

Gas Market Outlook

Presentation to International LNG Congress



March 14, 2016

Peter Stewart

Chief Energy Analyst

Key points we'll be discussing

What we know

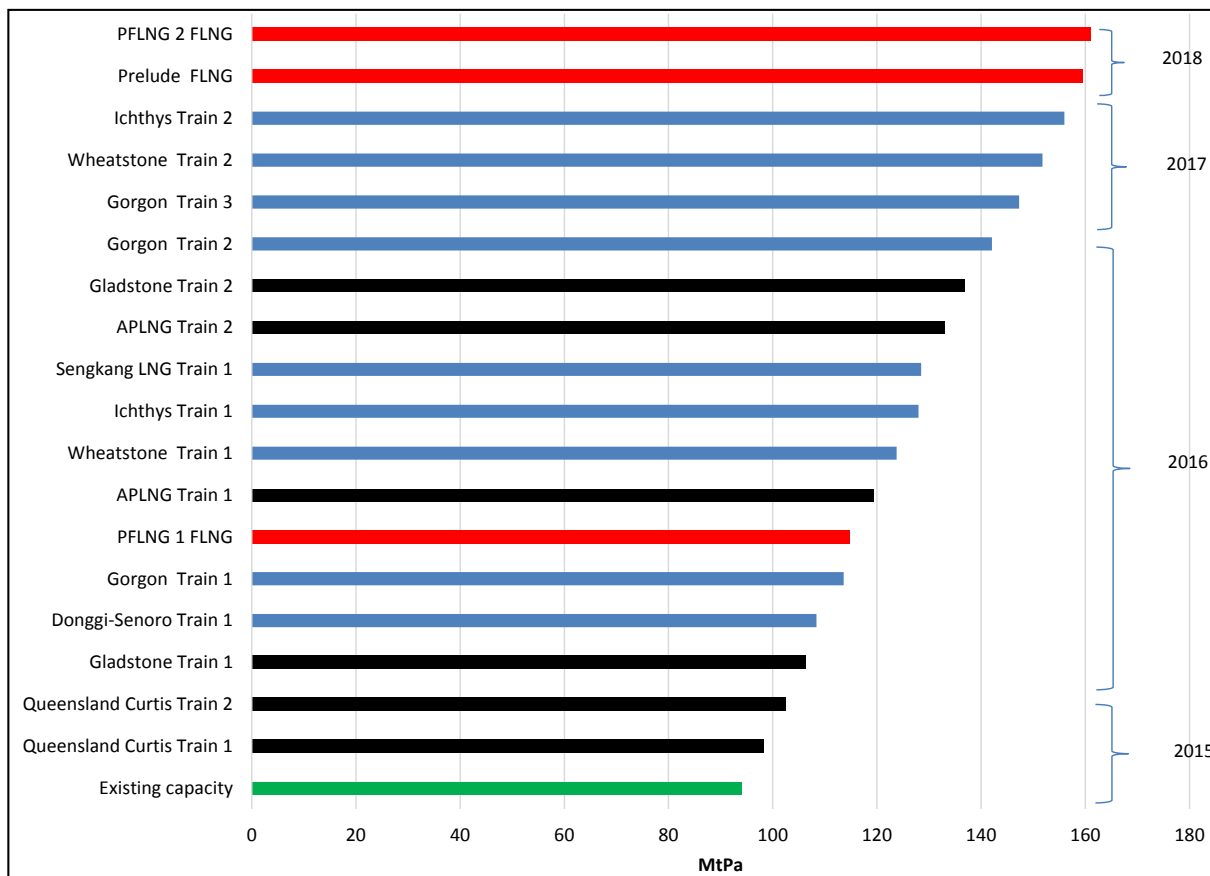
- US LNG exports have begun, first cargo to Brazil
- Around 70-75-million tpa US export capacity by around 2019
- Australian capacity to hit >80 million tpa by around 2018
- Asian market glutted with new supply from Australia
- Oil prices likely to stay trapped in \$30-50/barrel range

What we don't know

- Utilisation of Australian, US LNG projects under construction
- Where US LNG export cargoes will be sold
- Whether production ramp-ups will be slowed, delayed
- Which further projects will take FID to invest in new capacity
- Impact of geopolitical tensions on oil, gas prices

Asia-pacific LNG capacity additions to 2018

Cumulative LNG capacity additions (Asia-Pacific)



