

***Energy and development:
International markets in a state of
transformation***
PROSPECTS FOR THE EAST MED REGION

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E-C Natural Hydrocarbons Company Ltd

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Overview

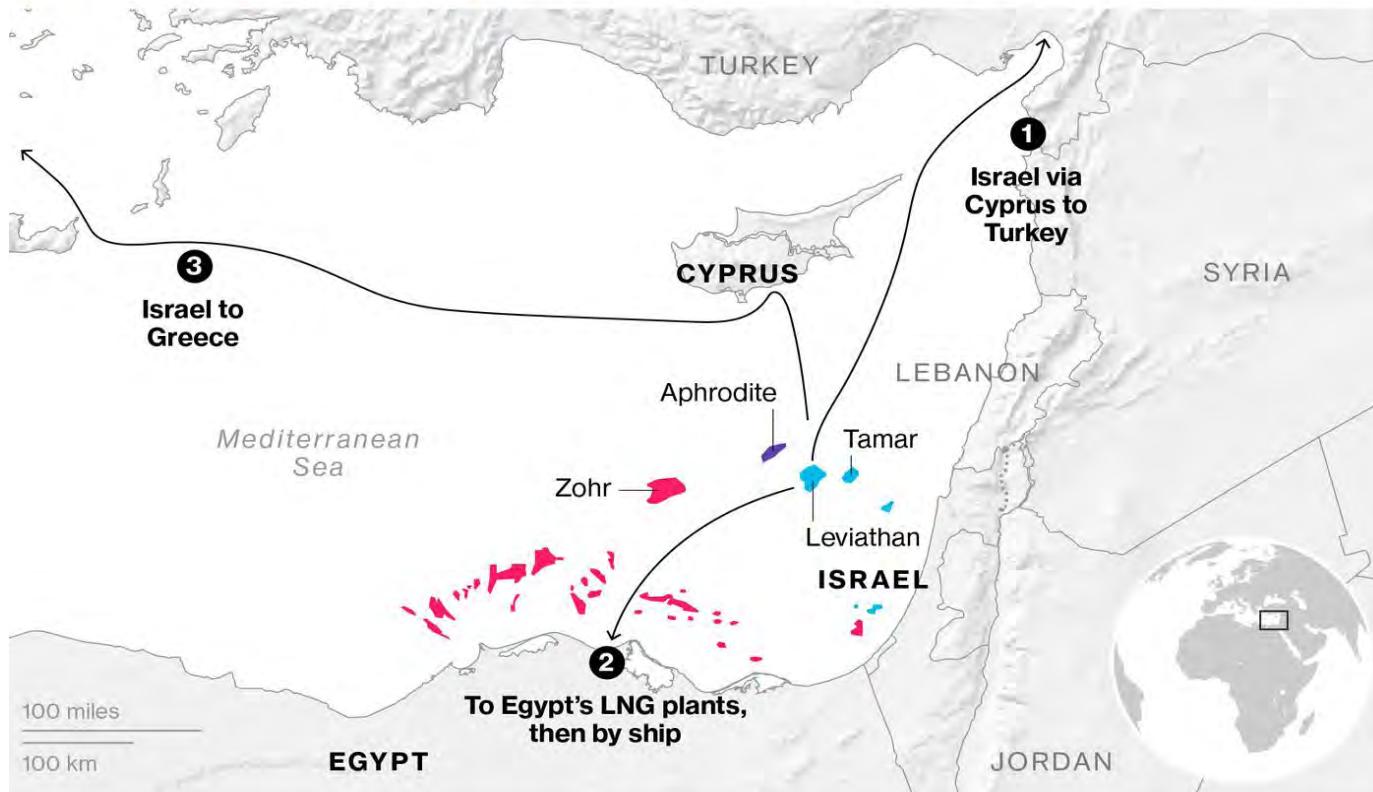
- **Successful bi- and tri-partite meetings between government heads in Nicosia**
- **Odd man out: Turkey – disputing Cyprus rights**
- **Endorsed EastMed and Cyprus to Egypt gas pipelines**
- **Will lead to inter-governmental facilitating agreements**
- **But investment in projects still needs securing gas sales agreements**

The East Med gas pipeline options

Routes to Europe

Possible gas pipelines from the East Mediterranean

■ Cyprus field ■ Egypt field ■ Israel field ① Pipeline ordered most to least likely



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Prospects in Israel

- Leviathan Phase 1A off the blocks – production target end 2019
- Leviathan gas sales not clear – partners hope that once operational it will create its own momentum
- Uncertain deals - not enough demand even for Phase 1A
- Impact of Energean – undercutting Leviathan on price
- Exports to Egypt face political and commercial challenges
- First offshore licensing round – limited success – lack of export routes

