

BG GROUP



# Future of Global Gas Pricing

5 June 2012

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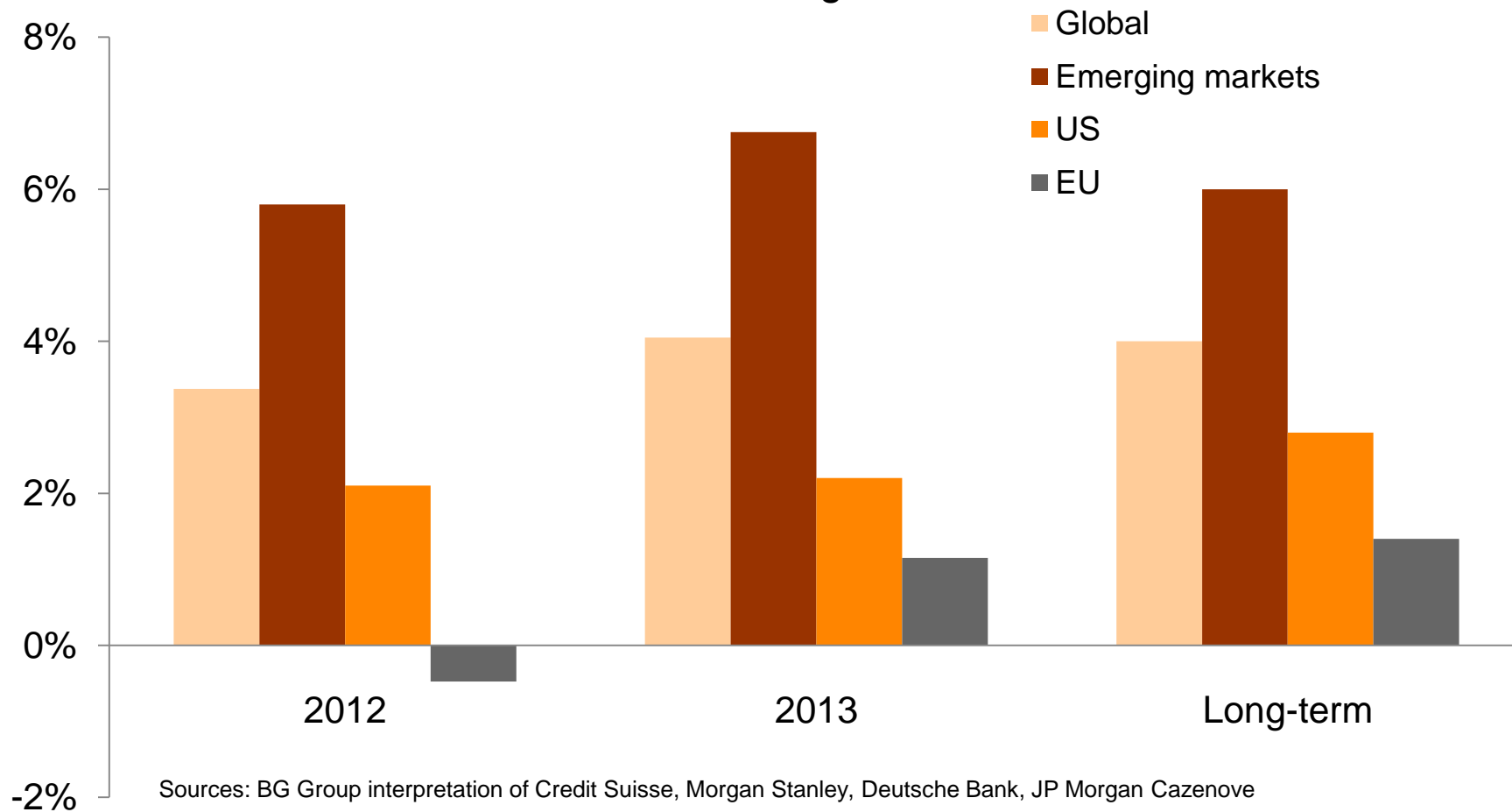


## Introduction

- Strong gas demand growth, led by Asia and Emerging Markets
- Supply challenges are substantial
- Competition between Europe and Asia for LNG supplies
- How will gas, in particular LNG, be priced in these markets?
- Could new gas finds help drive global price convergence?

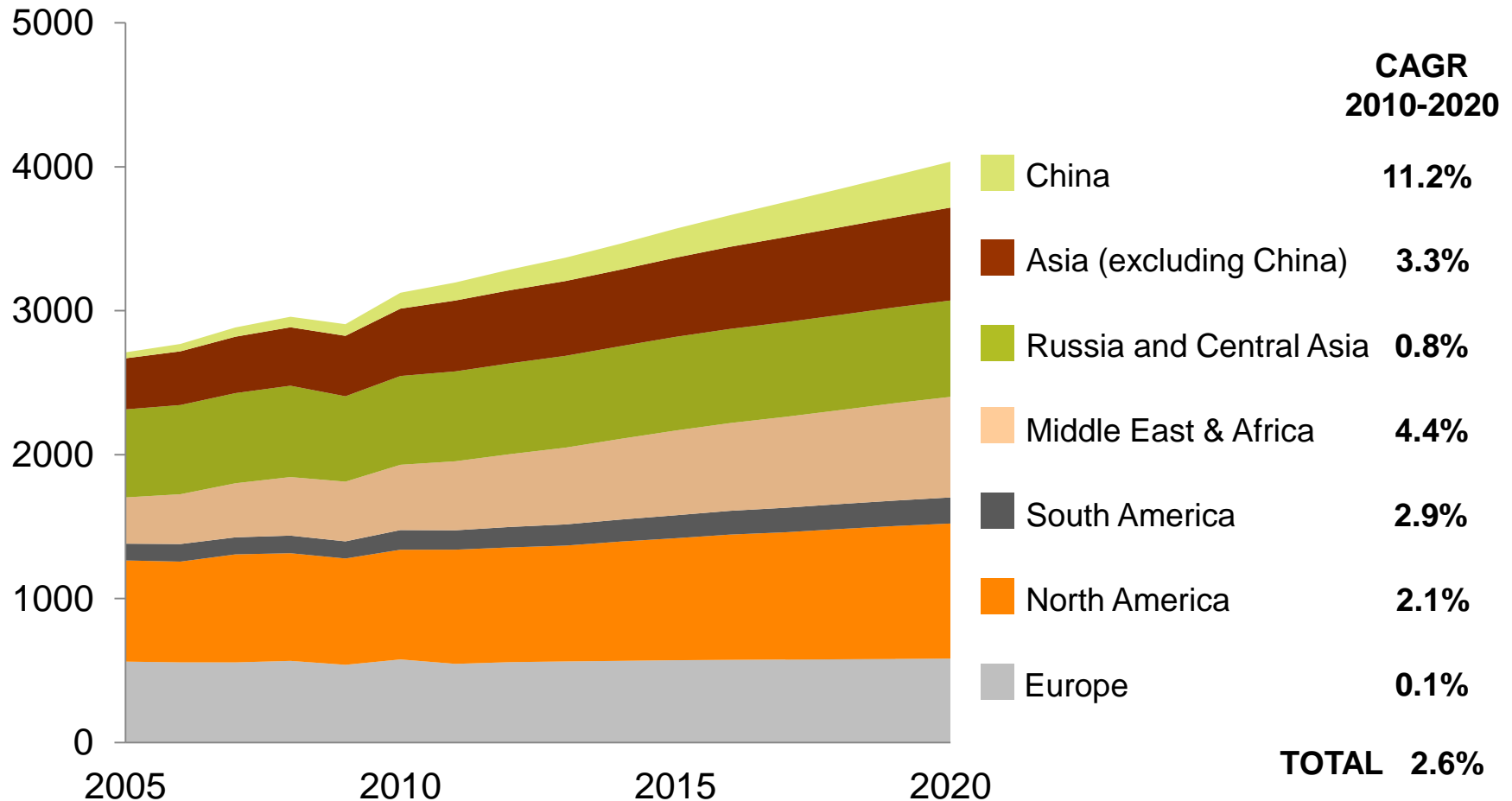
# Emerging Markets, especially Asia, drive global growth outlook