- █ Floating
- █ Coal-Seam gas
- █ Conventional
- █ Existing Capacity

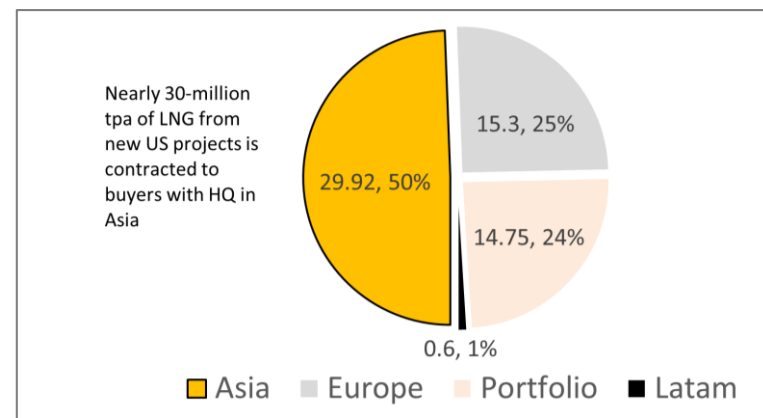
- 65 million tpa of capacity due to come on stream in Asia-Pacific region by end 2018
- These are firm projects that are already under construction
- Will take care of region's future demand growth
- LNG is contracted to buyers in Asia-Pacific, destination-restricted
- Pricing primarily oil linked through JCC mechanism

Source: IPA Advisory Ltd

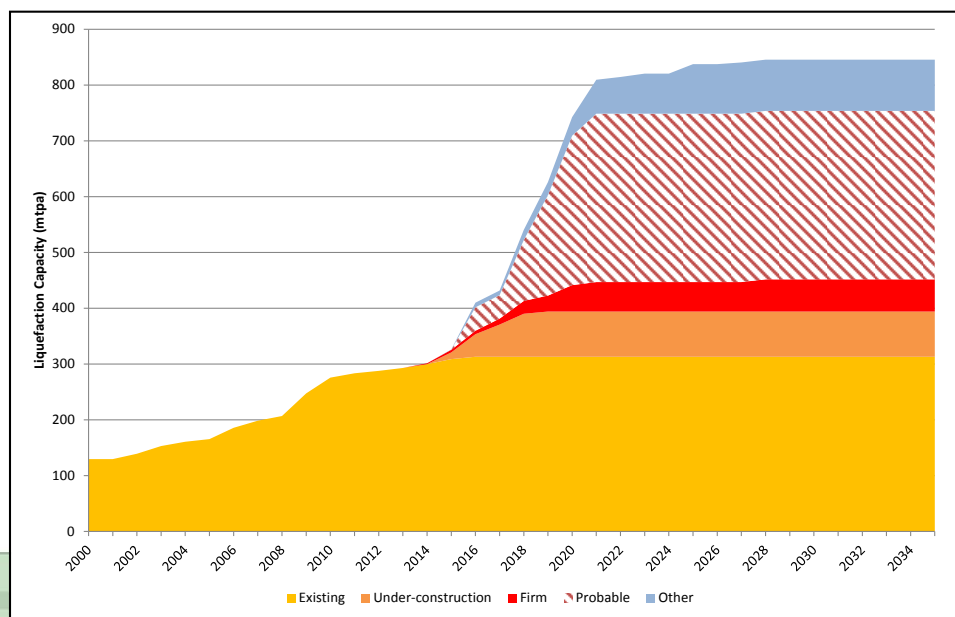
US LNG exports are game-changer for market

Project	Location	Company	Capacity (mtpa)	Train	Start-Up
Sabine Pass	Louisiana	Cheniere	27.0	1-6	2016-2019
Freeport LNG	Texas	Freeport	13.2	1-3	2018-2019
Cameron LNG	Louisiana	Sempra	12.0	1-3	2019-2020
Corpus Christi LNG	Texas	Cheniere	15.0	1-3	2018-2020
Cove Point LNG	Maryland	Dominion	5.3	1	2017
Total			72.5		2016-2020

