

Energy security in the wider global context

The Future Of Eastern Mediterranean Gas

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The Gas Value Chain Company GmbH



Agenda

- } General commercial aspects of energy security**
- } The unfolding LNG “revolution” & its implications**
- } European gas market: capable of sending demand side price signals?**
- } Global LNG market: supply side flexible to respond to price signals?**
- } Europe able to absorb flexible LNG?**
- } Implications for European security of supply**
- } Implications for Eastern Mediterranean Gas**
- } Outlook: the role of gas post COP21**

General commercial aspects of energy security

- **Diversity of supply: sources & routes (ideally redundant & competing)**
- **Integrated, liquid market („European Henry Hub“)**
- **Market capable of demand sending price signals**
- **Market where (competing) supplies will respond to price signals**

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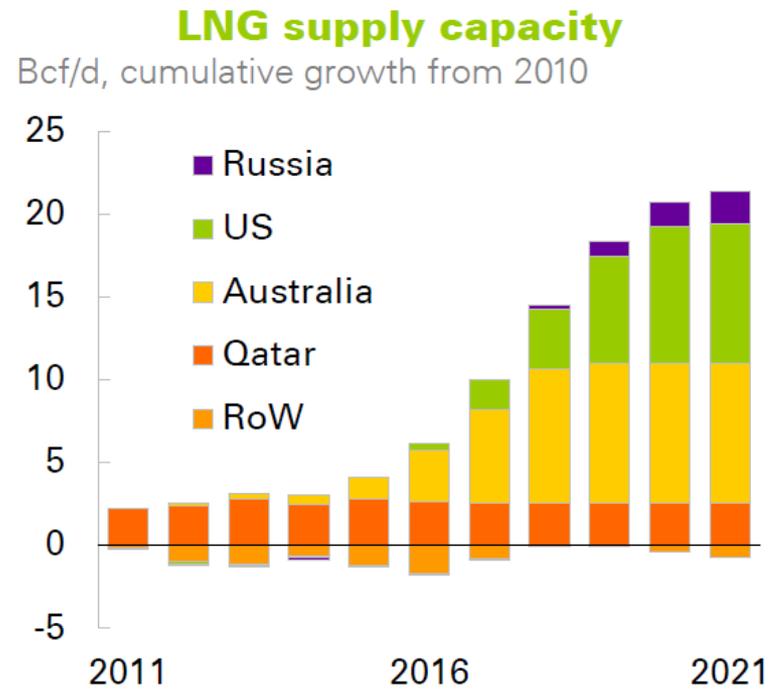
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The unfolding LNG “revolution”

LNG supply capacities ramping up massively

Note: R/P ratio from ~60 to >200 years

Global LNG supplies



Source: BP Energy Outlook 2016

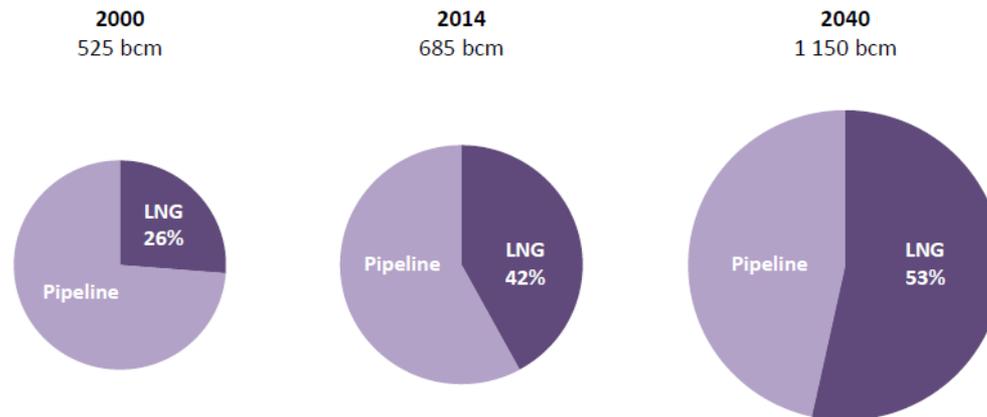
The unfolding LNG “revolution”

