



# The Race to Establish an Asian LNG Hub

Arnaud Dubois-Denis - GM BG Singapore Gas Marketing

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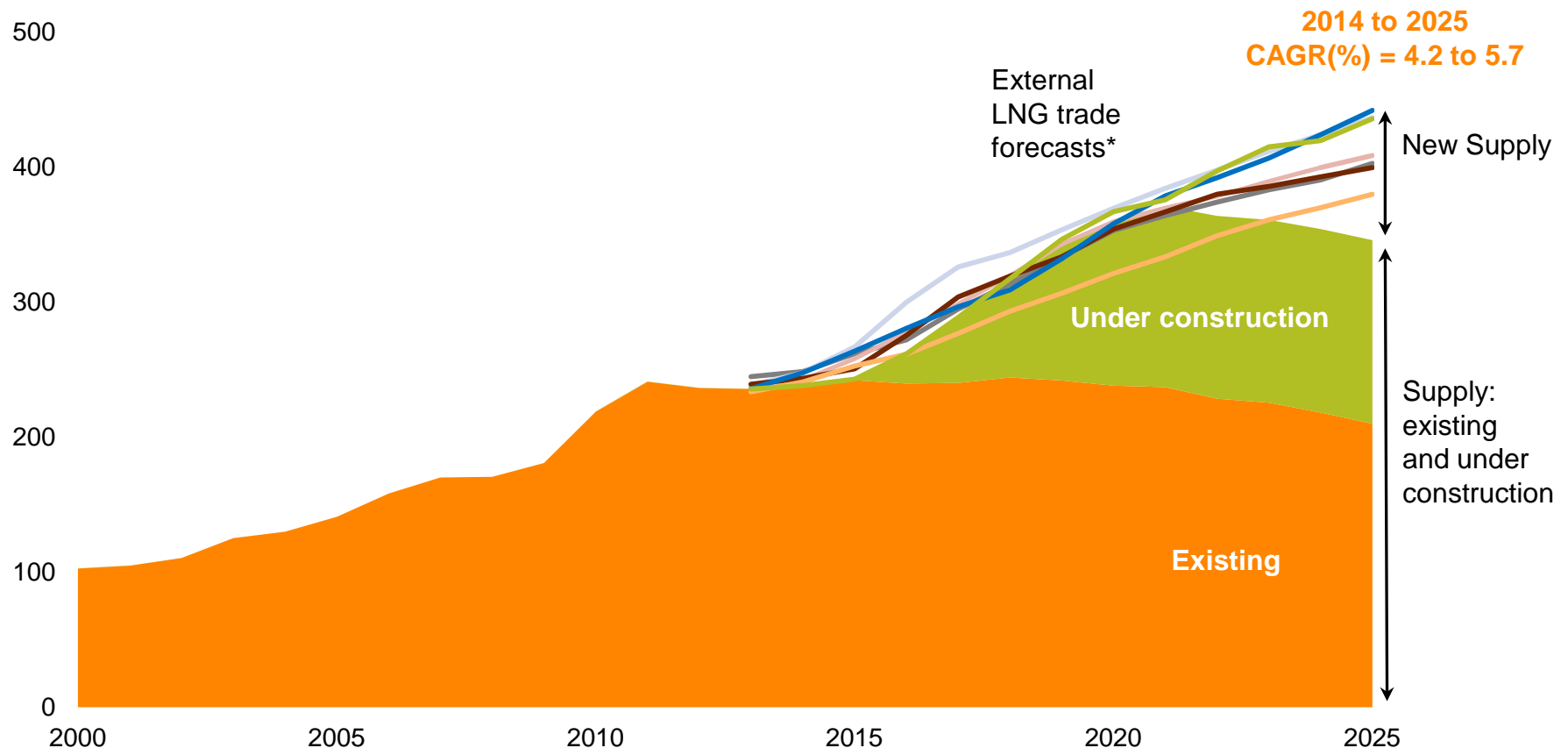
# Agenda

- Global LNG market update
- Atlantic Basin: growing flexibility
- Singapore in the race towards a LNG hub



# LNG trade outlook to 2025

Global LNG supply DES (mtpa)

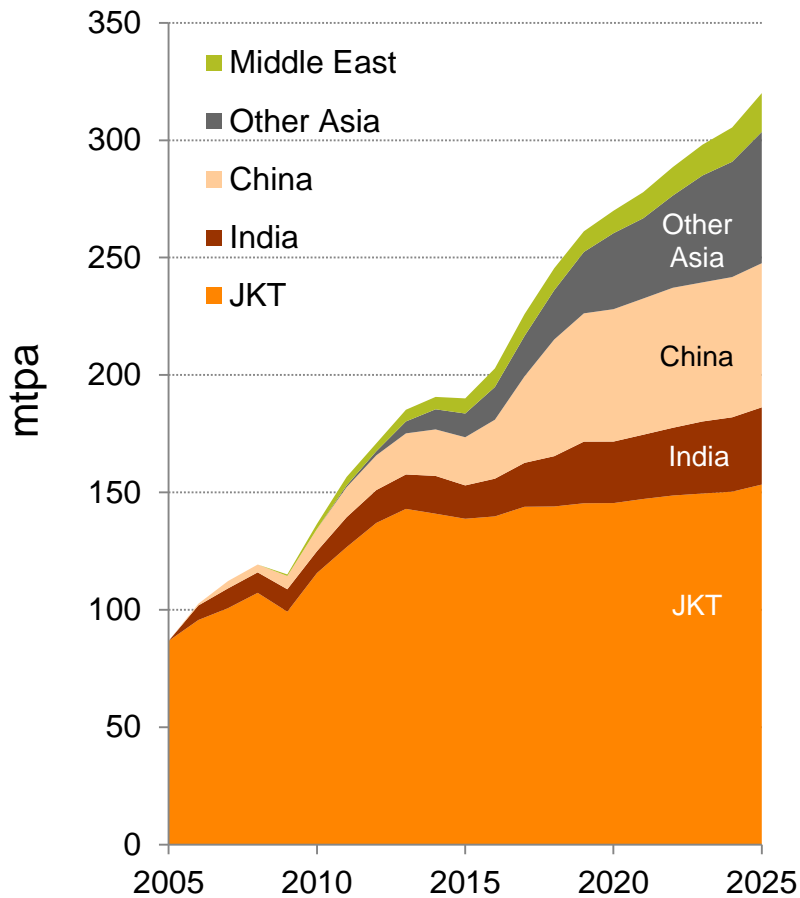


Sources: Supply (existing and under construction): BG Group interpretation of Wood Mackenzie data (Q2 2015)