Contract volumes



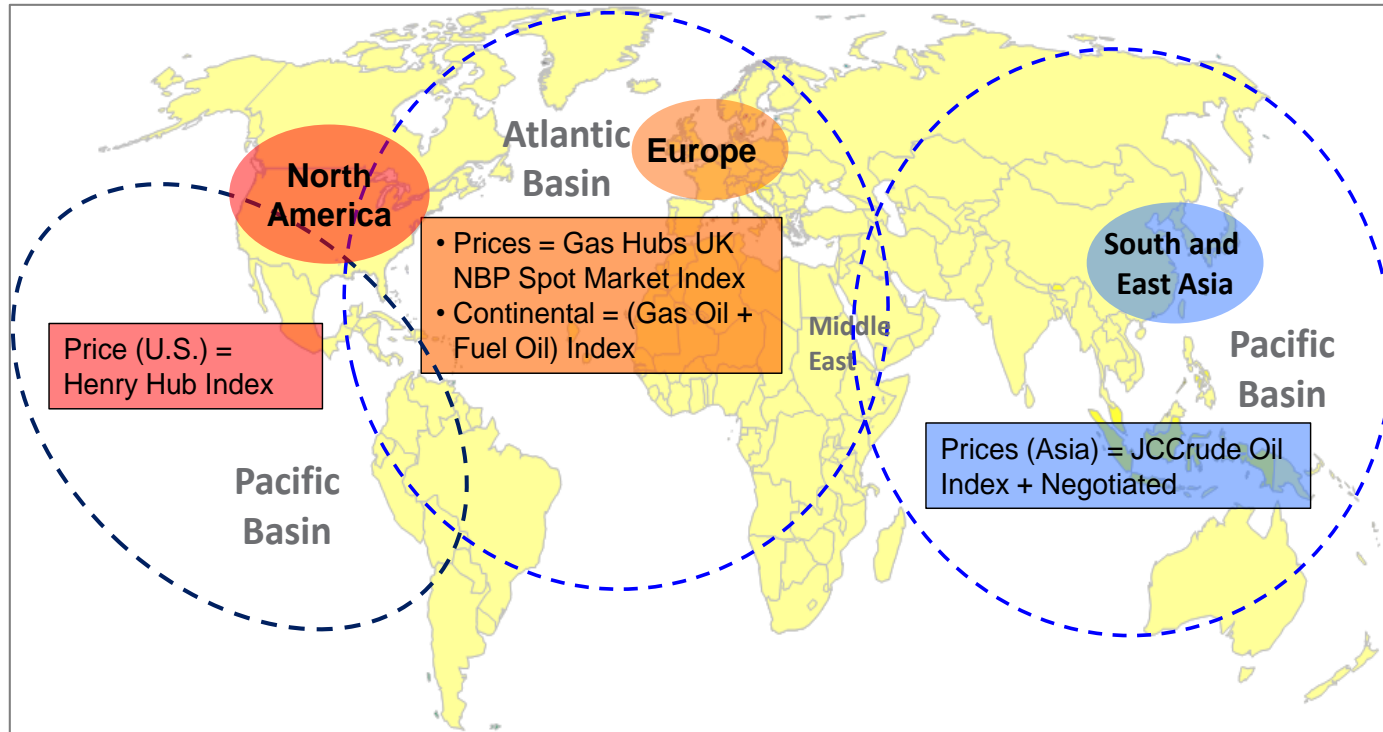
Liquefaction capacity by development certainty



- US volumes contracted for Asia likely to be resold.
- Prices linked to Henry Hub index
- Potential for LNG to remain at low prices even if oil prices rebound
- Many large LNG projects still to take FID