Real annual GDP growth rate



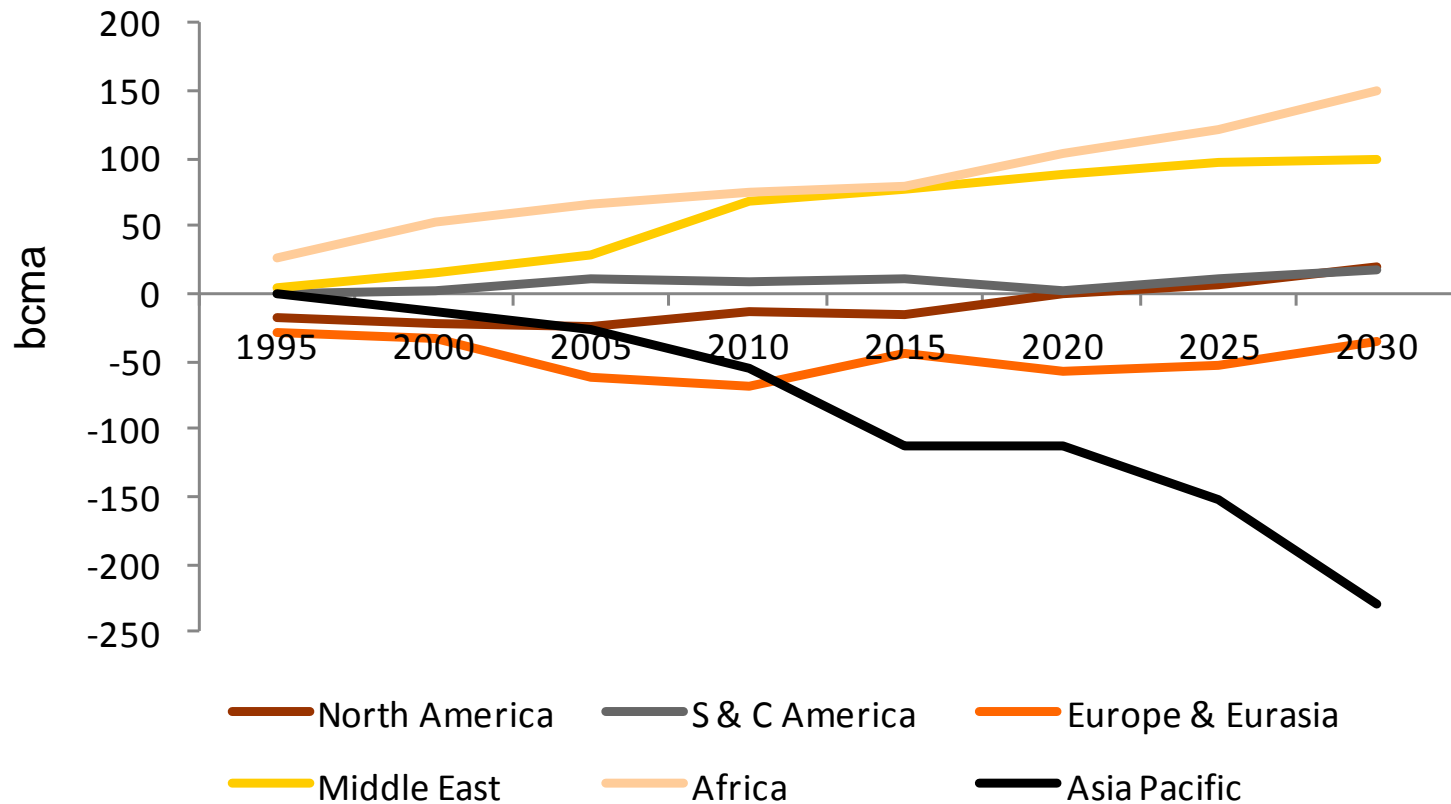
# Economic growth in turn drives strong gas demand growth

World gas demand (bcma)



