



25th world gas conference  
"Gas: Sustaining Future Global Growth"

# WILL THERE BE A TWO-TIER LNG CONTRACT PRICING MECHANISM IN ASIA?

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Venue: Kuala Lumpur, Malaysia



Patron



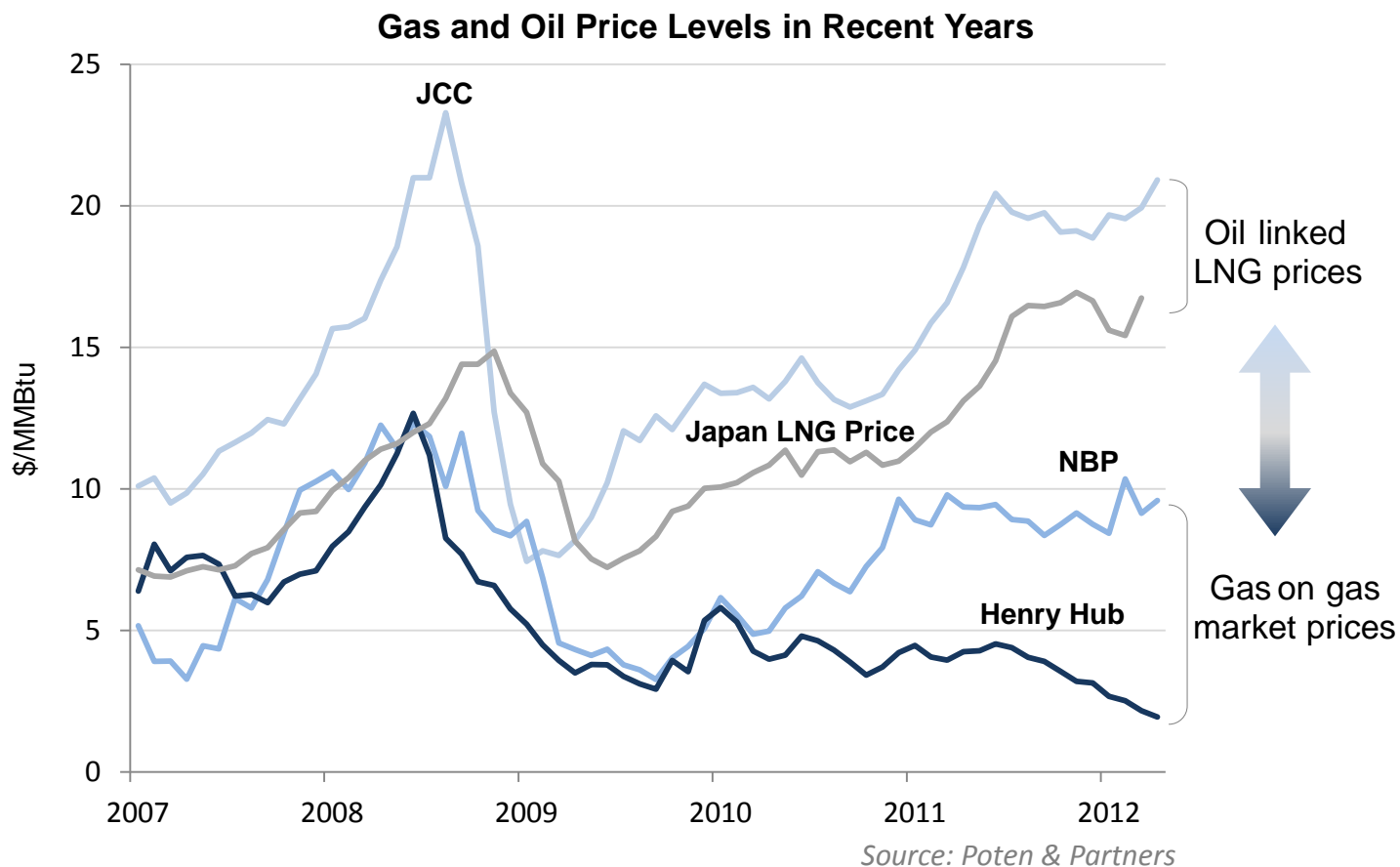
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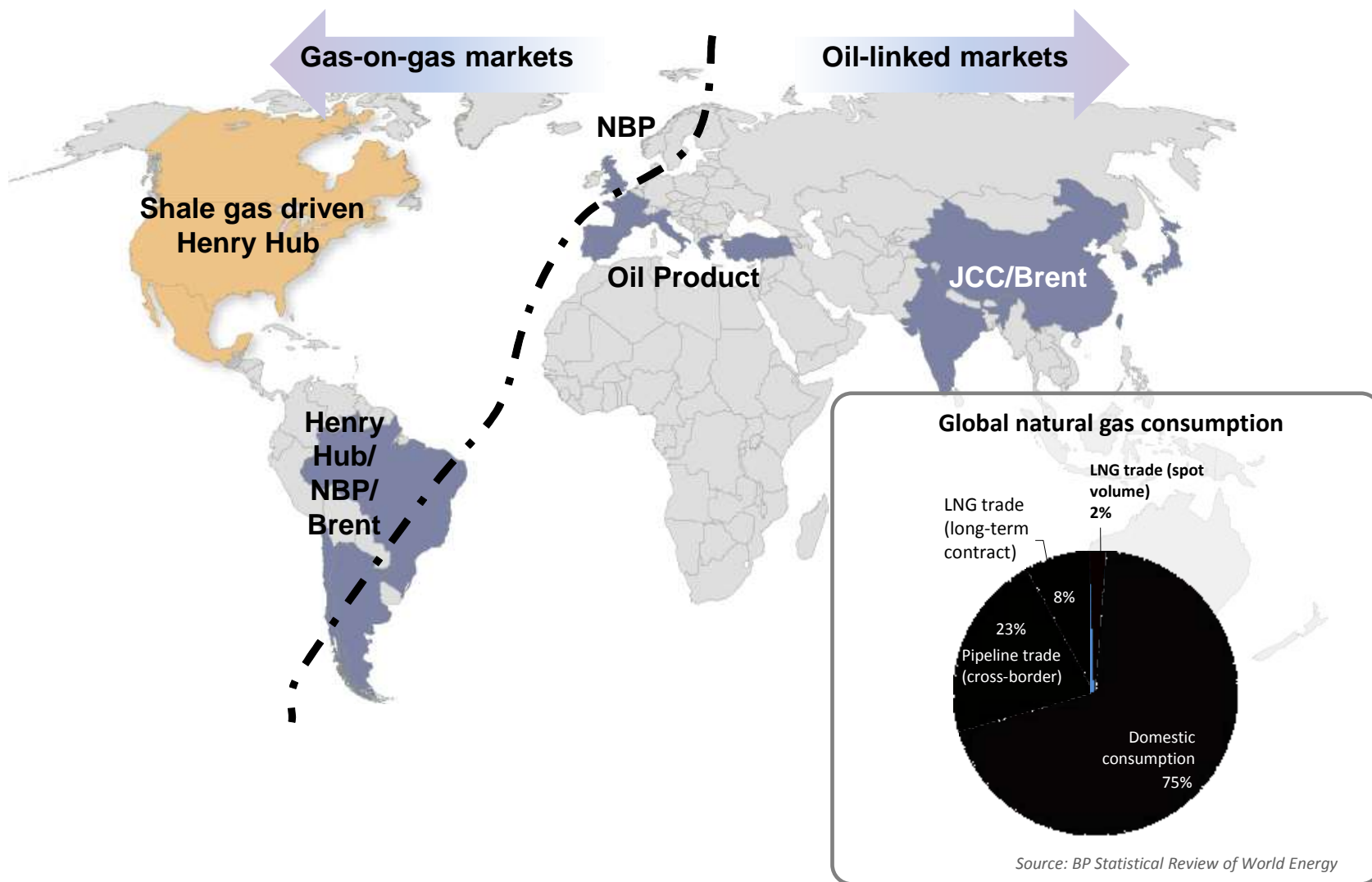