Source: IPA Advisory Ltd

Pricing mechanisms impact global LNG demand

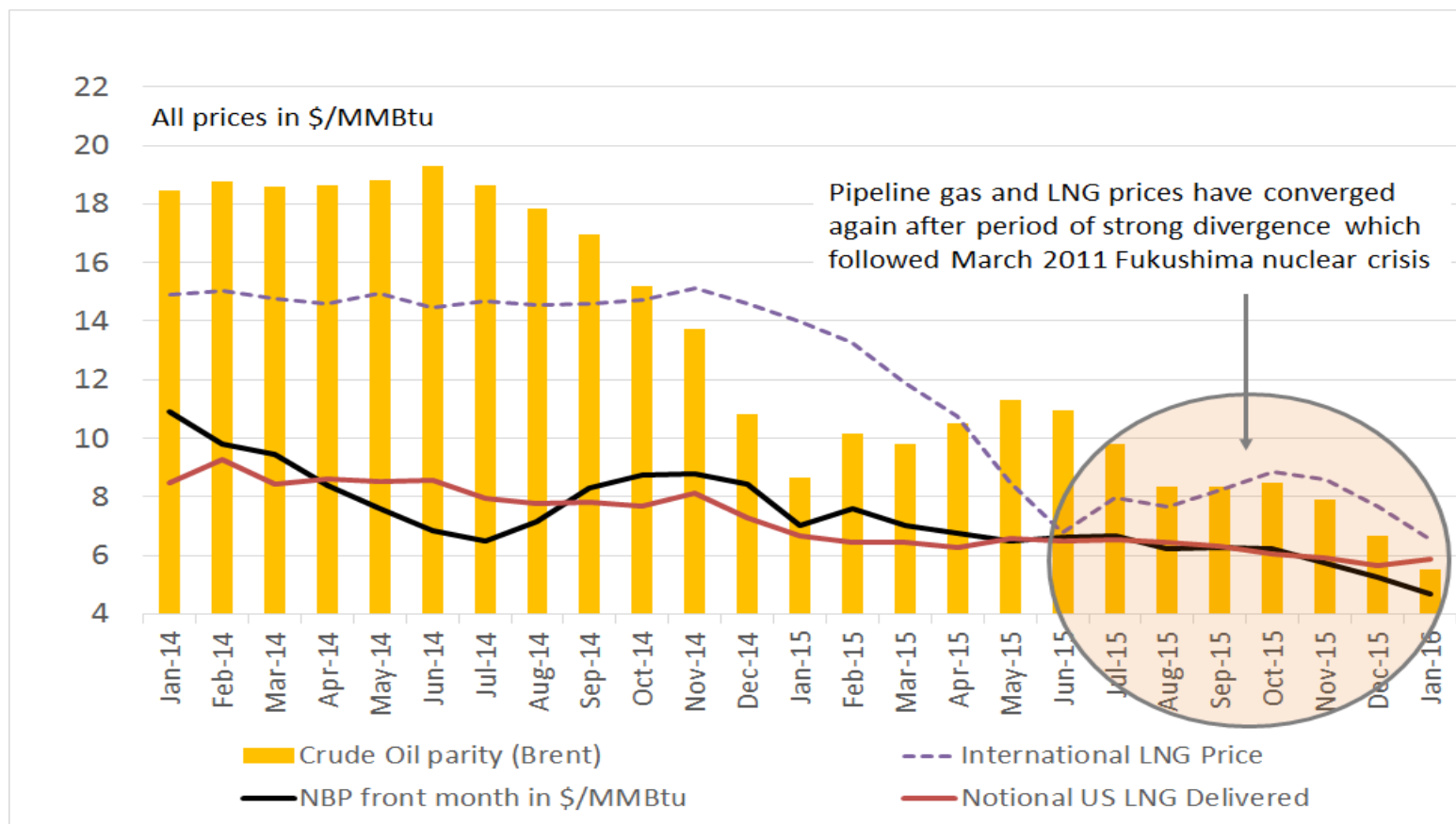


- Pricing remains predominantly linked to benchmark crude oil; with ~70% imports delivered on LNG term contracts
- New supplies from USGC linked to Henry Hub index (NYMEX)
- Europe increasingly linked to European gas trading hub prices
- New LNG export developments depend on price

Source: IPA Advisory Ltd

Oil, gas and LNG prices converge: But will this last?

Estimated Oil, Gas and LNG prices (LNG uses average 6 month lag)

