

# ***Changes and trends in global gas prices + East Med Regional Markets***

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# Overview

- Global energy markets undergoing structural change
- Paris Climate Agreement impact
- Carbon emissions, energy efficiency, renewables impacting global energy mix
- Solar PV, wind power and batteries becoming even cheaper
- US shale changing global oil & gas norms
- Oil, gas/LNG, coal glut leading to low prices
- Gas consumption increasing but by 1.6%/yr, and IEA says only if prices stay low – not much change in coal

***The key conclusion from these developments is that the world is moving to an era of long-term energy abundance and low prices.***

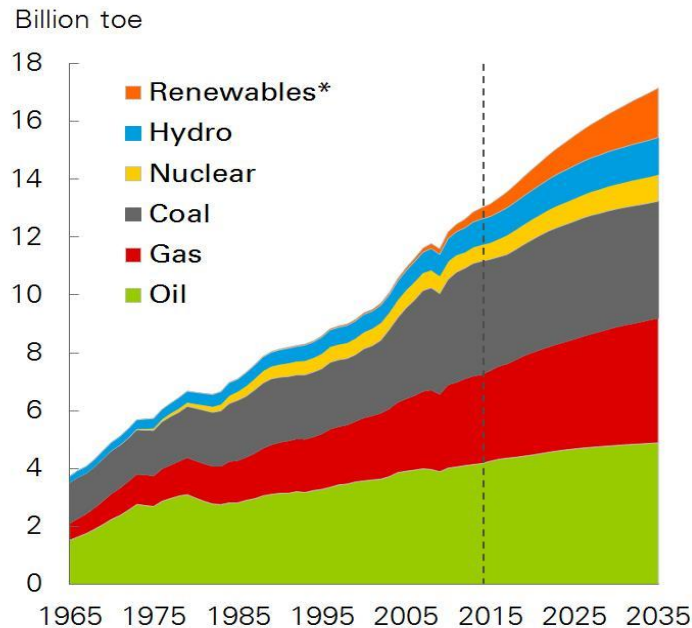
# Global primary energy mix to 2035 - BP

Base case: Primary energy

The gradual transition in the fuel mix continues...

