

# *Centre Energie - Centre for Energy*

## **The role of gas in the European energy transition: risks and opportunities**

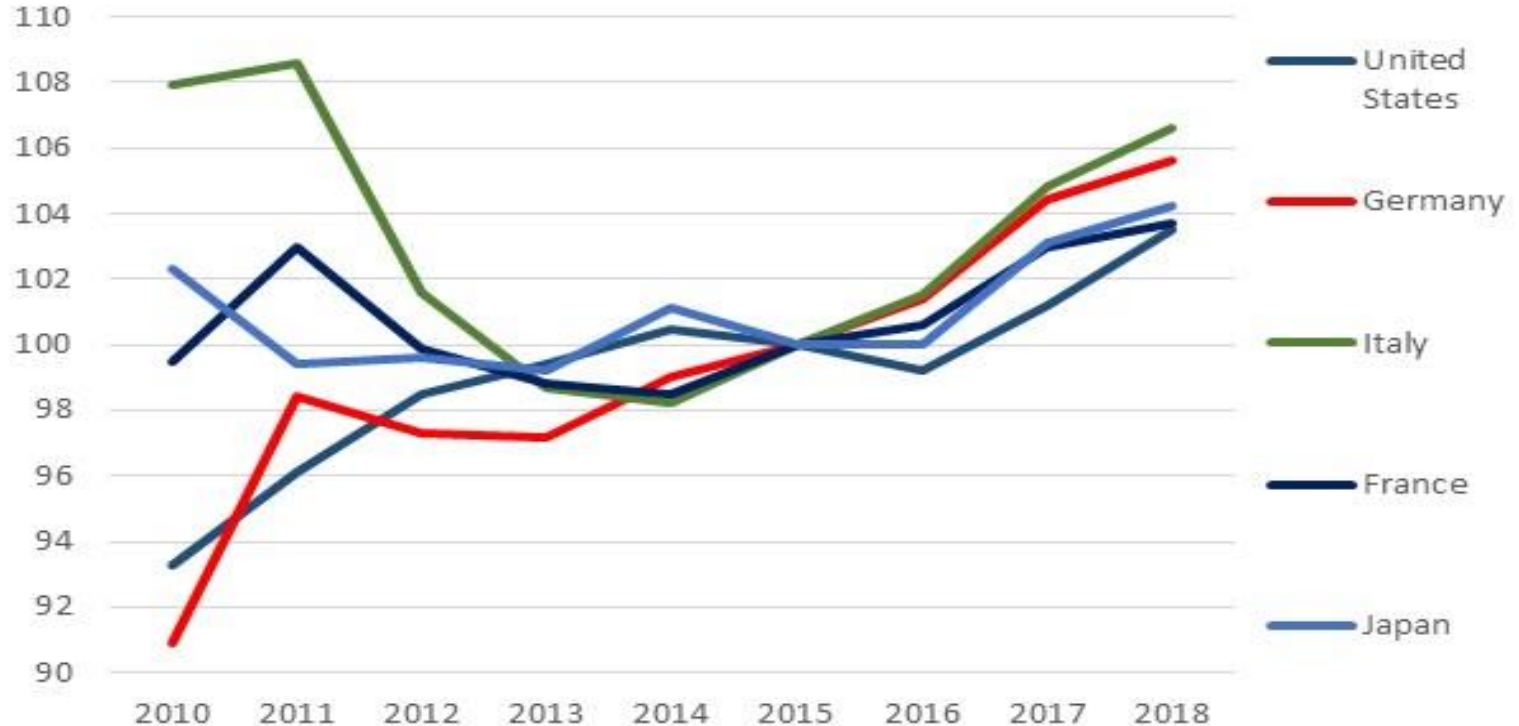


**Marc-Antoine Eyl-Mazzega,  
Director**

**Russian Gas Society, Berlin, 16 May 