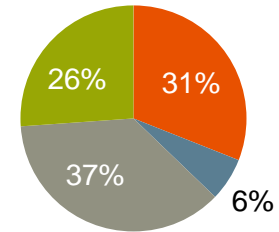
oil thermal coal  
natural gas uranium

Revenue by region



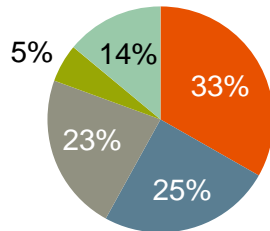
US Asia  
Europe rest of World

Revenue by sector



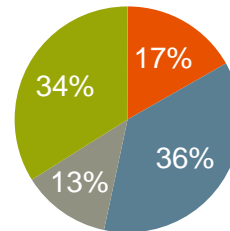
transformation<sup>1</sup> buildings  
industry transport

Global demand by fuel



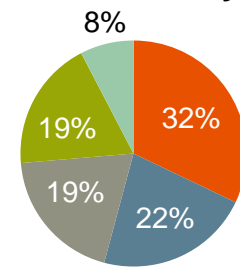
oil thermal coal  
natural gas uranium  
renewables

Global demand by region



US Asia  
Europe rest of World

Global demand by sector



transformation<sup>1</sup> buildings  
industry transport  
other<sup>2</sup>

Source: World Energy Outlook ©OECD/IEA, 2013; BHP Billiton analysis.

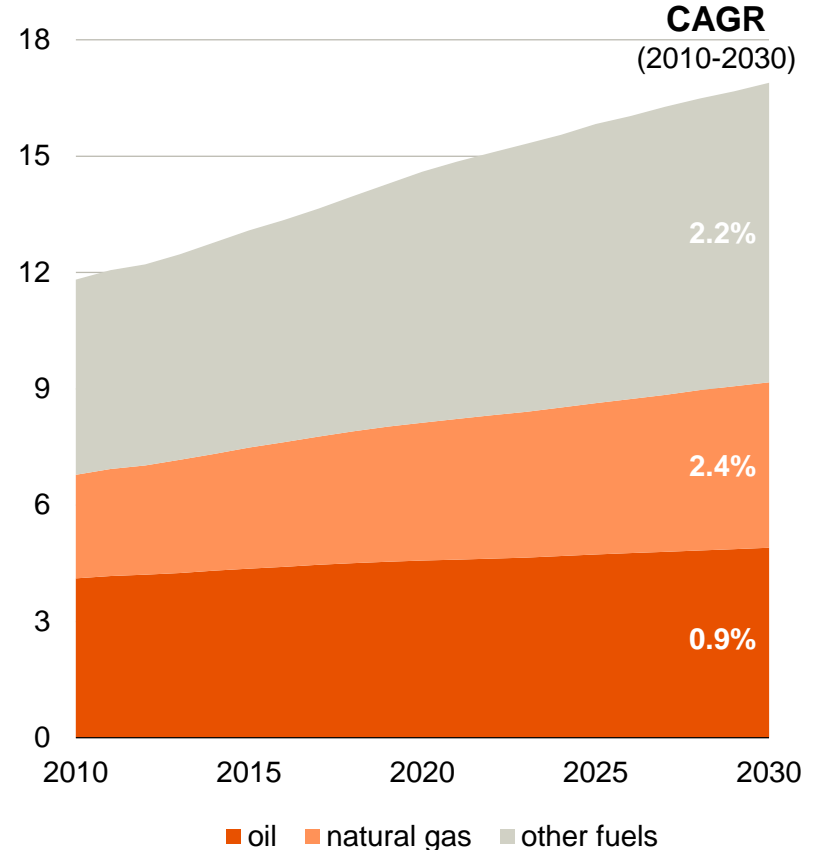
1. Transformation includes power generation and other energy sectors as defined by IEA.

2. Other includes agriculture and non-energy use. Global demand data for 2011. BHP Billiton data for FY13.

# Oil and gas form the foundation of the energy complex

- Global energy demand growth is strong enough to drive increased consumption for all energy fuels
- Along with renewable electricity, natural gas is one of the fastest energy supply growth sectors
- Natural gas is the most versatile energy source, with growth in the transport, power, industry and residential sectors
- Natural gas will play an important role in transitioning to a lower carbon future
- Oil will remain competitive in the transport and petrochemical sectors

Primary energy supply by commodity (Btoe)



Source: EIA, 2013; BHP Billiton analysis.

# Key themes

- Global GDP growth will be driven by the emerging economies
- China's growth model is in transition and evidence of progress is building
- India's economic growth will be cyclical and its energy demand will be significant
- Substitution in the energy complex allows for a more robust and secure supply base
- Industry economics and policy will influence longer term energy demand
- Our uniquely diversified energy portfolio is a major differentiator



**bhpbilliton**

resourcing the future



# Petroleum markets

**Brett Langley**  
Vice President, Marketing  
9 December 2013





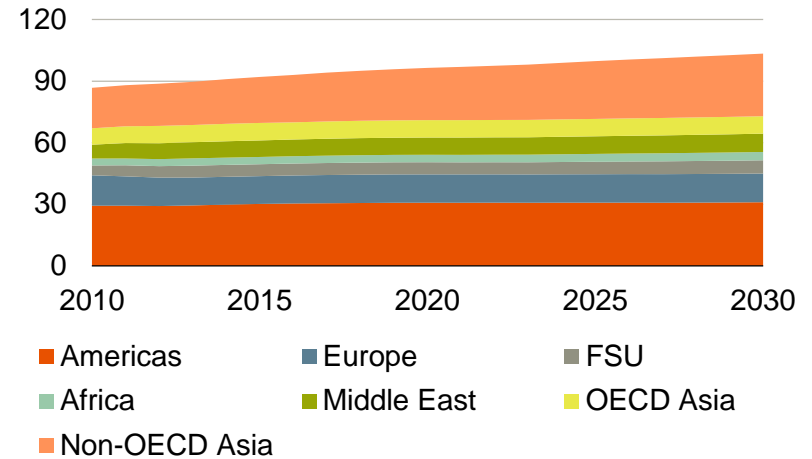
# Key themes

- Global crude market fundamentals remain robust
- US crude production growth will be absorbed by domestic refinery capacity
- Global gas markets will continue to converge over time
- Positive demand outlook for US gas and differentiated cost curve will support prices over the long term
- US NGL supply growth is incentivising a demand response
- Our diversified portfolio of liquids and gas is well positioned to capture increasing demand