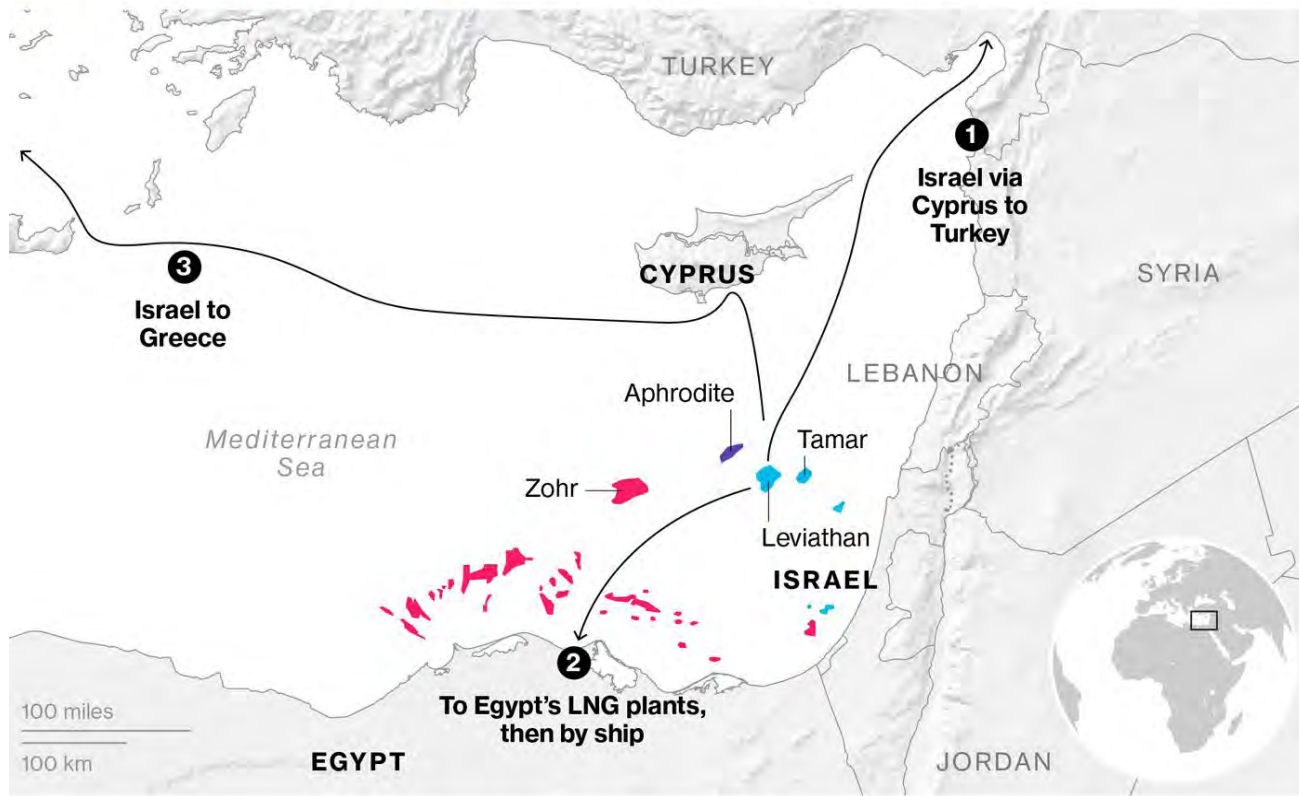
Key conclusion: Israel faces major challenges securing gas export routes

Israel's export options

Routes to Europe

Possible gas pipelines from the East Mediterranean

■ Cyprus field ■ Egypt field ■ Israel field ① Pipeline ordered most to least likely



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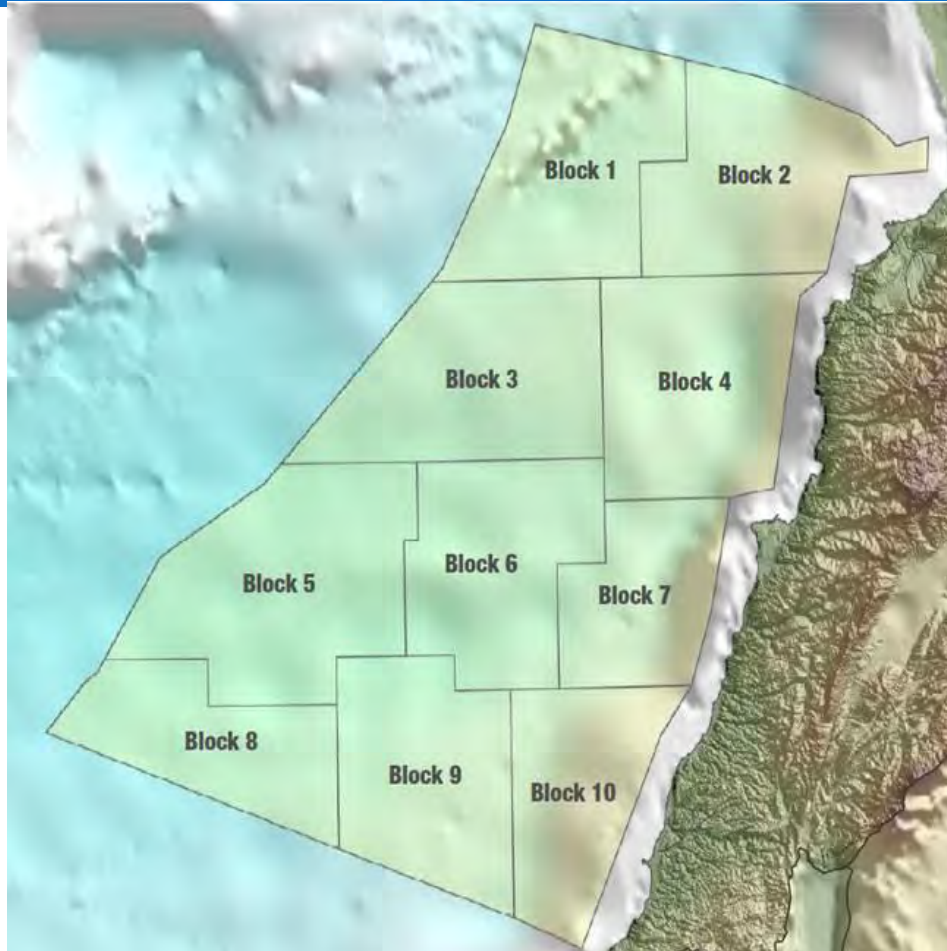
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Prospects in Lebanon