2019**

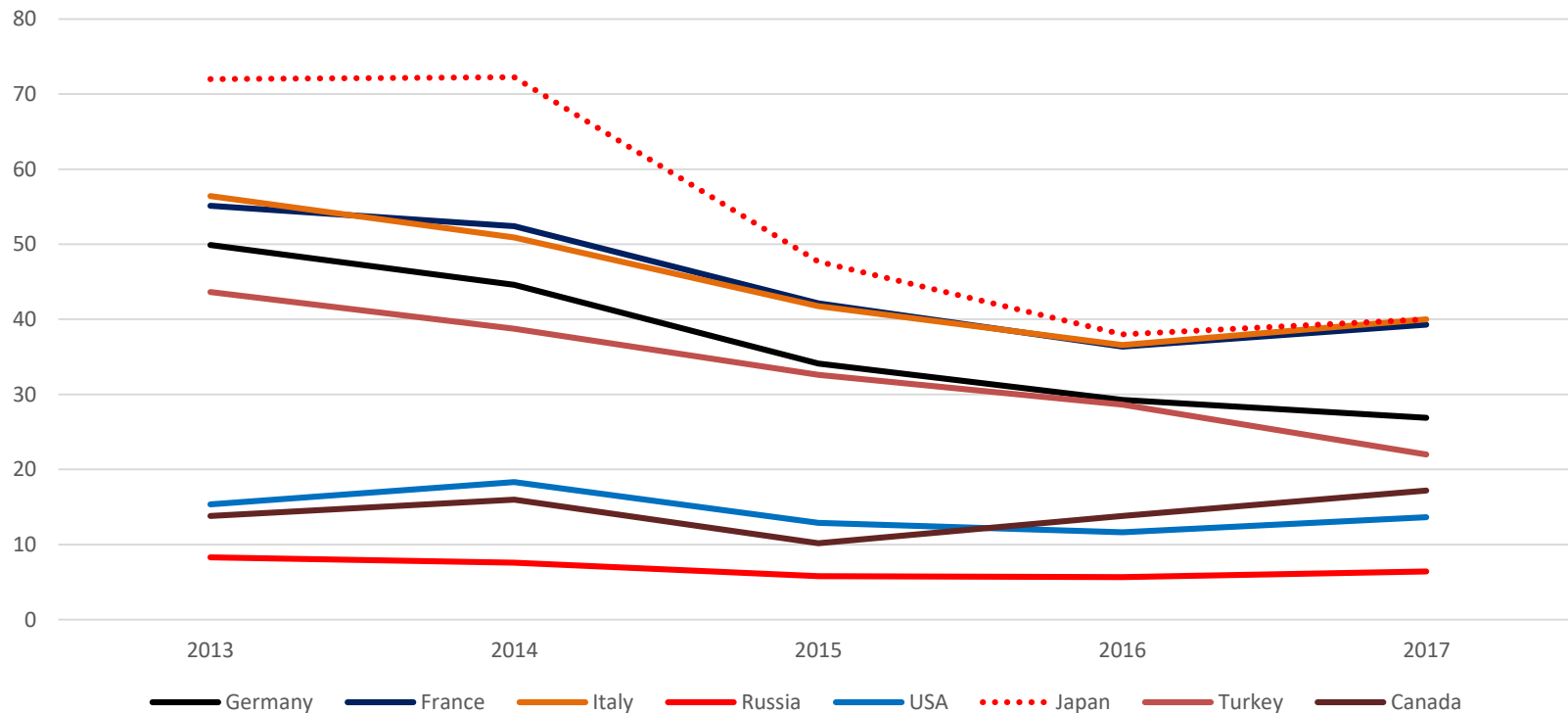
# US experiencing an industrialization with a growing trade deficit while Europe sees industry coming out of its decline

Evolution of industrial production in selected economies, 2010-2018 (2015=100)