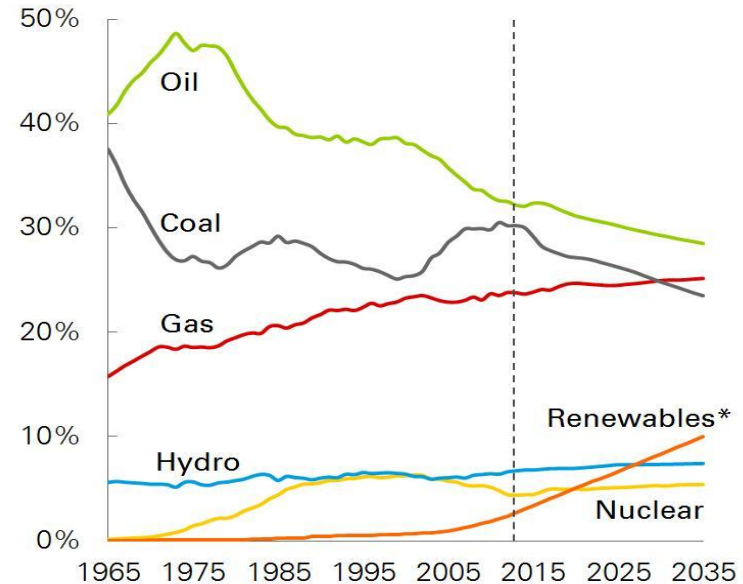


Primary energy consumption by fuel

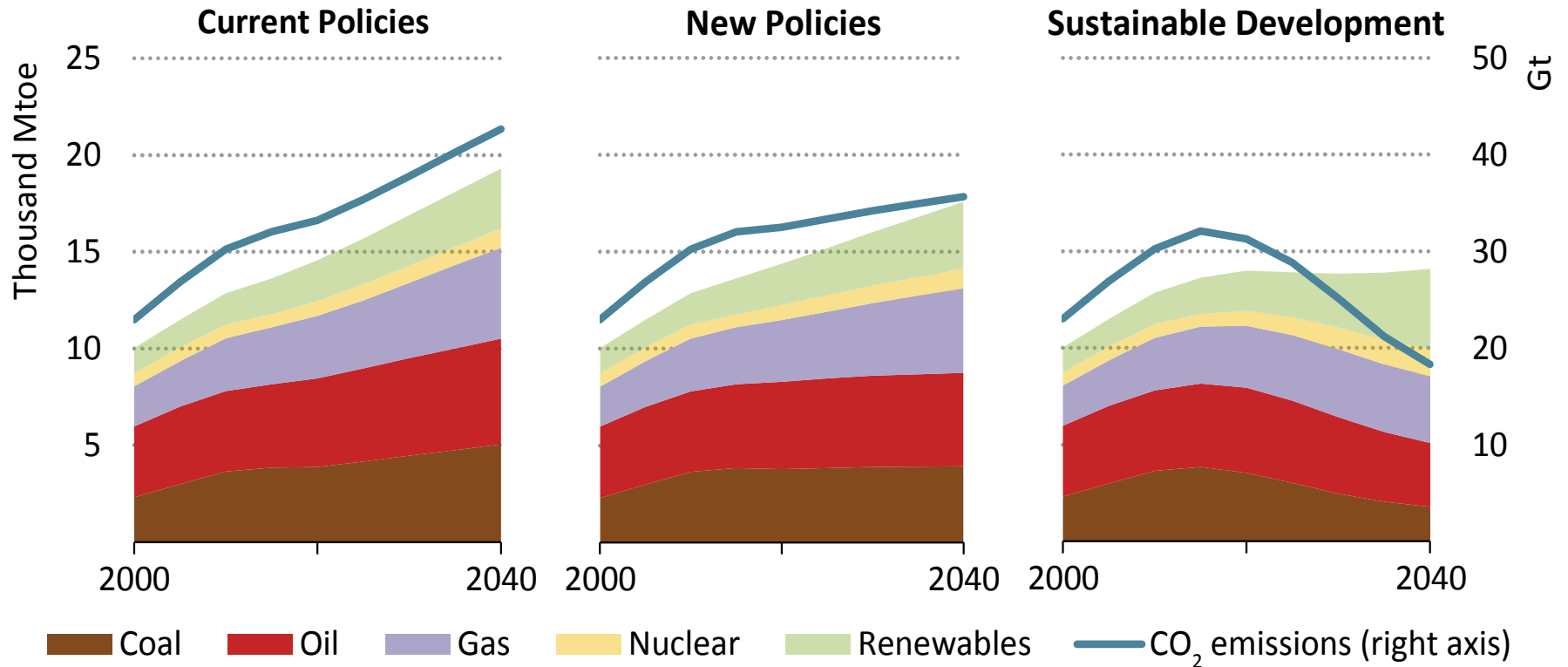


\*Renewables includes wind, solar, geothermal, biomass, and biofuels

Shares of primary energy



# Global primary energy mix to 2040 - IEA



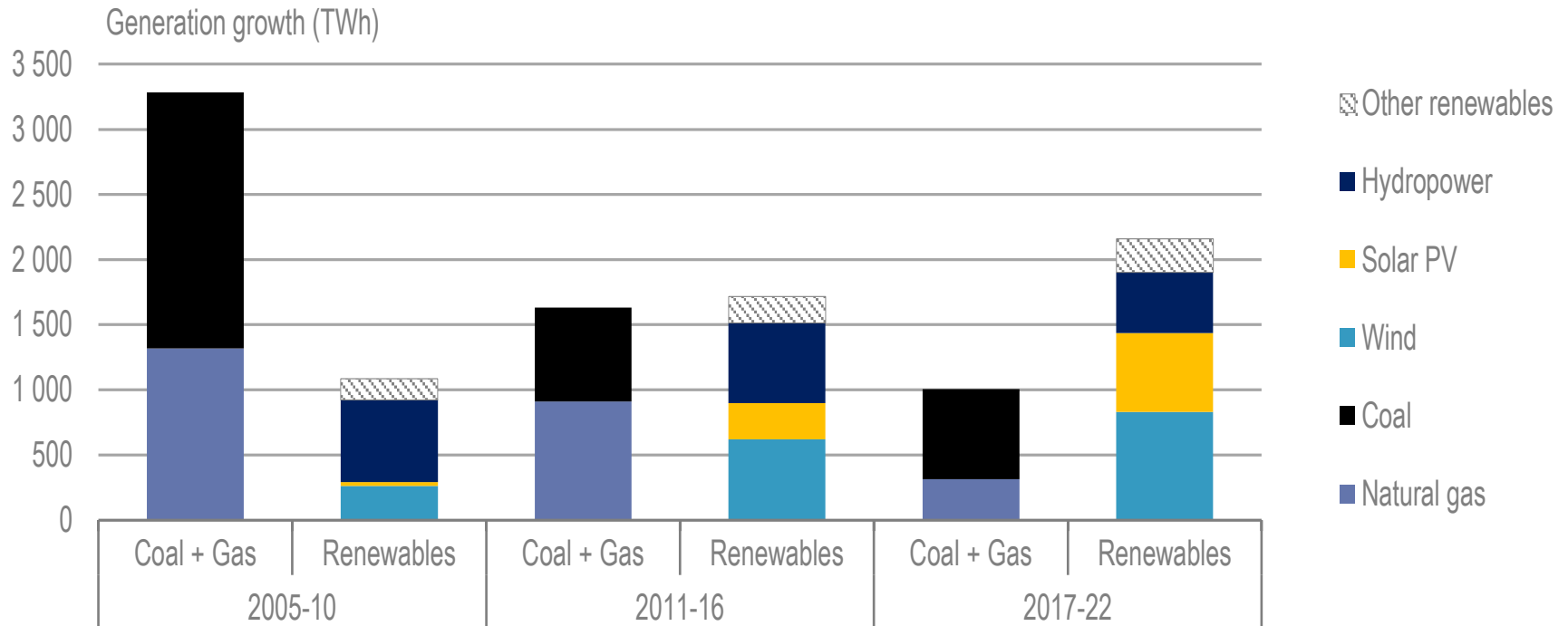
Source: IEA

# Impact of renewables

- New IEA reports – Renewables 2017 & WEO 2017: gas demand expected to grow by 1.6%/yr but renewables pose serious challenges
- Electricity will be the main form of energy by 2040
- In 2016, renewables accounted for two-thirds of the increase in global electricity production
- Renewables contribution has already exceeded that of gas
- The contribution of fossil fuels in electricity additions is declining, while that of renewables increases dramatically

**Key Conclusion: With coal to keep its ground, future growth in the use of gas is facing serious challenges – it must stay affordable against renewables and coal**

# Renewable and fossil fuel growth in net electricity generation

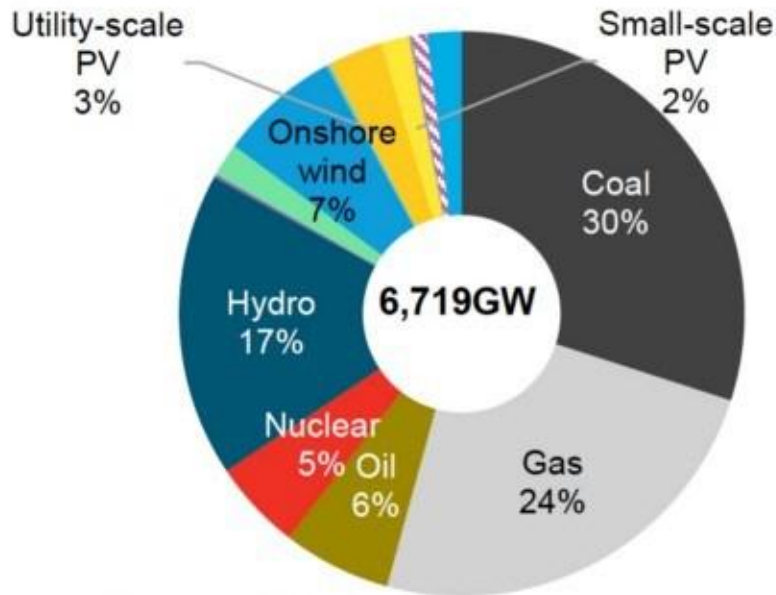


Source: Historical generation data based on IEA (2017b), *World Energy Statistics and Balances 2017*, [www.iea.org/statistics/](http://www.iea.org/statistics/).