LNG about to overtake piped gas in global trade

Waterborne commodity > 50% fit to facilitate global price benchmark



Share of LNG in global long-distance gas trade

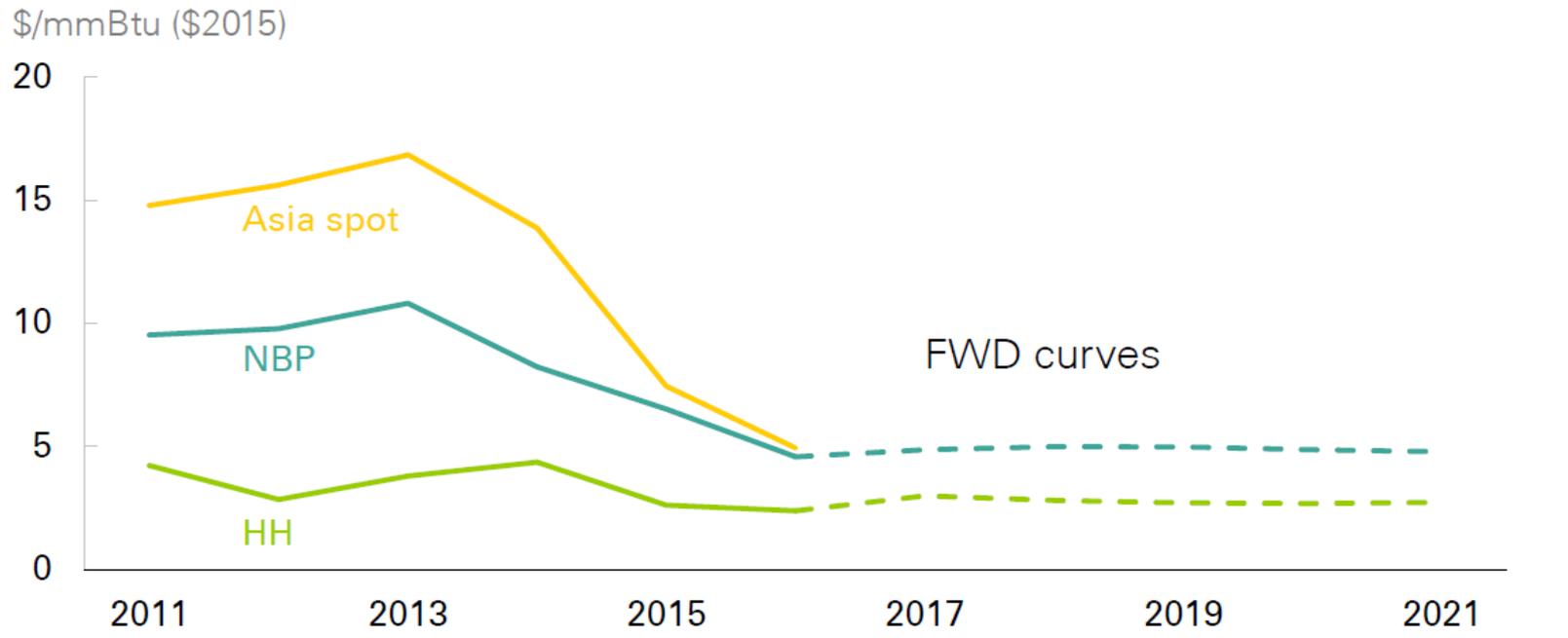


Contractual terms and pricing arrangements are all being tested as new LNG from Australia, the US & others collides into an already well-supplied market

Source: IEA WEO 2016

The unfolding LNG “revolution”

Global price convergence through waterborne LNG trade underway
Helped by low crude prices & increasing LNG spot share



Source: BP Energy Outlook 2016

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European market capable of sending demand side price signals?

1998: European Gas Regions around 2000: Fragmented national markets; import pipeline regime = “prisoner transport”



Source: Ruhrgas 1998

European market capable of sending demand side price signals?

2016: Multitude of national hubs; from “mature” to “poor”; price wise highly correlated; European Henry Hub almost complete



Source: P. Heather, OIES 2015

European market capable of sending demand side price signals?

Price Formation 2005 – 2015: Hubs price setter (varying by region); NWE oil indexation near vanished: 92% GOG, 8% OPE