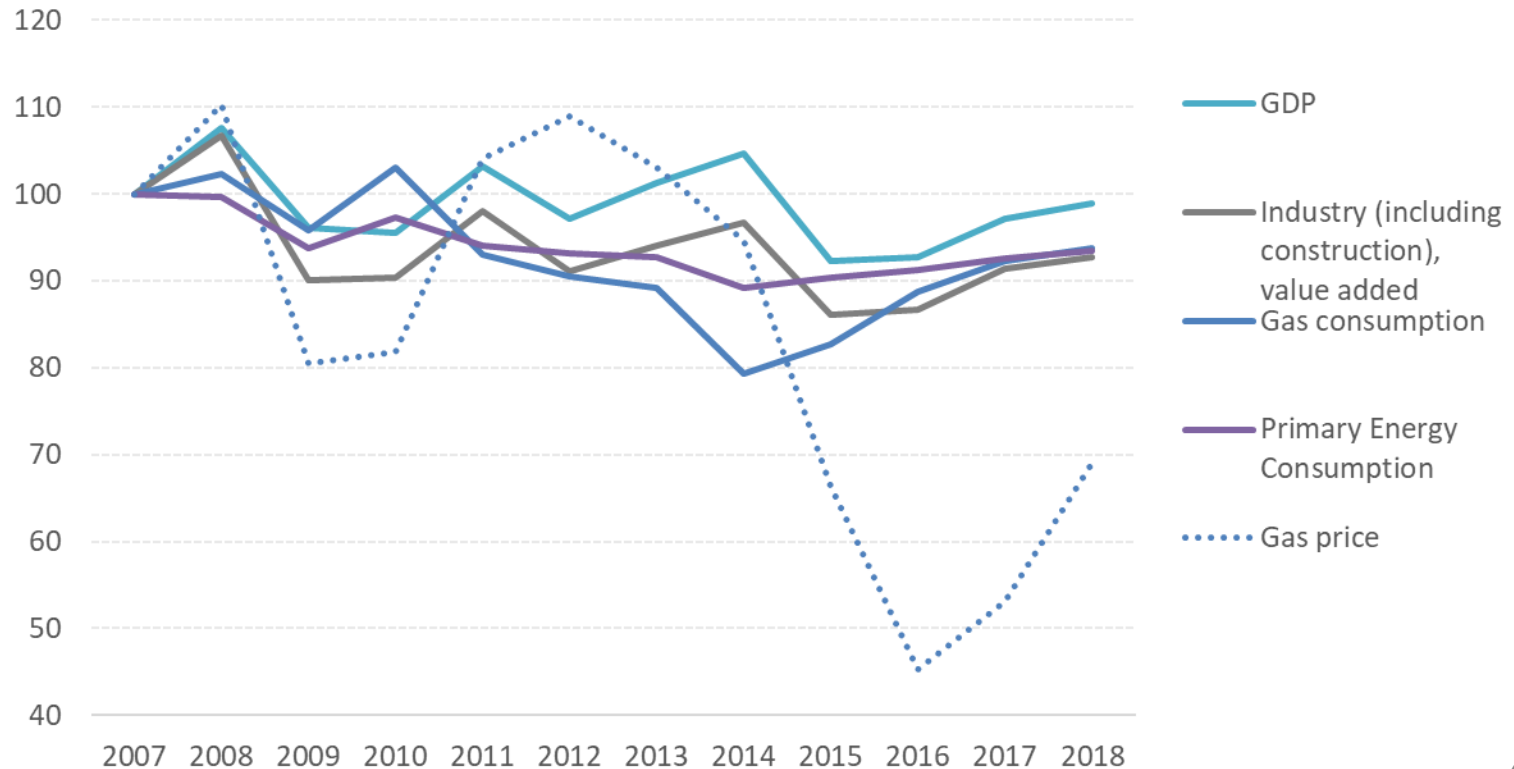
# Natural gas is now part of the geoeconomic battle, a stake is the competitiveness of key European economies