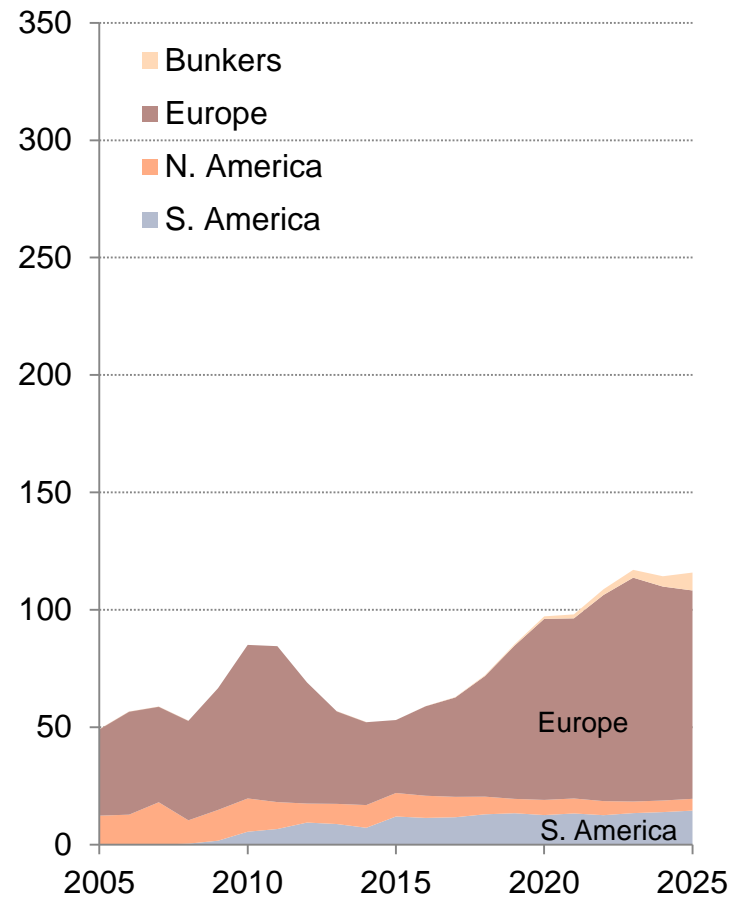
\* Trade: various research house views; Wood Mackenzie, FACTS Global Energy, PFC, PIRA, IHS CERA, Gas Strategies, Poten & Partners