# Gas prices worldwide continue to diverge



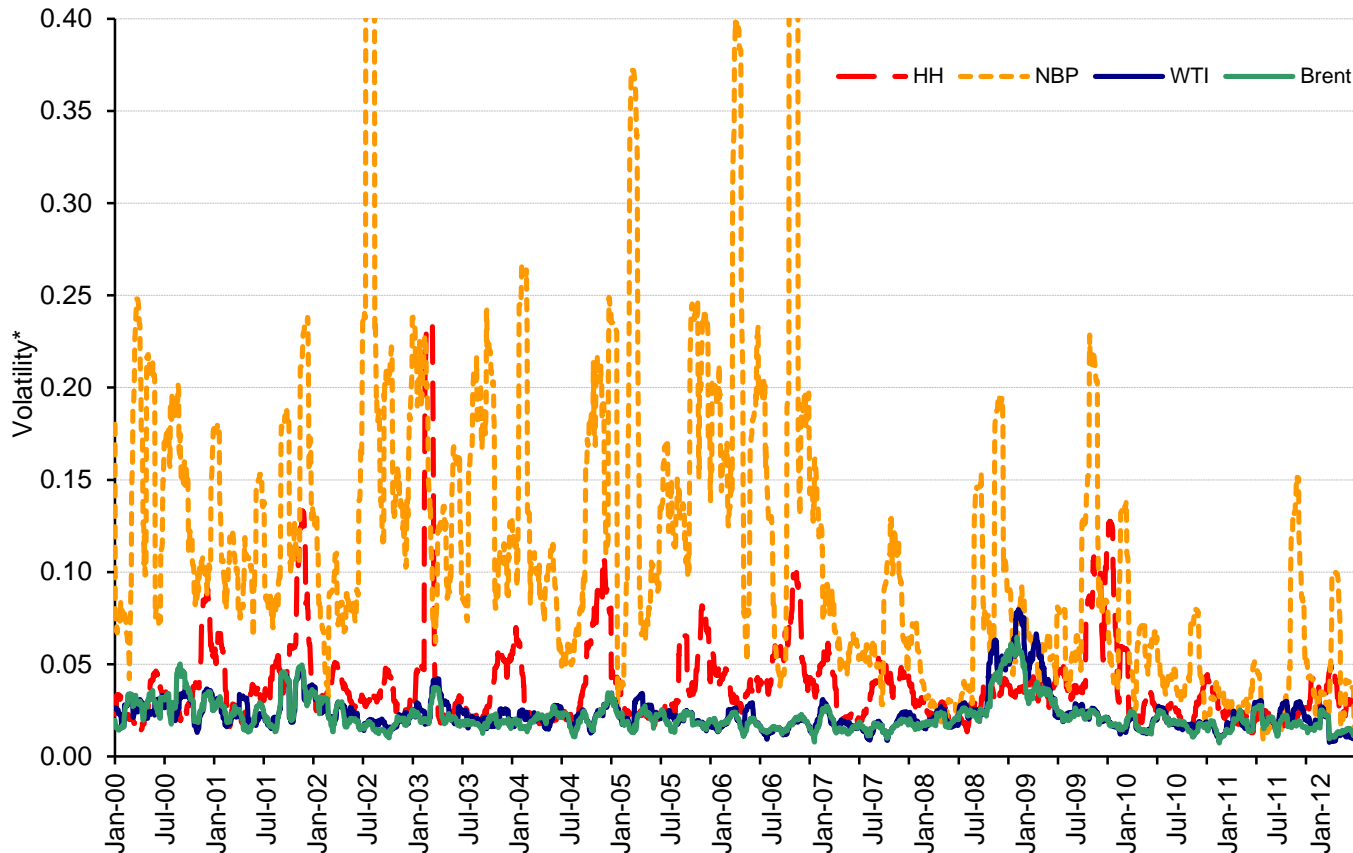
Shale gas revolution drove down Henry Hub prices