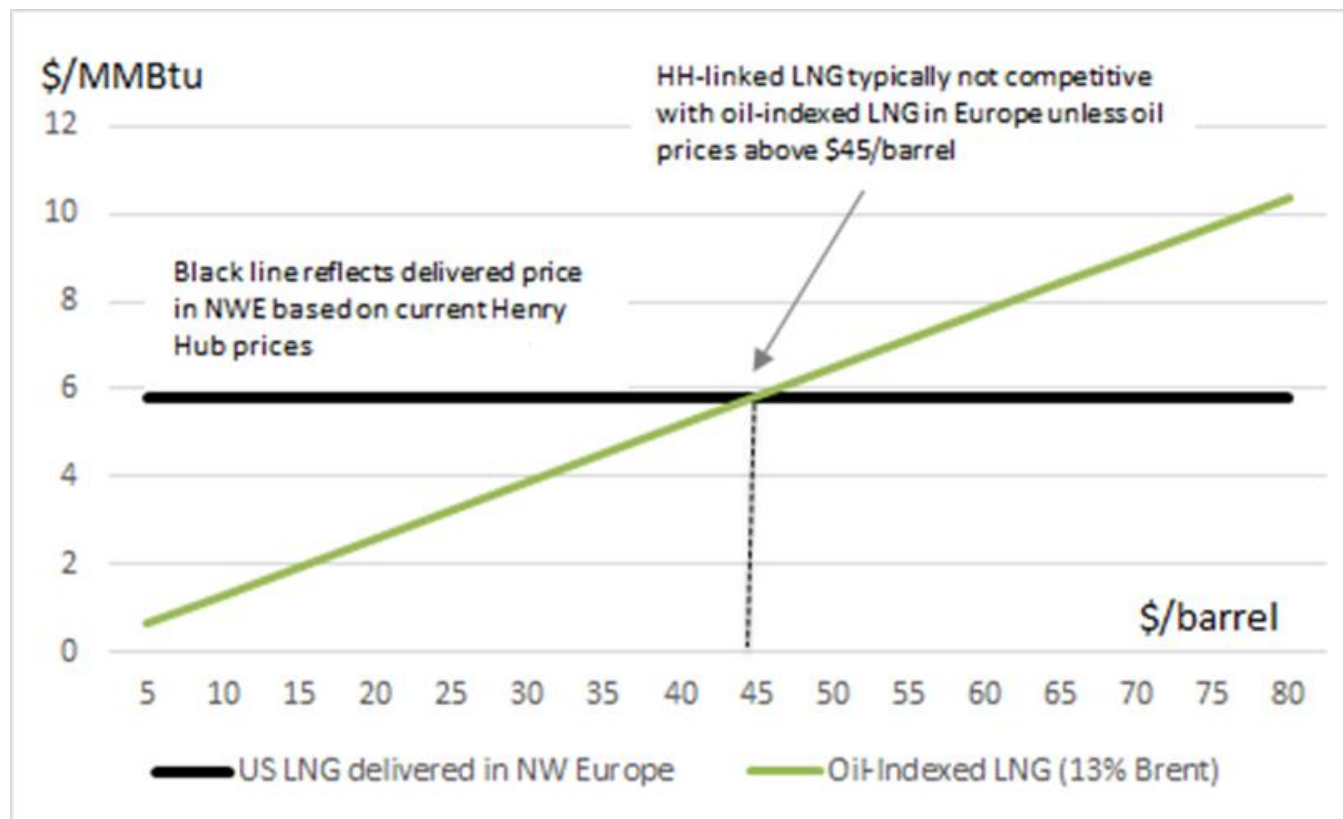


- WB projects that oil prices rebound by 50% over the next 12 months from lows~ US\$30/bbl, but capped around US\$60/bbl until 2020

Source: IPA Advisory Ltd

HH-linked and oil-indexed LNG to Europe

Comparison based on current Henry Hub prices



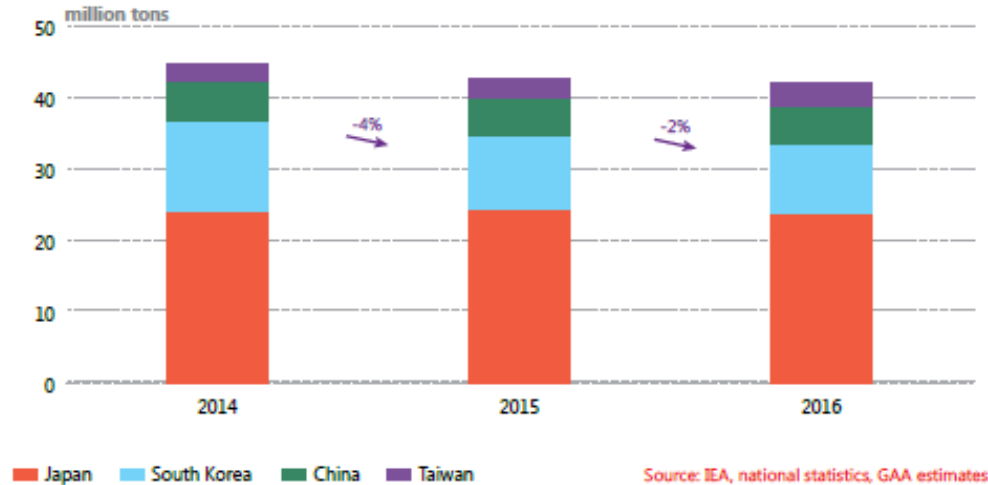
- Based on Cheniere formula of Henry Hub *1.15 + \$2.25-3.00 / MMBtu liquefaction plus freight to Europe

Where will US LNG export cargoes head?

- Conventional wisdom has been that significant volume of US LNG will flow to Europe
- European worries about supply security from Russia after the Ukraine crisis
- US LNG was seen as cheap and reliable source when oil prices at above \$100/bbl
- Reality is now very different since oil prices have collapsed
- US LNG lands in Europe at \$5-6/MMBtu but NBP currently 28 pence/therm (around \$4/Mmbtu)
- Potential gains in gas use by power sector but carbon price still insufficient to incentivize
- Potential for strong growth in transport demand for gas has evaporated now that oil and gas prices have converged
- So where will US LNG exports actually target in the near term?