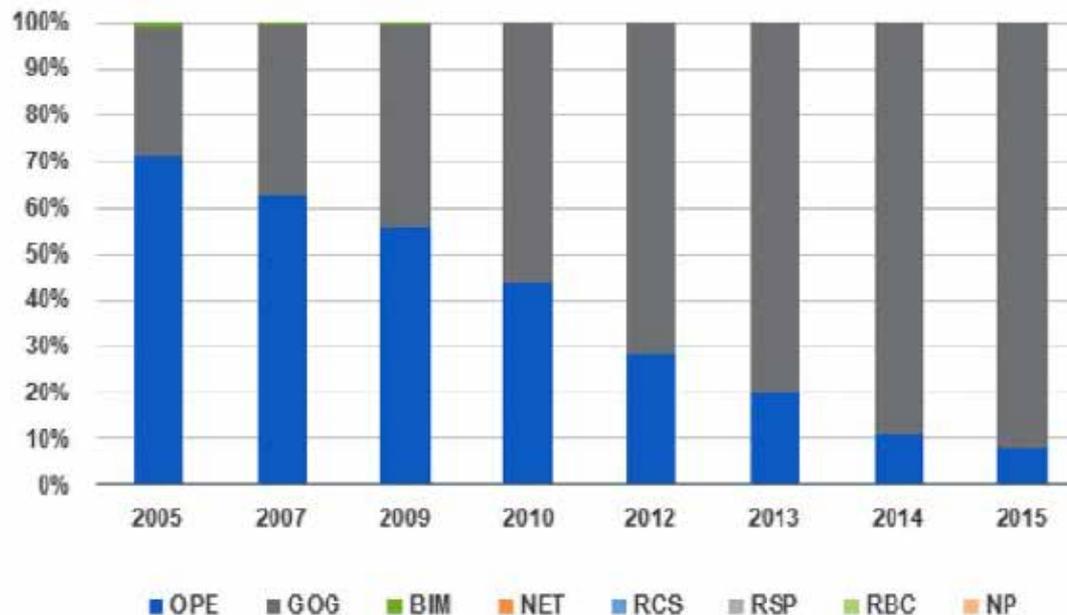


Figure 5.5: Northwest Europe Price Formation 2005 to 2015

Source: IGU Wholesale Price Survey 2016

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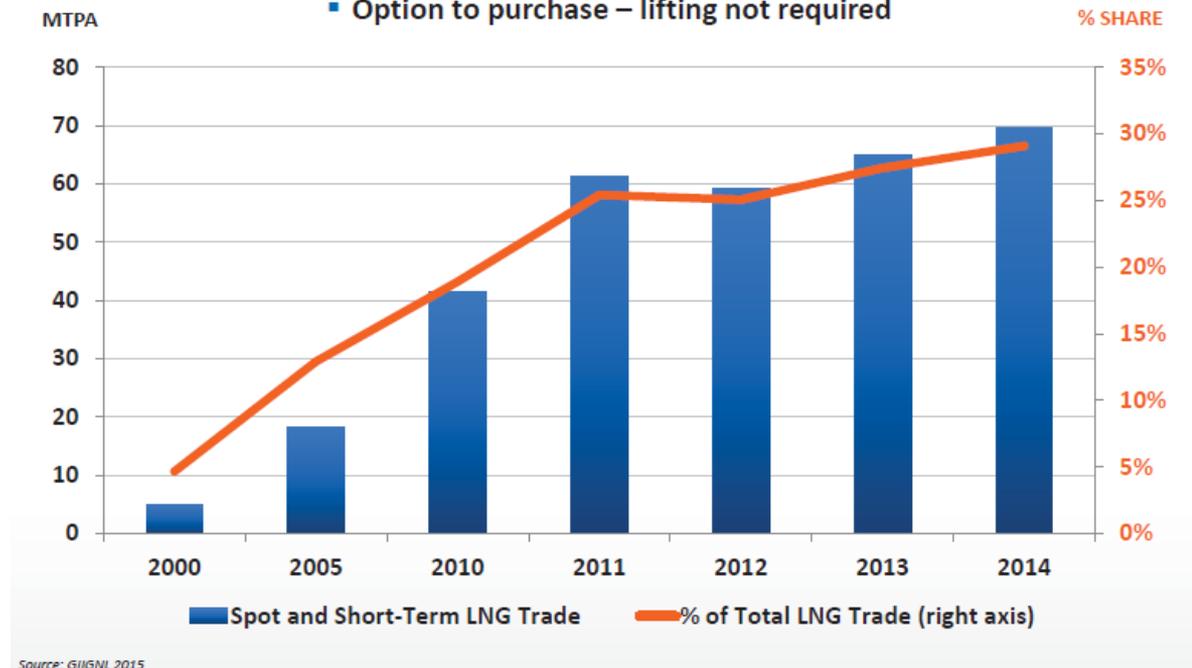
Global LNG market: supply side flexible to respond to price signals?

U.S. LNG (Cheniere & others) offer LNG at non-traditional terms: no ToP; no lifting obligation; FoB ./ DES (i.e. no destination)

Note: Liquefaction: “toll or pay”

U.S. Supplies to Create More Market Liquidity

- Flexible destination clauses
- New pricing index – Henry Hub
- Option to purchase – lifting not required