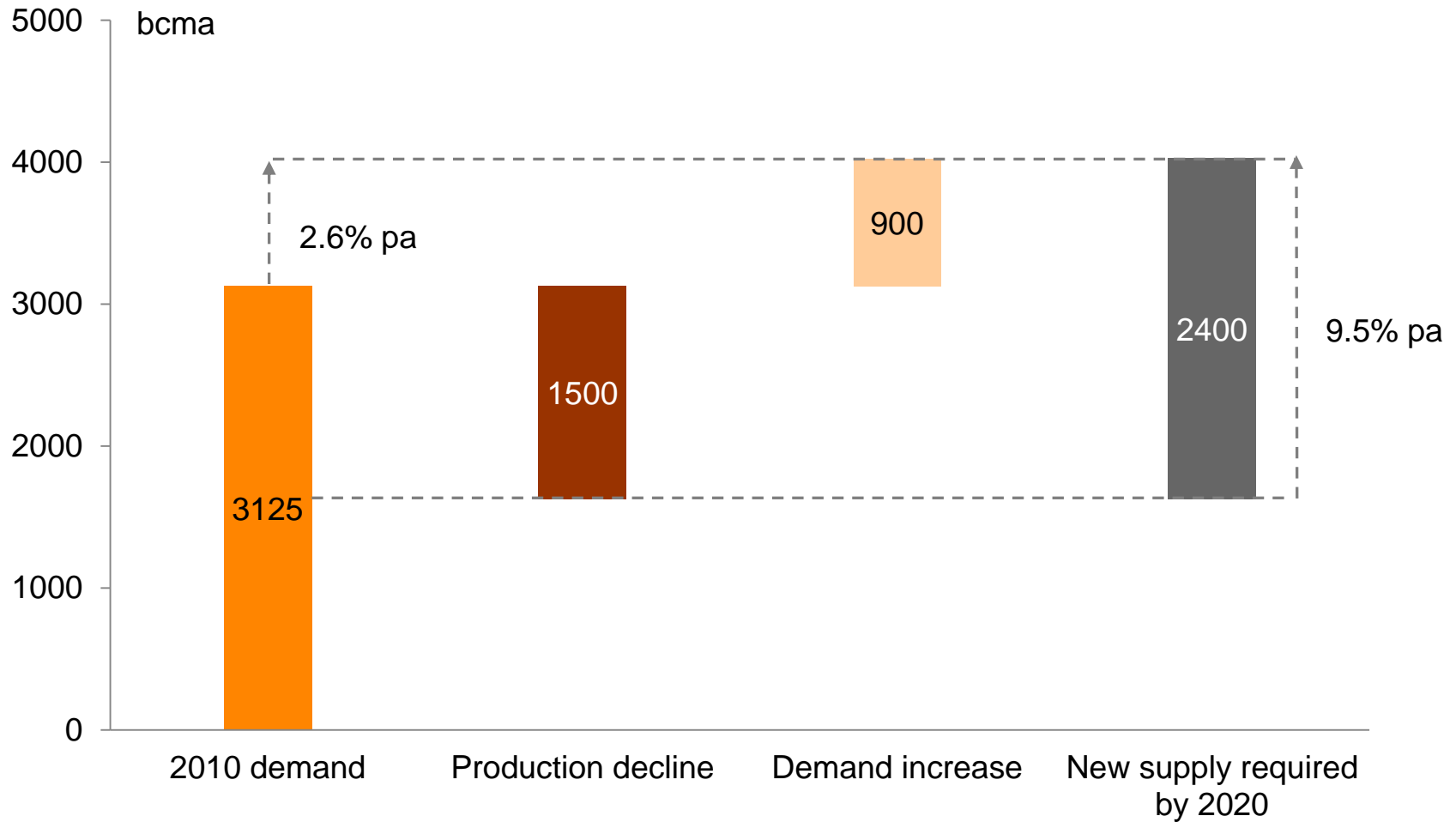
Sources: IEA, BG Group

# But where will the gas come from?



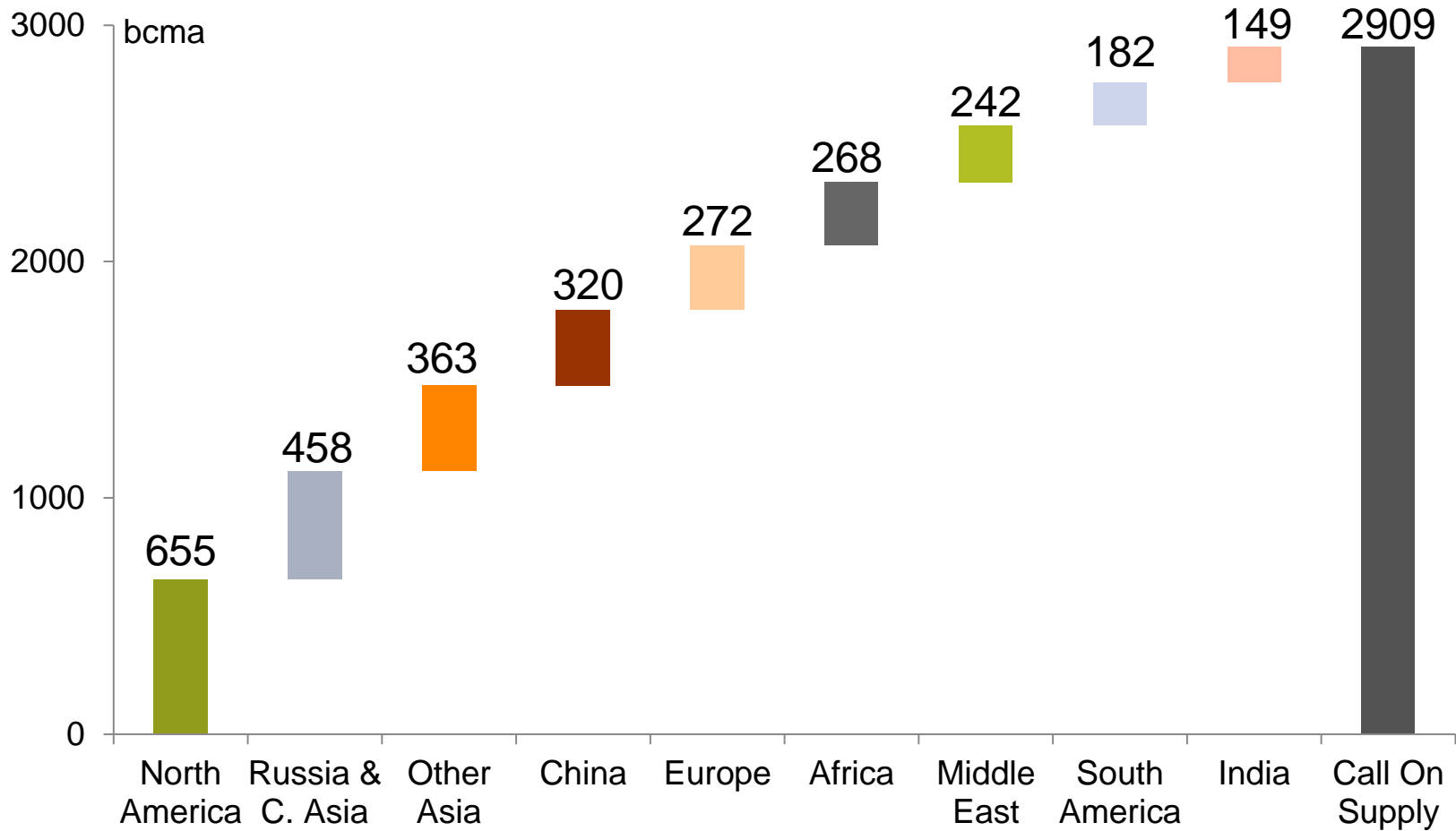
Source: BP 2030 Energy Outlook

# Global gas supply challenge (2010-2020)



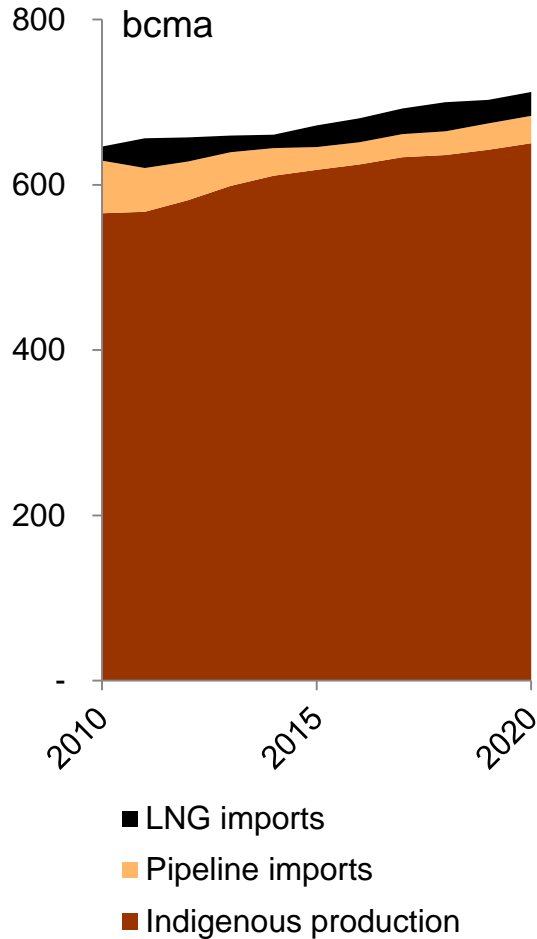
Sources: BG Group, BG Group interpretation of Wood Mackenzie