Northeast Asia suffers loss of appetite

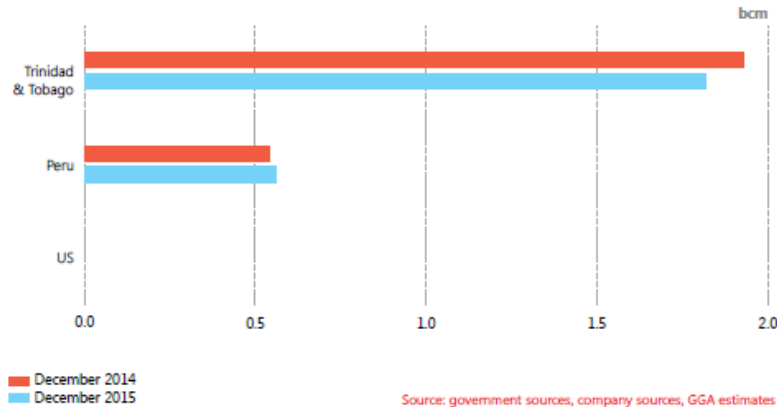
Northeastern Asian LNG imports, Q1



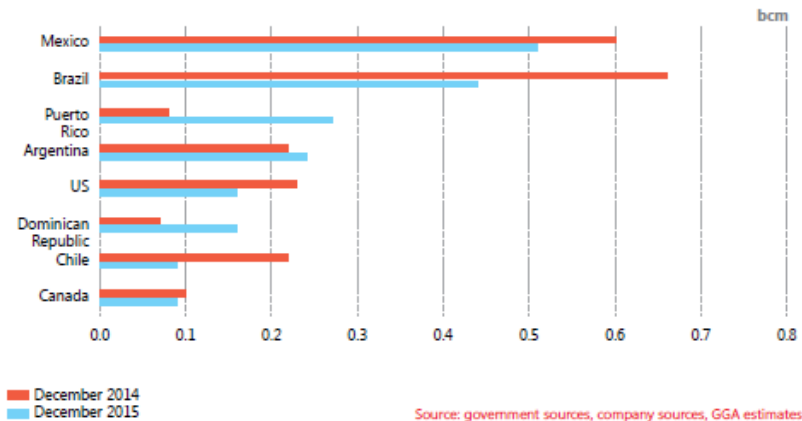
- Chinese demand growth slowed by sluggish GDP, move to services
- Japanese demand has suffered from nuclear restarts
- Korean stocks high so limited spot demand
- Demand not sufficient to absorb incremental flows from Australia
- Australian/Asian LNG even flowing as far afield as Middle East

Americas LNG demand has slowed

LNG exports - Americas



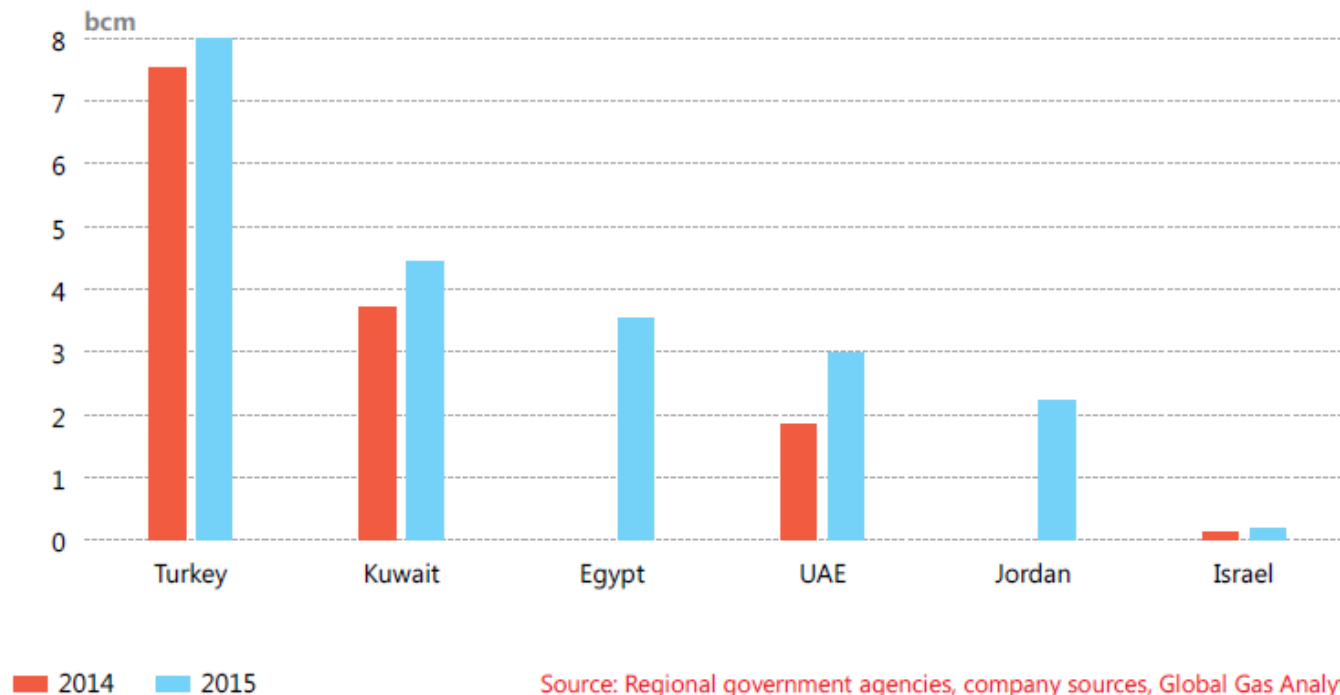
LNG imports - Americas



- Latin America's appetite for LNG has also waned
- Economic slowdown and political uncertainty
- Strong dollar curbing imports, as countries face mounting trade deficits
- Argentina, Mexico, Brazil prioritizing development of domestic resources