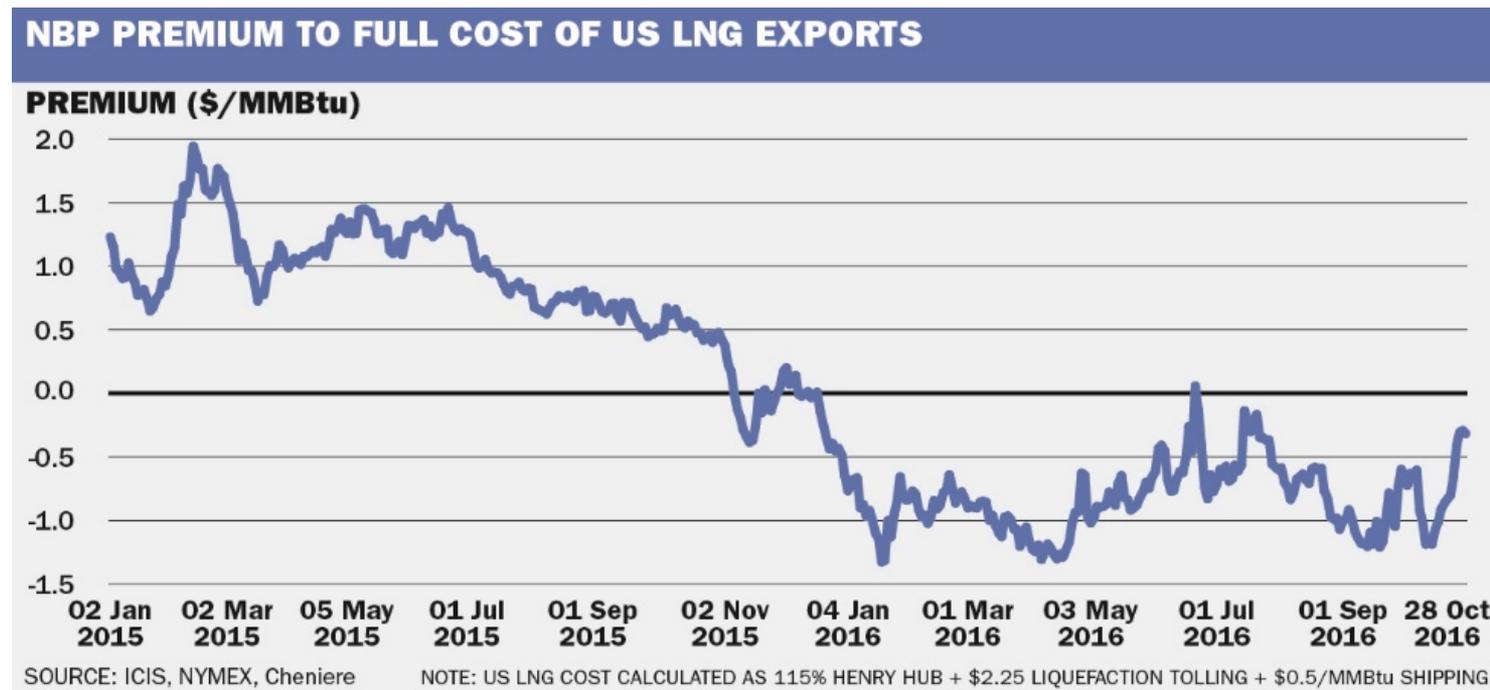
Source: Cheniere 2015

Global LNG market: supply side flexible to respond to price signals?

Premium NBP over HH required

Full cost: 15% HH + ~\$2.25 liquefaction + 0.50 shipping + \$ 0.50 regas = ~\$3.70/MMBtu

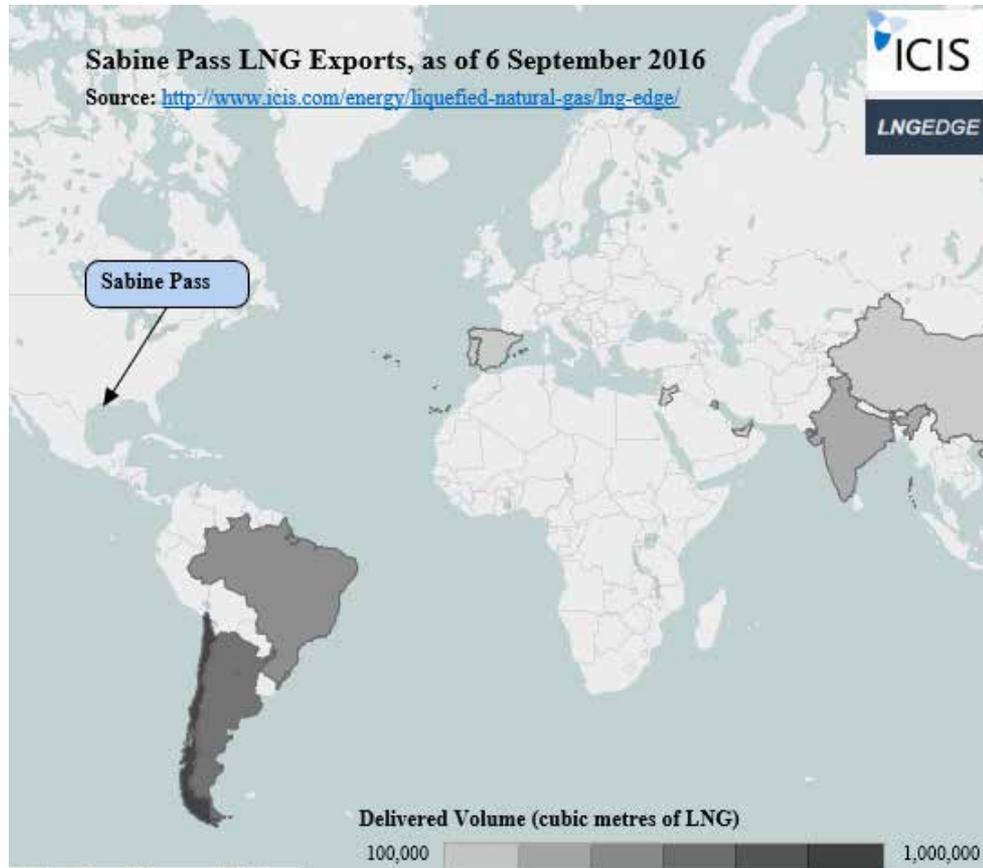
Marginal cost (liquefaction sunk): ~\$1.45/MMBtu