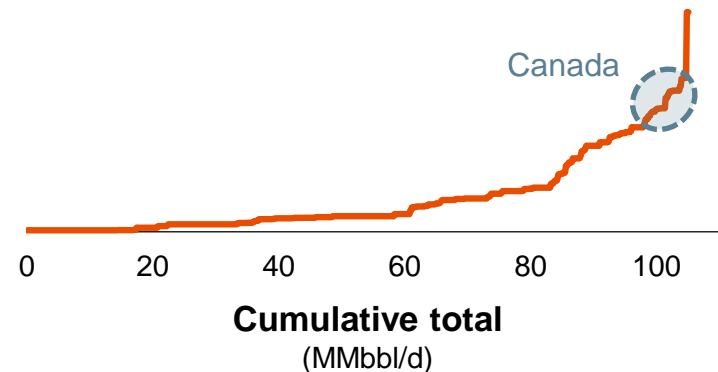
# Global crude fundamentals remain robust

- We forecast global liquids demand CAGR of 0.9% to 2030
  - current consumption of 90 MMbbl/d
  - over 100 MMbbl/d forecast by 2030
  - underpinned by a significant increase in Asian transport fuel consumption
- Supply side challenges include ongoing resource depletion and the high cost of additional capacity
  - Canadian production represents the marginal barrel
  - US and Brazil are key sources of non-OPEC supply growth
  - OPEC will retain influence through its control of spare capacity, which averaged 3 MMbbl/d in 2012

**Global liquids demand**  
(MMbbl/d)



**Global crude cost curve - 2020**

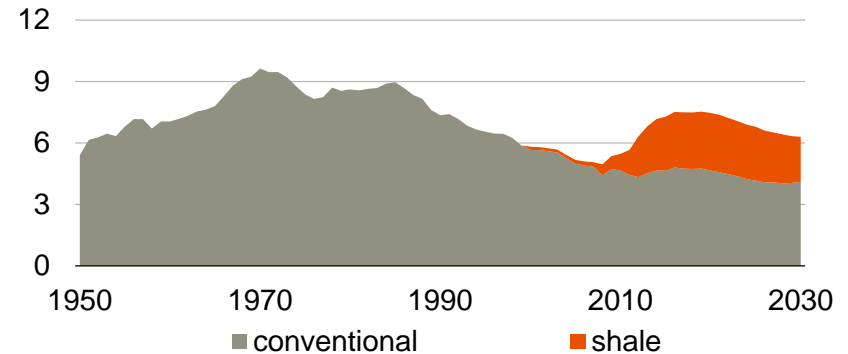


Liquids demand includes crude, NGLs and biofuels.  
Source: EIA; IHS; BHP Billiton analysis.

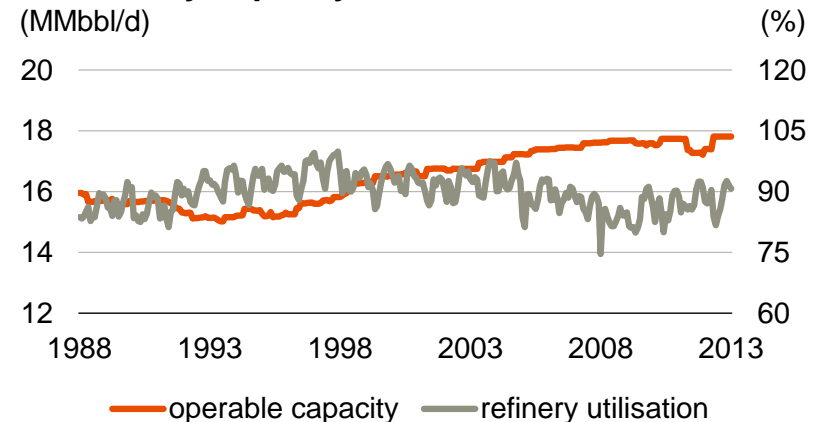
# US refinery complex well positioned to manage increased shale oil supply

- Shale oil development has underpinned a substantial recovery in US crude production
  - forecast to increase from a low of 5 MMbbl/d in 2008 to 7.5 MMbbl/d in 2016
- Production growth will be absorbed by existing, re-configured and new US refinery capacity
  - 18 MMbbl/d of current US refinery capacity with ~43% located in the US Gulf
  - over 3 MMbbl/d of crude imports have been displaced to date
- US exports of refined products will meet strong demand from non-OECD countries
  - Latin America is expected to consume an additional 1.7 MMbbl/d of refined products by 2020

**US crude supply**  
(MMbbl/d)



**US refinery capacity and utilisation**

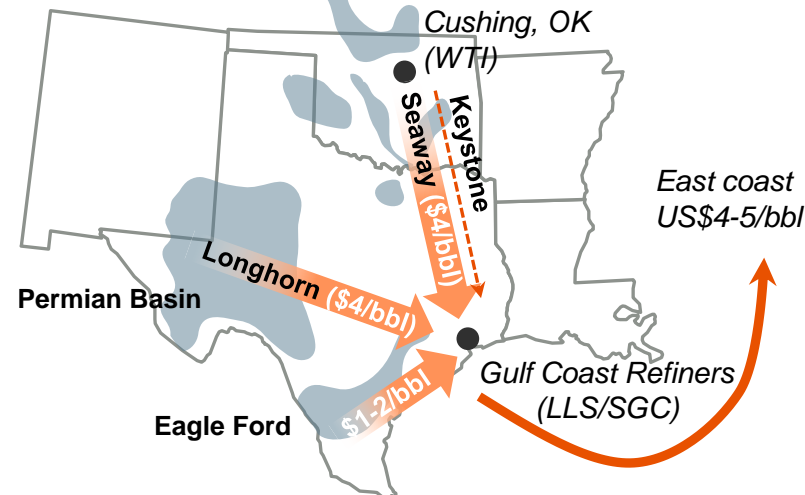


Source: EIA.