Middle East demand growing

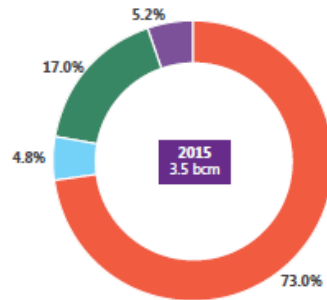
Middle East and Africa LNG imports



- Middle East LNG demand growing despite oil price decline. Incentive to import gas and maximize oil export earnings.

New Middle East Importers

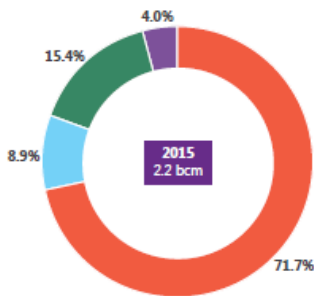
Egyptian LNG imports



Legend: Middle East & Africa (Red), Europe (Green), Americas (Blue), Asia Pacific (Purple)

Source: Egypt Ministry of Petroleum, company sources, Global Gas Analytics

Jordanian LNG imports



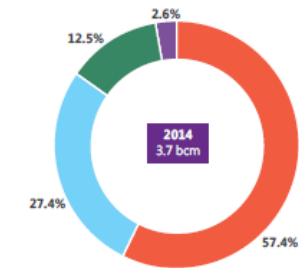
Legend: Middle East & Africa (Red), Europe (Green), Americas (Blue), Asia Pacific (Purple)

Source: Jordan Ministry of Energy and Mineral Resources, company sources, Global Gas Analytics

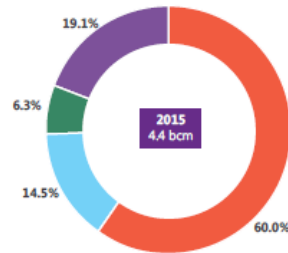
- Egypt and Jordan have started importing LNG. Shipments so far mainly sourced from other Middle Eastern countries and Africa
- Jordan started importing LNG in May 2015 using an FSRU at the port of Aqaba, and it is expected to be a key regional LNG importer in coming years.
- Egypt is set to become the largest LNG importer in the MEA once it installs its third FSRU in 2016. Growing gas-for-power demand in Egypt, together with declining production, made the country an LNG importer in 2015