Source: ICIS Heren

Global LNG market: supply side flexible to respond to price signals?

**Sabine Pass train 1 started earlier this year:
Only 2 cargoes reached Europe, bulk to South America**



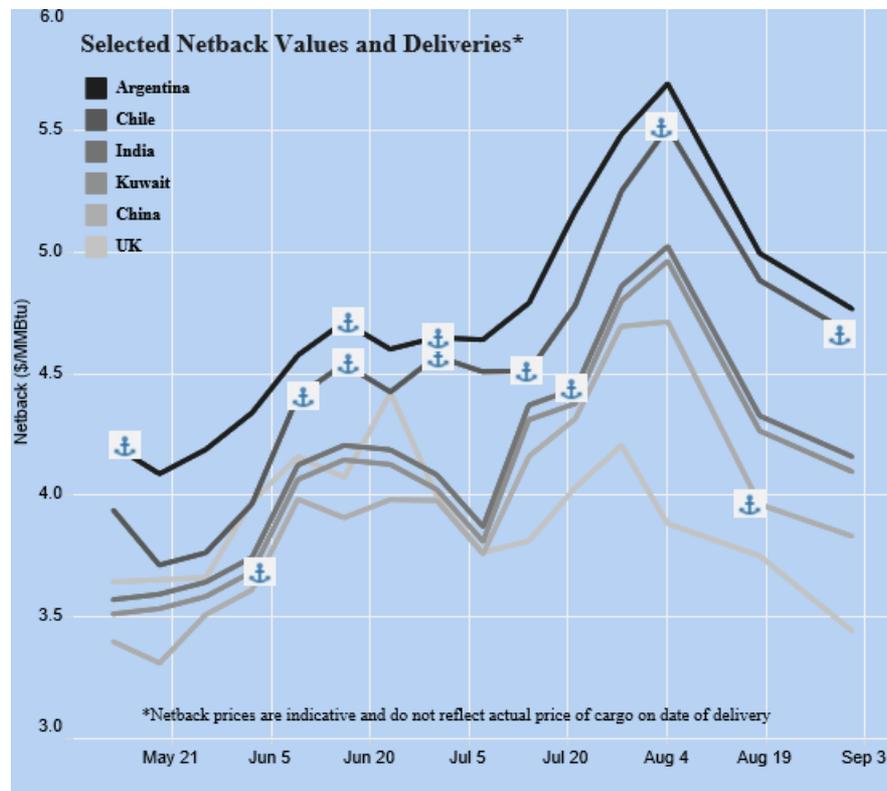
Source: ICIS Heren

Global LNG market: supply side flexible to respond to price signals?

Higher netbacks achievable in South America.

The goods news: global price signals work!