# Fundamental change to the WTI-Brent spread

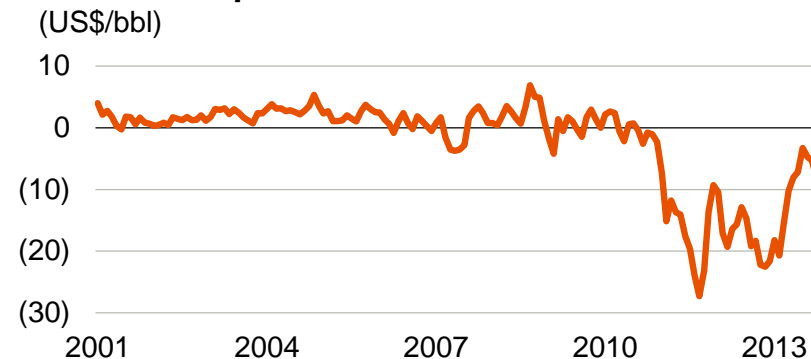
- WTI historically traded at a premium to Brent to reflect transport costs from Gulf Coast to Cushing
- WTI traded at a discount from 2011 as growth in US production led to an oversupply at Cushing
- Investment in Cushing to Gulf Coast pipeline capacity has narrowed the spread
  - Seaway pipeline was reversed in 2013
  - expansion to Seaway pipeline and new Keystone southern leg pipeline expected to add 1.2 MMbbl/d by 2014
- The spread will remain volatile as Gulf Coast refineries adjust to absorb incremental supply with excess crude transported to the East Coast
- Longer term, the spread is expected to trade at transport differentials (WTI to Brent)

## Locational crude prices



Note: Gulf Coast to Brent transport differential typically US\$2/bbl.

## WTI-Brent spread

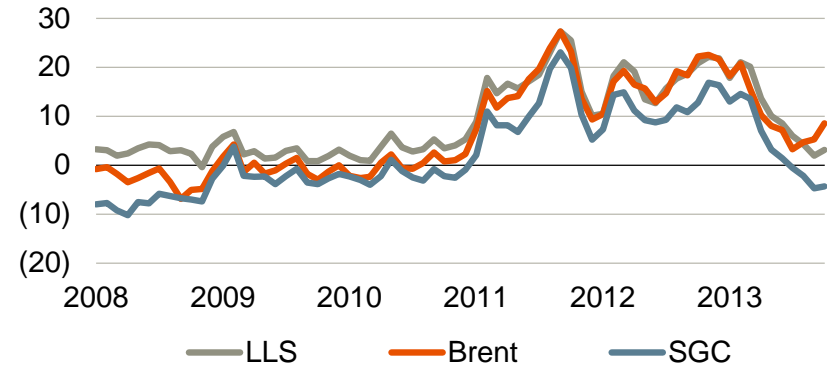


Source: Goldman Sachs Global Investment Research; EIA. SGC: Southern Green Canyon; LLS: Louisiana Light Sweet.

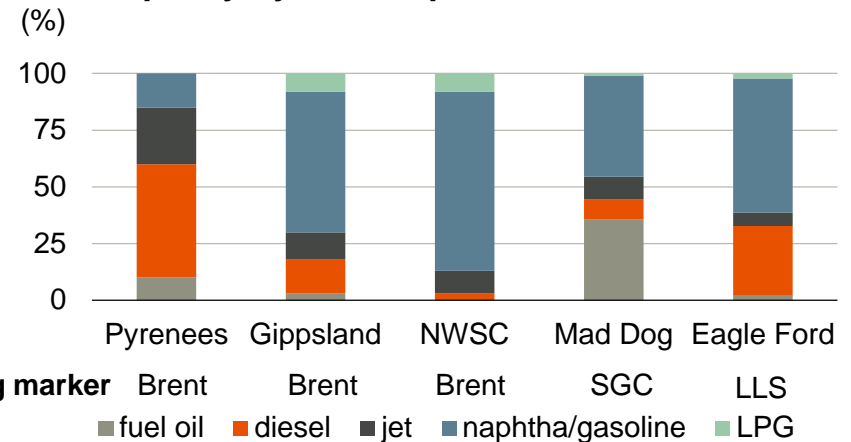
# We target refinery configurations that match our crude portfolio

- Regional crude pricing reflects quality and locational differentials
  - Australian crudes are indexed to Brent
  - Gulf of Mexico crudes are primarily indexed to SGC
  - Onshore US crudes trade at a discount to LLS (currently achieve ~94% of WTI)
- The value of our crudes is related to refined product characteristics
  - high diesel content of Pyrenees supports premium of up to ~US\$7/bbl over Brent
  - Gippsland/NWS lighter mix
  - valuable diesel content in Eagle Ford
- Our objective is to achieve the highest netback by targeting end use refinery configurations that value our crudes

**Regional crude prices**  
(US\$/bbl differential to WTI)



**Crude quality by refined product**



**Pricing marker** Brent Brent Brent SGC LLS  
 ■ fuel oil ■ diesel ■ jet ■ naphtha/gasoline ■ LPG

Source: Argus Media (LLS, SGC); EIA; BHP Billiton analysis. SGC: Southern Green Canyon; LLS: Louisiana Light Sweet.