Middle East growth opportunities

Kuwaiti LNG imports

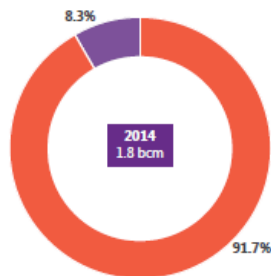


■ Middle East & Africa
 ■ Americas
 ■ Europe
 ■ Asia Pacific

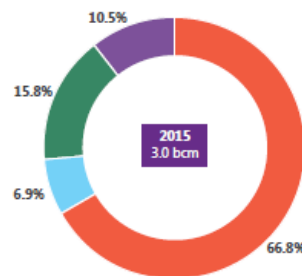


Source: Kuwait Ministry of Oil, company sources, Global Gas Analytics

UAE LNG imports



■ Middle East & Africa
 ■ Americas
 ■ Europe
 ■ Asia Pacific

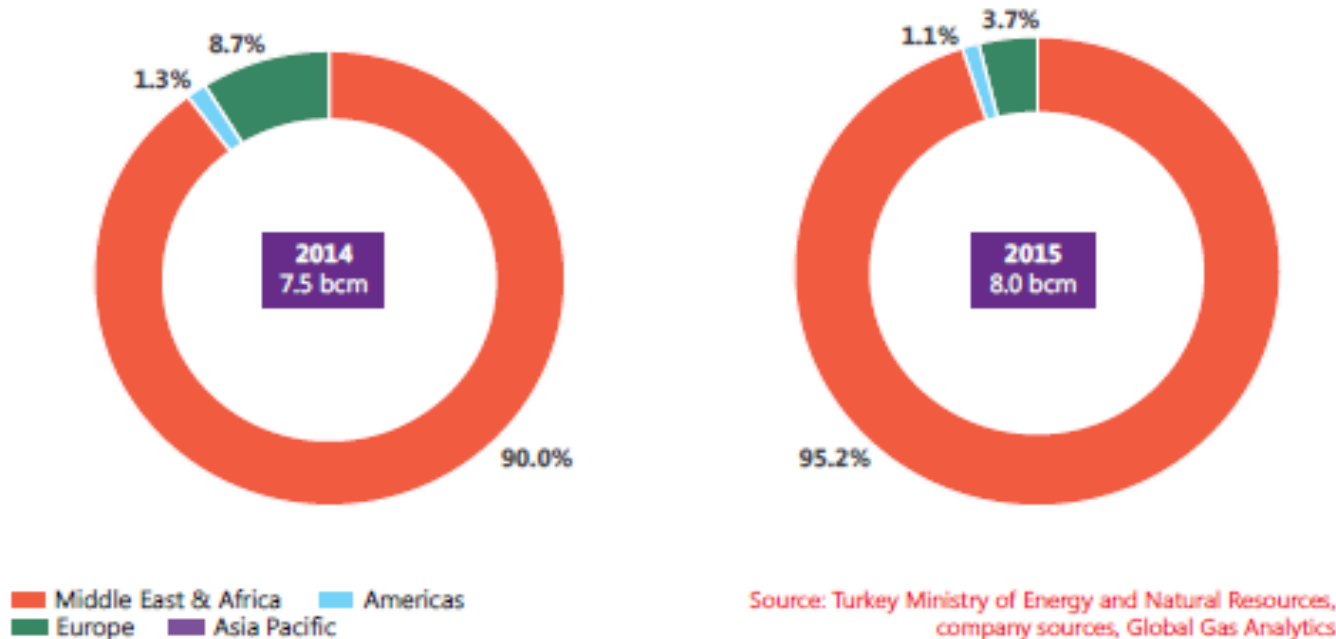


Source: UAE Ministry of Energy, company sources, Global Gas Analytics

- Kuwait sees its dependence on imported LNG increasing in the coming years. The country imports LNG using an FSRU at Mina al-Ahmadi.
- The lease on the vessel expires in 2019, but Kuwait is working towards extending it and has considered expanding regas capacity.
- The UAE is an exporter and importer of LNG. Abu Dhabi exports LNG, while Dubai imports it. Dubai imported 3 bcm of gas as LNG in 2015 – an increase of 66.7% on an annual basis.
- Dubai has a 15-year LNG sales-and-purchase agreement with Shell, but the country also issues shorter-term LNG import tenders. Dubai issued tenders in October and November 2015 for extra LNG in 2016 and 2017. Portfolio players are expected to supply these volumes.

Turkey set to buy more LNG

Turkish LNG imports



- Turkey was the largest LNG consumer in the Middle east and Africa region last year despite weak weather-related gas demand. The country's LNG imports rose by 6.7% on an annual basis in 2015 – to 8 bcm.
- The competitive price of LNG compared with pipeline gas and supply disruptions from Iran and Azerbaijan contributed to the result. Tensions with Russia make it likely it will need more LNG as new pipeline flows in doubt.

Conclusions

- Oversupply likely out to around 2020 but this will be managed by lower utilisation, FID delays for new projects, slower ramp-ups
- Prices to remain depressed but potential for US LNG to act as cap to prices if oil market recovers
- Large volumes of US LNG held by portfolio players. Volumes are free destination and so will be driven by arbitrage
- Pricing of LNG will become more flexible, shorter-term contract terms, more frequent break clauses
- European demand looks unlikely to be a significant driver unless gas in transport takes off or carbon prices rise significantly (unlikely for now)
- Middle East and Latin America look likely to be the key markets for US LNG in near term.

TAPI – life in the line?

The drive to push regional energy projects forward could support more than TAPI

Argentina requires less LNG

Structural reforms by the new government will dampen the country's reliance on LNG imports

In Focus: MEA LNG imports

MEA is sourcing more LNG from other regions as portfolio players become involved

US LNG exports

The Sabine Pass LNG plant is expected to come online in late February or early March

Asia Pacific

Spot LNG prices slide as bearish fundamentals persist at the peak of winter

Europe & Russia

Colder temperatures are doing little to drive up demand in major markets

Middle East & Africa

Saudi Arabia's subsidy reforms may not have the desired effect on gas-for-power demand

Americas

Gas production growth in the US is moderating

Ask the analysts
analytics@interfax.co.uk

Free trials and subscriptions
+44 (0)20 3004 6206
customerservice@interfax.co.uk

Thank You !

Questions Welcome



CHIEF ENERGY ANALYST
Peter Stewart
+44 (0)20 3004 6211
peter.stewart@interfax.co.uk



SENIOR ENERGY & MODELLING ANALYST
Abhishek Kumar
+44 (0)20 3004 6212
abhishek.kumar@interfax.co.uk



SENIOR ENERGY ANALYST
Catriona Scott
+44 (0)20 3004 6213
catriona.scott@interfax.co.uk

Global Gas Analytics:
“Gas market analysis driven by industry insight”