Evolution of average gas prices for the industry sector in a selection of countries, 2013-2017 (\$/MWh)



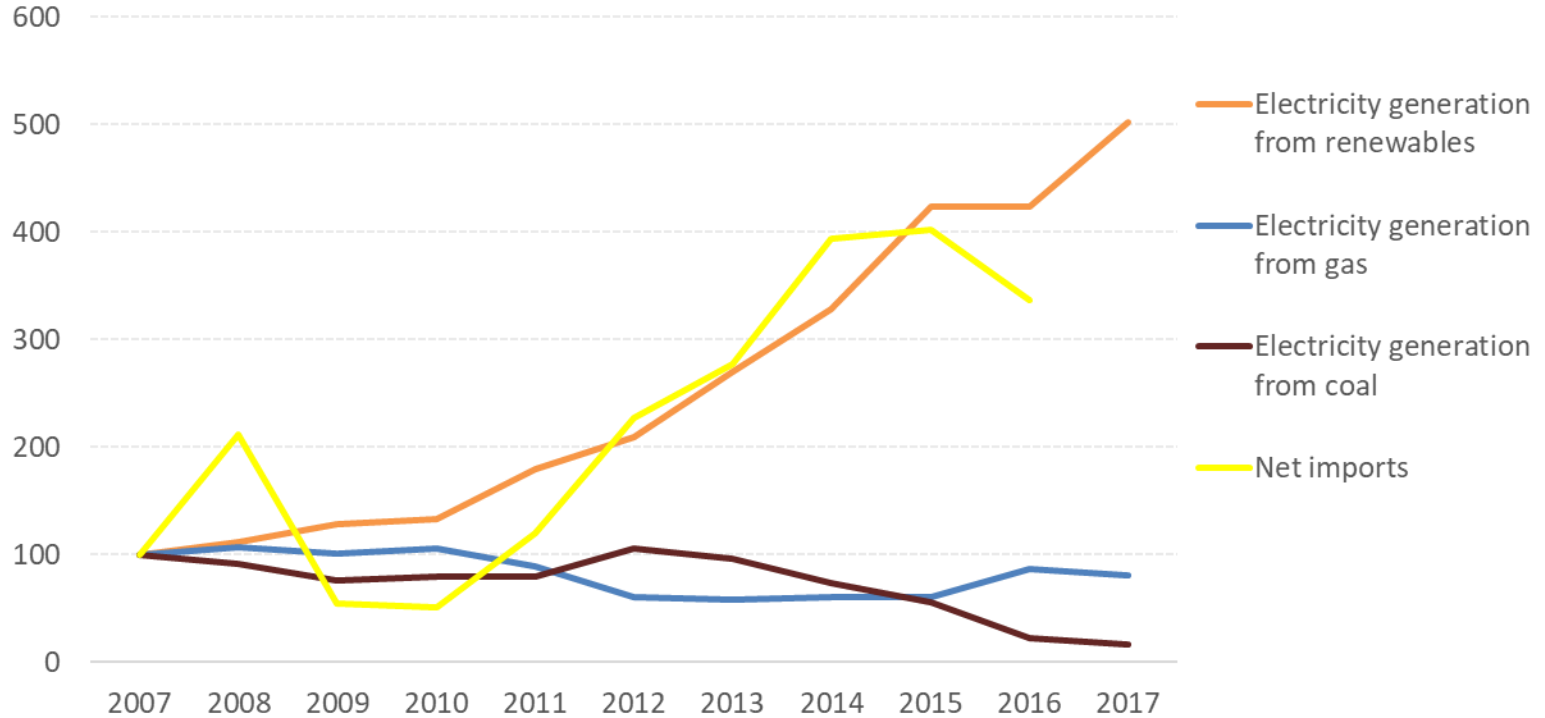
# The evolution of gas demand points to a defensive position, yet with a temporary twist since 2015 in spite of higher prices

