

# Global Developments in LNG

## *Implications for the UK market*

Ofgem Winter Outlook

London

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# Global Developments in LNG

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- Focus on short term outlook to 2020 but some commentary on medium term to 2025
- Global Outlook.....
- .....on to Europe.....
- .....and then UK

Part of Energy and Chemicals  
Advisory division of Nexant

## Core Competencies

- Gas market analysis and forecasts
- Gas pricing and contracting
- Market structuring and project development

London (Main Office)

Houston, New York, Bangkok,  
Singapore, Shanghai, Bahrain

## WORLD GAS MODEL

Used for consultancy assignments and licensed to clients and installed on their system

Considers every gas producing and consuming country in the world as well as infrastructure needed to support international trade, and associated costs.

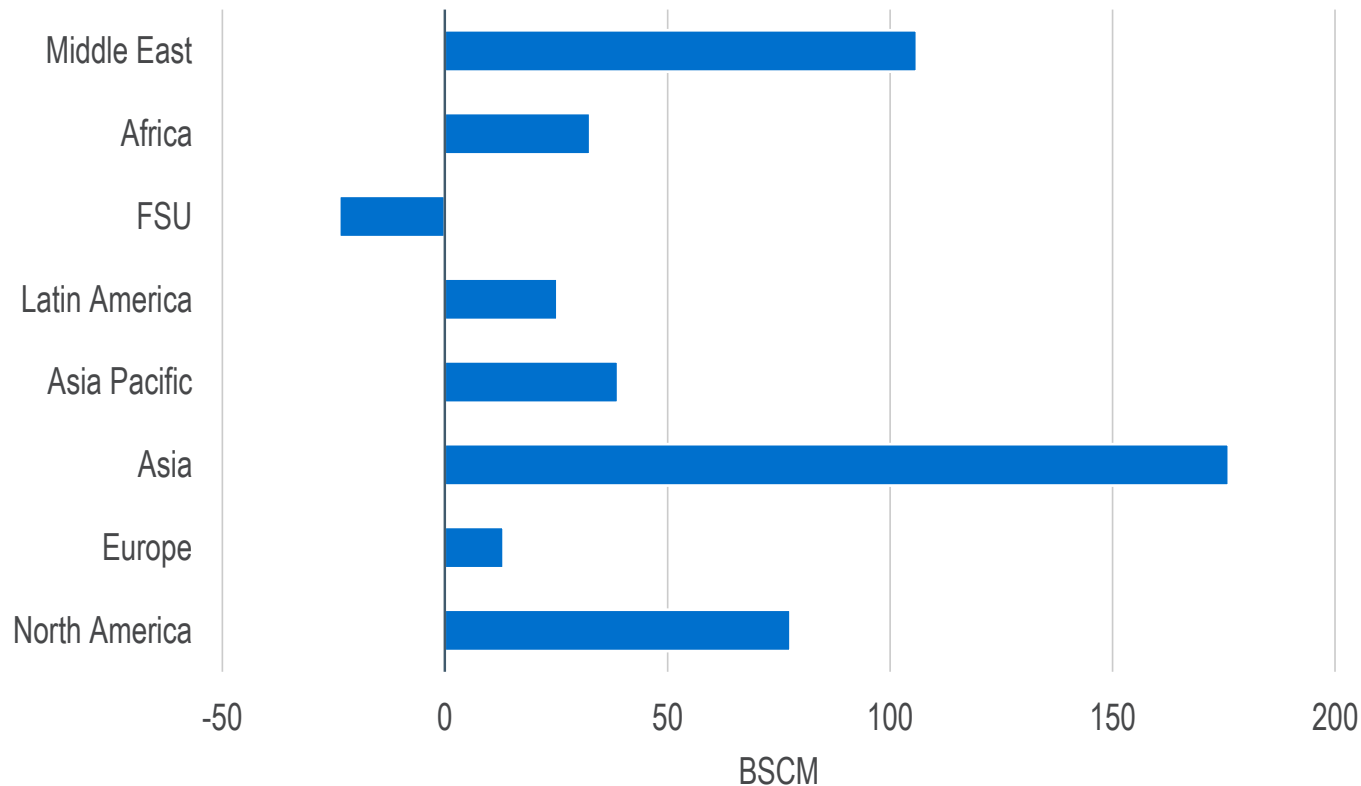


Outputs include projections of wholesale gas prices, national and regional supply demand balances and natural gas trade by country and region