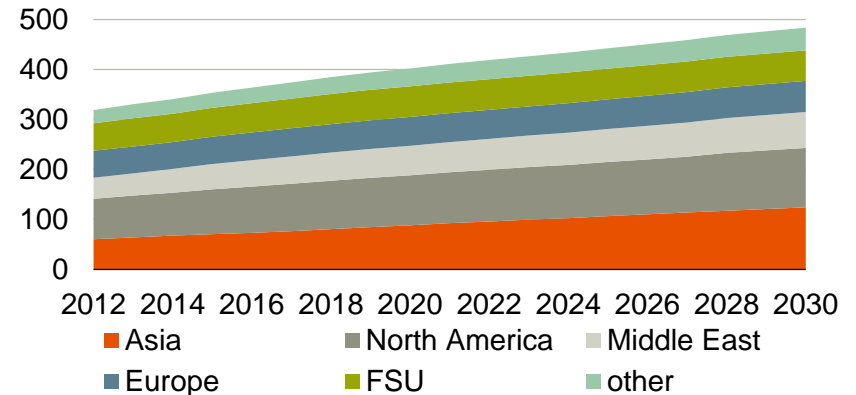
# Strong global gas demand outlook

- Global gas demand CAGR of 2.3% forecast to 2030
  - current consumption of 320 bcf/d
  - 480 bcf/d forecast by 2030
- Asian demand forecast to double to 125 bcf/d by 2030
- North American demand forecast to increase from 80 bcf/d to 115 bcf/d by 2030
- European demand CAGR of 1% forecast to 2030
- Global LNG demand CAGR of 4.1% forecast to 2030
  - current global trade of 33 bcf/d
  - 70 bcf/d forecast by 2030
  - increasing global gas market share from 10% to 15%

Source: Wood Mackenzie; BHP Billiton analysis.

## Global natural gas demand by region

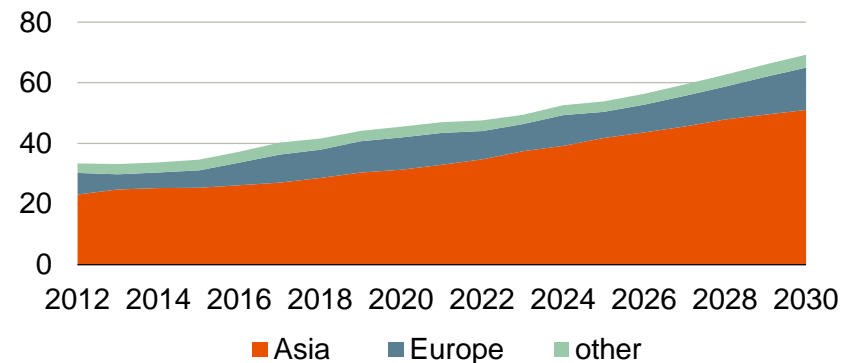
(bcf/d)



Other includes Africa, Latin America and Oceania.

## Global LNG demand by region

(bcf/d)

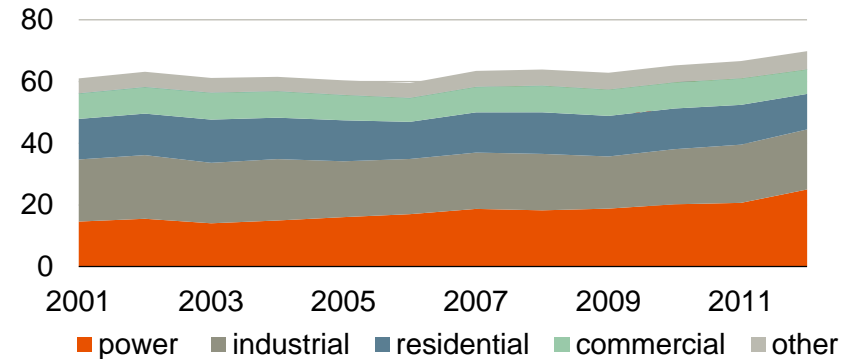


Other includes Africa, Latin America, Oceania, Middle East and North America.

# The US is the largest gas market in the world

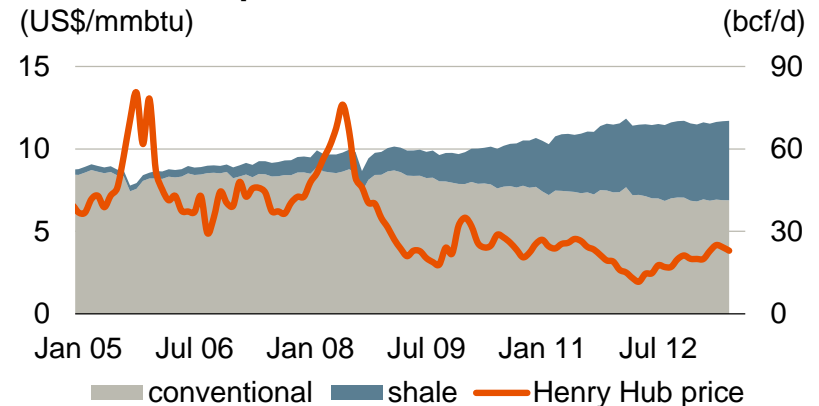
- The US is the largest, most traded gas market in the world
  - currently consumes 70 bcf/d
  - over 95 bcf/d forecast by 2030
- Current domestic consumption is evenly spread across key sectors
  - 36% power generation
  - 28% industrial demand
  - 28% residential/commercial demand
- Shale gas production has provided a substantial new supply source for the US
- A less volatile gas price environment is incentivising new growth in power and industrial demand

**US natural gas demand by sector**  
(bcf/d)



Other includes natural gas vehicle and compression fuel demand.

**US domestic production**

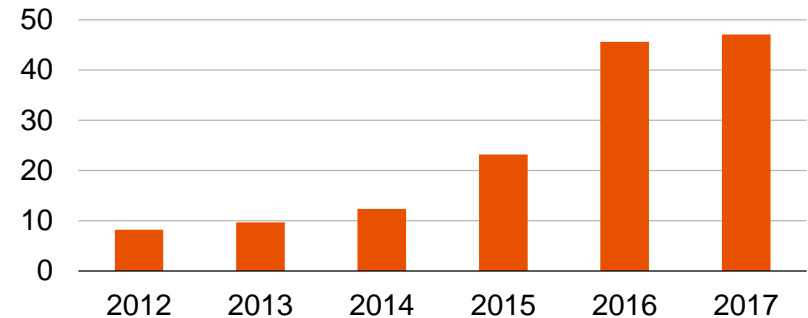


Source: EIA.