- ❑ Kicked-off first offshore licensing round
- ❑ Mostly disputed blocks
- ❑ Doubt about serious bids
- ❑ Attracted bid from Total, ENI and Novatek for blocks 4 and 9
- ❑ Block 9 in area disputed by Israel
- ❑ Political instability threatens the future

Key Conclusion: It remains to be seen if this licensing will lead to successful license awards and exploration

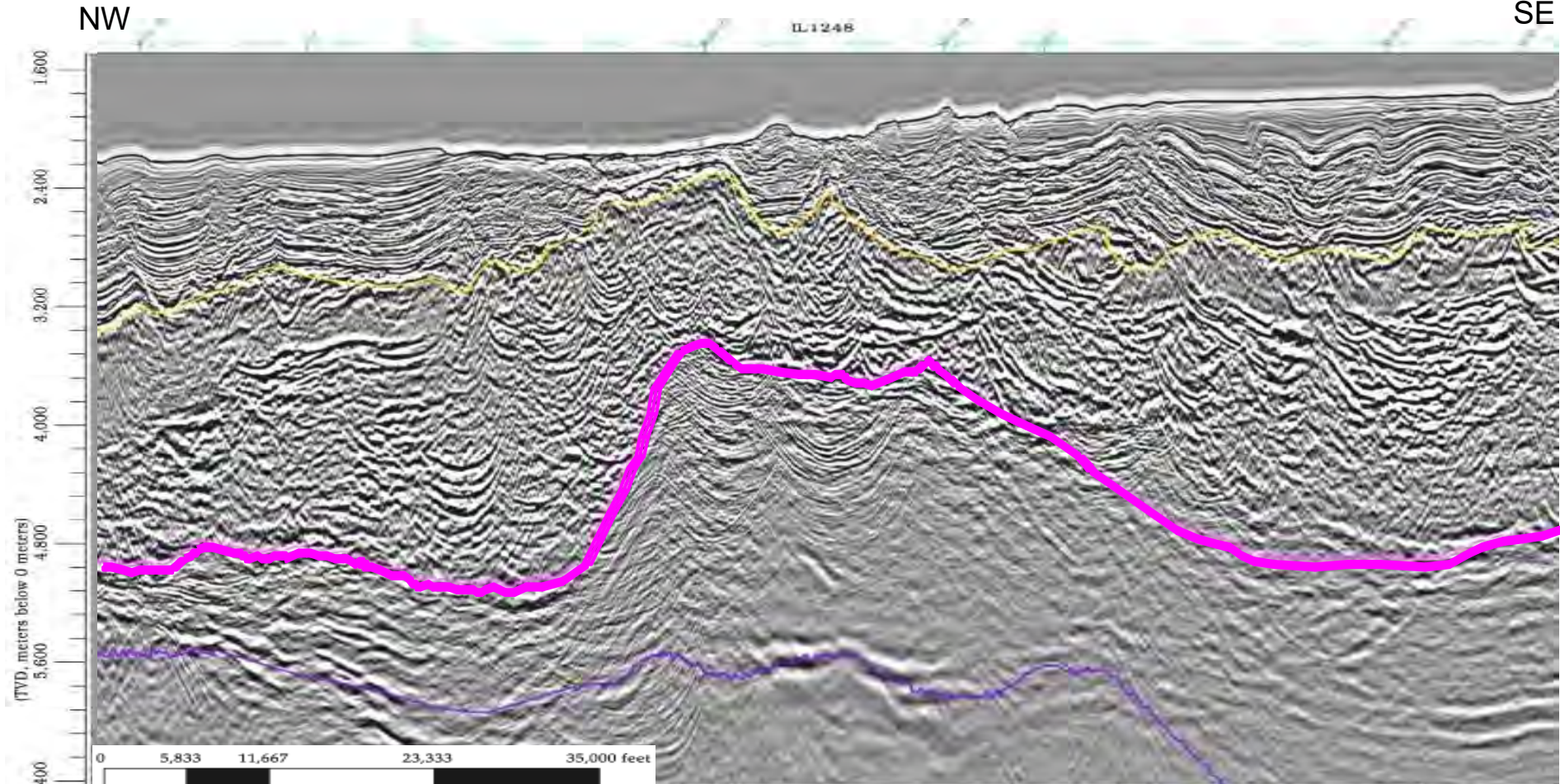
Lebanon's offshore blocks



Prospects in Cyprus

- First well by Total unsuccessful
- ENI to drill in blocks 6 and 8
- Turkey threats – ENI and Total satisfied about their rights
- ExxonMobil to drill in block 10 second half of 2018
- Decision on exploitation plans after that
- Collaboration into single JV – integrated project
- LNG export through Egypt – new trains in existing plants
- FLNG possible
- ***Key conclusion: Cyprus still has reasonable prospects for gas discoveries, but securing export markets will be a challenge***

carbonate build ups, sealed by the Messinian Evaporites at the edge of Eratosthenes carbonate platforms, have been successfully tested by ENI immediately south of Block 11 in the Egyptian Eratosthenes Carbonate Zone, with more than 600 m of gas pay in porous reefal carbonates. Same type of traps in Block 10 and is illustrated in the following 2D PSDM seismic section.



carbonate build ups of the same type exist also along the Levant Basin edge of the Eratosthenes carbonate Platform. They extend in SE Block 8