# Demand: still driven by Asia

## Pacific Basin



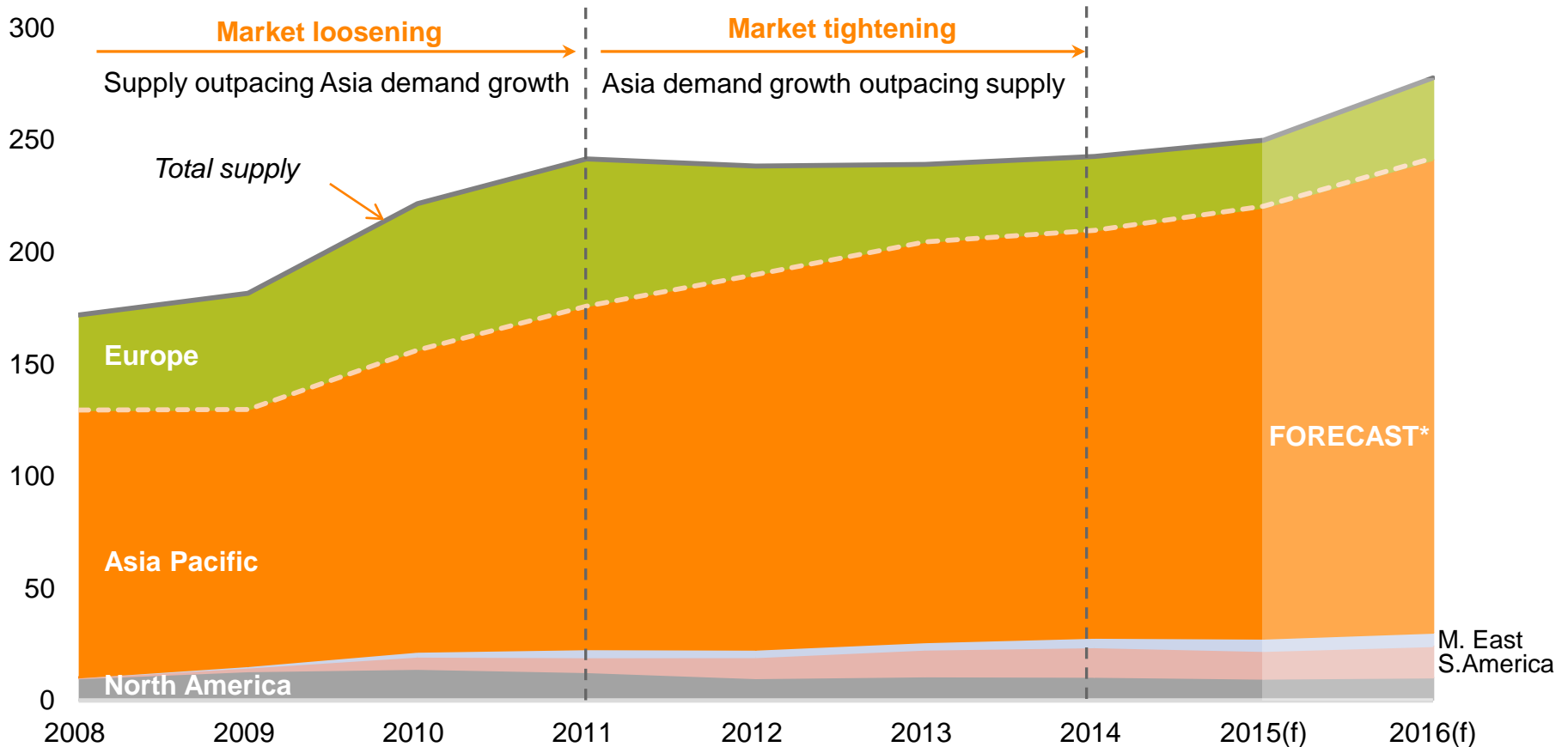
## Atlantic Basin



Source: BG Group interpretation of Wood Mackenzie data (Q2 2015)

# Europe, the balancing LNG market

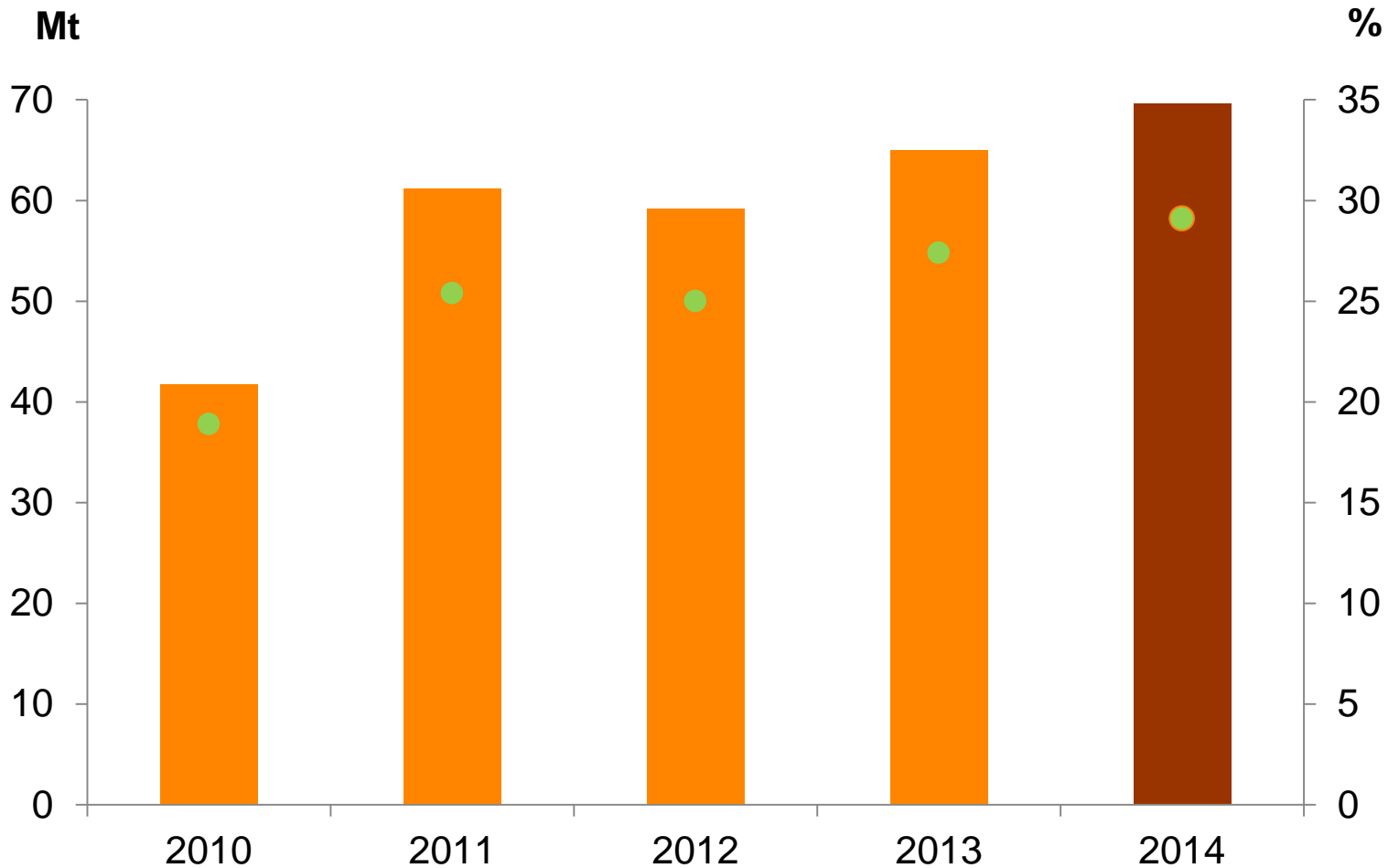
LNG imports by region 2008-16 (mtpa)



Source: 2008-2014: BG Group interpretation of IHS Waterborne data (Jan 2015), delivered volumes

\*Forecast – BG Group outlook (2015)