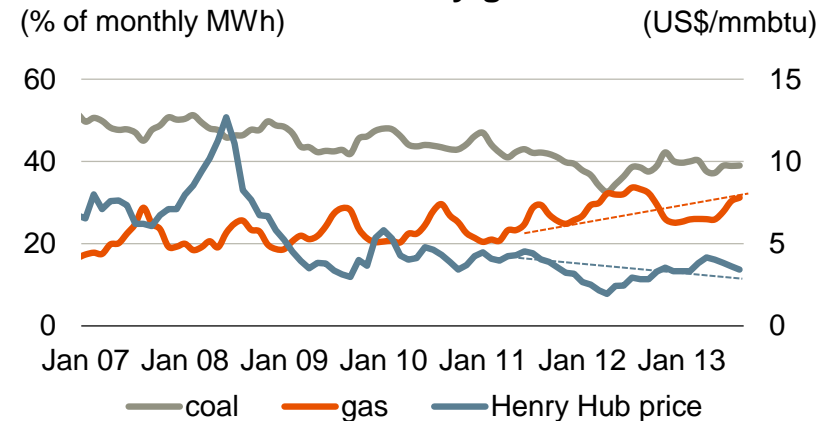
# Power generation provides gas price support

- US energy policy continues to favour gas fired power generation over coal
- Substantial retirements of sub-optimal coal plants are expected
  - ~47 GW out of 340 GW to be retired by 2017
  - represents ~5 bcf/d of incremental gas demand
- The US power generation fleet has developed up to 9 bcf/d of switching capacity
  - gas demand in the power sector reached 35 bcf/d in July 2012
- Gas demand for power generation is providing underlying price support

**Forecast US coal retirements**  
(cumulative, GW)



**Share of total US electricity generation**



Source: EIA.

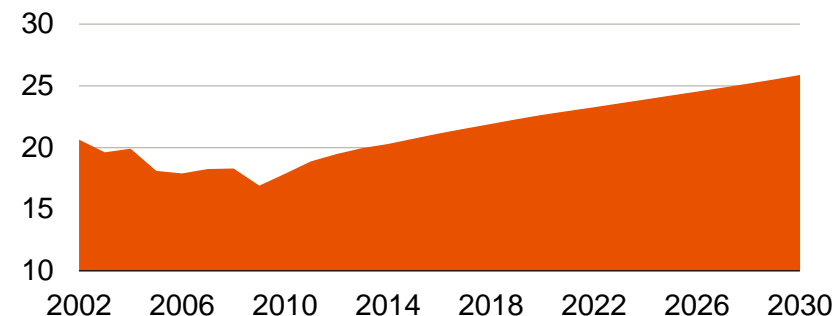


# A resurgence is underway in the industrial sector

- Industrial gas demand declined by 4 bcf/d between 2002-2009
- The current gas price environment has incentivised a resurgence in industrial activity
  - incremental industrial demand of ~6 bcf/d expected by 2030
- The majority of new demand will come from the petro-chemicals industry
  - ~US\$6 billion invested in new capacity since 2010
  - a further US\$66 billion of additional capacity announced out to 2020
  - investment is highly concentrated in the US Gulf Coast

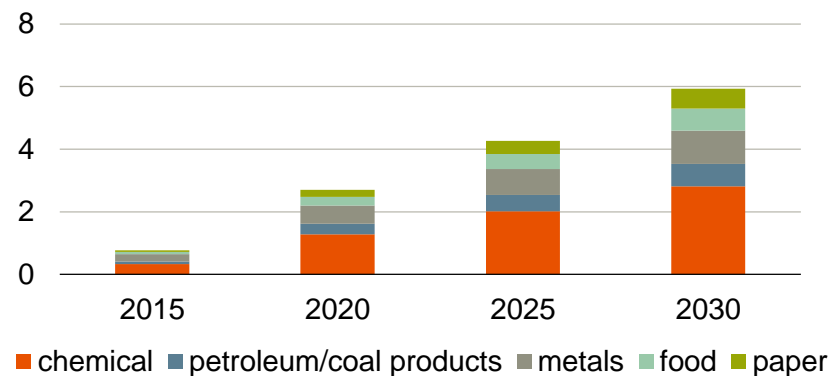
## US industrial gas demand

(bcf/d)



## Incremental industrial gas demand

(bcf/d)



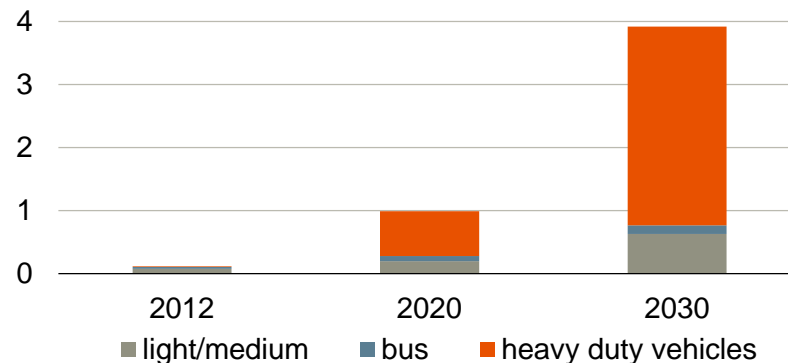
Source: EIA; American Chemistry Council; BHP Billiton analysis.

# New markets provide further demand upside

- Natural Gas Vehicle (NGV) demand growth of ~4 bcf/d is forecast by 2030
- The majority of demand growth is expected from heavy duty vehicles
  - 40% of the heavy trucking market could potentially switch to gas
- Regional corridors for refuelling infrastructure are in place and can expand significantly
- In a high oil price environment, demand for NGVs will be even more significant
- We are increasing the use of NGVs and gas fuelled drill rigs in our Onshore US business

## NGV gas demand

(bcf/d)

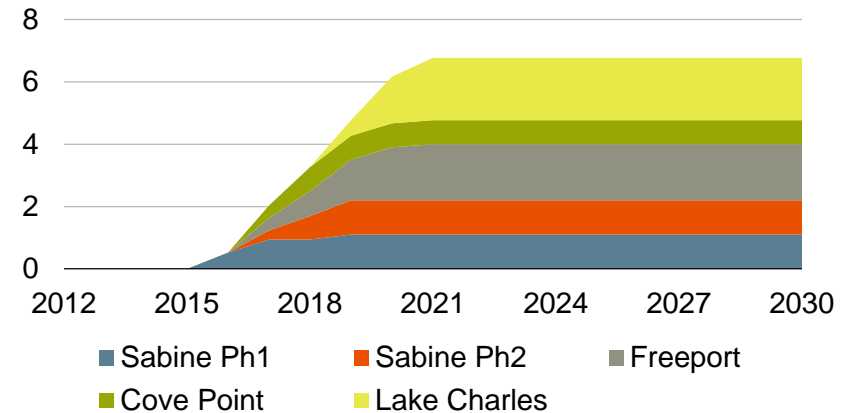


Source: BHP Billiton analysis.