Evolution of selected economic and energy indicators in the EU, base 100, year 2007



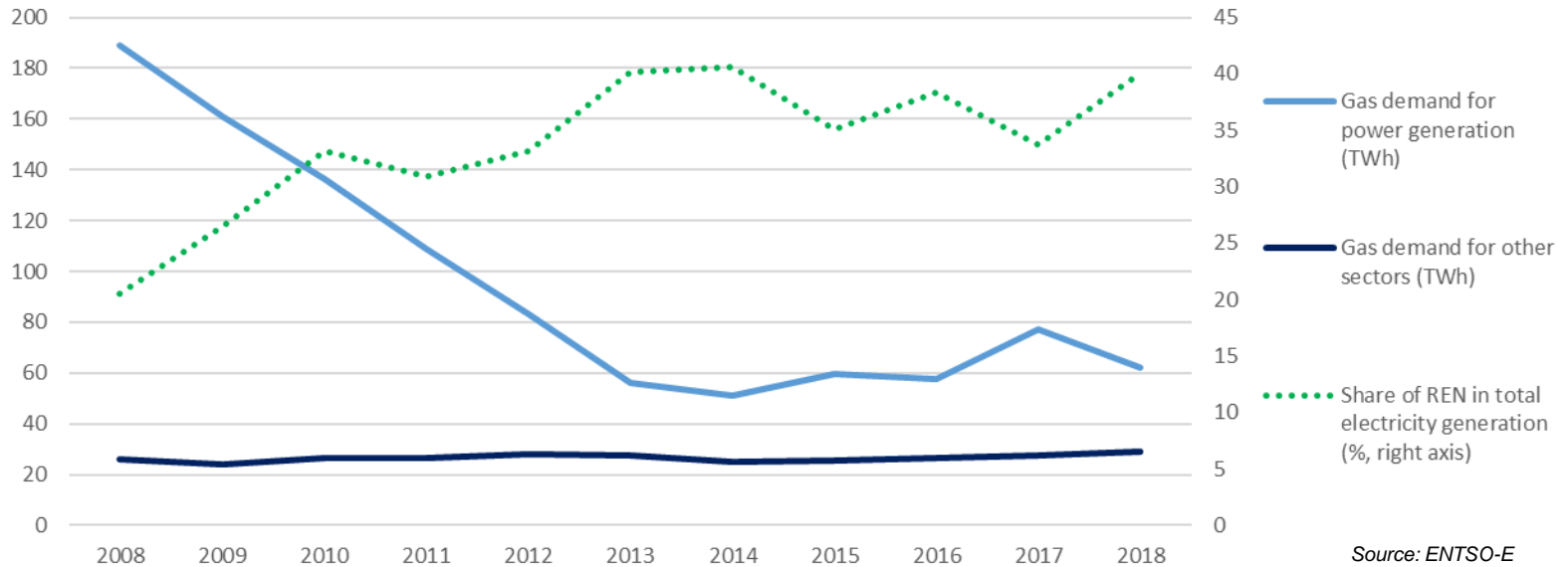
# UK coal phase out: 80% coal generation decrease only leads to 30% gas generation increase as renewables pick up

Evolution of electricity generation in the UK by type of fuel, base 100 Reference year 2007