# Regional Call on Supply 2011-2025

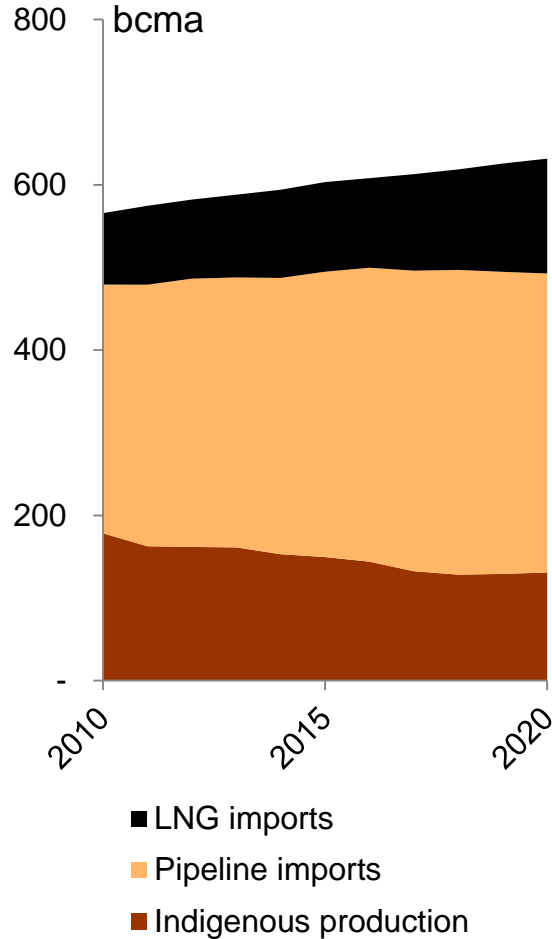


# Europe and Asia will compete for LNG

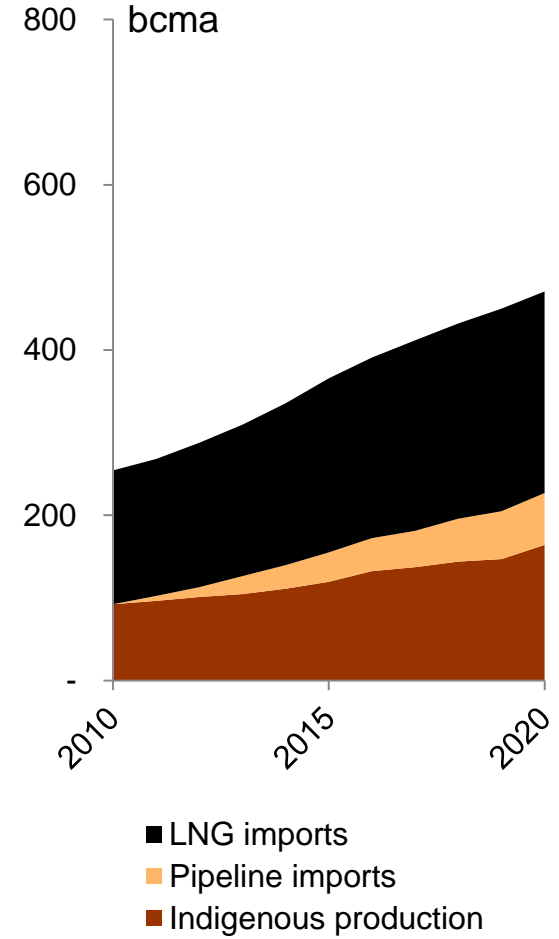
## US



## Europe



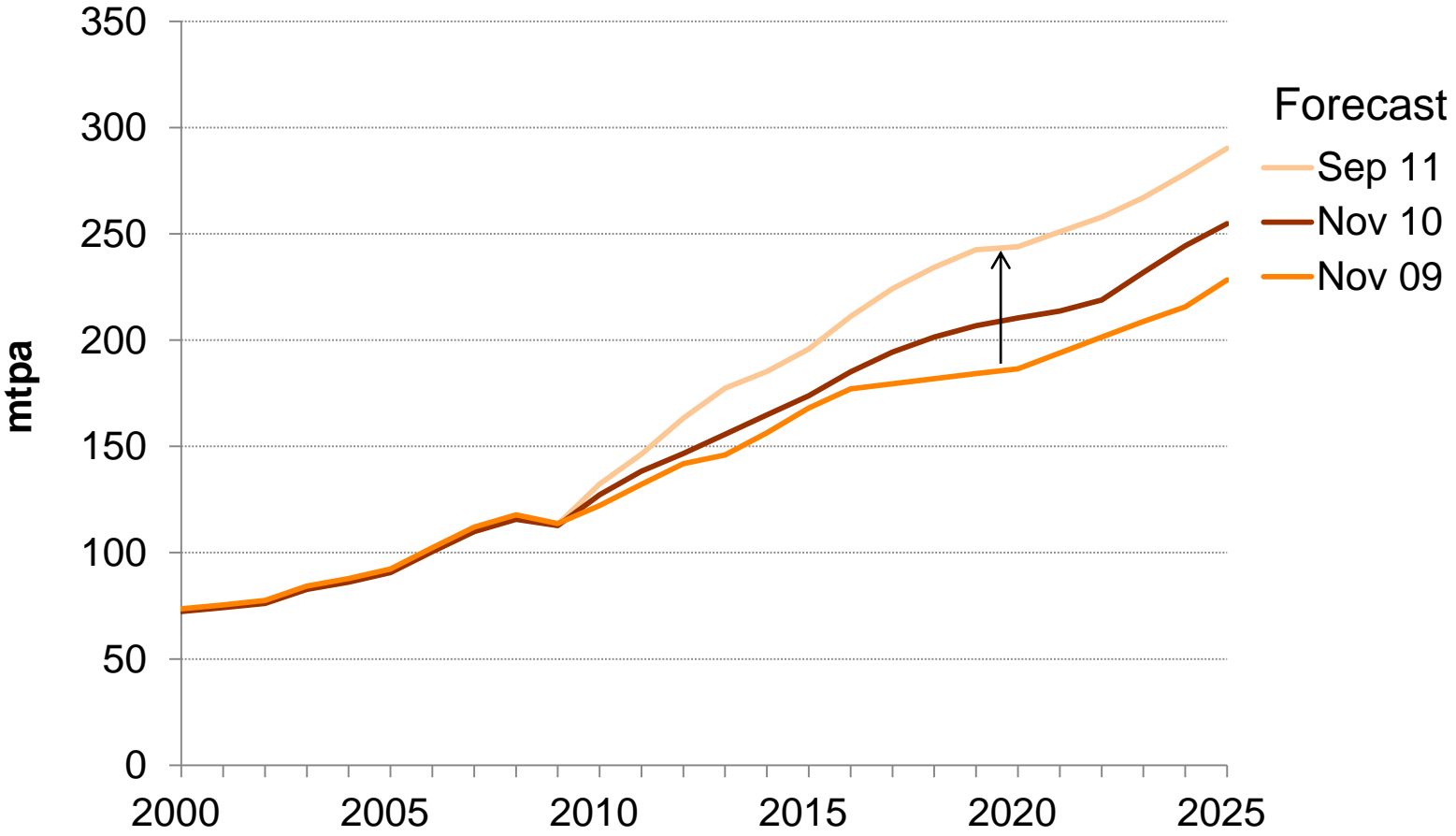
## JKT & China



Source: Waterborne Energy (2012)

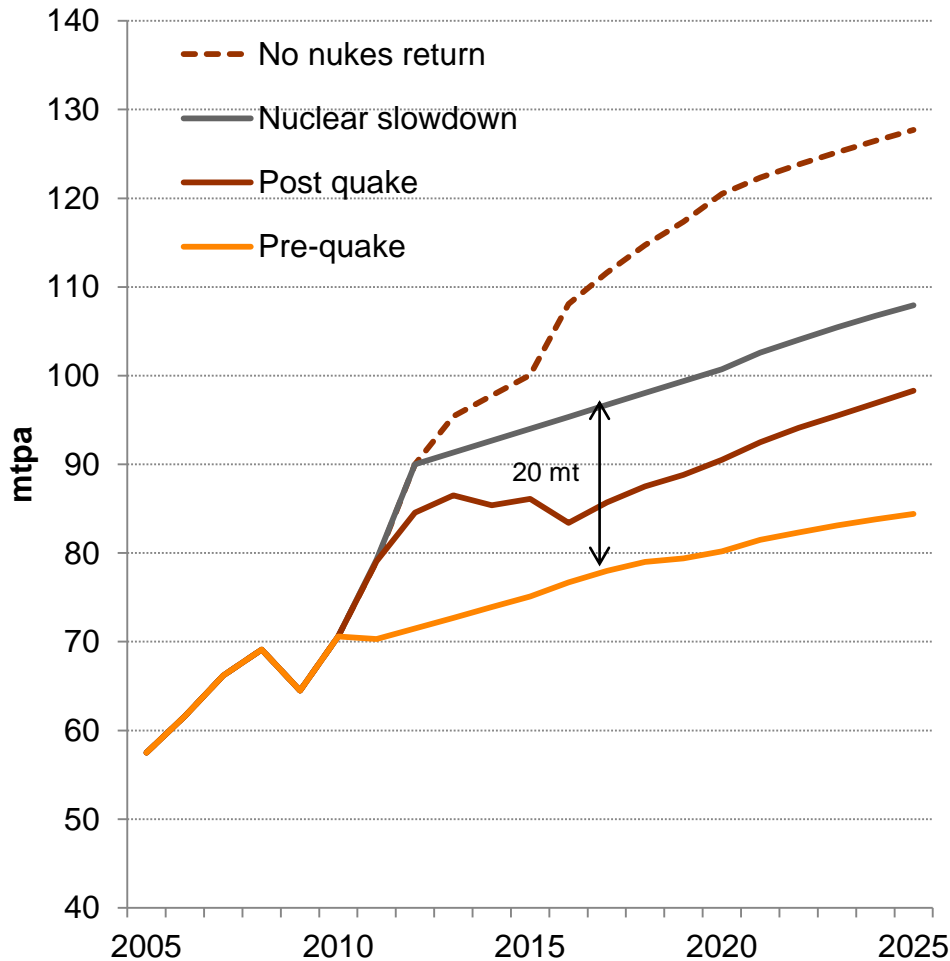


# Asian LNG demand outlook increasing



Source: BG interpretation of Wood Mackenzie data (2011)