# LNG trade is too small to converge regional markets



# Shale gas has reduced Henry Hub price volatility

## Volatility of Henry Hub, NBP, WTI, and Brent



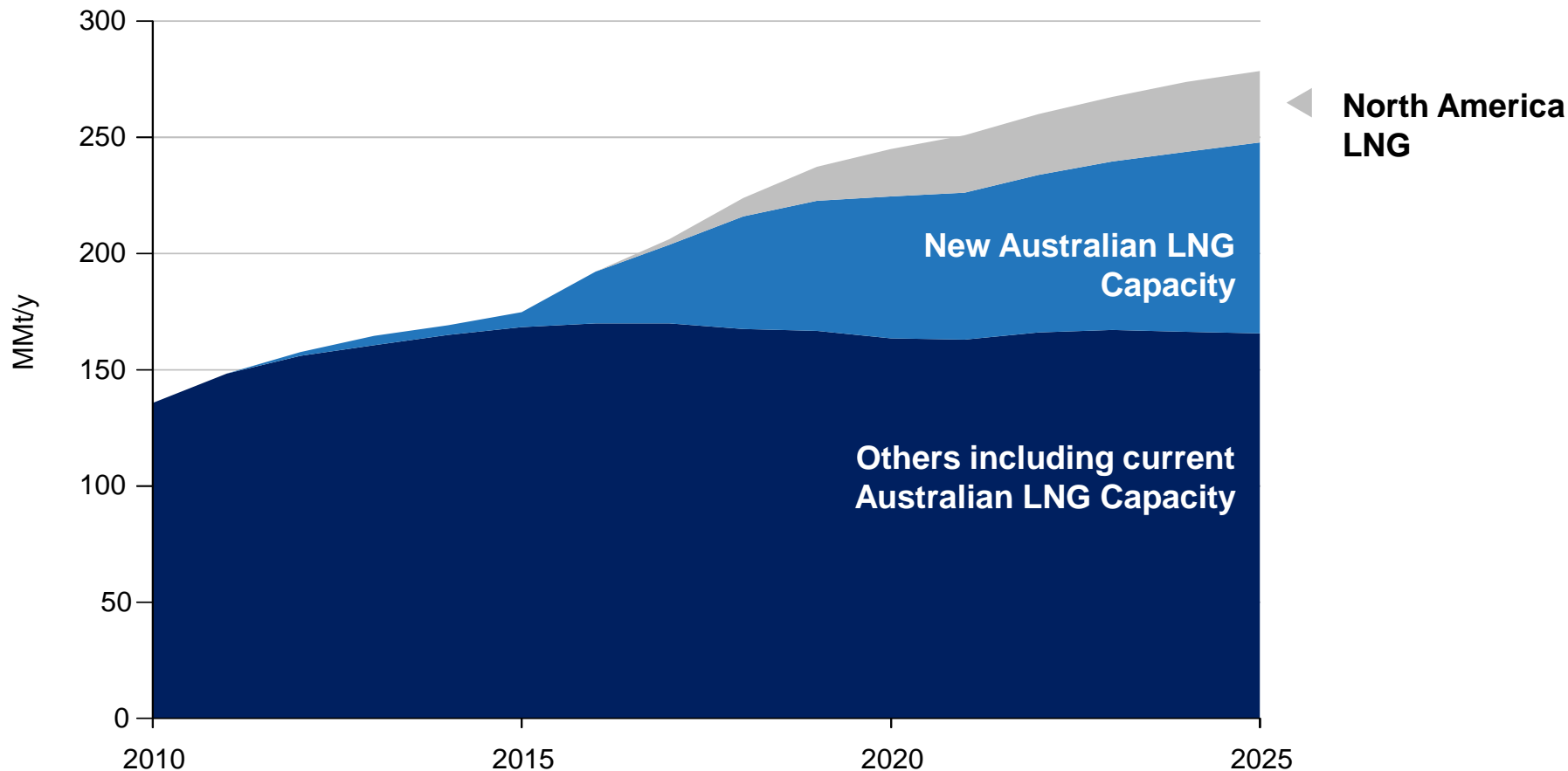
\*Standard deviation of natural log.