# Spain: large renewables deployment pressures gas, yet demand varies depending on wind & hydro availability + GDP

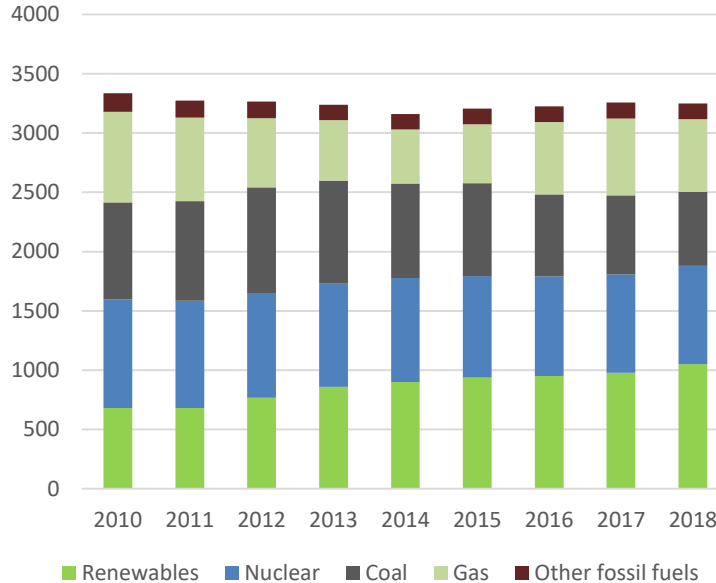
Evolution of Spanish gas demand and share of renewables in total power generation (2008-2018)



*The key challenge for energy systems in transition is flexibility. Intermittent renewables and variable hydro require much more flexible gas demand patterns... and are harder to predict.*

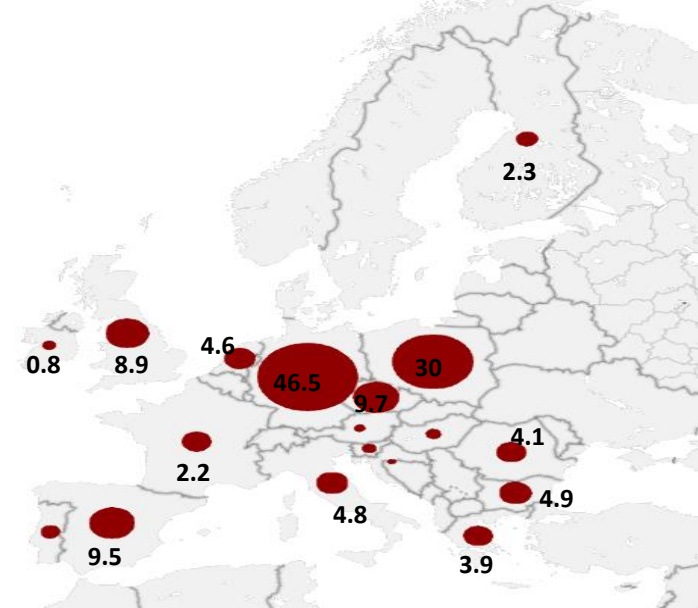
# EU expected to phase out 50% of coal fired power generation by 2030, up to +20 bcm/y demand for power generation

EU power generation mix in TWh (2010-2018)



Source: Eurostat, Agora Energiewende & Sandbag

Installed coal power generation capacities in selected EU states 2019 (GW)



Source: ENTSO-E Transparency Platform

*Yet the call for CCGTs can also be offset by larger hydro availability, very productive renewables, nuclear, interconnections as well as demand side management measures*

# EU emission allowance prices rise while REN auctions bids fall: bad for gas unless it is more competitive than coal

EU ETS settlement prices, March-2018 to February-2019 (€/tCO<sub>2</sub>)