Security of supply Europe: can also rely on price signals



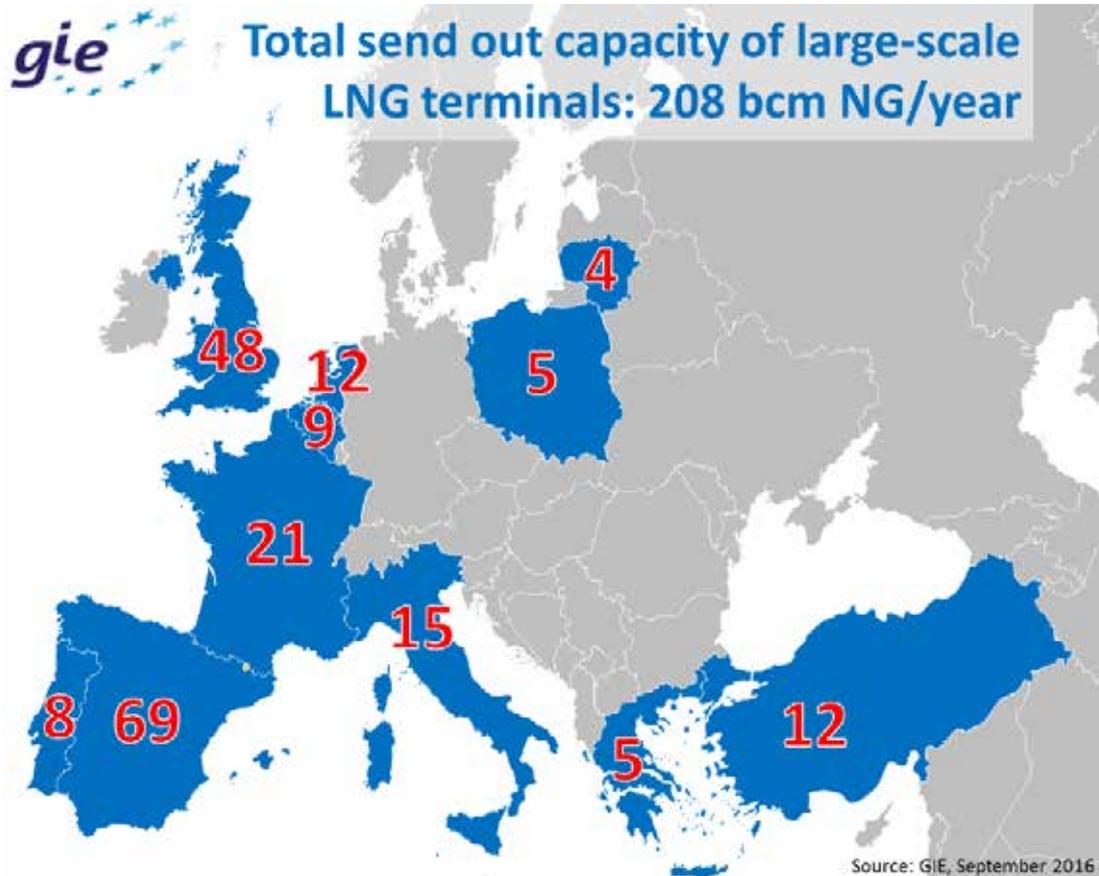
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Europe able to absorb flexible LNG?

Yes, ~208 bcm/a regas capacity



Source: GIE

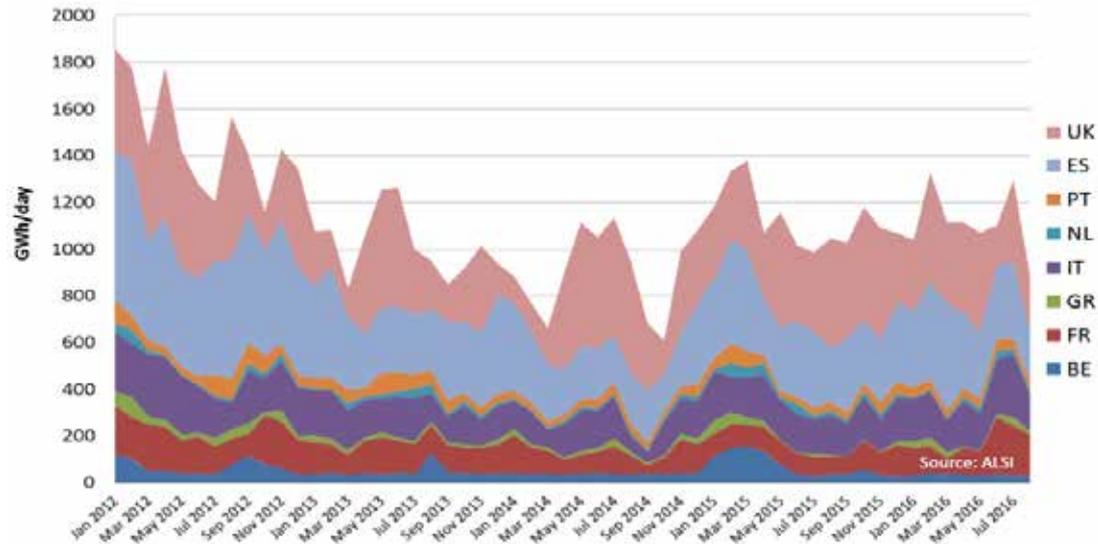
Europe able to absorb flexible LNG?

Regas capacity ~81% (= ~160 bcm/a) idle =>
~160 bcm/a more than total supplies from Russia
Redundant import capacity enables supplier competition



Send out of EU LNG terminals

EU LNG regasified volumes (Jan 2012 - Aug 2016)



In average just 19% of total daily LNG send-out used in 2015

Source: GIE

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Implications for European security of supply

Exposure to political blackmail concern less relevant
SoS has transformed from bi-lateral physical dependency to a functionality of price signals in an integrated traded market



Ukrainian Crisis 2009: Andrej Budajew, “Putin’s recalcitrant bride”

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Implications for Eastern Mediterranean gas

Commercial decision parameter: well-head netback

Computation (simplified):