# WGM Standard Regional Definitions (IGU)

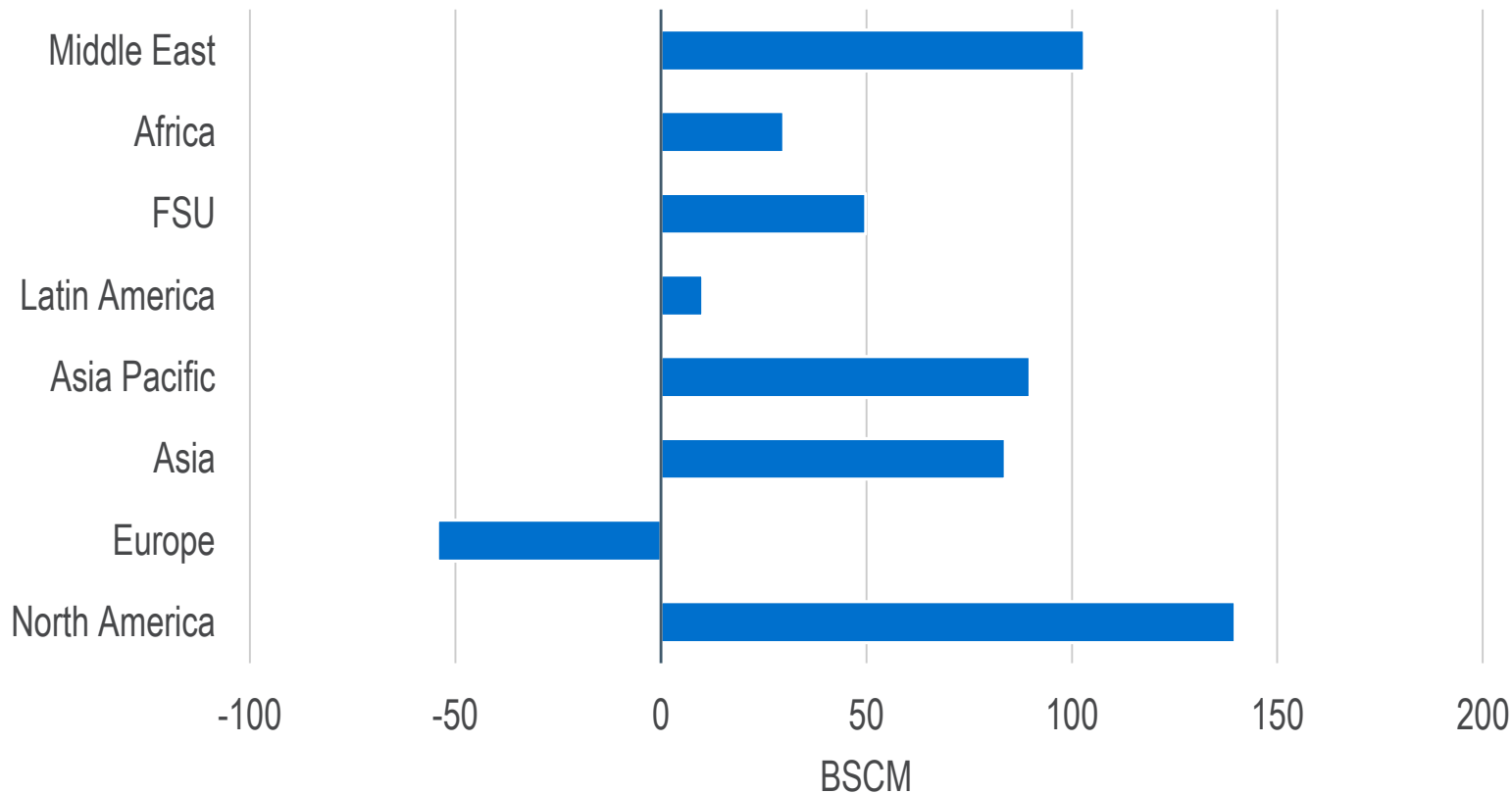


# Global Consumption Growth – 2013 to 2020



- **Broadly consistent with the IEA Medium Term Gas Market Outlook (June 2015)**
- **Asia (China and India) demand drives much of growth**
- **Middle East growth largely met by local production**
- **North America demand growth driven by power sector and industry**
- **Russia declining demand with weak economy**

# Global Production Growth – 2013 to 2020



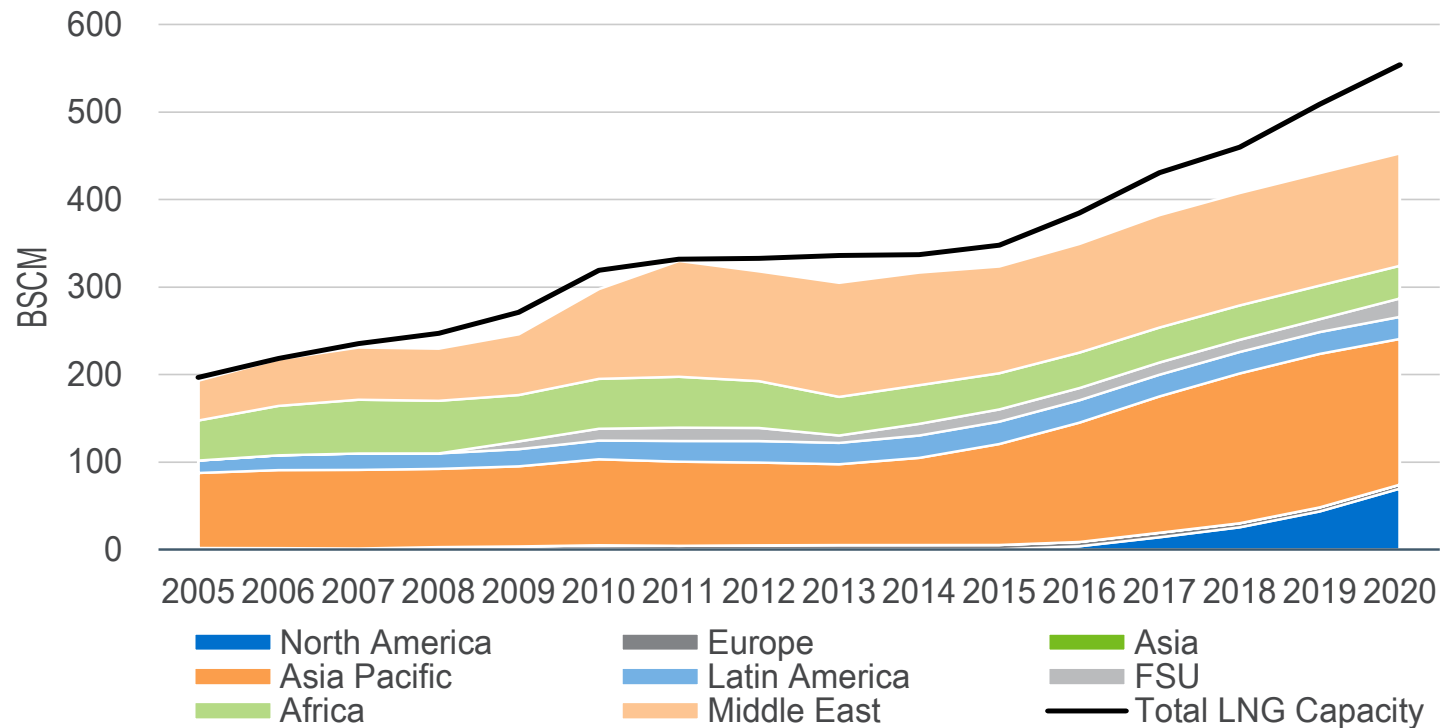
- **North America** largest growth as shale supplies LNG exports and domestic demand
- **Middle East** production supplies local consumption
- **Asia Pacific** growth mainly Australia for export
- **FSU** in Russia and Turkmenistan for export