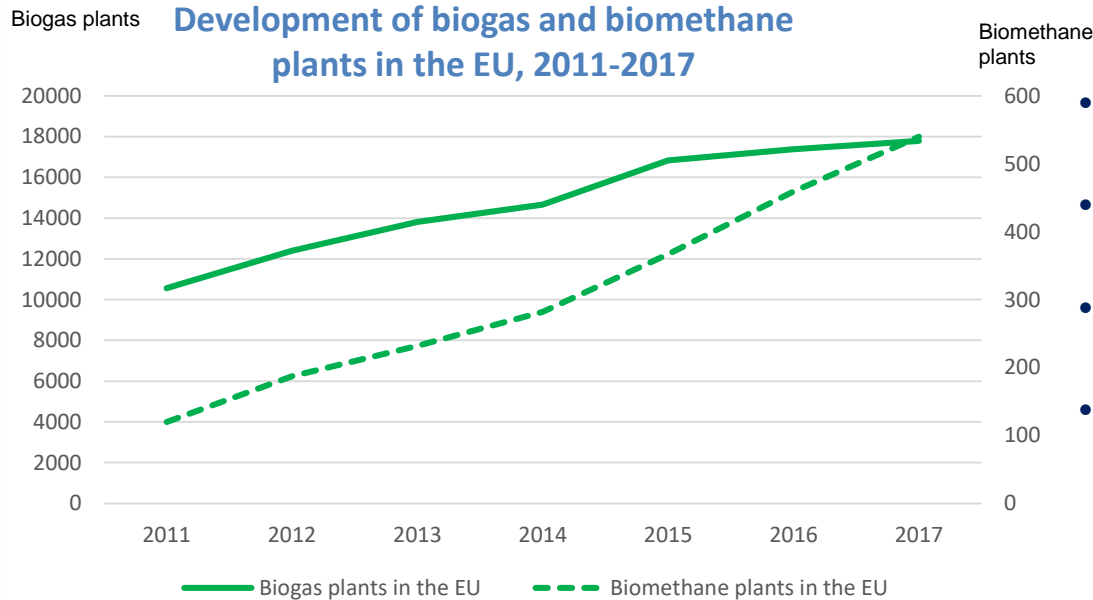


Source: Market Business Insider, European Energy Exchange, Market Data, 13.03.19

- EUA prices at 7 years high
- Around 20€/ton since mid-August 2018
- The best-performing « commodity » in 2018



# Greening the gas: biomethane + H<sub>2</sub>O soften the fall in natural gas production and help support demand



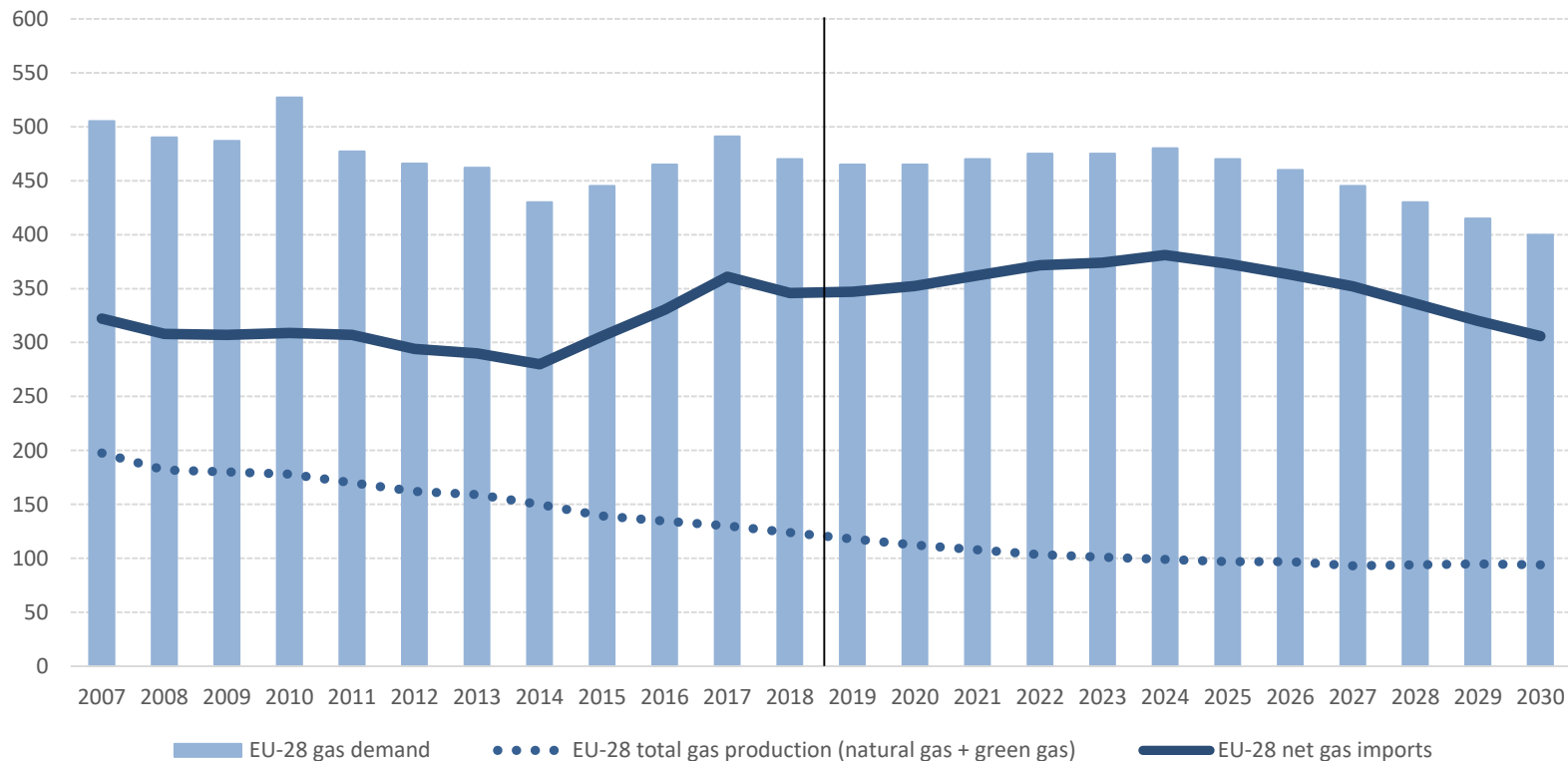
- 2 bcm/y production in 2018
- 65 GWh electricity production
- New push in Italy, France, Denmark, UK
- Costs in France must fall to 60 EUR/MWh to reach 22 TWh by 2028