Source: Poten & Partners

Strong interest from Asian players to purchase North American LNG

# Limited HH linkages in long term Asian contracts

## LNG supplies into Asia – Increasing but limited share of North American LNG

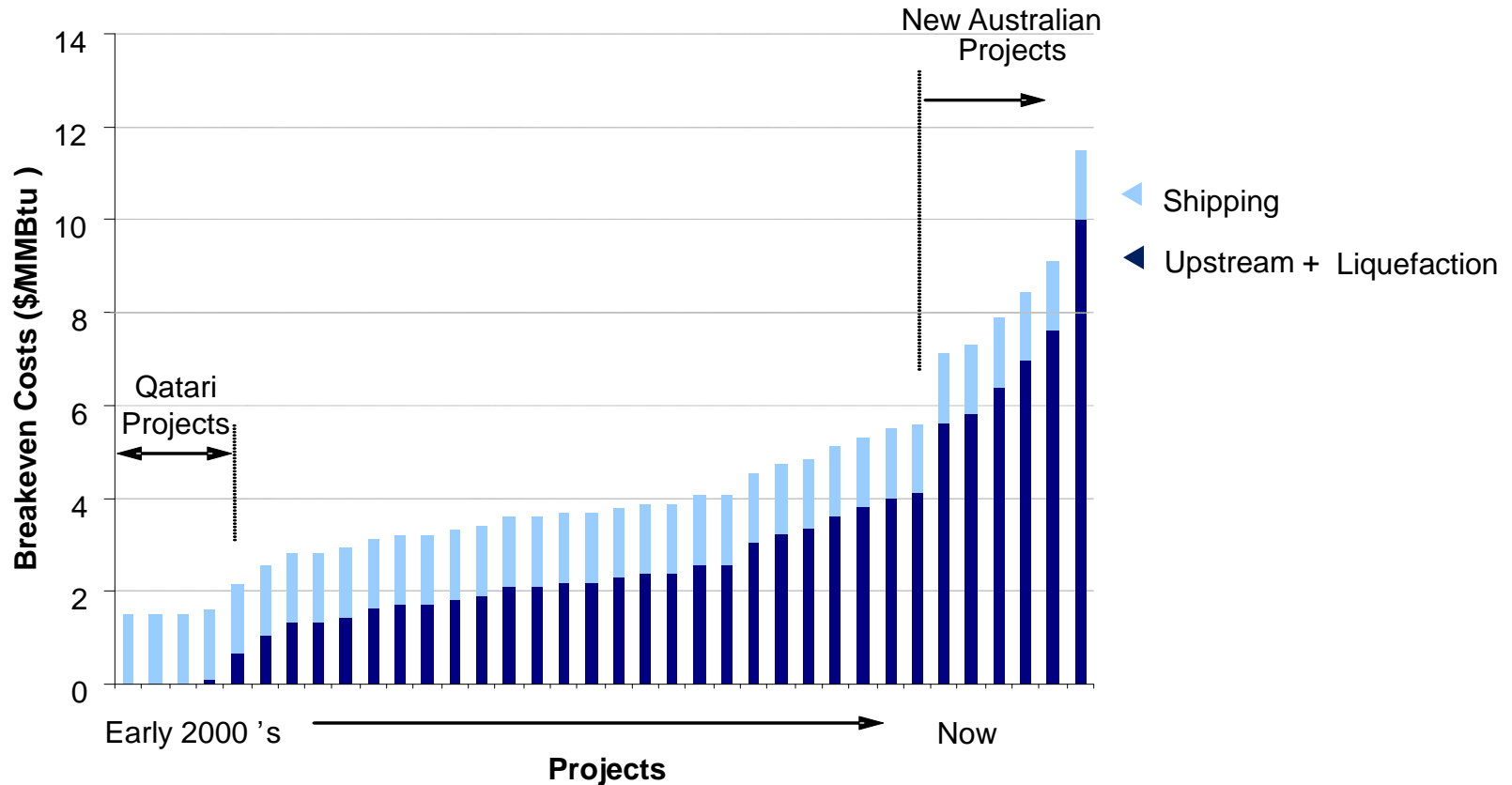


Source: Poten & Partners

HH will not set long-term Asian LNG prices – Asia remains predominantly oil-linked