# Liquefaction Capacity Additions



Country	Terminal	Capacity (mtpa)	Start Year	Start Q
Australia	Gorgon T1&T2	10.40	2016	1
Malaysia	Kanowit FLNG Terminal	1.20	2016	2
Malaysia	MLNG 3 T3 / PETRONAS LNG Train 9	3.60	2016	2
USA	Sabine Pass T1 &T2	9.00	2016	2
Australia	Gladstone LNG (CSG) T2	3.90	2016	4
Australia	Gorgon T3	5.20	2016	4
Australia	Wheatstone LNG T1	4.45	2016	4
USA	Sabine Pass T3 & T4	9.00	2017	2
Australia	Ichthys	8.40	2017	4
Australia	Prelude FLNG	3.60	2017	4
USA	Cove Point	5.20	2018	2
USA	Sabine Pass T5	4.50	2018	2
Australia	Australia Pacific LNG CBM Train 2	4.50	2018	4
Australia	Wheatstone LNG 2	4.45	2018	4
Russia	Yamal LNG T1	5.50	2018	4
USA	Freeport Phase 1	15.00	2018	4
USA	Corpus Christi T1, T2 &T3	13.50	2019	2
USA	Cameron T1 & T2	9.00	2019	2
Indonesia	Masela (Abadi) FLNG	2.50	2019	4
PNG	PNG LNG Expansion	6.90	2019	4
Russia	Yamal LNG T2 & T3	11.00	2019	4
Malaysia	Rotan FLNG	1.50	2019	4
Cameroon	Cameroon FLNG	1.20	2019	4