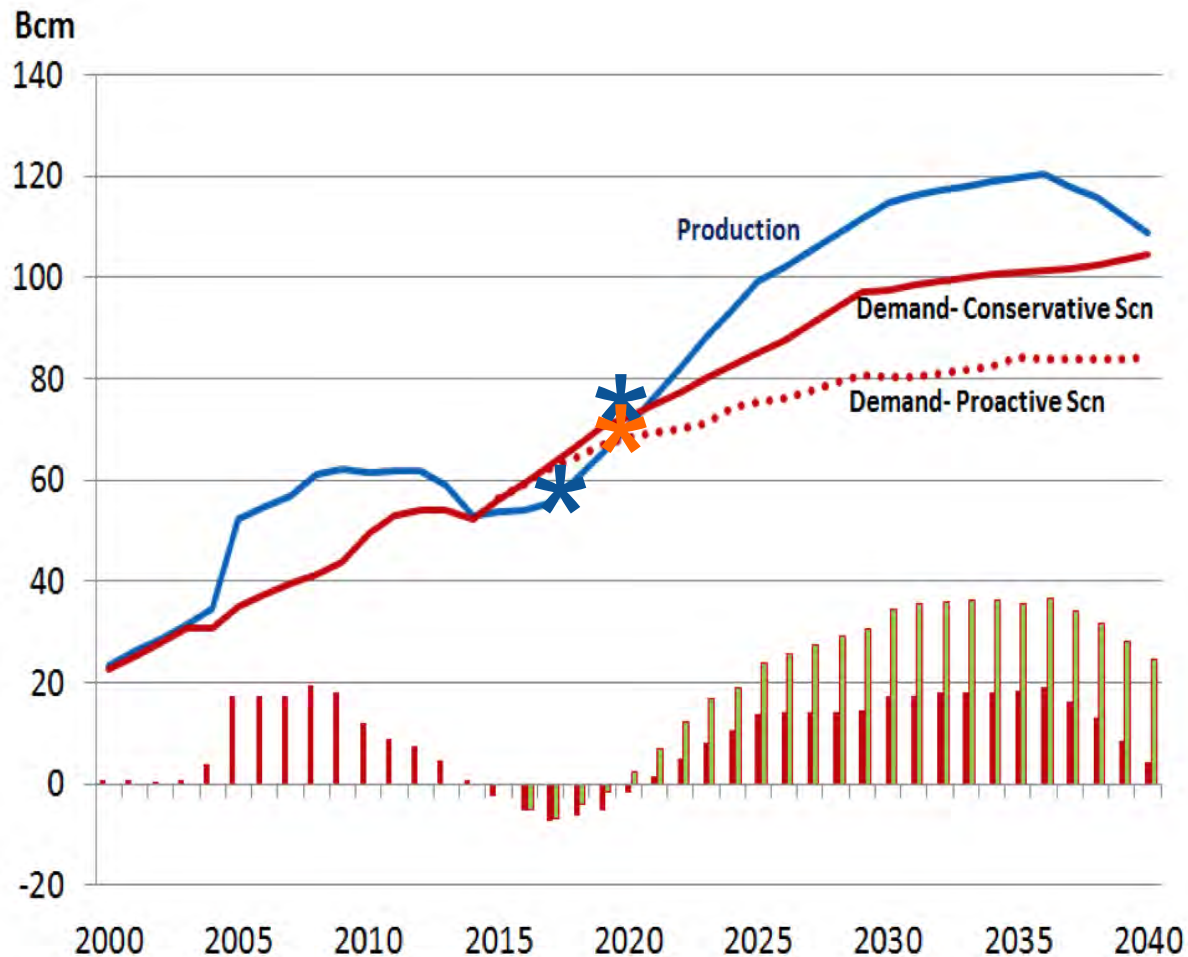
Developments in Egypt

- Expects to be self-sufficient end 2018 – start gas exports 2021
- Gas production now 53 bcm/y
- Egypt imports 12 bcm/y. EGAS: 2018 last year for imports
- Zohr: first gas in December, ramping-up to 12 bcm/y by April 2018, reaching plateau of 27 bcm/y by 2020
- 12 new projects to bring additional 55 to 65 bcm/y gas by 2019
- Gas surplus for exports could reach 20 to 35 bcm/yr by 2030
- Egypt has liberalised its gas market
- EGAS expects resumption of gas exports in 2021

Key conclusion: Egypt has enough gas of its own for domestic consumption and exports.