# What has changed - markets: Japan



Source: BG Group

## 'No nukes return' scenario

- All nuclear capacity offline
- 50% replaced by LNG
- New gas-fired power capacity required

## 'Nuclear slowdown' scenario (base)

- 3 units back on in late 2012
- gradual ramp-up to 67% online by 2020
- units retired at 40 years old

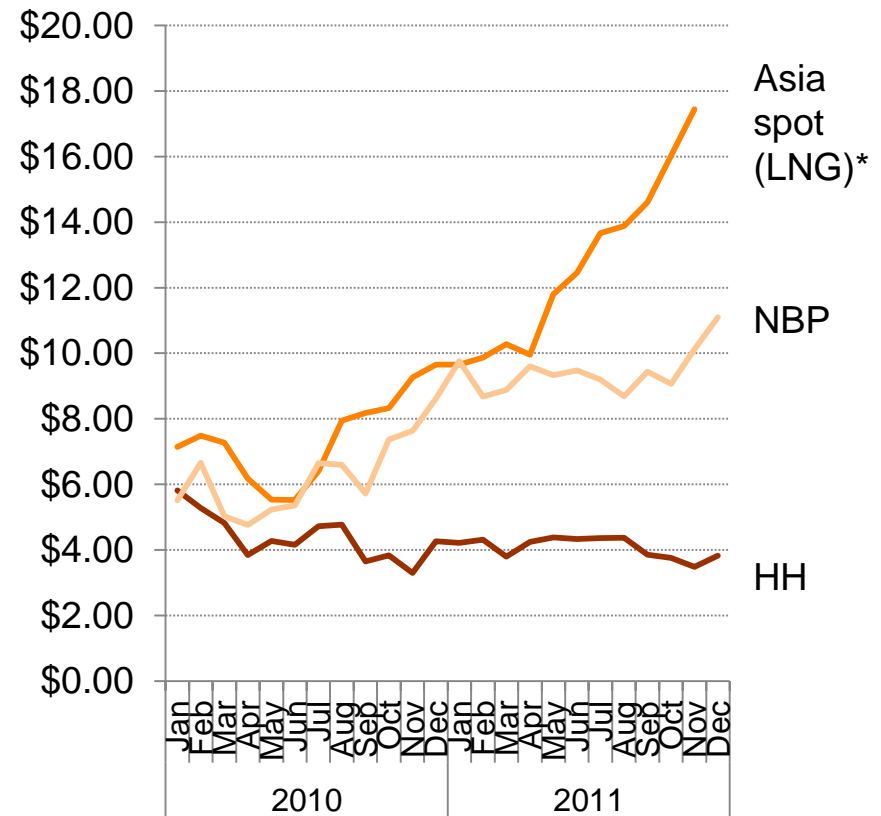
## 'Post quake' scenario

- 4.5 GW permanently lost (Fukushima)
- unaffected units return 2012/13
- affected units return 2013-15
- post 2016, new construction balances retirements

## Global LNG trade - 2011

- Supply growth slowing
  - 1 new train added in 2011
  - Qatar now at capacity
- Continued economic growth in Asia
- New markets:
  - Thailand
  - Netherlands
- Japan demand increase
- Supply-demand tighter than many expected

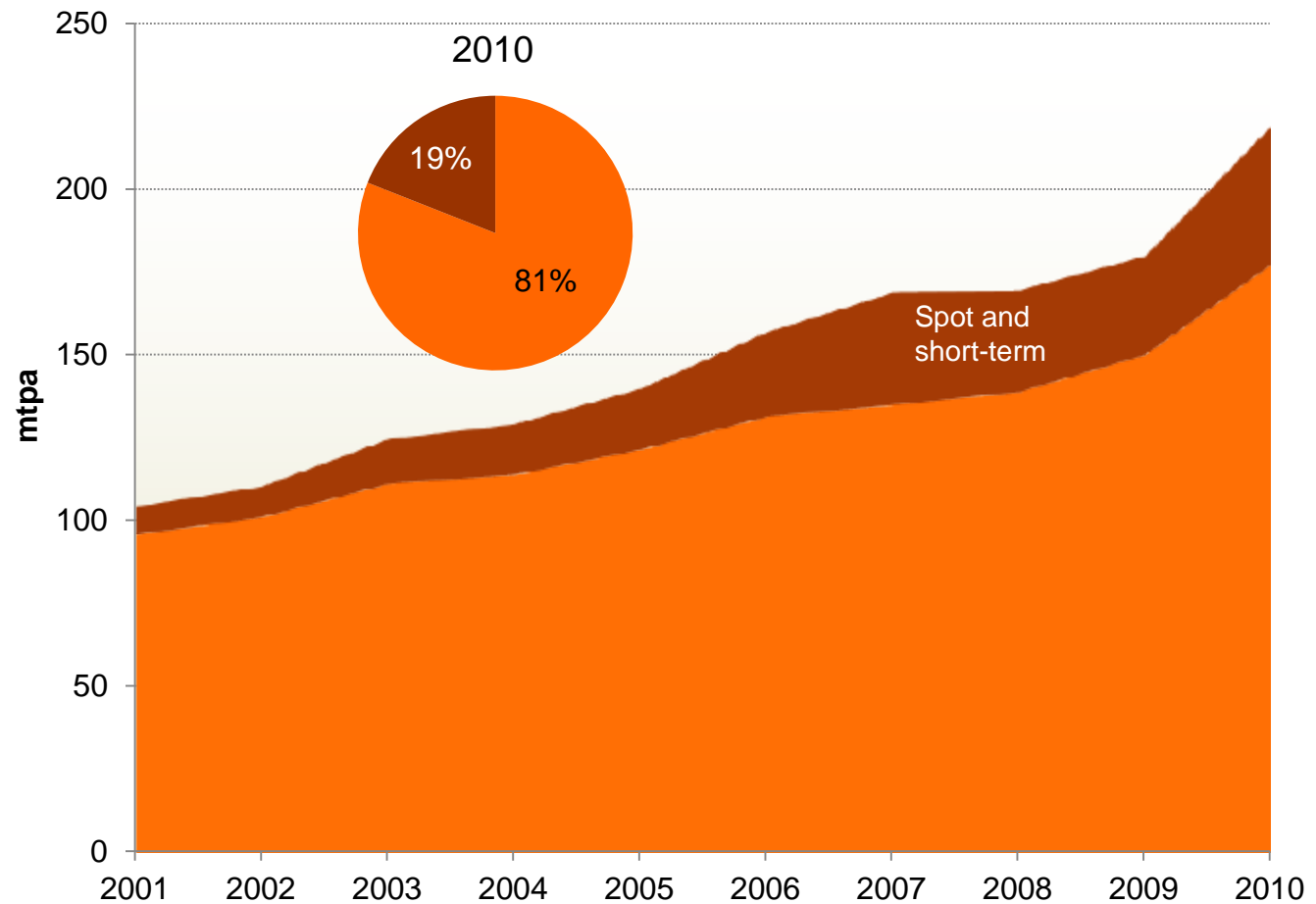
Key spot & hub prices 2010/11



Source: Asia spot (LNG) (Platts JKM index - average of daily spot price), HH (Nymex), NBP (Nymex) (both final settlement date)

# LNG is not a freely-traded global commodity

- Capital intensive
- Associated infrastructure (ships / regas)
- Most LNG is sold under long-term contracts
- Prices set by regional market characteristics
  - Competing fuels
  - Market structure