# LNG Exports

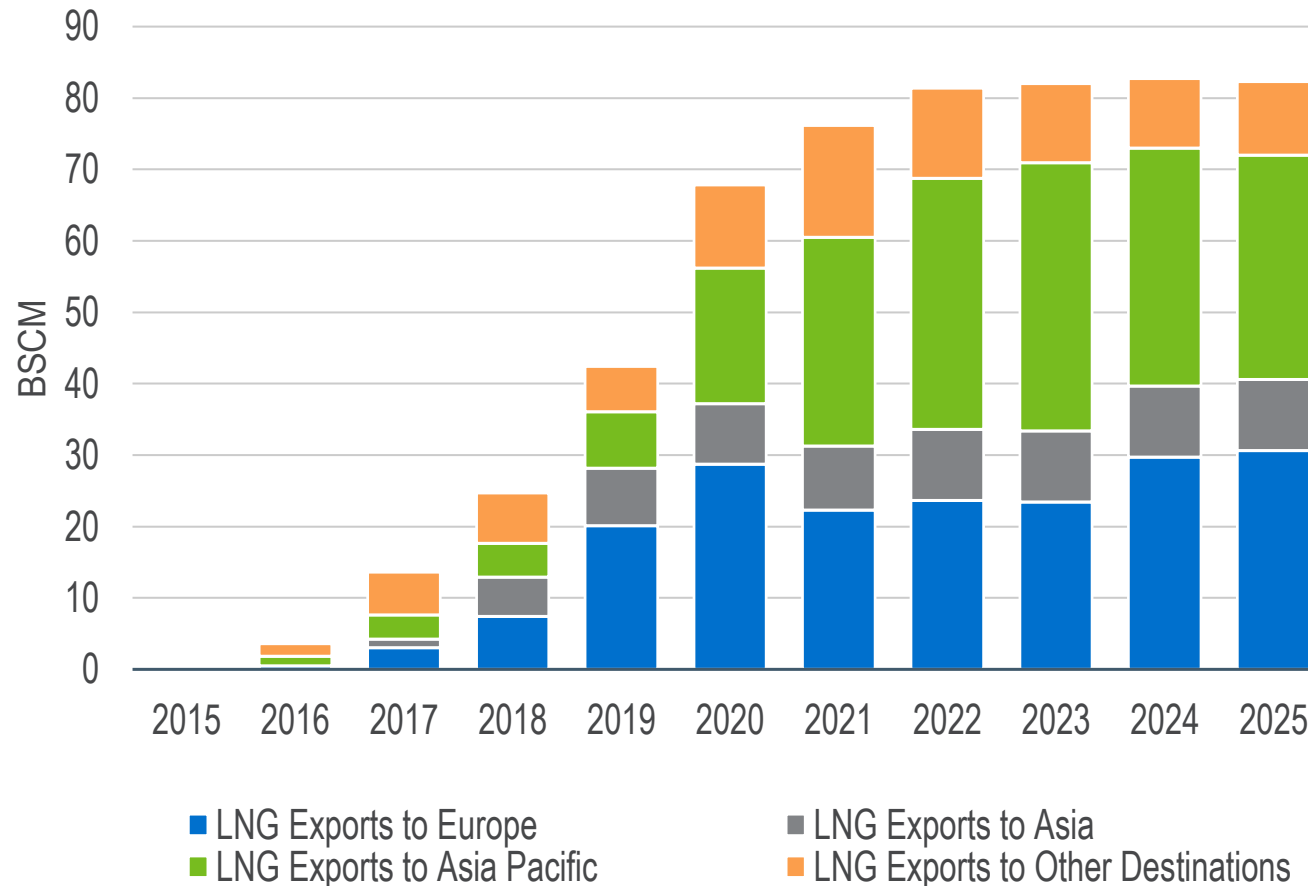


Source: Nexant  
World Gas Model

- Exports from Asia Pacific and US drive growth with Asia, new Asia Pacific importers and Europe receiving increased volumes
- 130 bcm increase in consumption between 2014 and 2020....
- .....but 215 bcm increase in available capacity

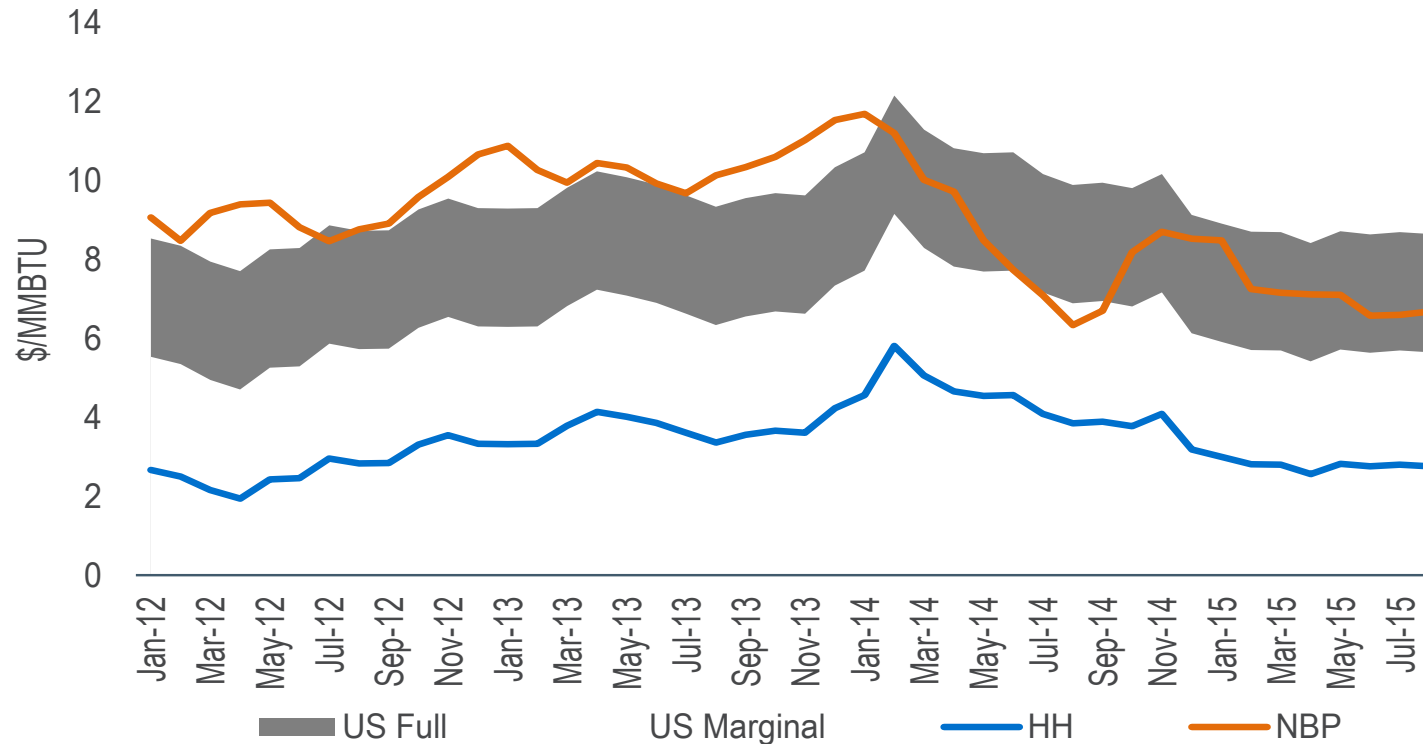


# North American LNG Exports to 2025



- **5 US terminals with non-FTA approval**
- **1 Canadian terminal**
- **Europe is initial early destination and the residual sink for cargoes**
- **Japan and Korea take bulk of exports post 2020**
- **Not much to China and India which remain dominated by Qatar and Australia**
- **Price arbitrage between US and Europe drives the marginal cargoes**