Source: European Biogas Association

*EU green gas production @ 23 bcm in 2030 and helps to push gas use in the transport sector (CNG and LNG) which can increase from 2 bcm/y currently to 18 bcm/y by 2030, including 10 bcm of LNG, driven by heavy duty transport.*

# Outlook to 2030: demand overall flat until 2025, before progressively & slowly declining

Evolution and estimate of EU-28 gas balance, 2007-2030 (bcm)



## Outlook uncertainties (1/2)

### Stronger EU gas demand:

- Global economic slow-down + China slowing on gas expansion, leading to a global LNG glut, low prices which help push gas for power generation
- Producers decide to cut prices and opt for a volume based strategy, credibly reduce their methane emissions, start greening natural gas
- France, Belgium, Poland, UK do not build new nuclear reactors beyond those in construction & limited life time expansion
- Delays in energy efficiency efforts and slow down in renewables deployment due to costs, lacking interconnections and acceptance challenges
- Stronger extreme weather conditions strengthen peak system loads, number of cooling degree days and reinforce the role of CCGTs and gas storages for electricity supply security
- Climate change leads to lower hydro availability and a stronger call for gas-fired power generation

## Outlook uncertainties (2/2)

### Weaker EU gas demand:

- Gas prices continue to rise in the EU as pipeline exporters cut back on volumes, Asian price premium expands again
- Global geopolitical crisis affecting one large LNG exporter or trade route, leading to a surge in prices
- Methane emissions from natural gas are not addressed rapidly enough
- Nuclear new builds and life time expansion
- Breakthrough in small modular nuclear reactors
- Breakthrough in electricity storage technologies and demand side management systems
- Low GDP growth in Europe and low industrial production
- Climate change leads to milder winters & less heating degree days
- Coal phase out is pushed back

# December 2019 gas negotiations: avoiding miscalculations so that gas is an enabler of the transition and not a toxic fuel





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