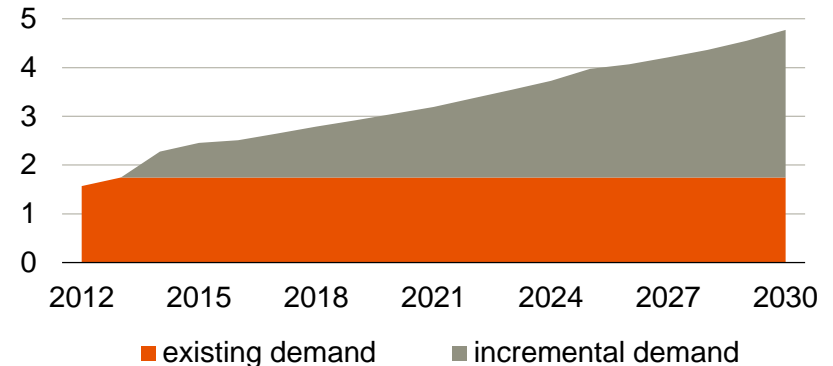
# As well as the emergence of US gas exports

- Five US LNG non-FTA export projects have been approved by the Department of Energy (DoE)
  - total of 6.77 bcf/d approved
  - four are subject to Federal Energy Regulatory Commission (FERC) approval
- US gas exports to Mexico are also expected to increase
  - declining domestic production and substitution of liquids fuel in power generation sector
  - 15 GW of additional gas fired power generation expected by 2020
- Total US exports of up to 11 bcf/d in 2030 forecast to meet global market demand

**DoE approved LNG export capacity**  
(bcf/d)



**US exports to Mexico**  
(bcf/d)

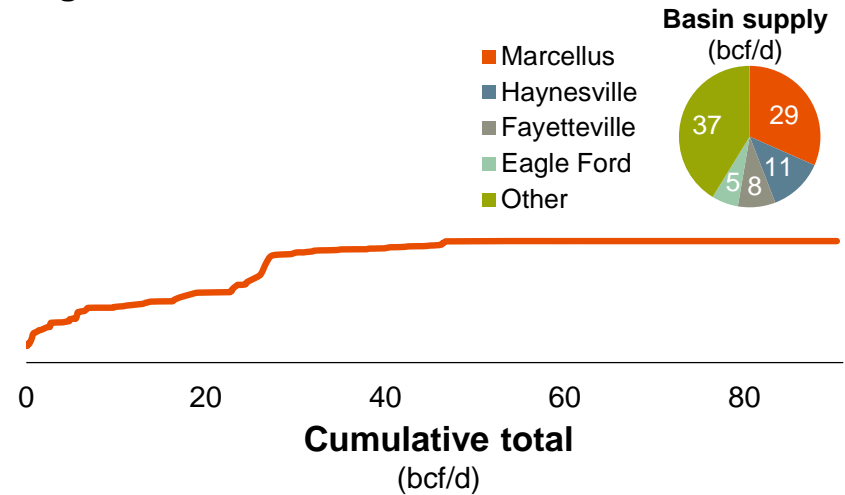


Non-FTA country: country with no free trade agreement with the US.  
Source: EIA; DoE; BHP Billiton analysis.

# Continued investment required to meet demand

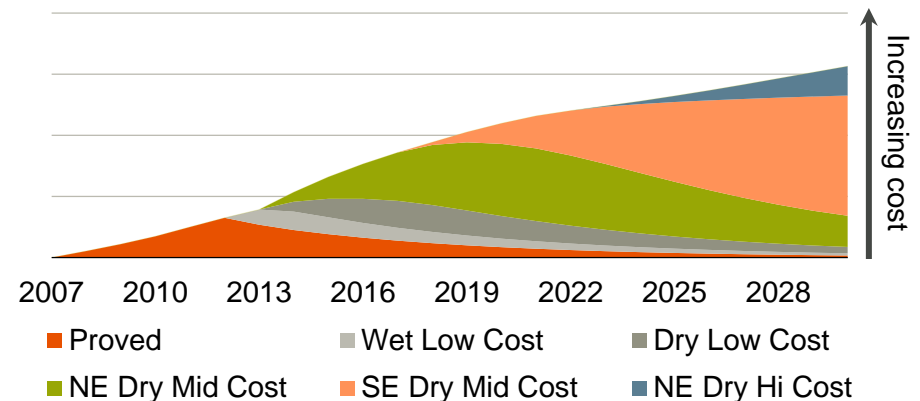
- The largest US gas supply sources include Marcellus, Haynesville and Fayetteville
- Supply cost differentiation driven by a number of factors
  - Economic Ultimate Recovery (EUR)
  - production rate
  - liquids yield
  - proximity to market
- Gas associated with liquids rich production represents a small component of total supply at 13%
- Decline curves will require continued investment along the cost curve (e.g. Marcellus) supporting prices over the long term

## US gas delivered inducement cost curve - 2025



## Marcellus differentiated cost curve

(bcf/d)