Source: IEA

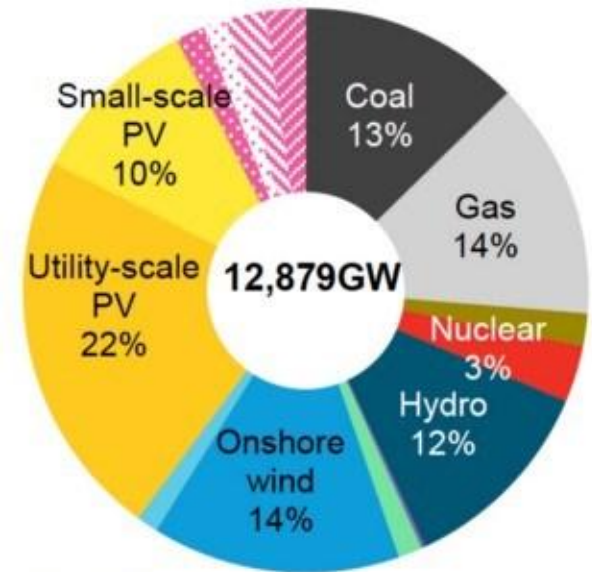
# Global cumulative installed power capacity

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

e-CNHC

E-C Natural Hydrocarbons Company Ltd

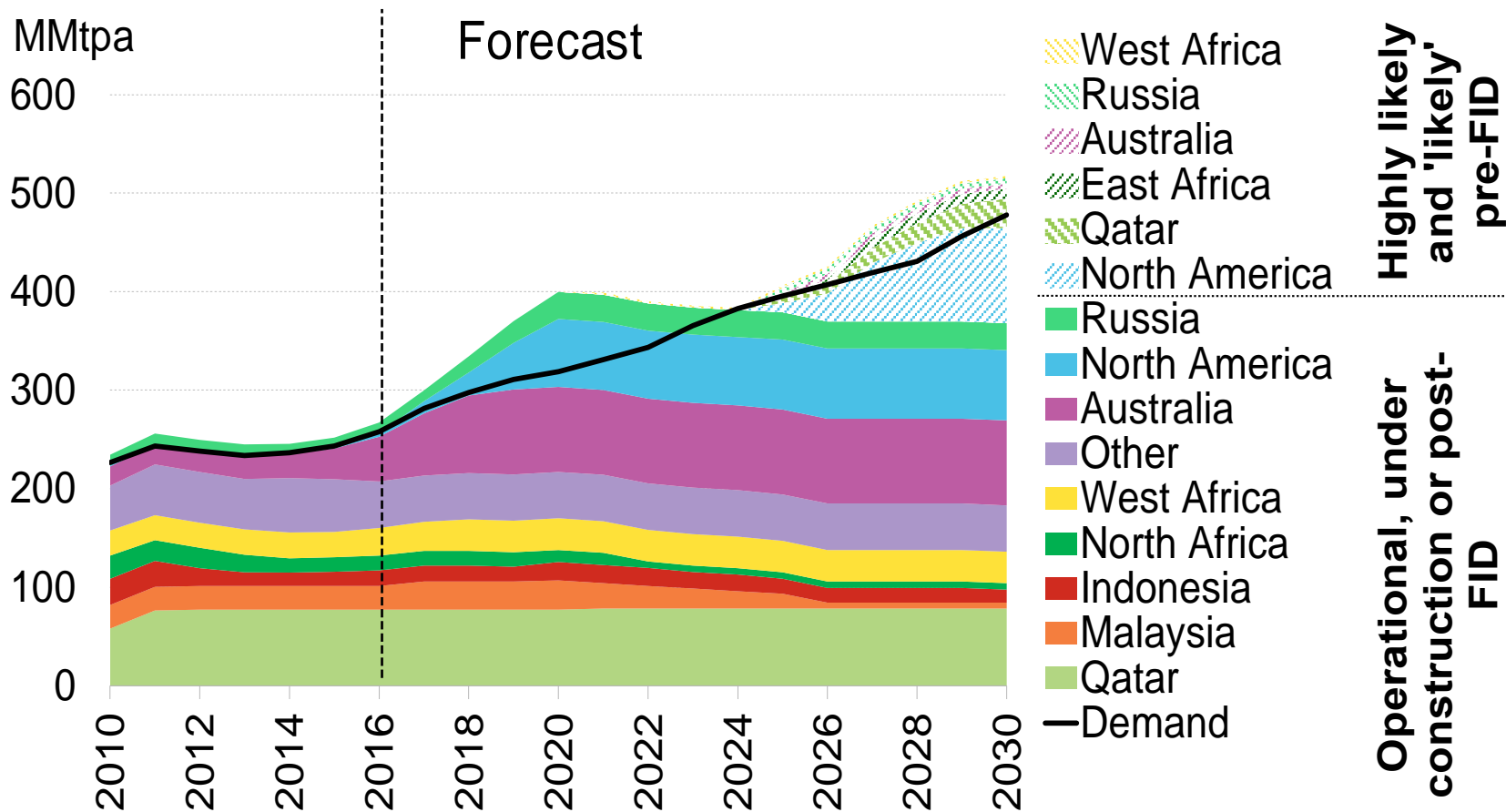


# Global LNG supply and demand

- 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 on the way
- 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
- FSRUs offer flexibility
- JERA: Need for LNG prices to stay low – or coal gets in