§ **Achievable market price *)**

§ **minus production cost**

§ **minus route to market cost**

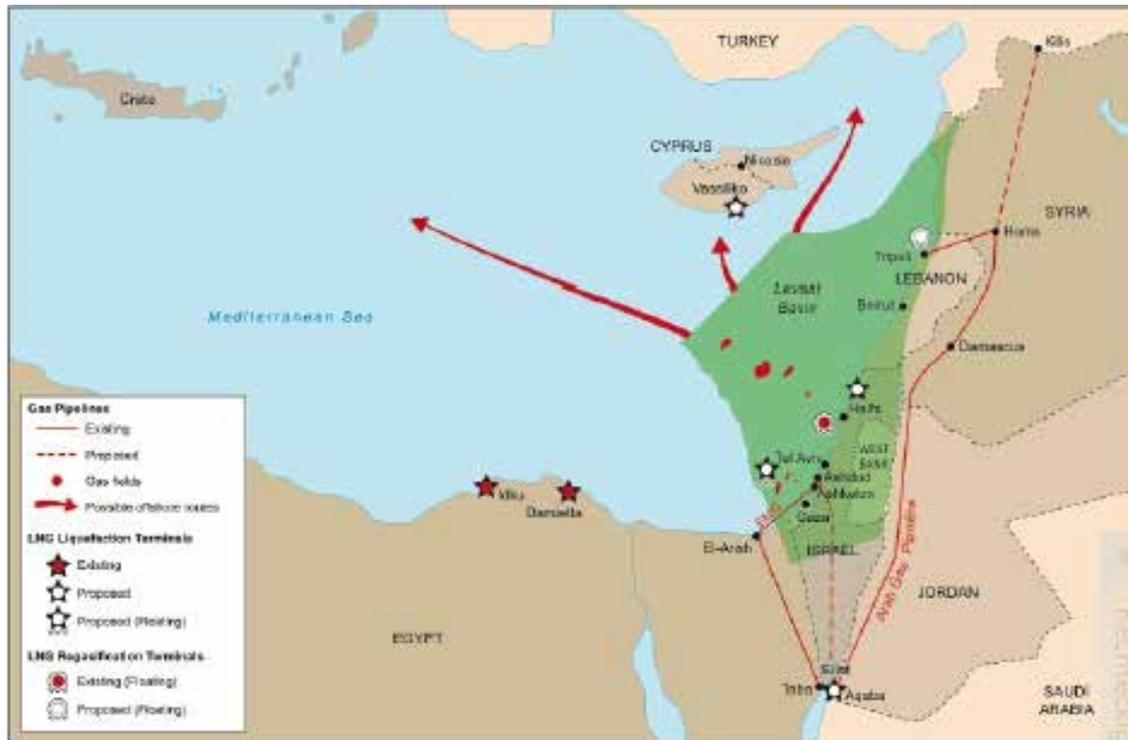
***) Assess price taker squeeze risk!**

Implications for Eastern Mediterranean gas

Pipeline export: exposure to price taker squeeze?

LNG export: ensuring highest achievable price?