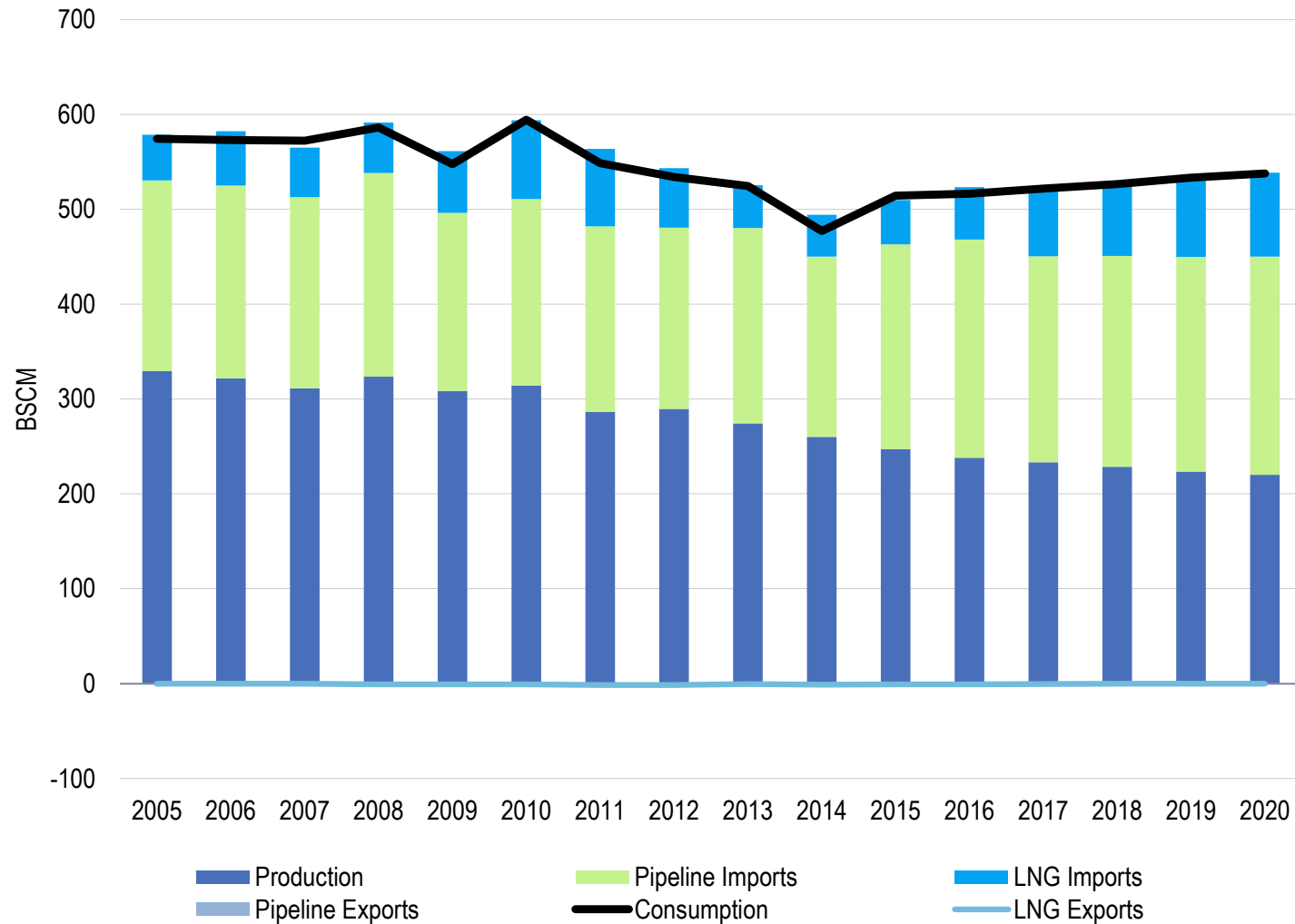
# US – UK Historic Price Differentials



Source: Argus and Nexant

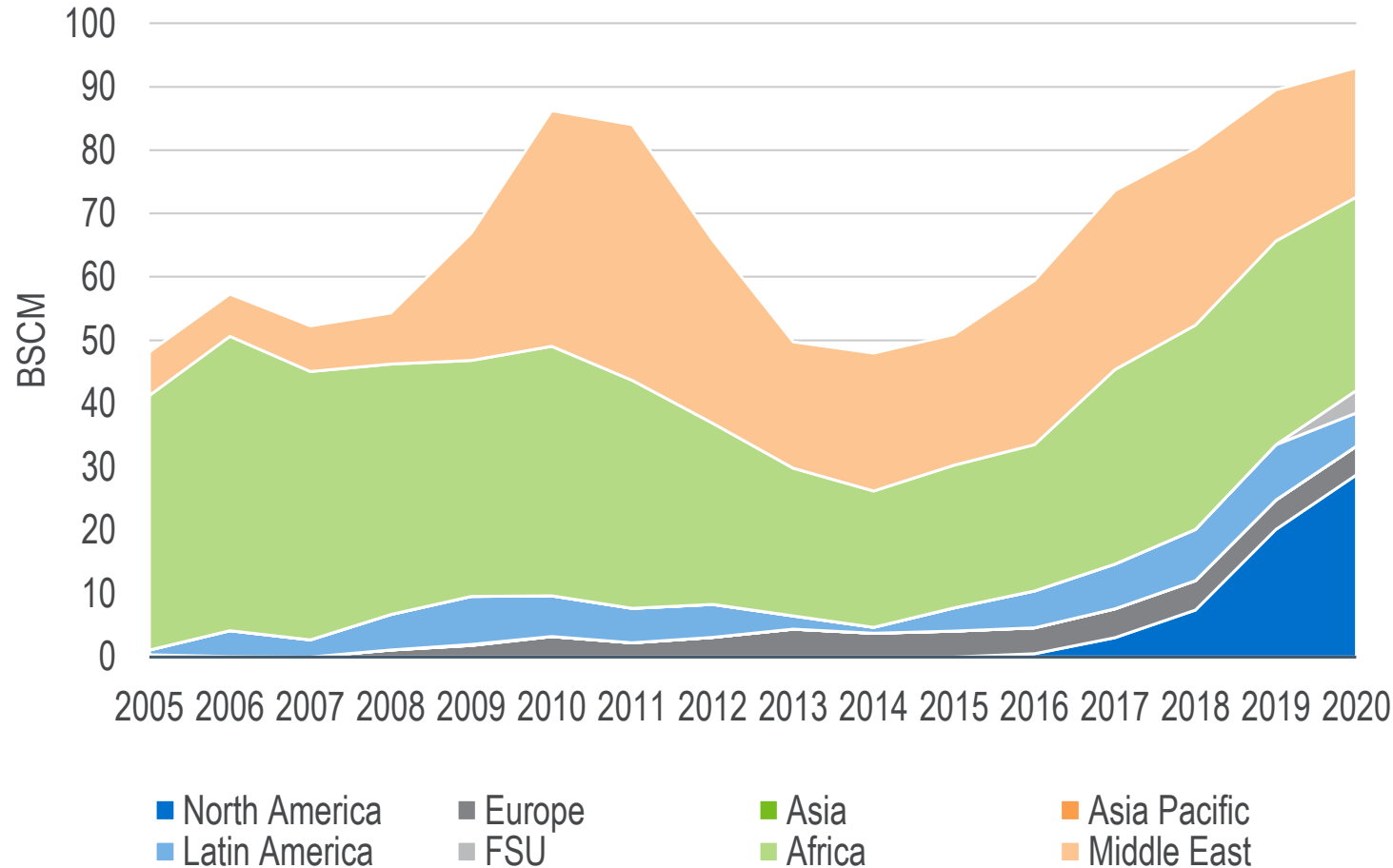
- **Cheniere style contract**
  - 115% of HH
  - \$3.00 tolling
  - Plus Shipping (\$1.00), Regas (\$1.00) and \$0.50 supply margin
  - Marginal cost excludes tolling
- **Full cost recovery needs \$6 differential, marginal cost maybe \$2.25**