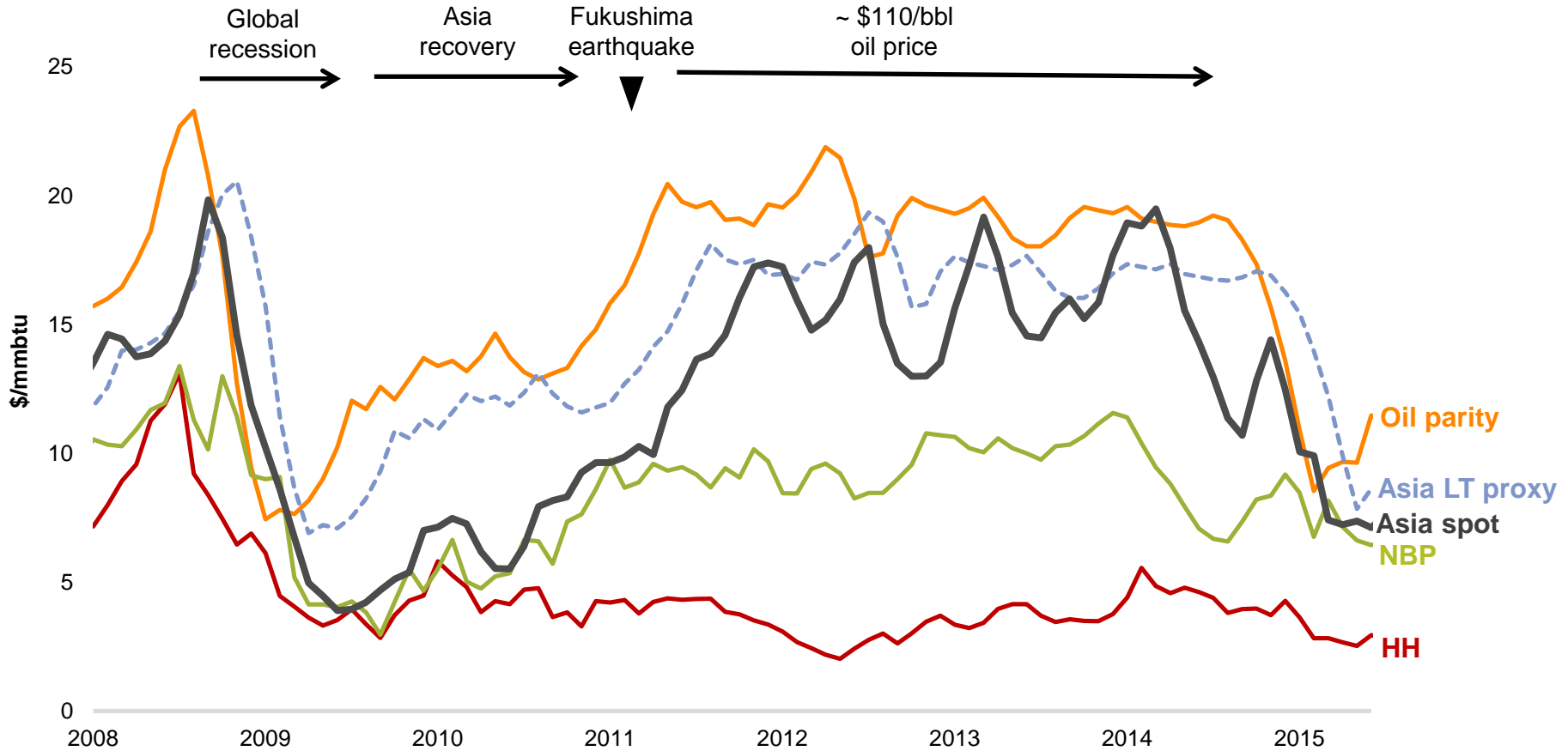
# Spot and short-term trade



\*Note: Short-term trade denotes trades under contracts of a duration of 4 years or less .