# Increasingly expensive LNG supply projects

## Challenging cost structures for green field projects in Asia Pacific



Source: Poten & Partners

Australia has set recent Asia long-term LNG price, requiring oil linked price

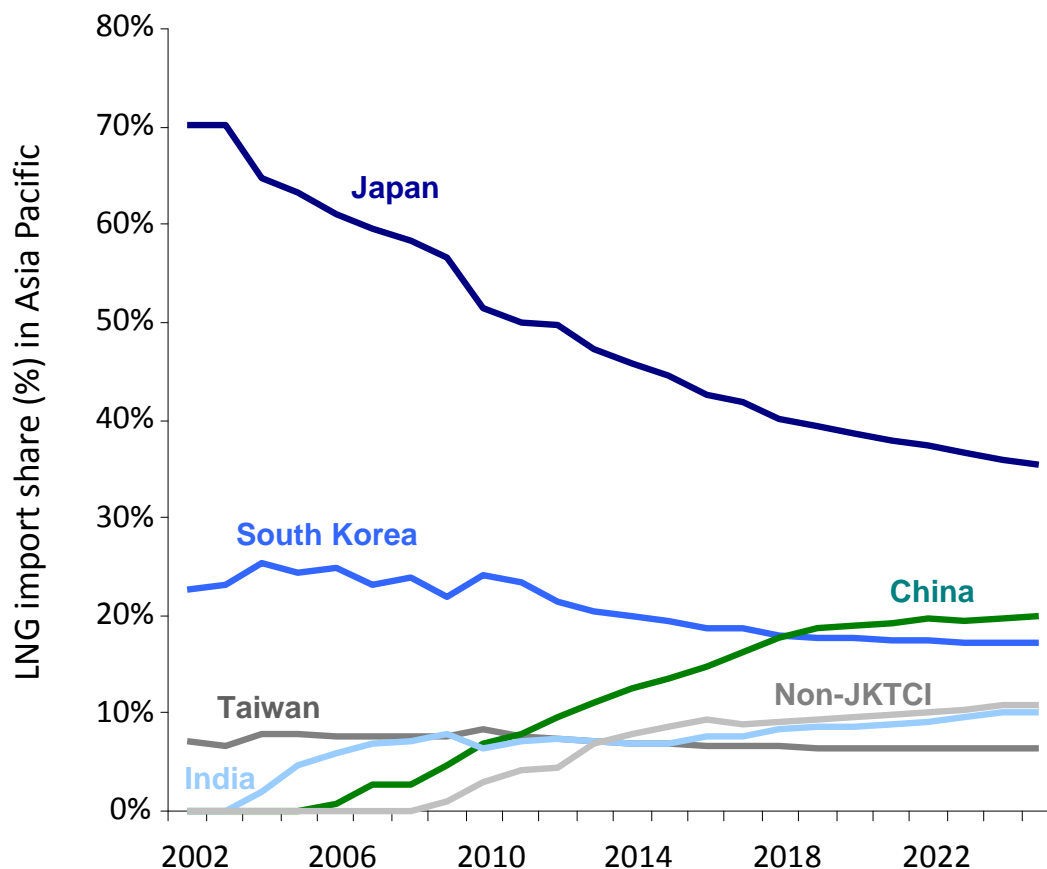
# Can local Asian gas-on-gas market develop?