  - Depends on HH level

# European Supply and Demand



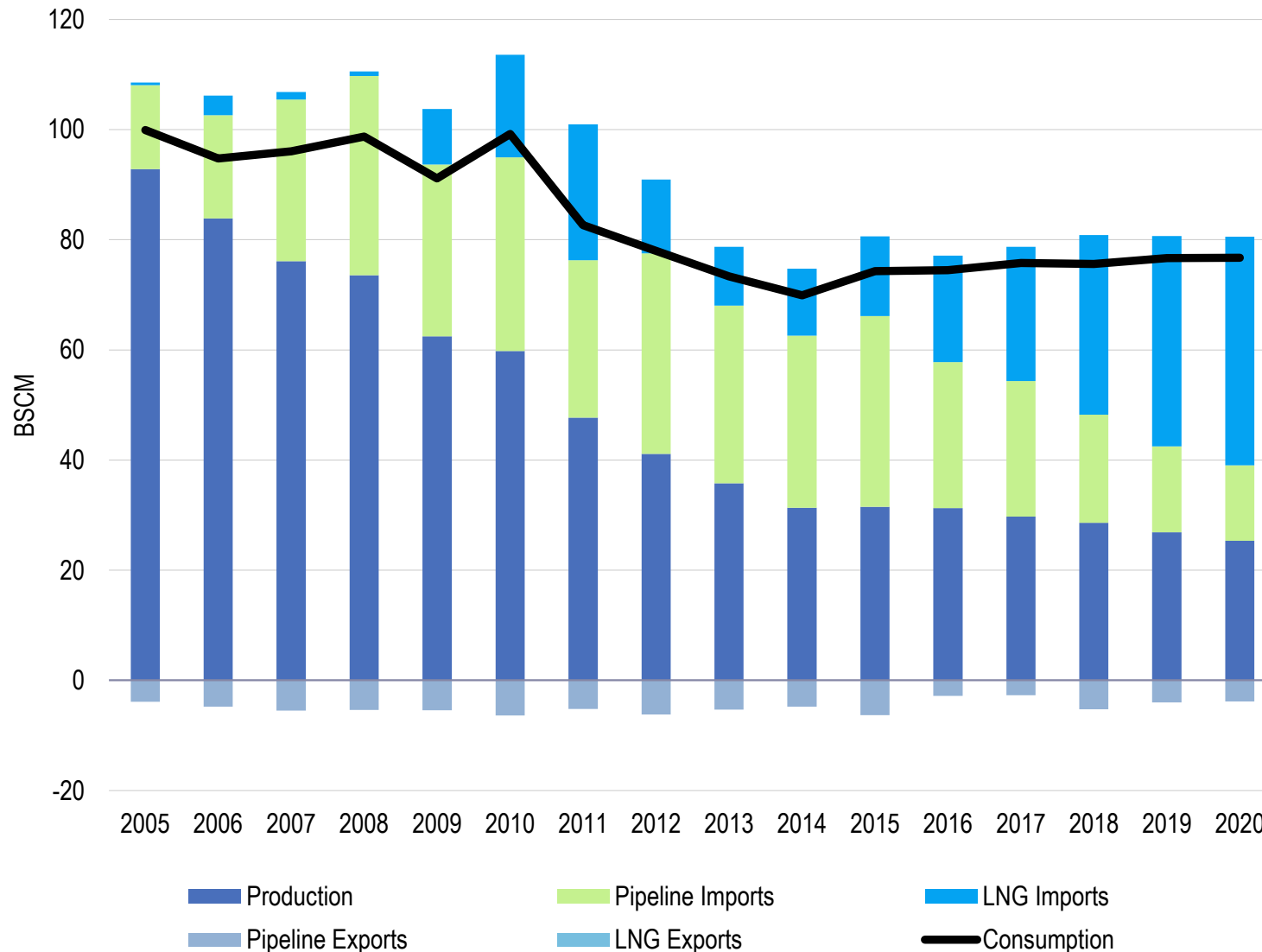
- **European demand has rebounded this year - more in power in some markets**
- **Demand only back to 2012 level in 2020**
- **Import gap still widening – no impact from shale**
- **LNG imports grow but pipeline imports fill most of gap**
- **Between 2013 and 2020 lose 40 bcm of Dutch production**