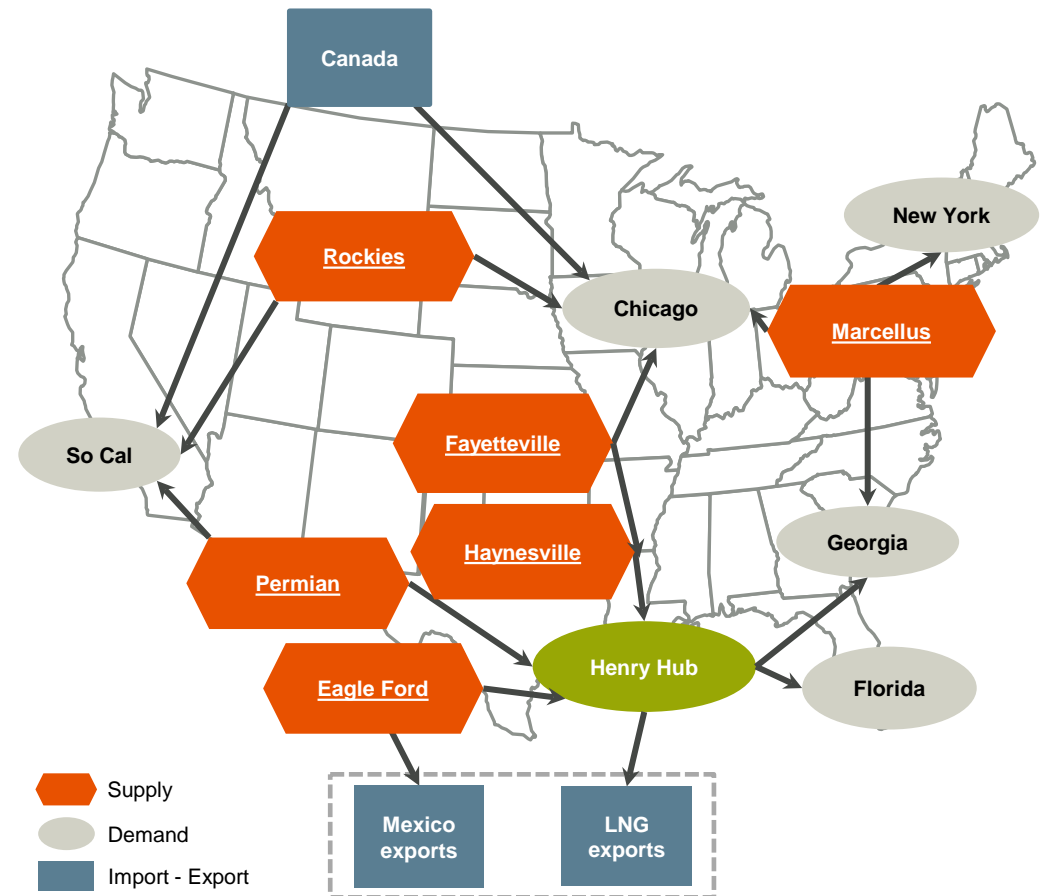


Source: BHP Billiton analysis.

# Our US shale gas resources are well positioned to access key markets

- The US gas market consists of multiple supply and demand centres
- Given their proximity to key southern and export markets our resources have a location advantage
- We forecast a long term benefit of US\$0.50/mmbtu relative to Marcellus
- Our portfolio of pipeline capacity leaves us well positioned to access key markets
- Our objective is to achieve the highest netback by capturing the location advantage and optimising the supply chain to targeted customers

## Regional gas flows

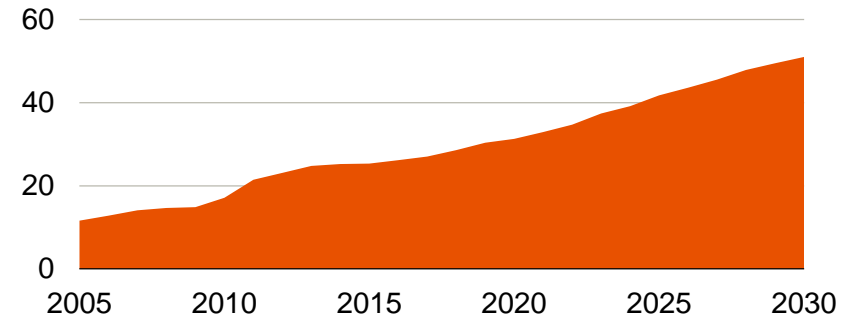


Source: BHP Billiton analysis.

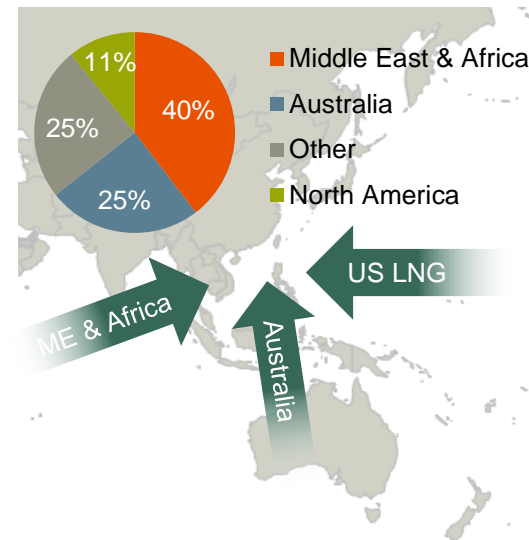
# US exports will impact Asian LNG price formation

- Asian LNG demand CAGR forecast of 4.5% to 2030
  - supply will be met by a variety of competing sources
- US LNG export projects are targeting Asian customers
  - up to 5.8 bcf/d of DoE approved US exports are likely destined for Asia
- With prices set by the Asian market, supplier margins will be set by transportation and liquefaction costs
- In the medium term price formation is likely to move from oil indexation to a hybrid of indices until spot market fully matures
- Longer term a fungible North Asian gas index will evolve

**Asian LNG demand**  
(bcf/d)



**Asian LNG supply in 2030**

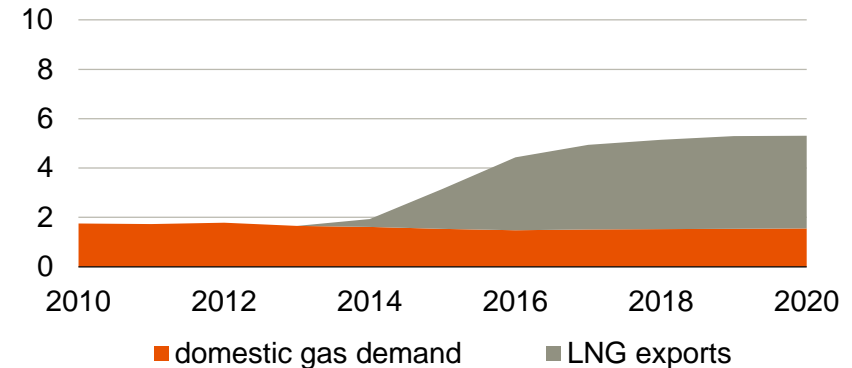


Source: Wood Mackenzie; BHP Billiton analysis.