- Important factors for Asia to develop an effective, liquid, transparent and trusted gas-on-gas market
  - ✓ Diversified sources of natural gas supply (domestic production, LNG & pipeline imports)
  - ✓ Interconnected gas transmission pipeline system
  - ✓ Substantial storage capacity
  - ✓ High liquidity
  - ✓ Deregulated and competitive infrastructure, including in natural gas upstream, transportation and trading
  - ✓ Transparent market with limited government intervention
  - ✓ A large, liquid and efficient futures market

**Physical connectivity and deregulation are necessary to create natural gas hub**

# Changing landscape of Asian LNG markets

## Entering an era of more diverse LNG buyers with China's increasing presence

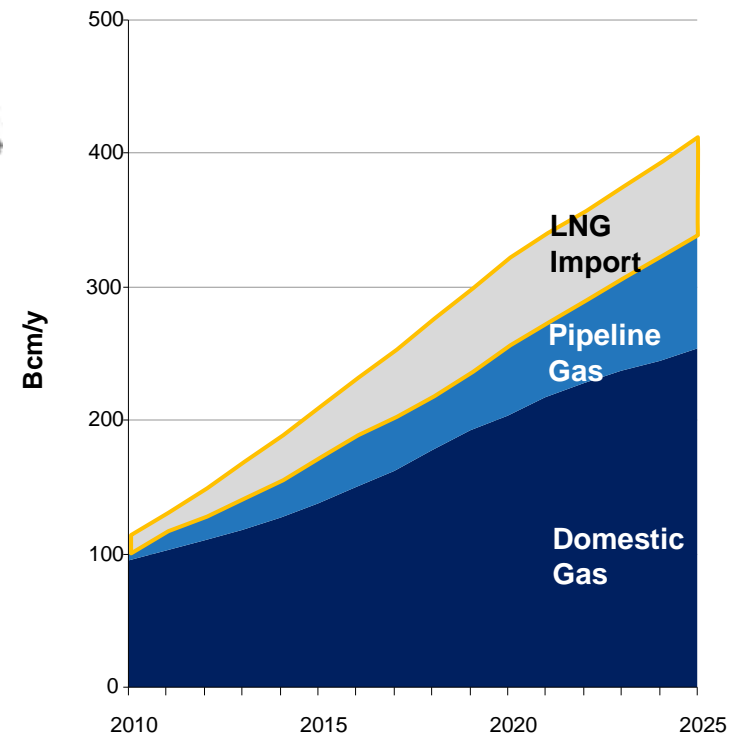


Source: Poten & Partners



# China has potential for gas-on-gas market development...

## China Diverse Natural Gas Supply Sources



Source: Poten & Partners

... but challenges remain (e.g., market price reform)

## Current pricing misalignments

### Supply Cost

Domestic Gas Production  
(\$1-2/MMBtu)

Central Asia Pipeline Gas  
(Turkmenistan-China Border - \$11/MMBtu\*)

\* Based on customs data released on 30-April-2012

LNG  
(\$17.7/MMBtu for new signed contracts)  
\*Poten's Estimation Assuming Oil-linkage