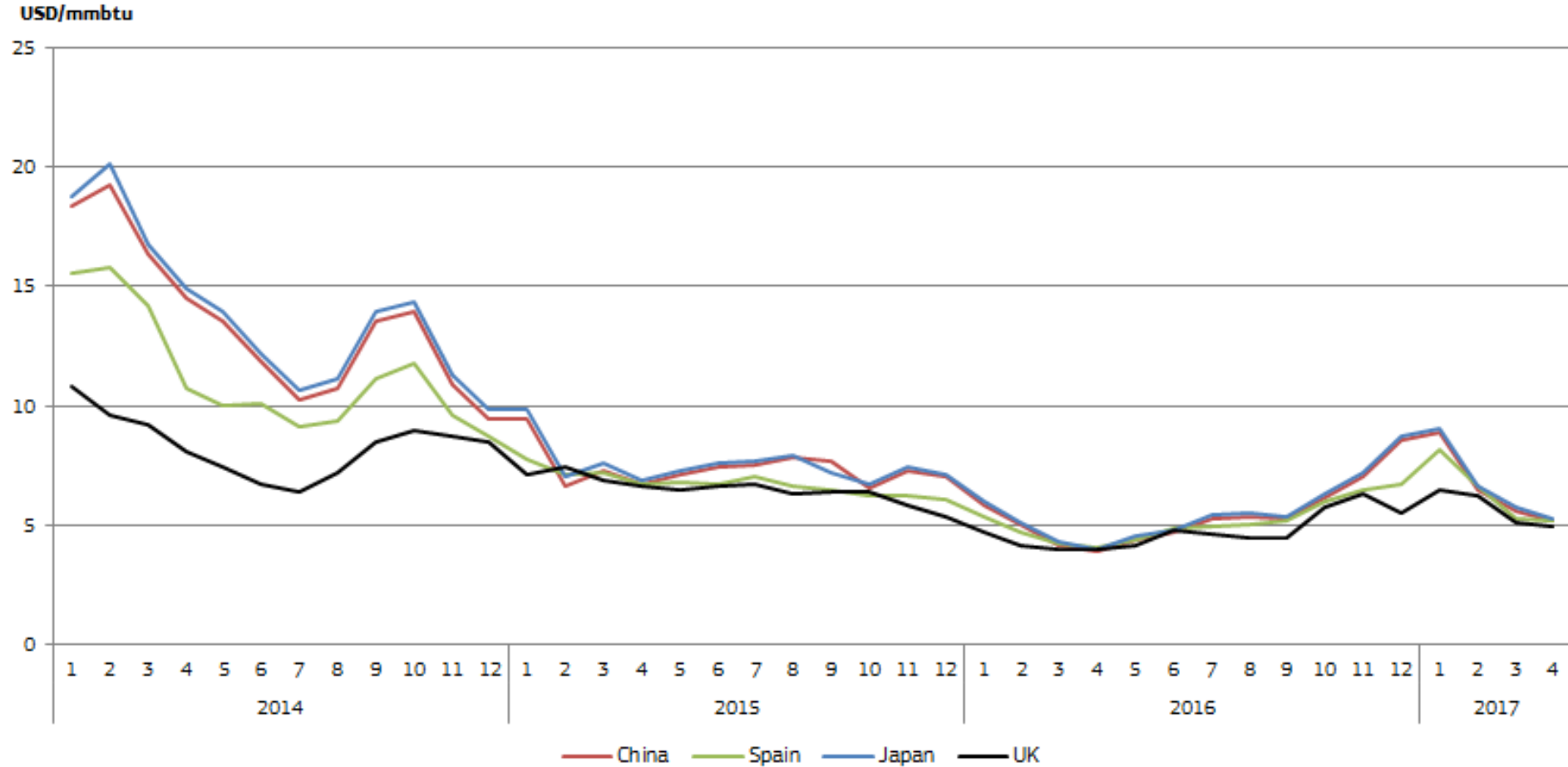
***Outcome: Global LNG market will remain competitive***

# Global LNG demand/supply capacity balance



Source: Bloomberg NEF

# Landed spot LNG prices



Source: Thomson-Reuters

# Impact of US LNG

- Compelling arguments that HH will fall from today's levels
- Associated shale gas cheap - growing faster than US demand
- Must be disposed of – or will slow down shale oil production
- Pressure on gas prices – salvation in exporting excess gas
- Second wave of US LNG finding ways to compete on price
- Tellurian says it can land LNG to Japan at \$6/mmBTU
- NextDecade Corp can build LNG plant at <\$500/ton – cheap gas
- US LNG: transparent hub pricing, no destination restrictions
- Can go anywhere Europe or Asia – Cheniere has reached 25 countries in 18 months – global reach having a leveling effect

***Outcome: US LNG changing global markets the same way as shale oil changed global oil markets – leading to LNG commoditization***