Egypt's gas balance

* Ministry of Petroleum estimates



Source: OME

Impact of renewables

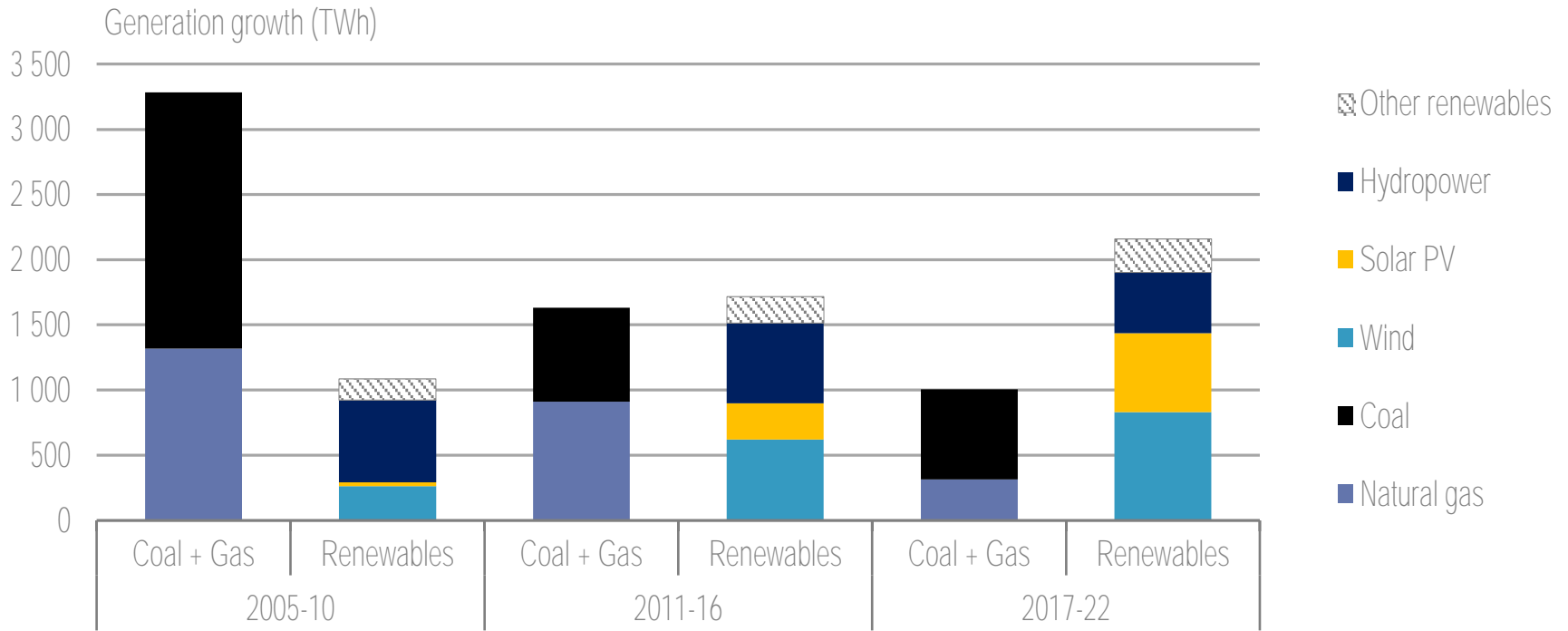
- IEA report 'Renewables 2017' – new records achieved by renewable energy – accounted for two-thirds of all global net electricity capacity growth in 2016
- Contribution from renewables to global electricity generation greater than gas
- Contribution from fossil fuels declining – dominated in 2005-2010 period, but now reversed
- Renewables additions to electricity taking dominant role

Key conclusion: With coal holding its ground, future increase in the use of gas is facing challenges.

Renewable and fossil fuel growth in net electricity generation

that of bioenergy, but with four times more installed capacity. Overall, the growth in renewables generation over the forecast period amounts to double that of coal and natural gas combined (Figure 2.3).

Figure 2.3. Global growth in net generation of renewable and fossil fuel electricity



Source: Historical generation data based on IEA (2017b), *World Energy Statistics and Balances 2017*, www.iea.org/statistics/.

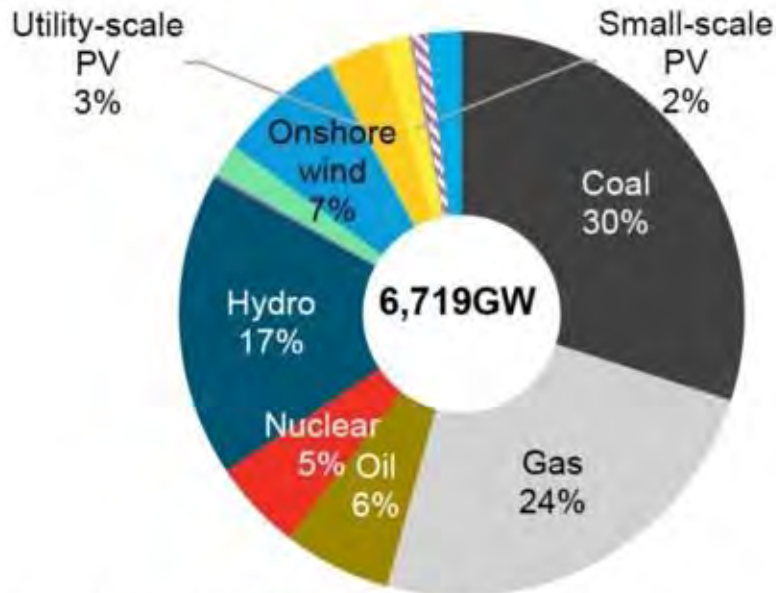
Over 2017-22, electricity output from wind grows by 86%, while solar PV generation triples. Variable technologies account for two-thirds of renewable generation growth over 2017-22, and their contribution to power systems in many developed countries and emerging economies is therefore

Source: IEA

expected to move rapidly from marginal to mainstream in just five years (Figure 2.4). In 2022

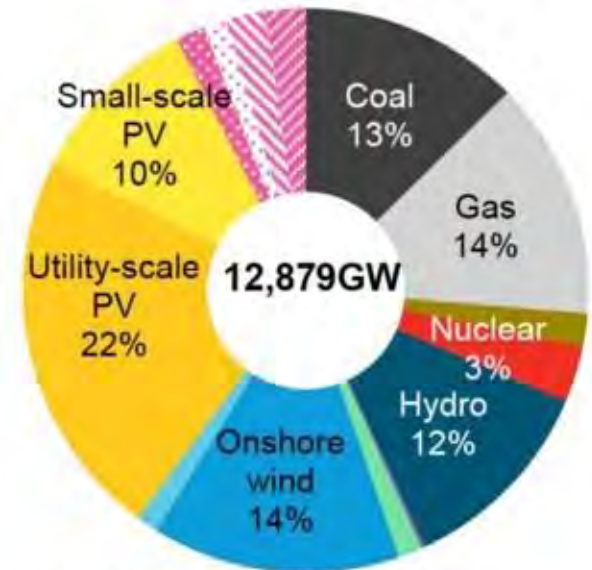
Global cumulative installed power capacity