# European LNG Imports



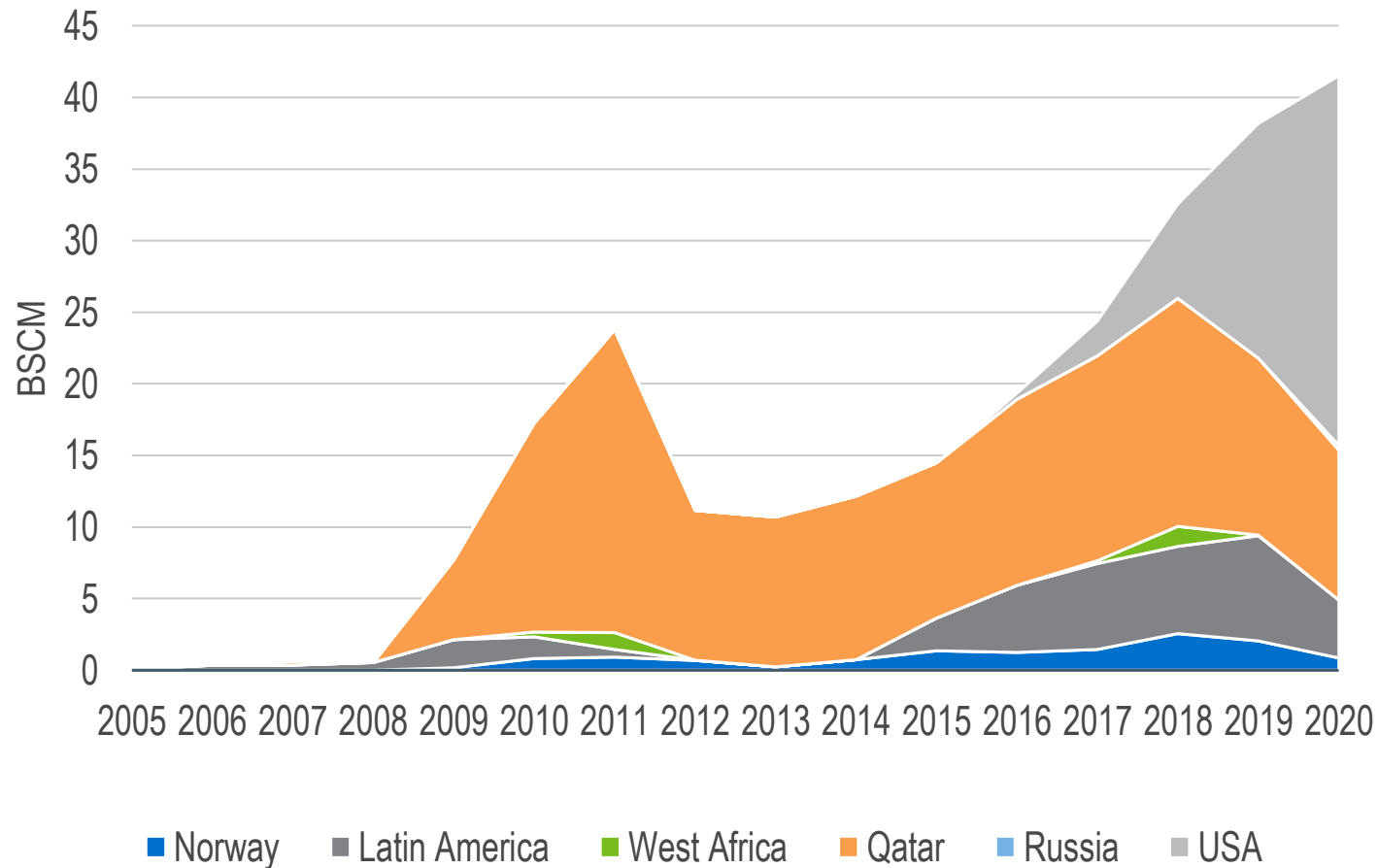
- Middle East imports remain flat
- Growth to 2020 largely from US
- Small growth from Africa
- Increased utilization of Northwest Europe regas terminals in particular