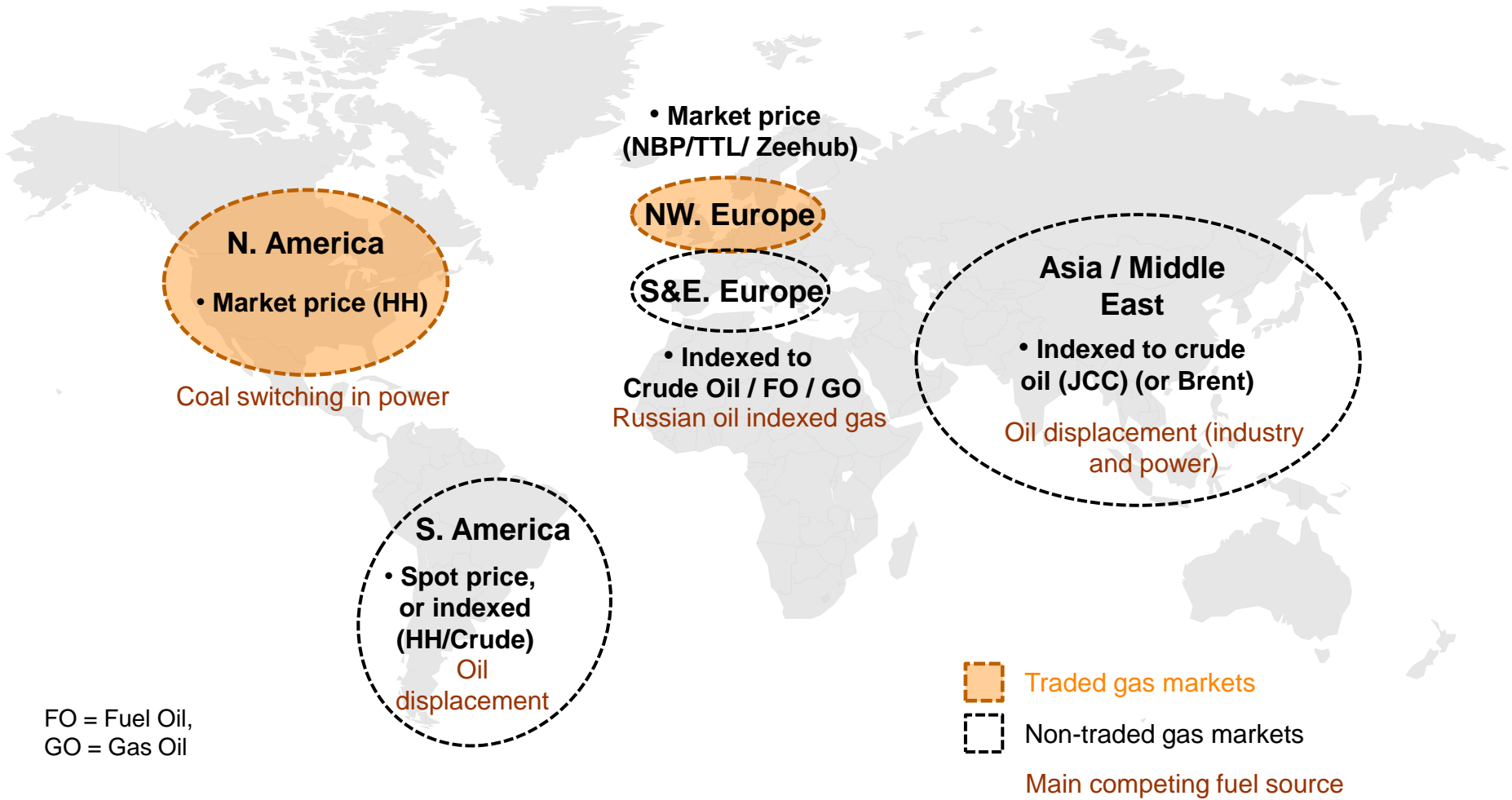


Source: GIIGNL annual LNG industry reports

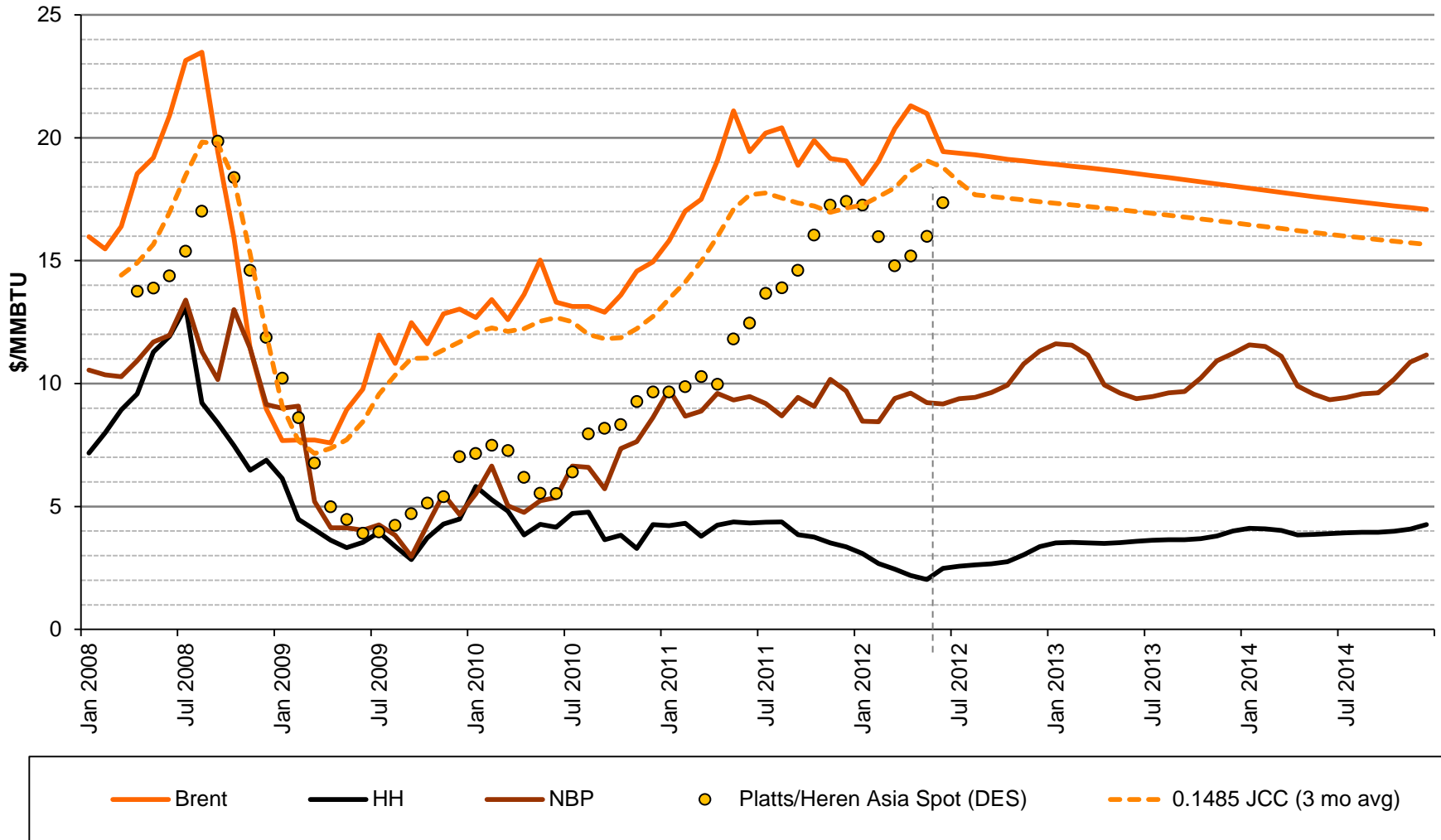
Short-term = 4 years or less

LNG is a regionally priced commodity