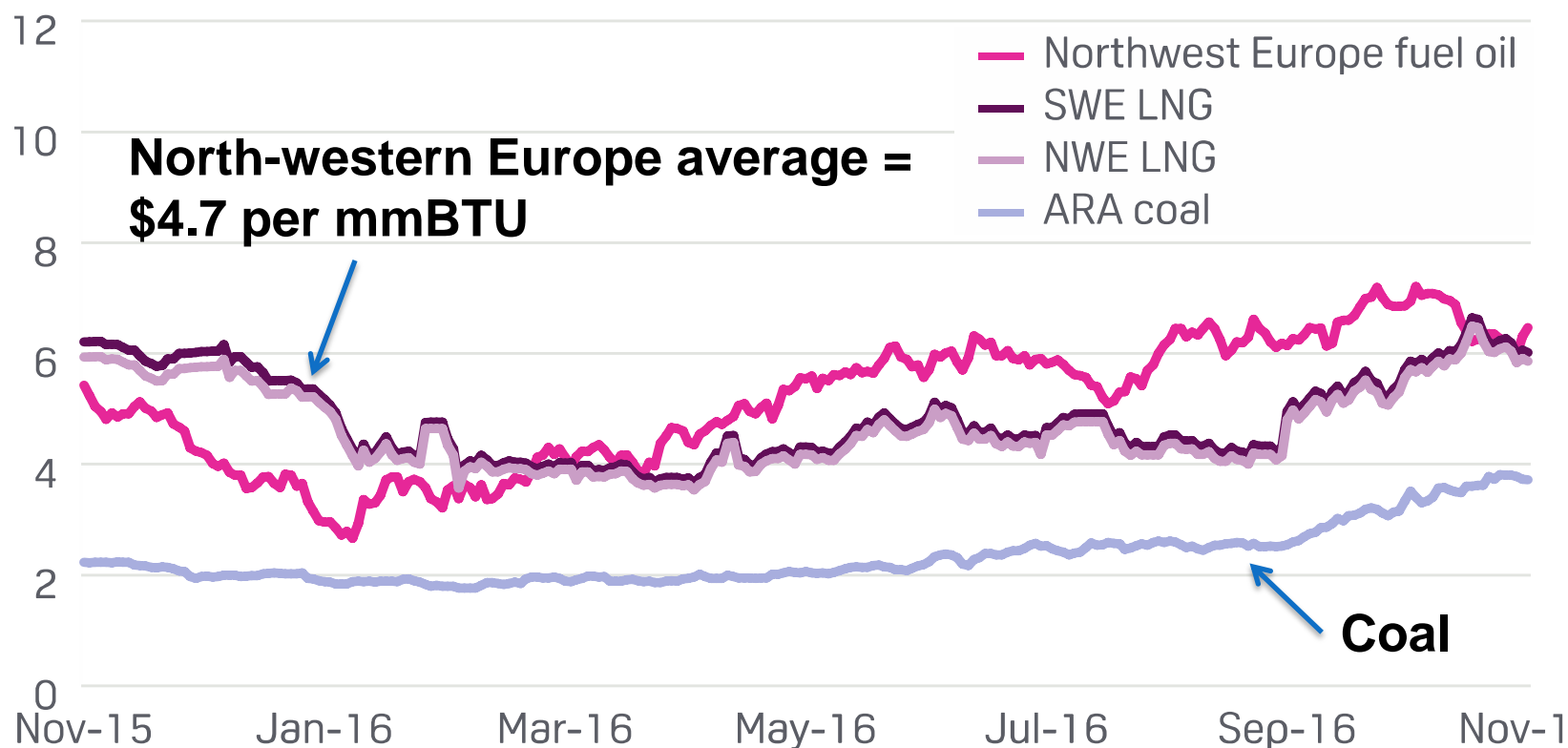
# Implications on global gas prices

- Abundance of hydrocarbons – competition between producers to capture more limited market
- Mostly cheaper resources to prevail
- World shifting from fossil fuels to renewables
- Gas/LNG must compete against coal and renewables
- Strong correlation between oil and gas prices
- Prices likely to remain low for the longer-term
- Long-term forecasts: Europe \$5/mmBTU – Asia: \$7/mmBTU

***Outcome: There is a convergence in global gas prices – likely to stay low forever – making it difficult to commit investments in new LNG projects with costs outside these ranges***