Figure 46: Global cumulative installed capacity -- 2016



Source: Bloomberg New Energy Finance

Figure 47: Global cumulative installed capacity -- 2040



Source: Bloomberg New Energy Finance

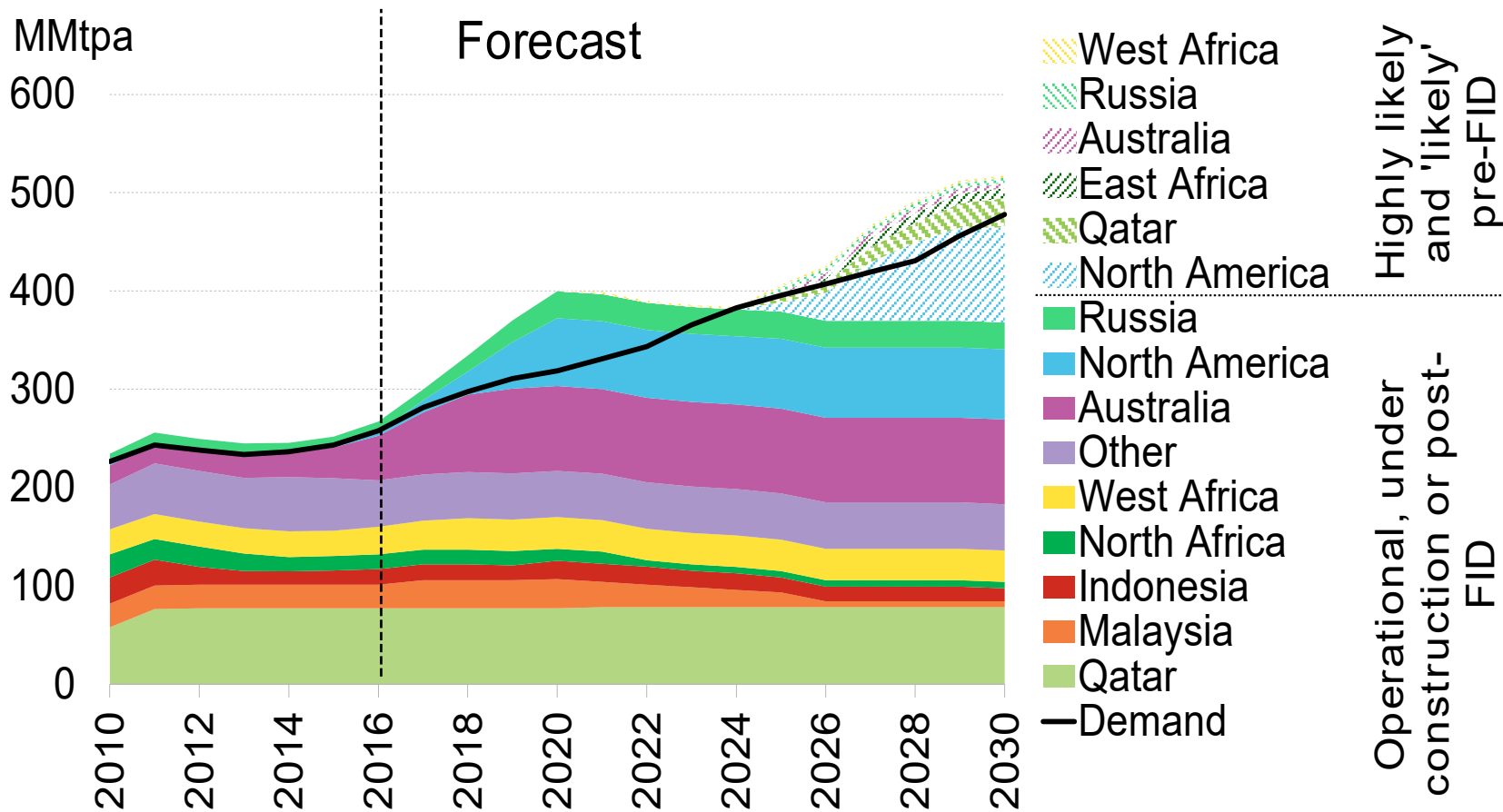
Source: Bloomberg

Global LNG supply/demand and prices

- Even though global LNG demand is growing, the world moving into a prolonged period of LNG supply glut
- LNG demand to grow from 258mn tons/yr in 2016 to 480 mn tons/yr in 2030
- New wave of competitive LNG post-2025 led by Qatar, US and brownfield expansions
- Competitive buyers' market – move to short-term and spot LNG
- Convergence between European-Asian spot prices to low levels
- US LNG exports driven by increasing shale gas production
- Abundant supplies - buyers have upper hand – low prices
- Long term prices - Europe: \$5/mmBTU, Asia: \$7/mmBTU

Outcome: Global LNG market will remain competitive

Global LNG demand/supply balance



Energy Finance, Poten & Partners, Customs. Note: 'Highly-likely' and 'likely' pre-FID projects are included on this chart. Assessed based on the project's regulatory stage, project size, infrastructures, developers' financial strength, offtake contracts on individual projects and country-level demand figures here: [web/terminal](#).