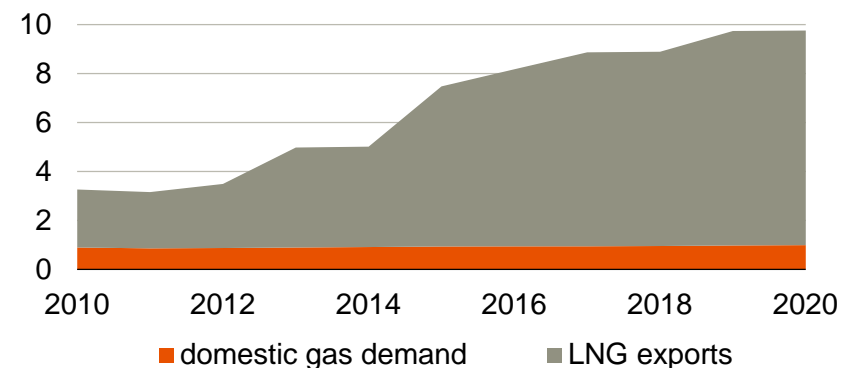
# Australian gas increasingly connected to LNG markets

- LNG exports from Eastern Australia to commence in 2014
  - over 70% of Eastern Australian supply to be exported by 2020
  - 90% of Western Australian supply to be exported by 2020
- We expect domestic pricing in Eastern Australia to be influenced by global LNG markets, similar to Western Australia
- A trend to oil indexation has been evidenced in recent Eastern Australian domestic gas contracts
- Longer term gas indexed spot markets are expected to evolve with pricing to reflect the demand and supply fundamentals of the day

**Eastern Australian gas demand**  
(bcf/d)



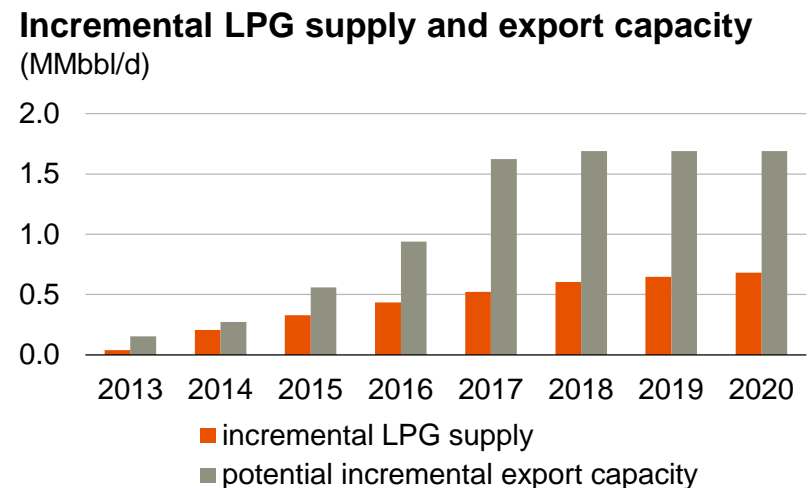
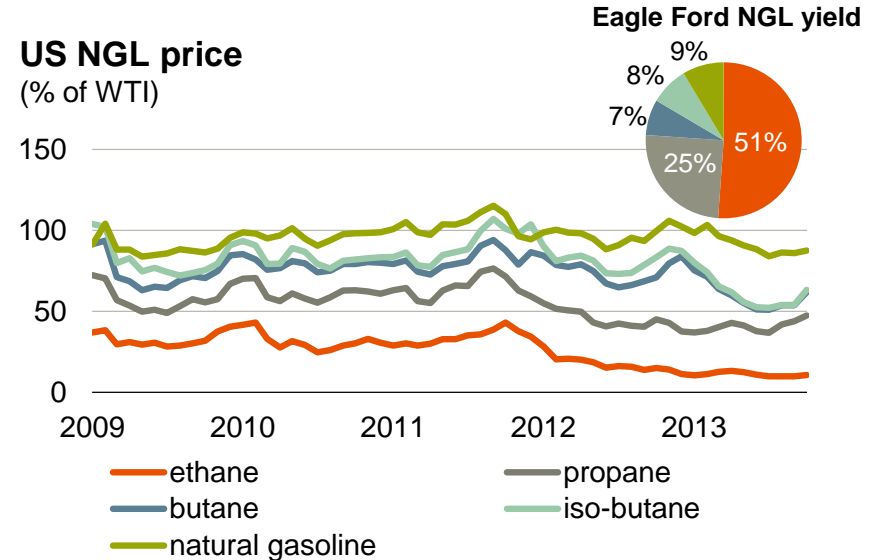
**Western Australian gas demand**  
(bcf/d)



Source: Department of Mines and Petroleum, IMO GSOO July 2013, AEMO GSOO Dec 2013.

# US NGL supply growth is incentivising a demand response

- NGLs consist of ethane, propane, butane, iso-butane and natural gasoline
  - used for plastic production, refinery blending, fuel and as a heavy oil diluent
- Individual US NGL prices are quoted at Mont Belvieu (adjusted for transportation / fractionation)
- US markets are responding to the increase in supply
- New LPG export and ethane steam cracking capacity is being developed
  - ~1.9 MMbbl/d of potential LPG export capacity by 2020 (from 0.2 MMbbl/d in 2012)
  - ~1.6 MMbbl/d of ethane steam cracking capacity by 2020 (from 0.9 MMbbl/d in 2012)



Source: EIA; OPIS; BHP Billiton analysis.



# Key themes

- Global crude market fundamentals remain robust
- US crude production growth will be absorbed by domestic refinery capacity
- Global gas markets will continue to converge over time
- Positive demand outlook for US gas and differentiated cost curve will support prices over the long term
- US NGL supply growth is incentivising a demand response
- Our diversified portfolio of liquids and gas is well positioned to capture increasing demand



**bhpbilliton**

resourcing the future