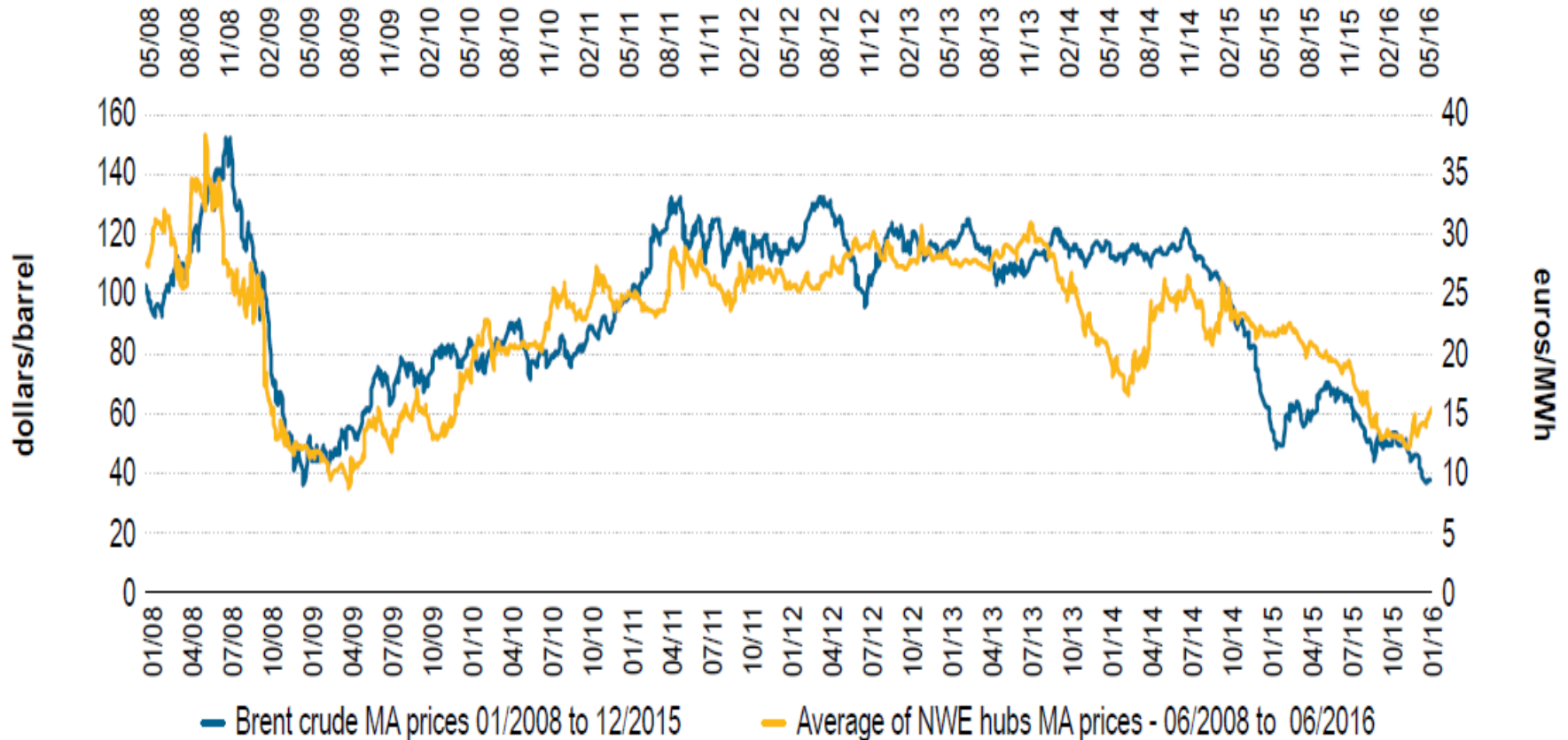
# European gas and coal prices

## COMPETITIVE FUELS EUROPE (\$/MMBtu)



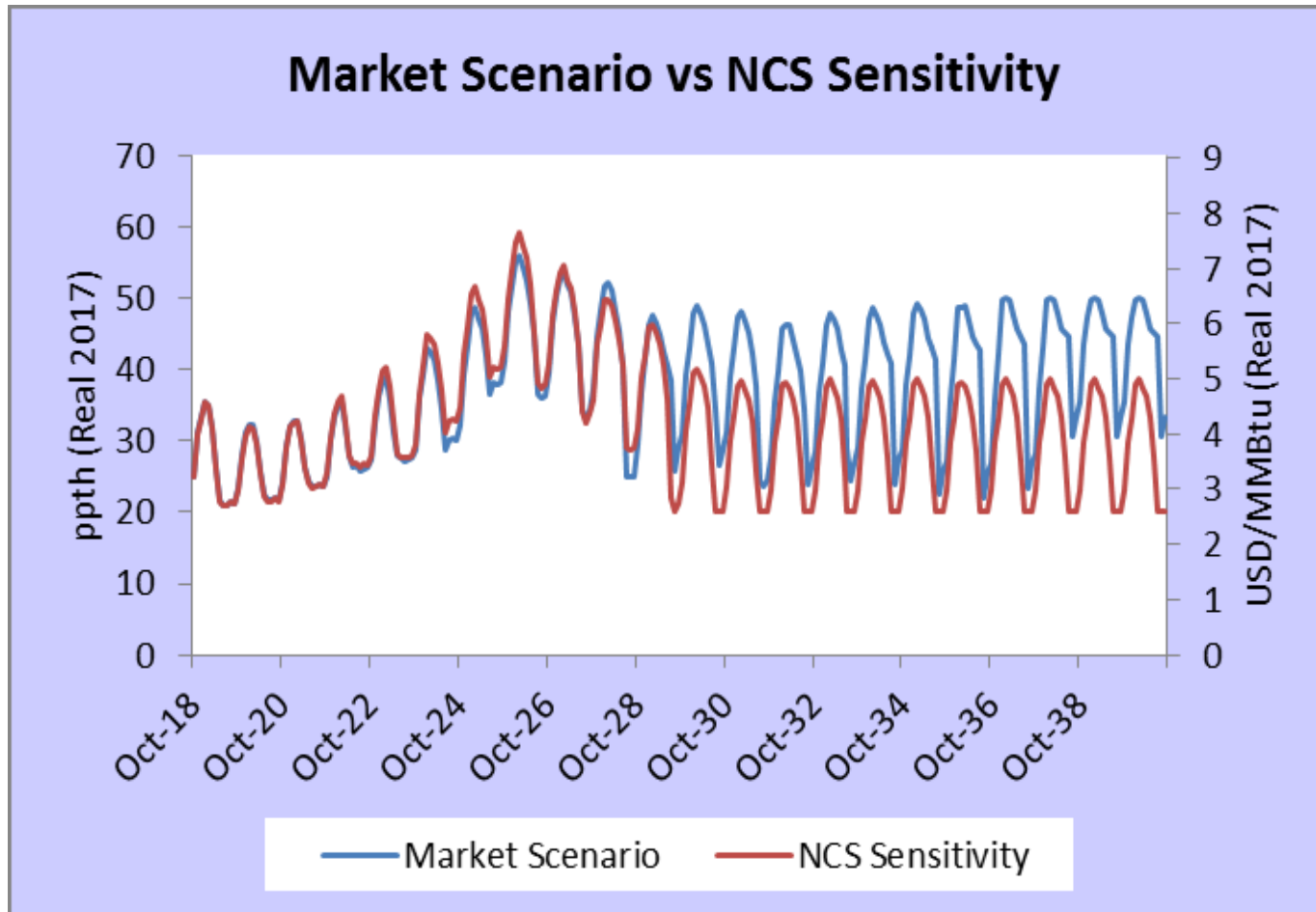
Source: Platts

# Strong correlation between oil and gas



Source: Platts – prices in Europe

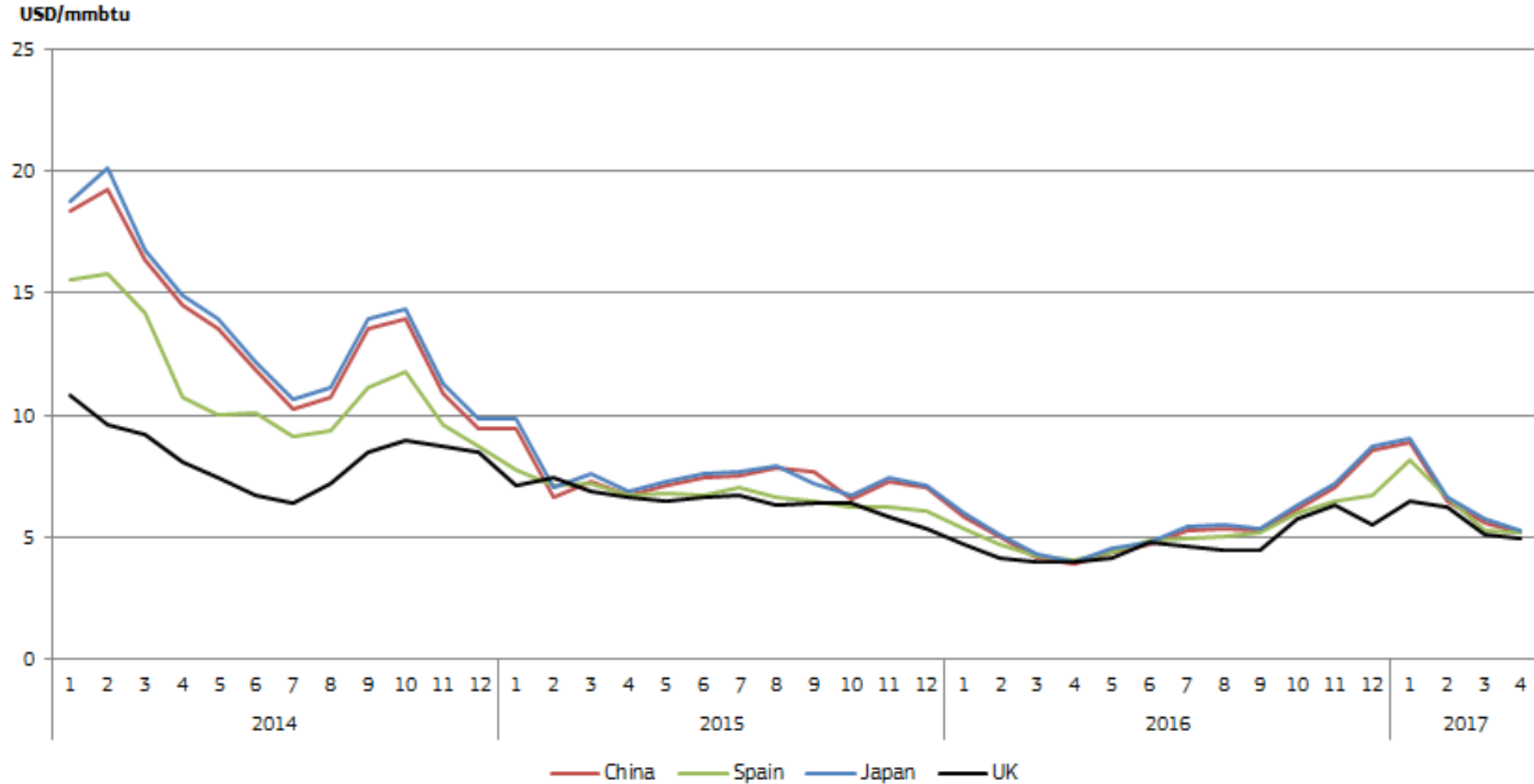
# NBP long-term natural gas price



Source: Platts



# Landed spot LNG prices



Source: Thomson-Reuters

# Regional cooperation

- **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 framework agreements**
- **But investment in projects still needs securing gas sales agreements**