# Gas pricing mechanisms by region

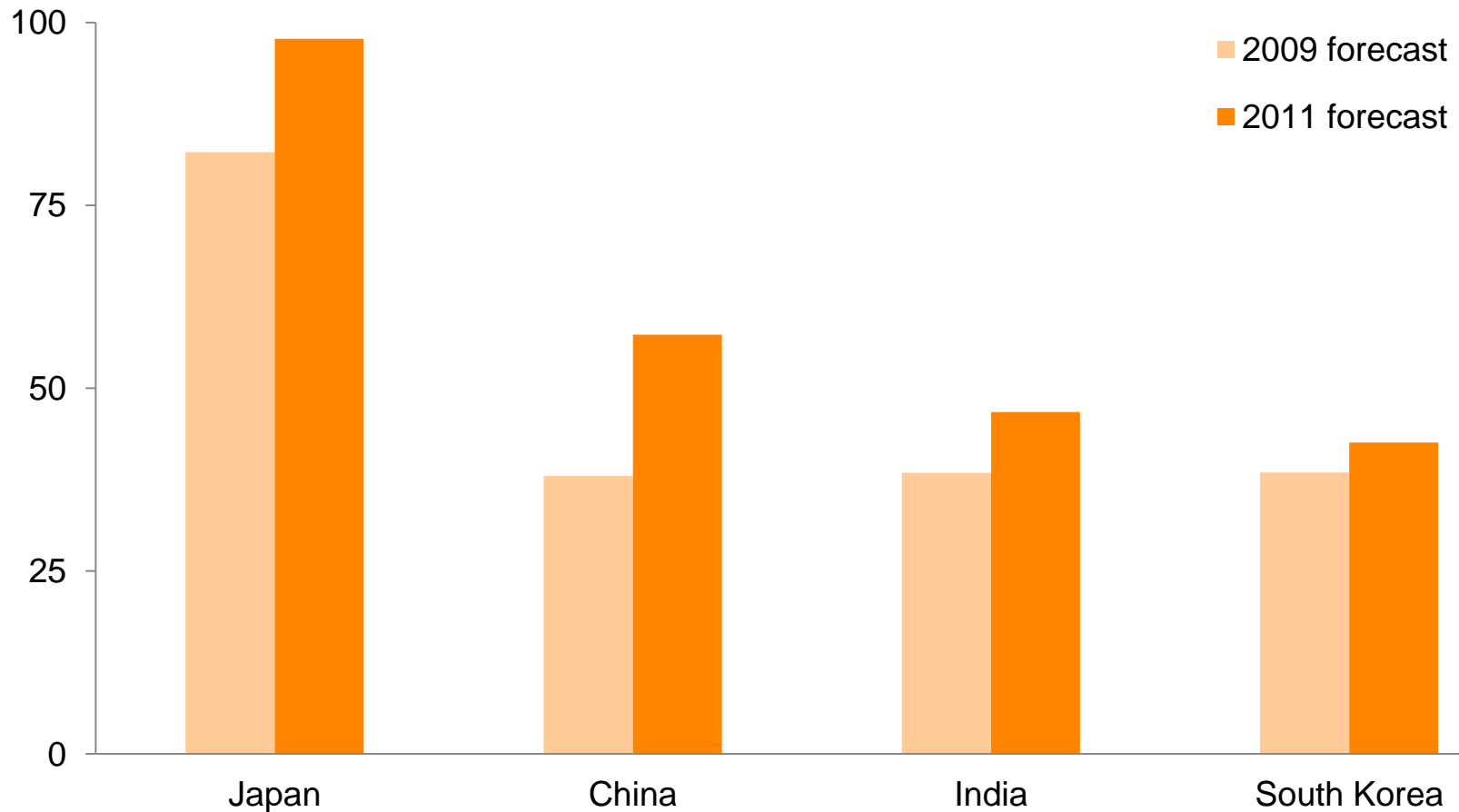


# LNG and gas prices



# Growing LNG demand in 2025

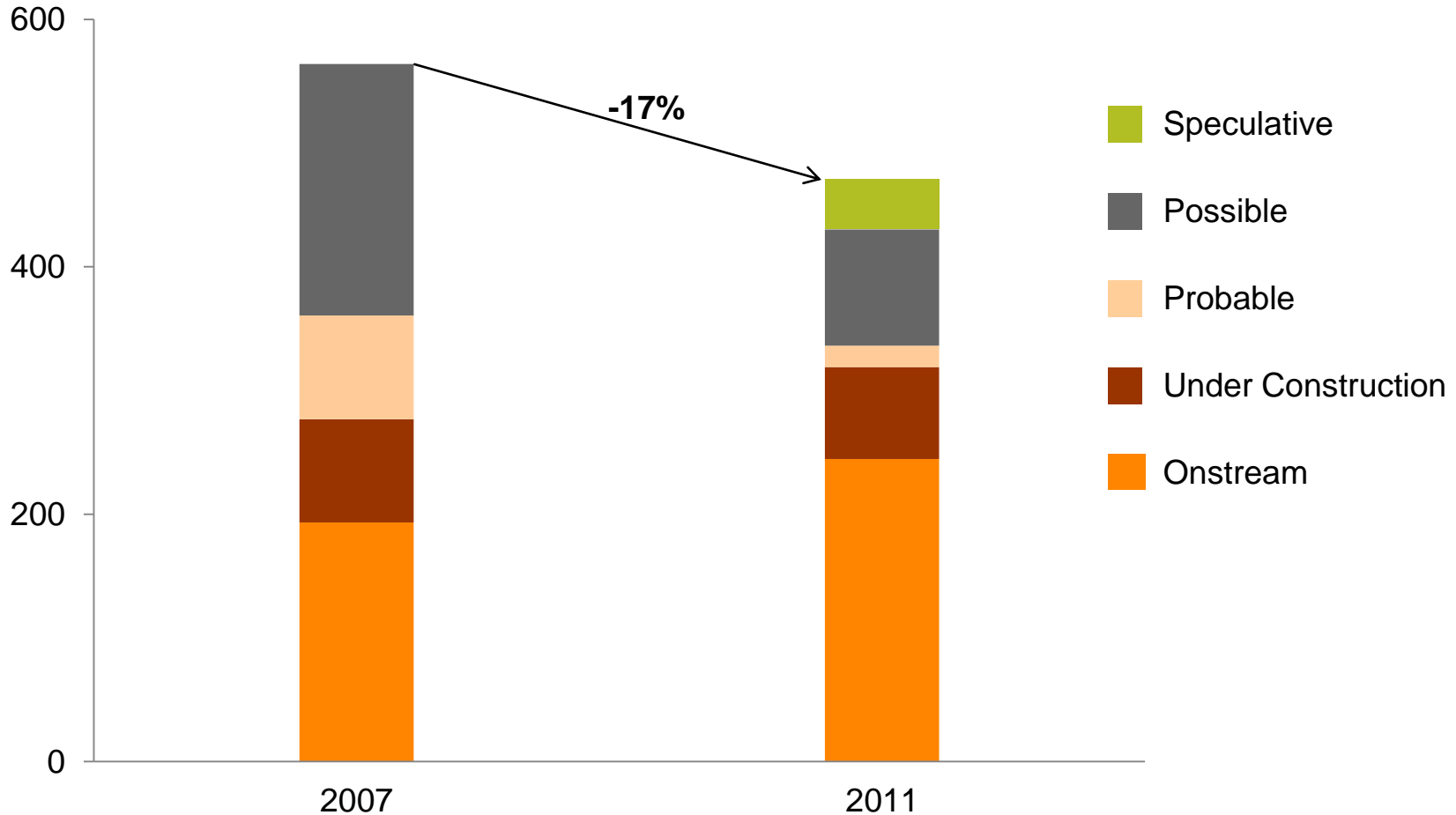
(mtpa)



