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

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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)

Source: OECD
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)

Source: IEA, OECD, Gazprom, Ifri
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

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

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

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

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

Source: Market Business Insider, European Energy Exchange, Market Data, 13.03.19
Greening the gas: biomethane + H2O soften the fall in natural gas production and help support demand

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.

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

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

Source: Ifri
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

- NS2/Turk-Stream
- Assessment of respective gains and losses in a crisis scenario
- RU-UA S&P agreement (duration, take or pay, price, currency, payment conditions)
- Transport tariffs, ship or pay level, flexibility, duration
- Politics in UA and EU and geopolitics between RU/UA/USA-EU
- External pressures or facilitations
- Enforcement guarantees
- Arbitration proceedings

Source: Ifri