# Regional markets: Turkey

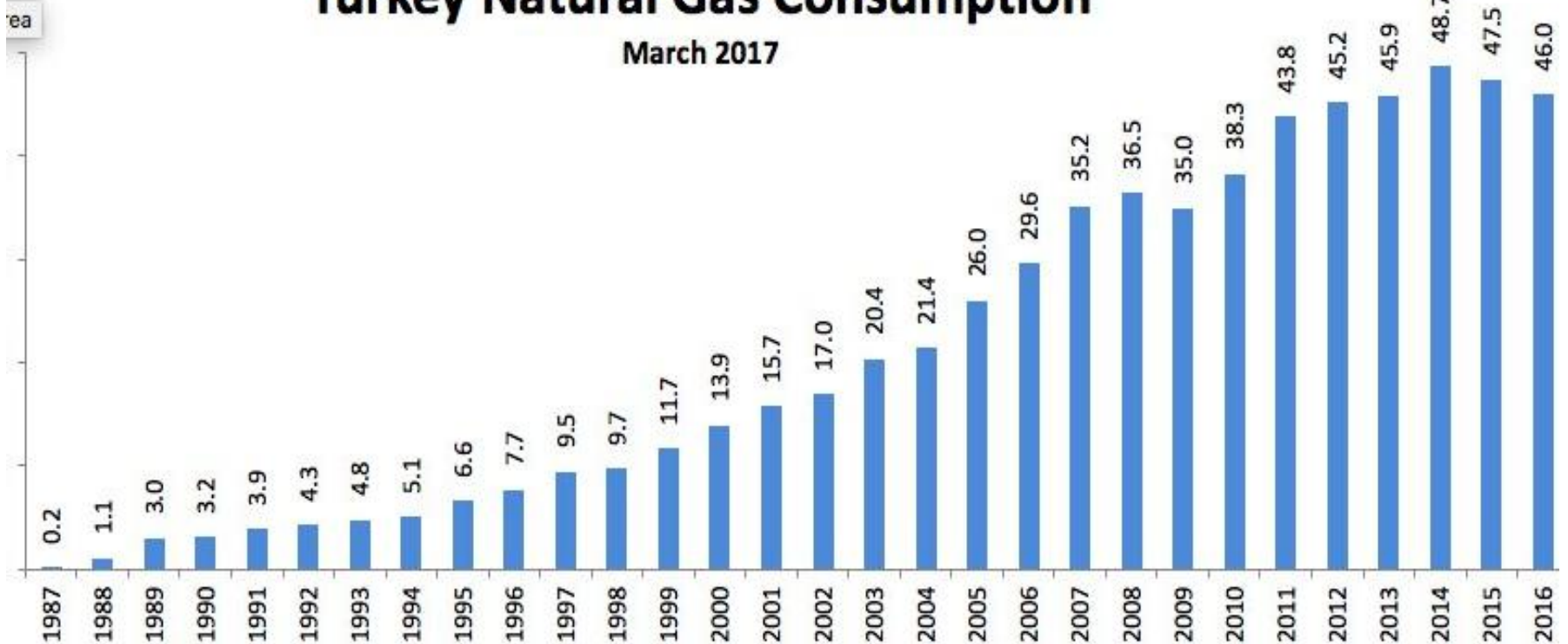
- Energy security: Turkey changed energy strategy and mix
- Increased use of coal/lignite, hydro, renewables, nuclear, LNG
- Reduced dependence on piped gas – down to 30% by 2023
- Akkuyu nuclear power plant on stream by 2023, adding 6%
- Gas demand may increase to 55 bcm/yr by 2025
- TurkStream back on track with two strings and 31.5 bcm/y
- TANAP to bring another 6 bcm/y by 2018
- Increased gas storage capacity + LNG imports up to 12bcm/yr
- Average 2016 price of Russian/Azerbaijan gas \$5/mmBTU
- Israel to Turkey gas pipeline challenged commercially