Source: BG Group interpretation of Wood Mackenzie 2009 and 2011 forecast

# Long-term supply challenges

Supply prospects for 2020 (mtpa)

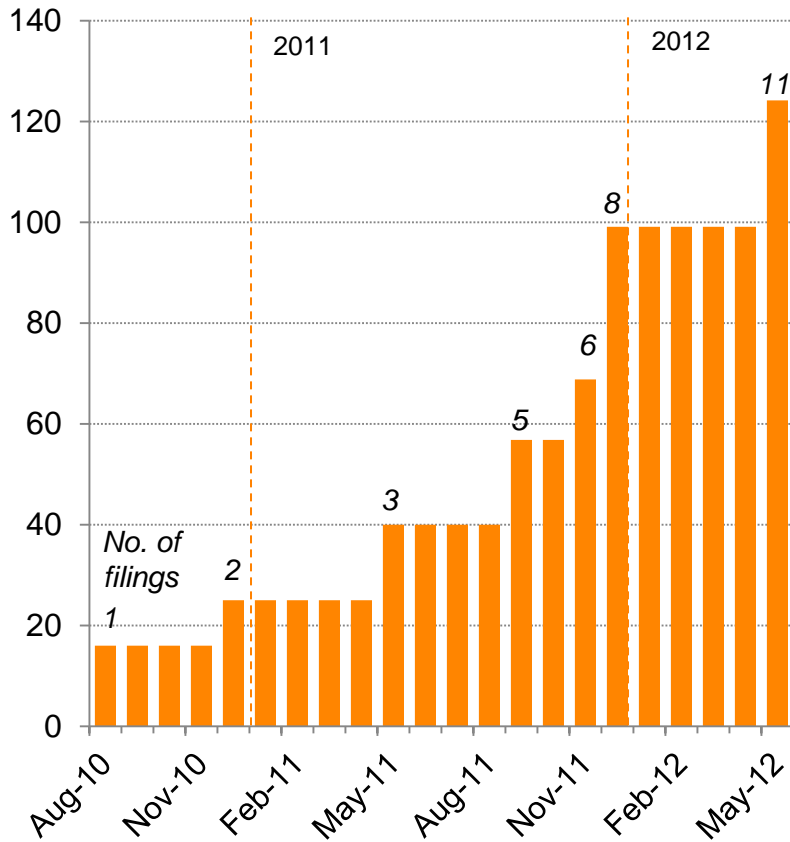




# Rapidly changing market

## US LNG exports

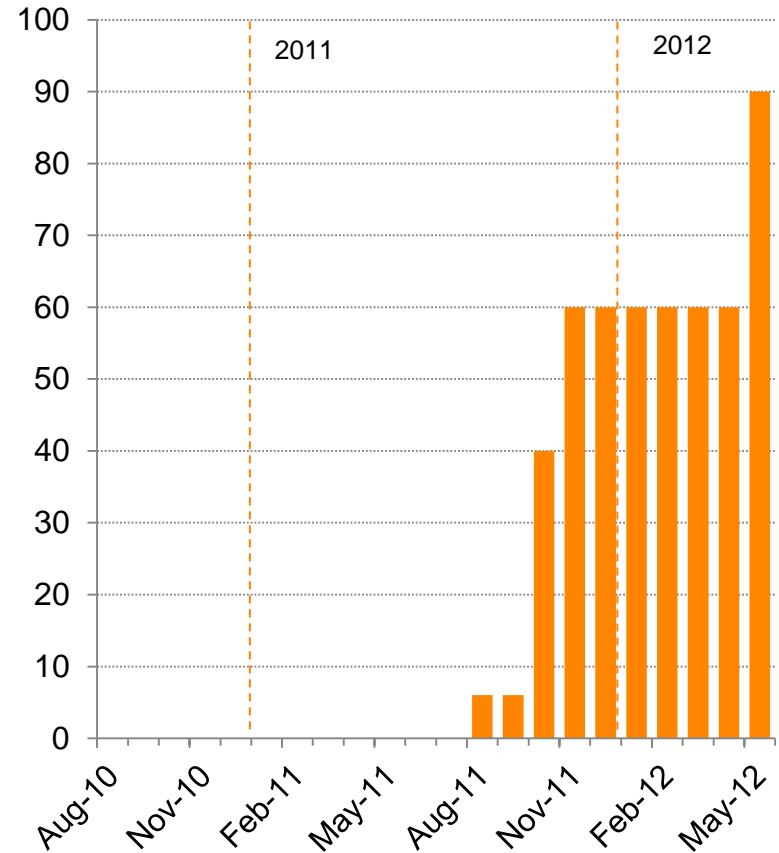
Cumulative DOE filings (mtpa)



Source: DOE, Press / ENA + Anadarko websites

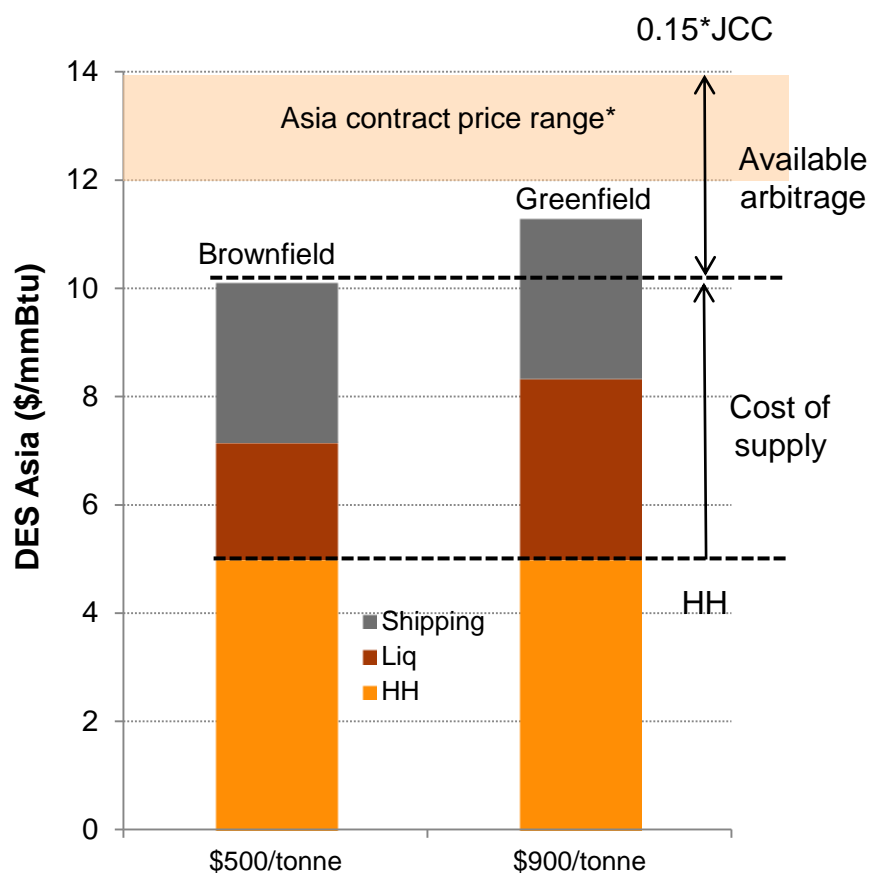
## Mozambique

Reserves announced \* (Tcf)



\* Recoverable – Anadarko, Reserves in place - ENI

# Can LNG drive global gas price convergence?



Source: CERA

\* Asia contract price range =  $0.13$  to  $0.15 * JCC + C$  @ \$90/bbl

## Inhibitors

### *HH upside*

- Flat US cost curve limits Henry Hub price upside
- US market twice the size of the global LNG market

### *Asia market price downside*

- LNG export volume constraints
  - Canada
    - Infrastructure / sites
  - US LNG export constraints
    - Existing terminal capacity
    - New sites / pipelines
    - DOE volume limits?
- Market appetite for US market exposure