# UK Supply and Demand



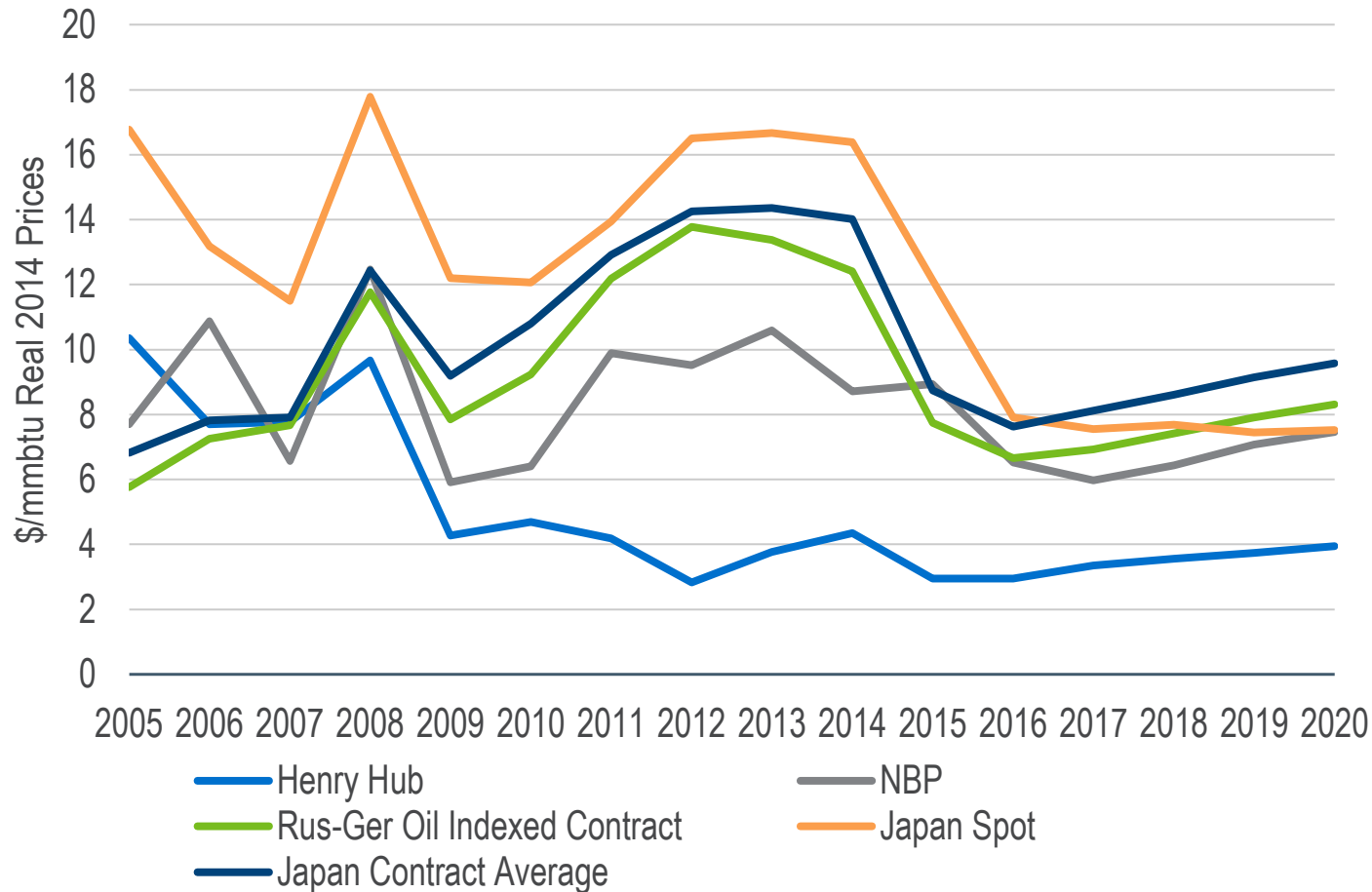
- UK demand picks up, largely in power as gas displaces coal
- LNG imports grow rapidly as supply gap opens up and even displaces some pipeline imports
- Pipeline imports from Norway down to 15 bcm in 2020
- LNG imports provide over half UK supply by 2020
- Pipeline exports to Ireland fall off as Corrib comes onstream

# UK LNG Imports



- Qatar dominates UK LNG imports..
- ..but US LNG accounts for much of the growth to 2020

# Gas Prices - Illustrative



- **Spot prices remain weak in Europe and Asia over next 2 years before some levelling off**
- **Assumes oil prices rise back to \$70 in real terms by 2020**
- **Henry Hub prices increase slightly to \$4 or so as LNG exports grow rapidly**

# Medium Term to 2025

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- **Very little new liquefaction capacity expected to come onstream between 2020 and 2025 so consumption rises faster than capacity, tightening market slightly.**
- **However, LNG under pressure in China and Europe from competing pipeline supplies from Russia so prices may not strengthen that much**
- **Europe supply gap continues to widen and LNG and pipeline imports continue to grow**
- **LNG imports from US grow but Europe also begins to import from Yamal project**
- **Small quantities of shale production in UK but supply gap still grows as demand rises and UK imports some Yamal LNG**



# Conclusions

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- **LNG market becoming supply long**
- **Weak prices through to 2020**
- **Widening European supply gap as production declines, especially at Groningen, filled by increased pipeline imports from FSU and LNG imports**
- **US LNG exports head to Europe in short term before heading increasingly to Asia Pacific**
- **UK attractive market for US LNG since easy access and can sell spot at NBP**
  - **US LNG also similar quality spec to UK gas**
- **LNG imports maybe half UK supply by 2020**
  - **Dutch contract ends**
  - **Norwegian gas heads to Germany and Belgium to make up for decline in Groningen**
- **Sharp increase in utilization at Northwest Europe (UK, Belgium, France, Netherlands) regas terminals**



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