Source : GIIGNL

# Gas and LNG prices (2008 – 2015)

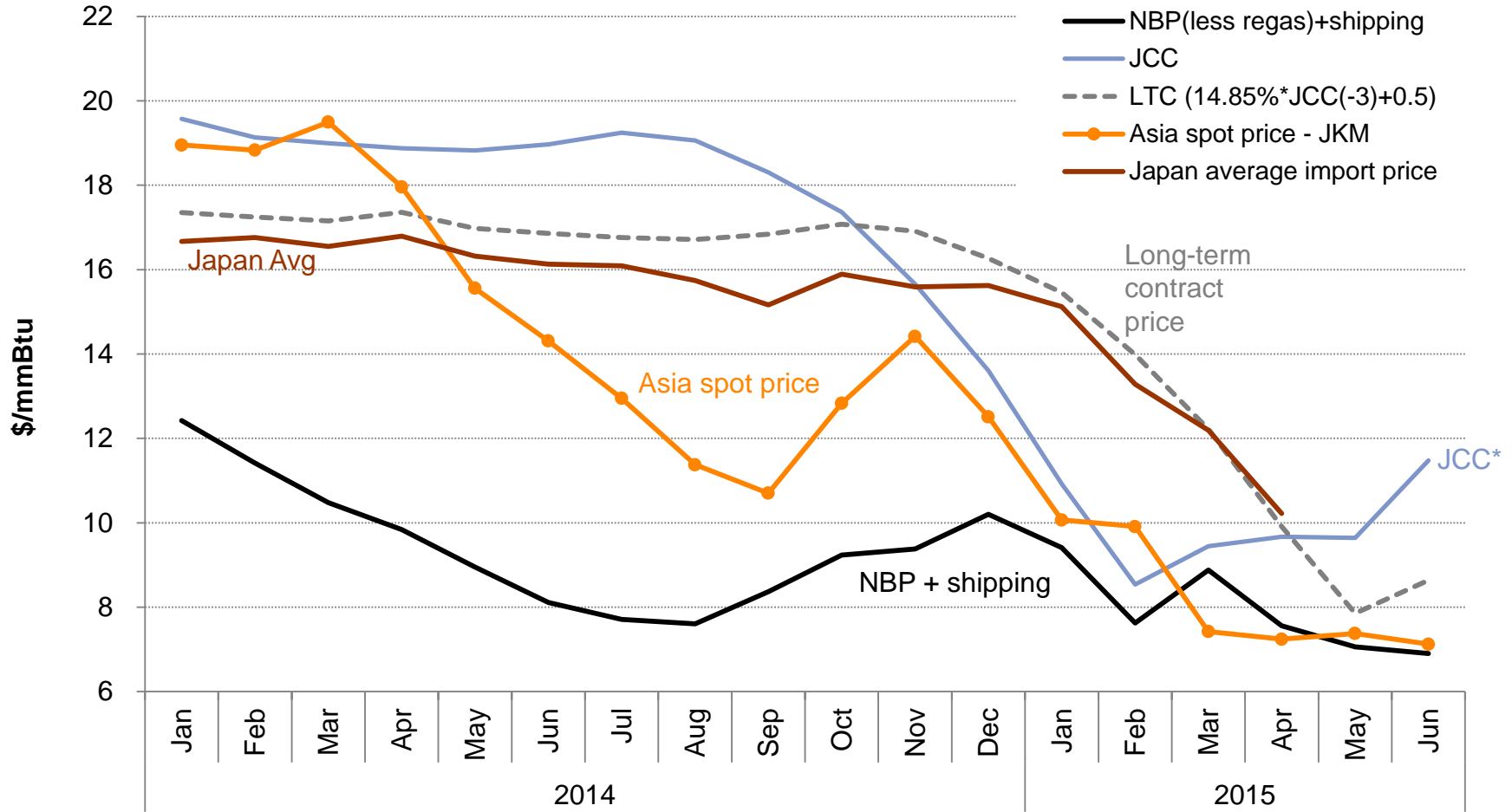


Source: Platts, Heren, Petroleum Association of Japan and Bloomberg (June 2015)

Note: Asia long-term proxy =  $14.85\% \text{ JCC}(-3) + 0.50$   
 Oil parity = JCC = Japanese average crude price



# Gas and LNG prices Jan 2014 to date

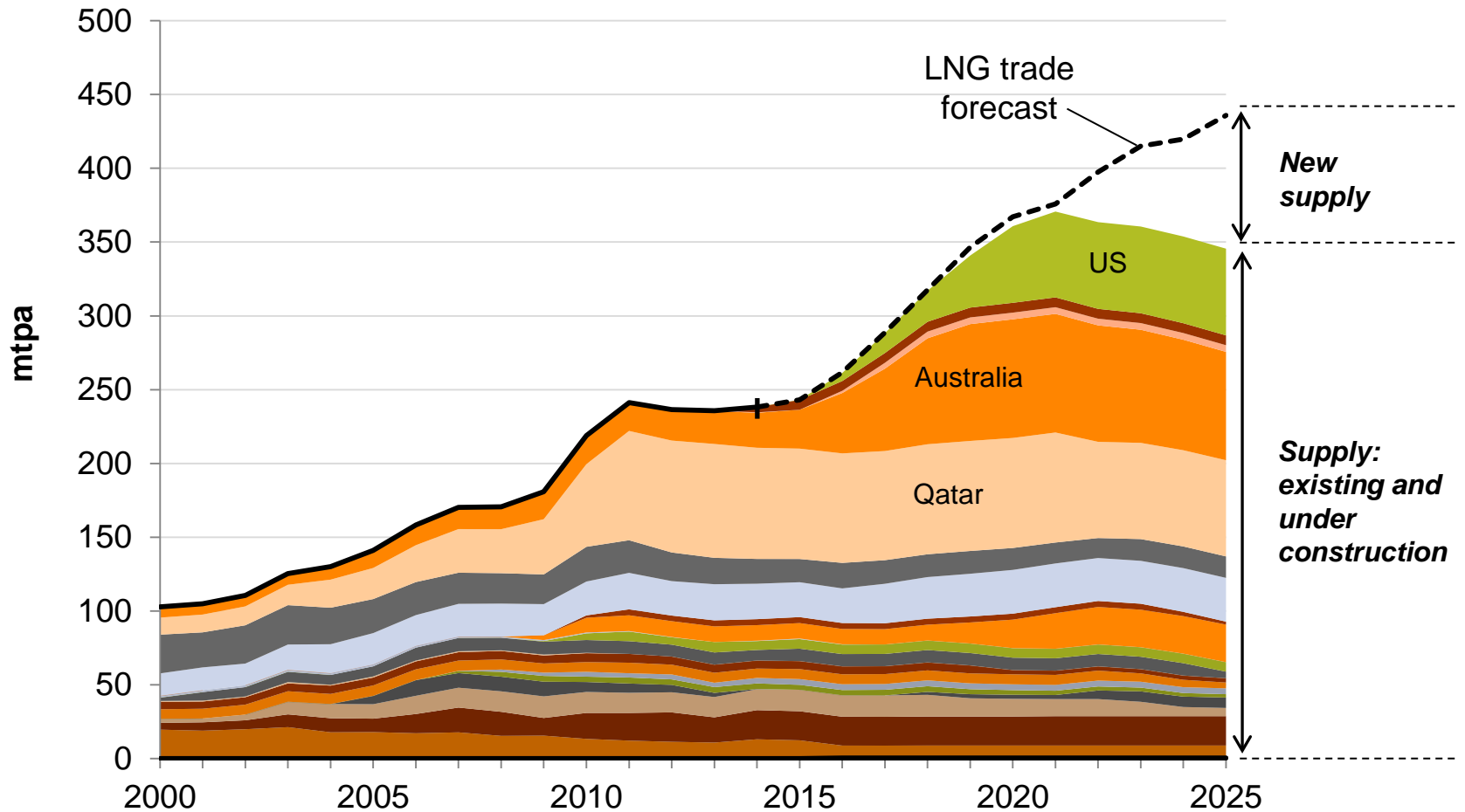


Source: Platts, Heren, Petroleum Association of Japan, Bloomberg and World Gas Intelligence (Jun 2015)