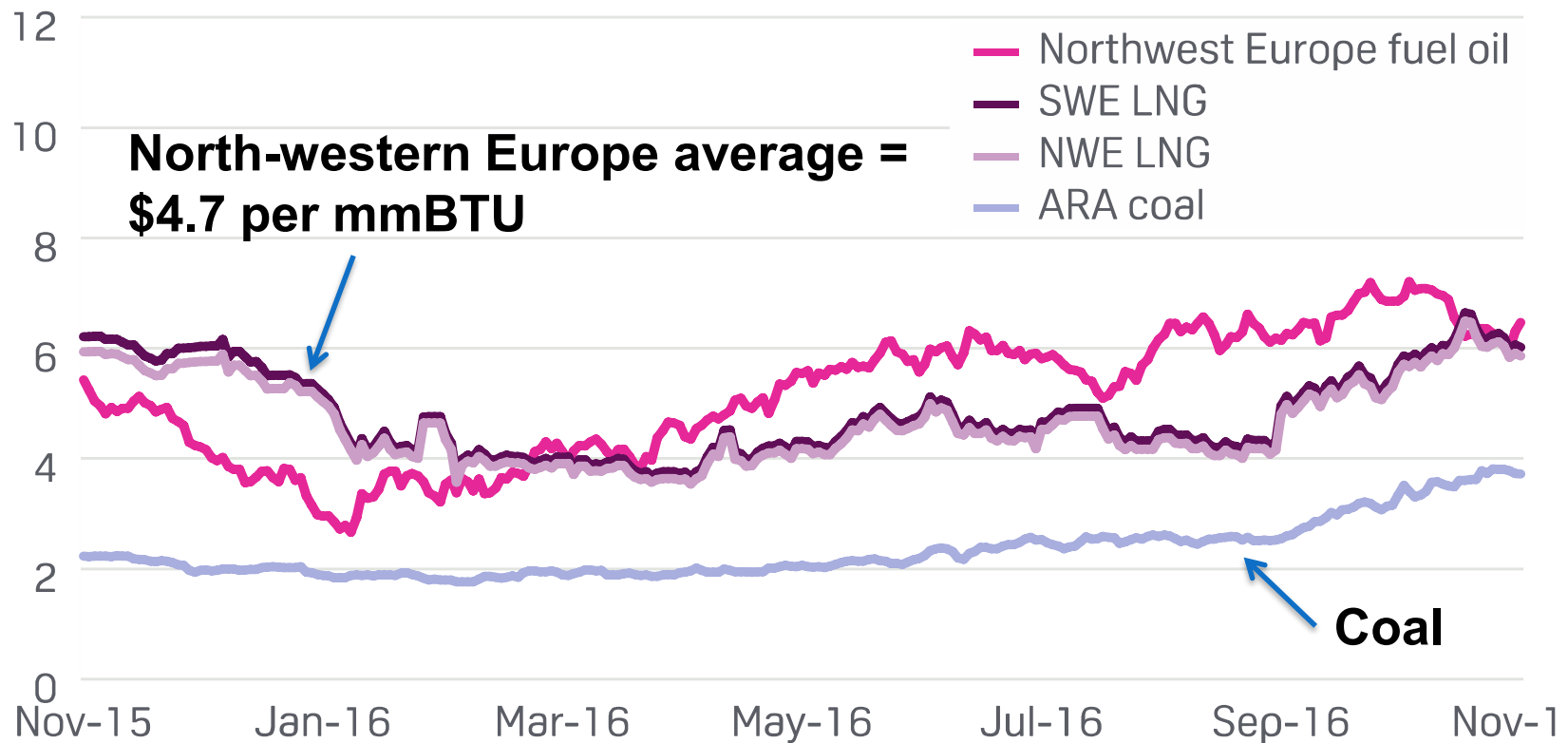
Source: Bloomberg NEF

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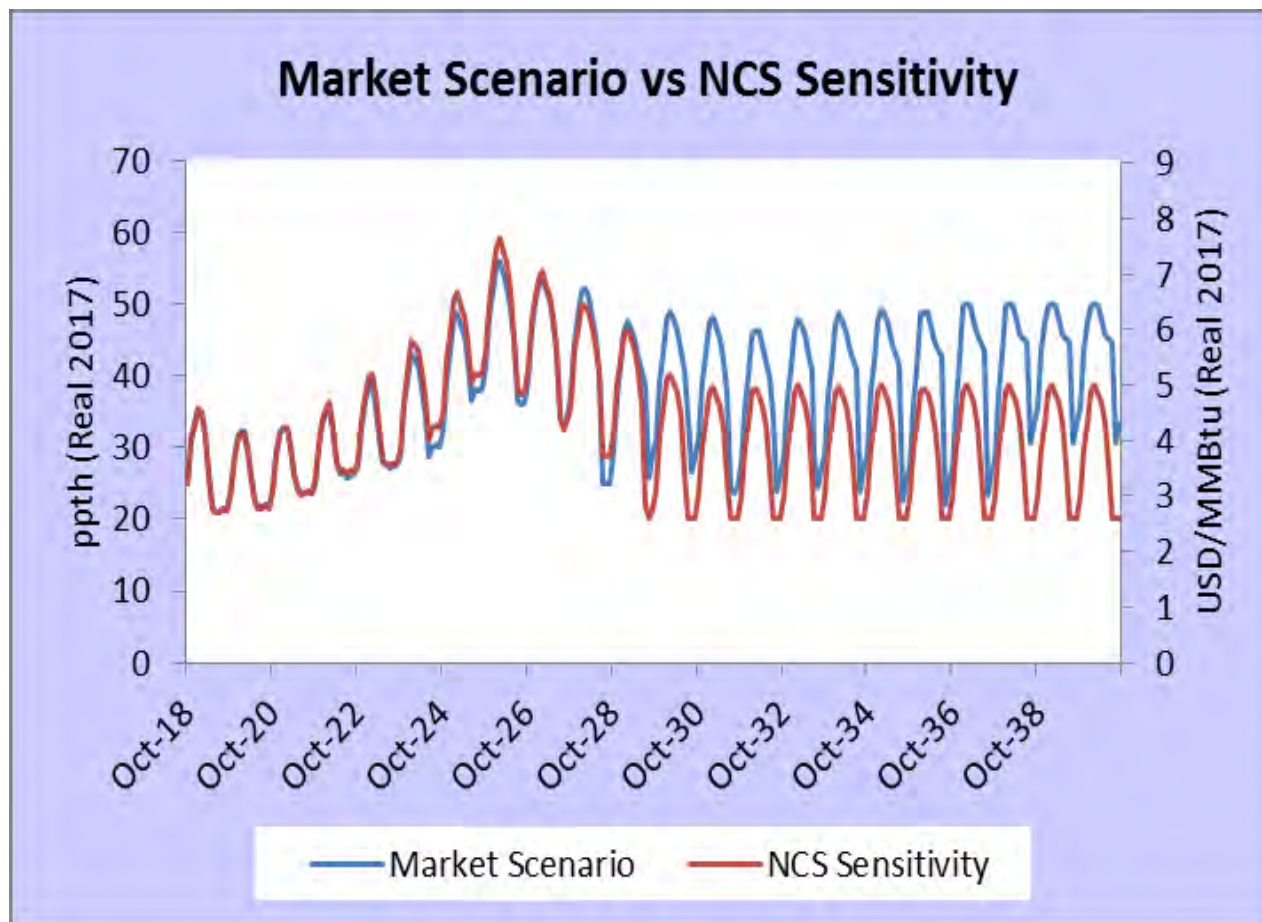
European gas and coal prices