Neither necessarily applicable in increasingly globalized market

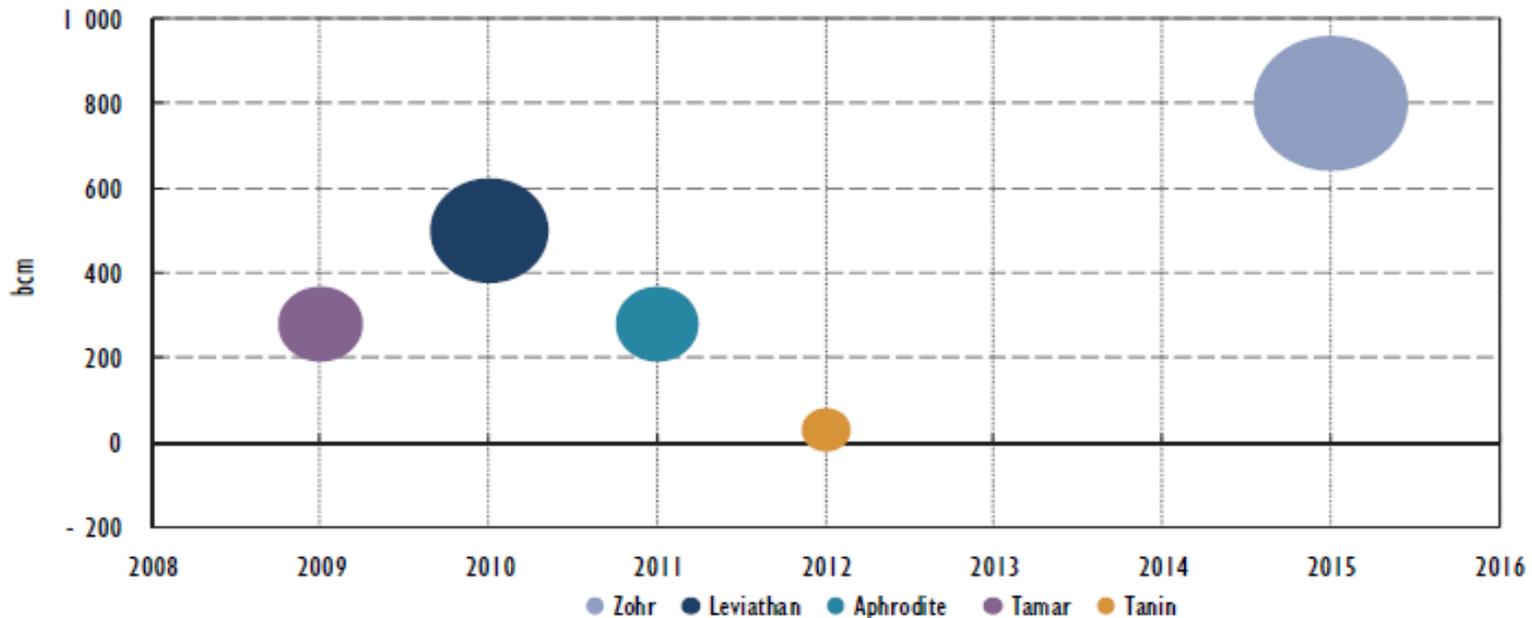


Source: OIES

Implications for Eastern Mediterranean gas

**Egypt can now be ruled out as “window of opportunity”
Pipe to Turkey: reduce route to market costs by economies of scale through collaboration Israel/Cyprus?**

Figure 3.5 Discoveries in the Eastern Mediterranean, 2009-16



Notes: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD and/or the IEA is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: IEA Medium Term Gas Market Report 2016

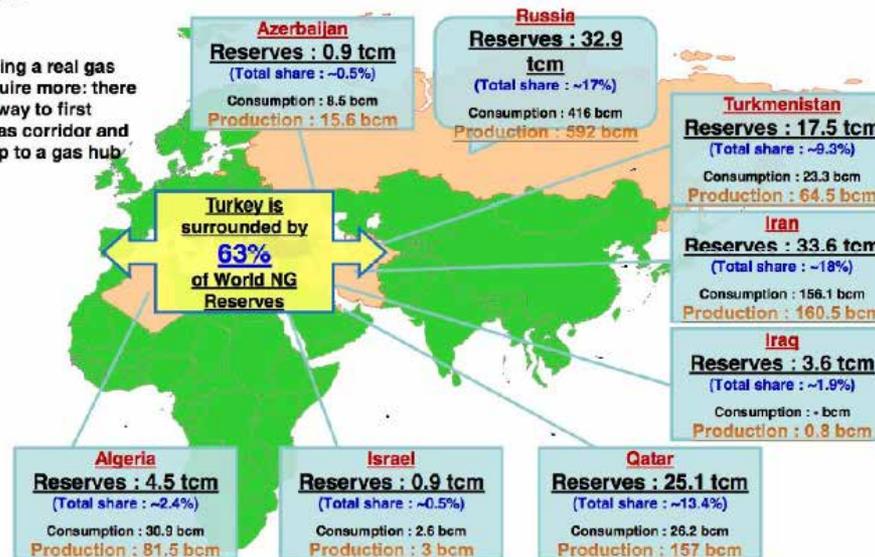
Implications for Eastern Mediterranean gas

Pipe to Turkey creating price taker squeeze exposure?
Turkish market ideally suited to be part of Eurasian Henry Hub
Turkey would be both consumer & transit service provider

Turkey's Excellent Geographical Location on Gas Map

Turkey is surrounded by vast natural gas reserves...

..but becoming a real gas hub will require more: there is a stoney way to first become a gas corridor and then develop to a gas hub



Source: BP Statistical Report 2013

www.userjls.com
USER HOLDING A.S.

Source: User Holding A.S.

Implications for Eastern Mediterranean gas

Pipe to Turkey creating price taker squeeze?

Not if traded & unbundled market

Ensuring pre-conditions is a MUST

If geopolitically not achievable => LNG

Liberalising Turkish Natural Gas Market is Indispensable

Current Framework

- Subsidized tariffs are set by the government, no market fundamentals/cost reflectiveness
- BOTAS controls 80% of wholesale volumes and import points
- Insufficient infrastructure (network and storages)
- Priority given to BOTAS

Major Requirements

- Gas costs to be reflected on prices. Complete abolishment of regulated tariffs
- No restrictions for gas imports for private players independent of the source
- Attractive and reliable legal/regulatory framework to incentivize necessary infrastructure investments
- Non discriminatory access to infrastructure

Natural Gas Law Amendment: When and How ?

www.userdis.com
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Source: User Holding A.S.

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Article on an important subject we could not cover:

THE CASE FOR GAS POST COP21

Natural gas is the „low hanging fruit“ for material and immediate reduction of greenhouse gases

by

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