### Wholesale Price

\$7.6/MMBtu

Delivered to Shanghai

\$15.5/MMBtu

Weighted average price for  
new contracts by end of 2011

### Retail Price

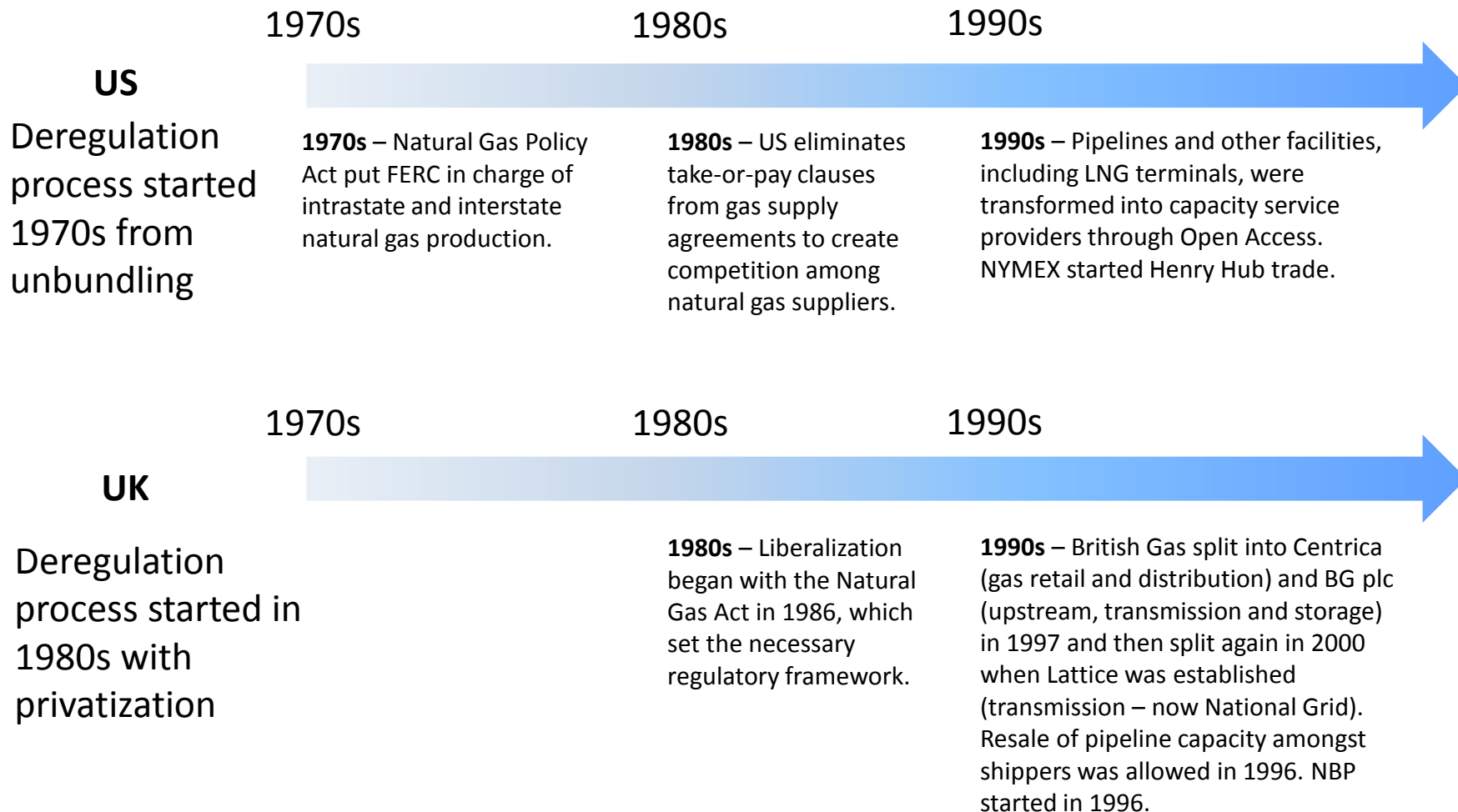
City Gas  
(main use to date)

\$13.5/MMBtu  
including local distribution cost

Power Generation  
(emerging use)

Source: Poten & Partners, various sources

# It took over thirty years for US/UK gas-on-gas markets to develop



# Oil-linkage will remain the basic long-term contract pricing indexation in Asia

- Gas-on-gas market price will not become a common long-term indexation in Asia
  - Oil-linked pricing critical for complex and expensive new LNG supply projects in Asia
  
- A “foreign” gas-on-gas market price will have limited and indirect impact on Asian LNG long-term pricing
  - Lower slope to oil price and S-curve structures as supply competition increases, assuming that HH remains at a substantial discount to oil
  
- It will take more than a decade for Asia to develop any “indigenous” gas-on-gas market pricing mechanism, along the lines of HH and NBP
  - Any Asian gas-on-gas market development will require further deregulation, liquidity, transparency and competition in the market.