***Key conclusion: East Med gas has to compete and beat these prices and may no longer be Turkey's high priority***

# Turkey's natural gas consumption

## Turkey Natural Gas Consumption

March 2017



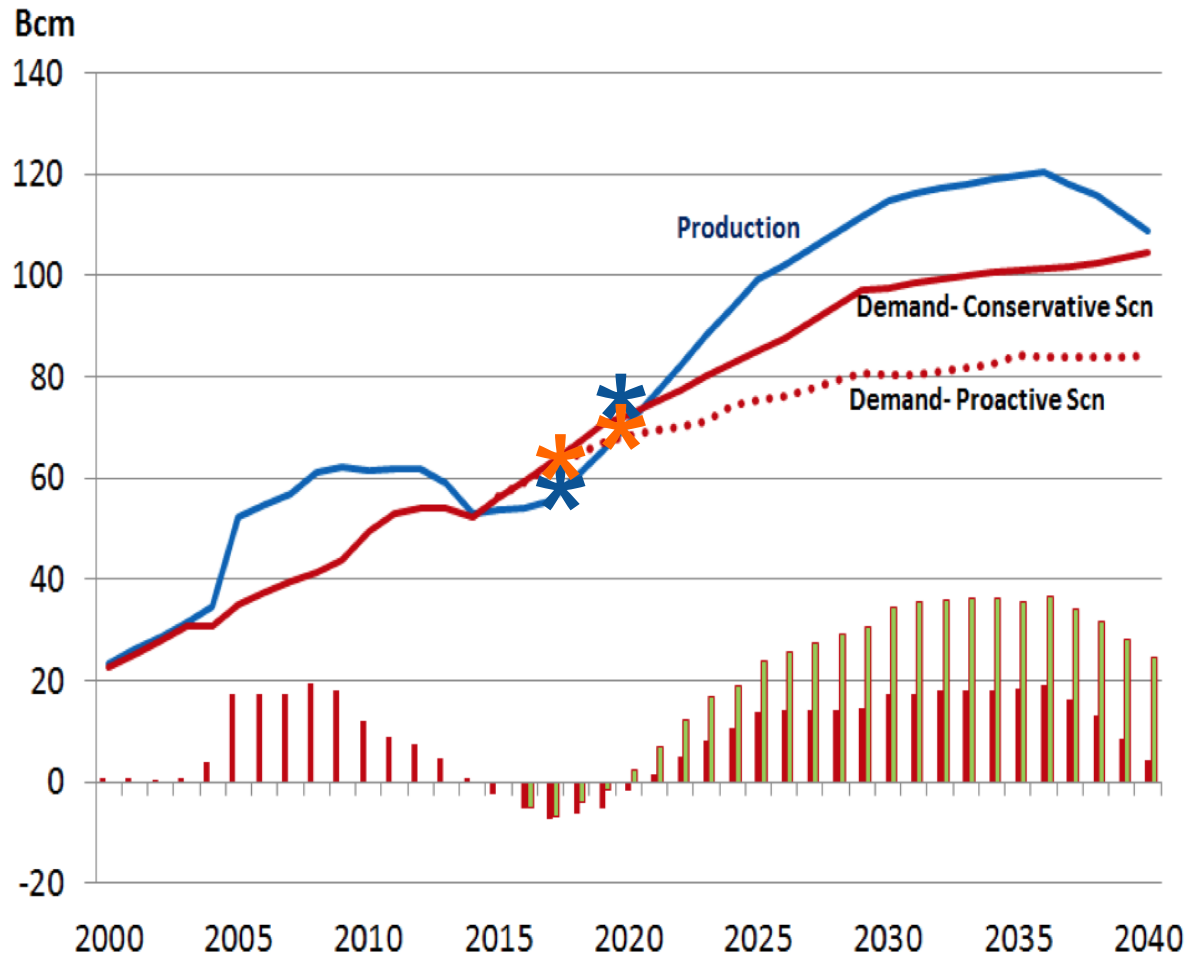
Okan Yard

[www.enerjiuzmani.blogspot.com](http://www.enerjiuzmani.blogspot.com), @OkanYard

# Regional Markets: Egypt

- Expects to be self-sufficient end 2018 – start gas exports 2020
- 2018 last year for LNG imports
- Zohr: first gas in December, ramping-up to 10-12 bcm/y by mid-2018, reaching plateau of 27 bcm/y by 2020
- 12 projects to bring additional 55 to 65 bcm/y gas by 2019
- EGAS/Ministry expect resumption of gas exports by 2020-2021
- OME demand/supply projections show that gas surplus for exports could reach 20 to 35 bcm/yr by 2030
- These are supported by Ministry of Petroleum estimates
- ***Key conclusion: Egypt has enough gas of its own for domestic consumption and resume LNG exports.***

# Egypt's gas balance



\* Ministry of Petroleum estimates

Source: OME

# Regional Markets: Italy

- Approved National Energy Strategy to 2030
- Will phase out coal by 2025 – to be replaced partly by gas
- Gas demand may increase to 72 bcm/yr by 2030
- Priority: security and resilience of gas system – diversification
- TAP and East Med gas pipeline, if it ever becomes commercially viable
- Also LNG imports from Egypt. ENI has dispensation for Zohr gas
- Other options: Nord Stream 2 and TurkStream extending to Italy

***Key conclusion: It is quite likely that Egyptian LNG will end up in Italy.***

# 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.**
- **The world is awash with gas and LNG and with US shale on the resurgence, and renewables penetration unstoppable, competition to secure markets will be fierce. Prices are low and will stay low**
- **Regional markets such as Egypt, Turkey and Italy are options, but quite challenging.**