Shipping cost is the differential between shipping to Asia versus the UK at current market rates (~\$40,000/day charter rate)

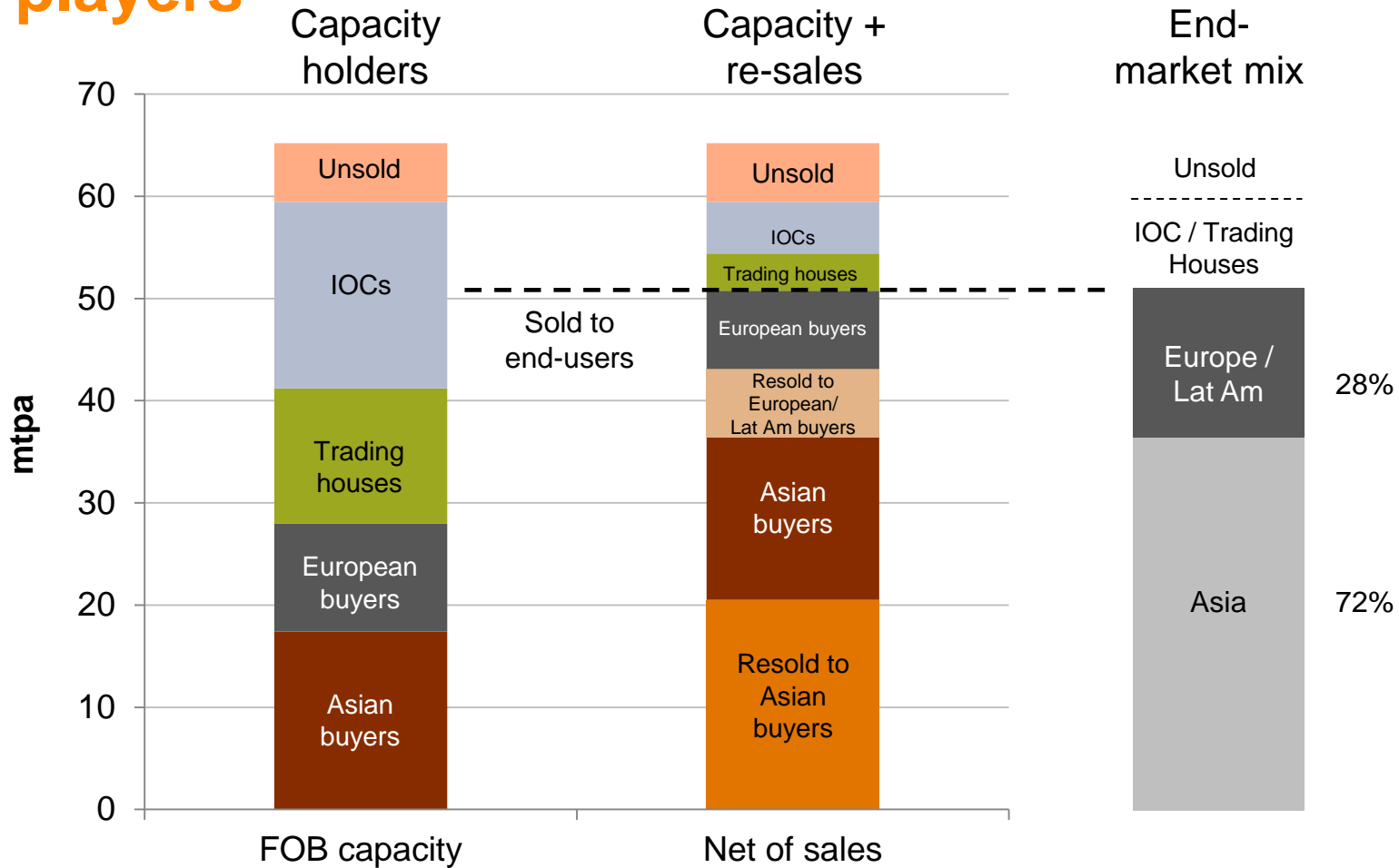
\*JCC = actual to Apr, then calculated from Brent actuals / forward curve

# US, the next supply wave



Source: BG Group interpretation of Wood Mackenzie data (Q2 2015)

# US volumes: available to various LNG players



US projects included = those with offtake agreements: Sabine Pass T1-5, Cameron T1-3, Freeport T1-3, Cove Point, Corpus Christi T1-3, Elba. Note: excludes Lake Charles which is fully committed to BG Group

Source: Press articles and BG Group internal analysis (as of Mar 2015)

# US LNG: providing new pricing constructs and additional flexibility

- No upstream development required
- Clear and transparent regulatory environment
- Projects developed by utility / infrastructure companies
  - Cost-based, HH indexed pricing to cover toll
  - Greater flexibility



Sabine Pass export terminal visualization  
 Source: Cheniere analyst presentation (April 2014)