COMPETITIVE FUELS EUROPE (\$/MMBtu)



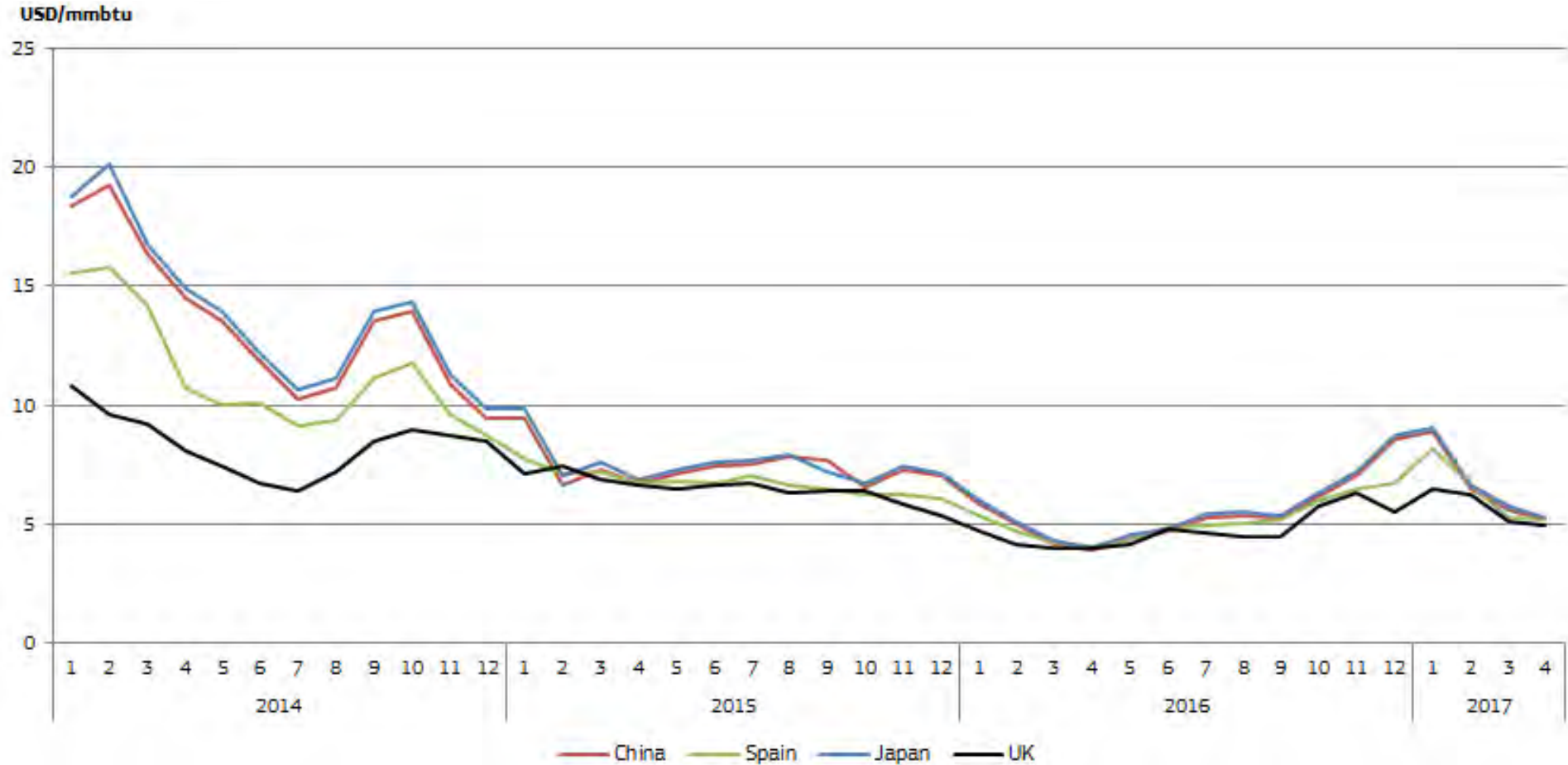
Source: Platts

on really in terminal decline?



Source: Platts

Landed spot LNG prices



Source: Thomson-Reuters

Concluding remarks

- **The East Med region is geopolitically volatile. Developing and exporting its gas is a challenge, especially in the prevailing low demand - low price environment globally**
- **East Med plans need to be tempered with a dose of reality. Fierce competition to secure markets. Prices will stay low.**
- **Gas discoveries in the East Med are deep-water and expensive to develop. Collaboration will be key to keeping development costs down. Only integrated projects may have a chance to succeed. And even then it will be challenging.**