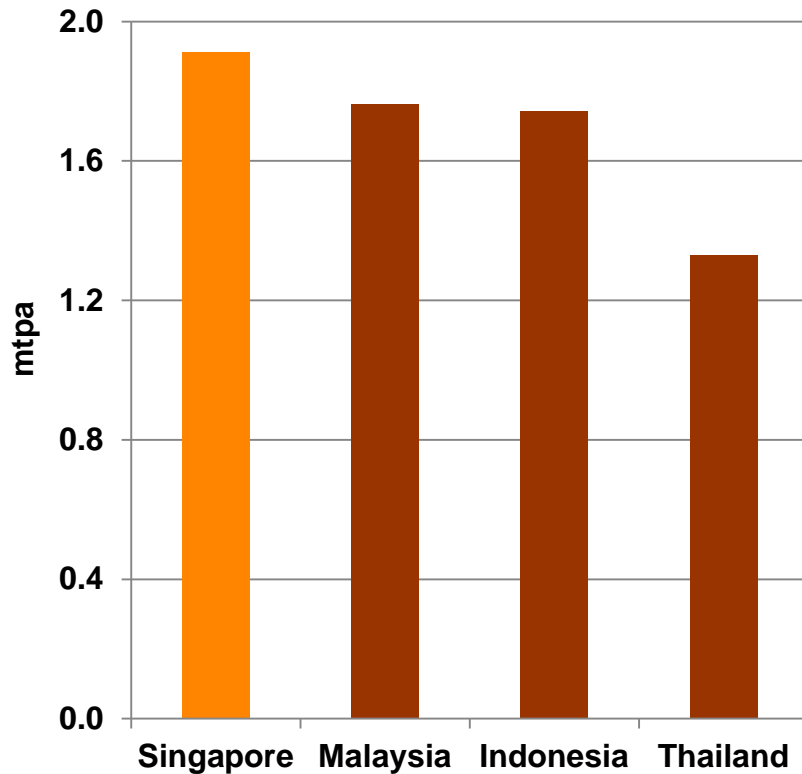
# Atlantic basin: growing flexibility

- Strong supply growth
- US, a supply source providing flexibility
- Europe, a market providing flexibility
- Evolving role of buyers, sellers, portfolio-players, traders and infrastructure developers
- Growing liquidity: more flexible LNG available to more LNG players



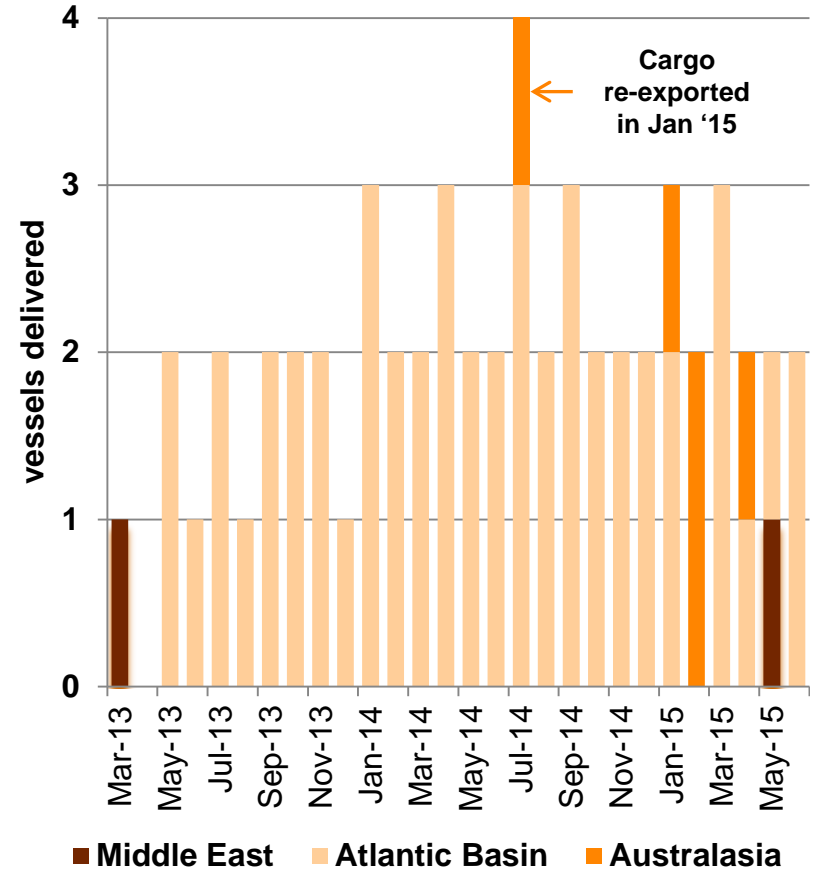
# Singapore LNG deliveries

Singapore: the largest S.E. Asian importer in 2014



Source: BG Group interpretation of IHS Waterborne data (Jun 2015), delivered volumes

Singapore sources of supply

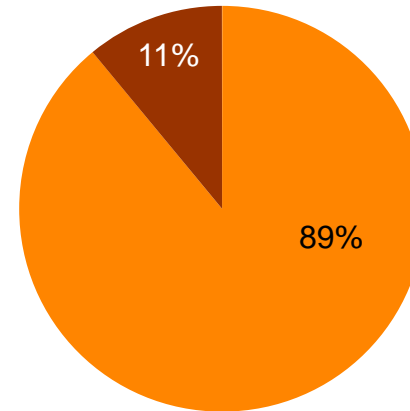


Terminal commissioned in Mar 2013, started commercial operations from May 2013

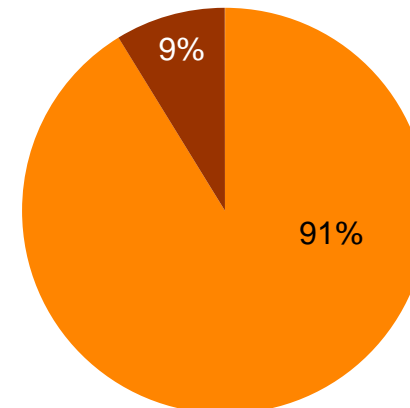
# LNG supply into Singapore



- BG Group aggregator for first 3 mtpa of long-term LNG demand
  - Connecting Singapore to the global LNG market
  - Innovative and unique aggregator business model
  - 2.63 mtpa already contracted
  - Additional short term sales and diversions taking place to optimise buyers' portfolios
- RFP process for post 3-mtpa imports underway
  - 4 companies shortlisted for Stage 2, including BG Group
- LNG demand essentially met by long term contracts

**2013**

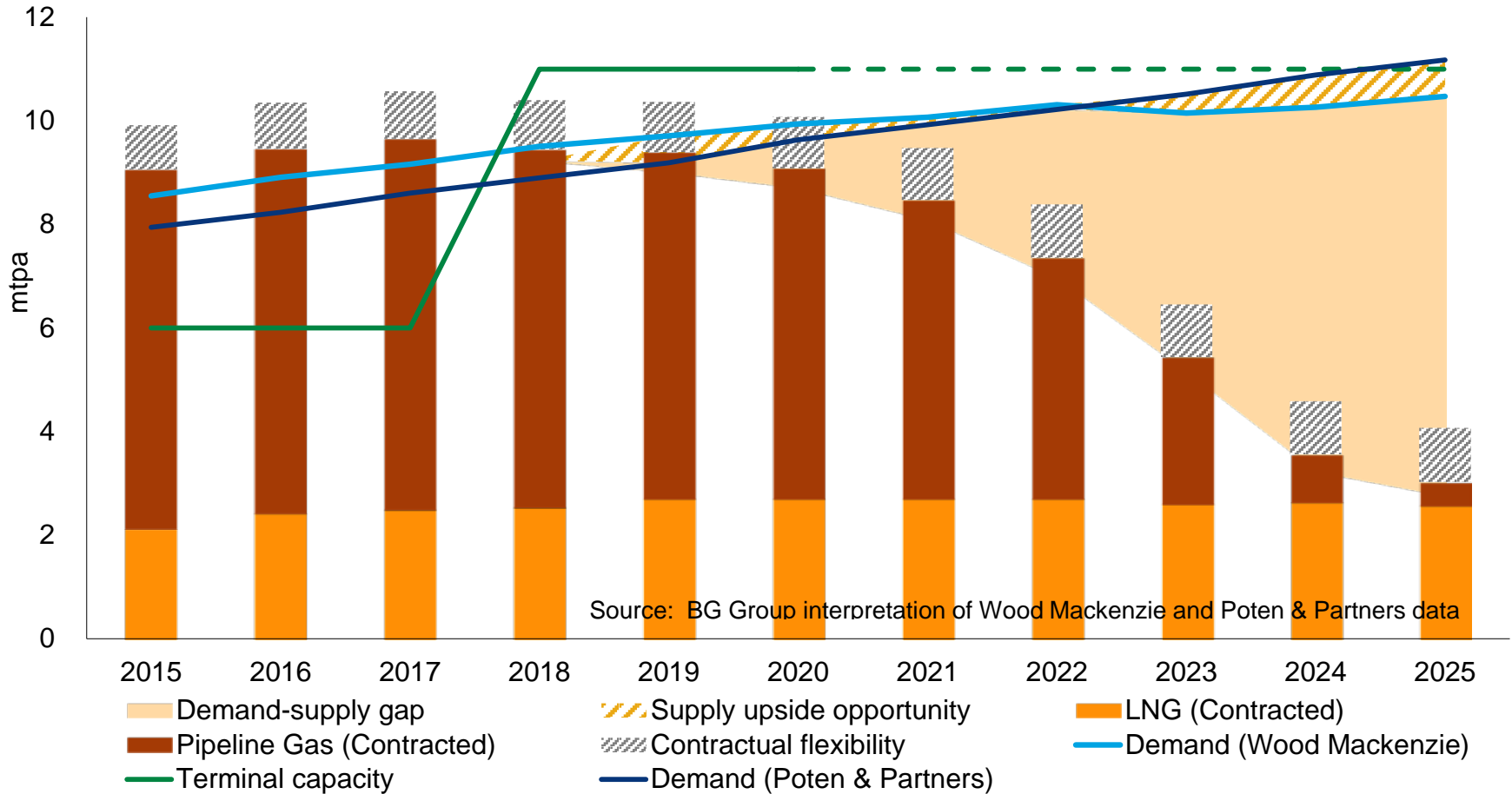


**2014**



 Long-term sales  
 Short-term sales

# Singapore gas demand-supply balance





# Singapore LNG terminal

- Asia's first open-access, multi-user terminal
- World class infrastructure
  - Current throughput capacity of 6 mtpa
  - Expansion to 11 mtpa underway
- Wide range of services:
  - Throughput
  - Cool downs
  - Storage and reloads
  - Potential for LNG bunkering
  - Potential for break bulking
  - Potential for LNG trucking



# Potential of Singapore as a LNG hub

## Advantages

- Singapore is already a hub of people, hosting an active LNG community
- Excellent geographical location and potential to offer a wide range of LNG support services
- Strong government ideology for traded market
- Good regulatory framework
- Existing physical gas and LNG infrastructures (except storage)
- Pipeline / LNG competition for long term demand
- Material LNG growth post 2022
- Secondary gas market reforms developing

## Challenges

- Small gas demand in comparison to overall regional gas/LNG trade
- Pipeline gas and LNG demand essentially met by long term contracts



# Conclusions

- LNG trade will continue to show strong growth
- Asia will continue to be a key market for LNG, but the buyers' needs are evolving
- The Atlantic Basin is further increasing the liquidity and flexibility available to the market
- The market continues to evolve and is meeting the buyers' needs
- No consensus on the need for a LNG hub, its structure and timing
- Singapore is a good location to host an exchange, a trading community and provide a series of LNG support services...
- ...but the underlying index of a LNG financial product will need to be based on a substantial physical spot LNG market to set the price of the global LNG spot market