



## Ten major trends in the European gas market: Executive summary

The EU gas and energy sector is in the midst of a profound transformation driven by decarbonisation, digitalisation and decentralisation. This report analyses in ten key points the evolution of the gas sector and includes forward looking views on new trends in EU gas markets.

**1. Decarbonisation:** The EU has a high decarbonisation objective. With the ratification of the Paris Agreement in 2016 and the 2030 climate and energy framework, the EU energy mix requires a profound transformation. The legislative process to implement the 2030 goals was initiated with the Energy Union Package in 2015 and subsequently by the Energy Security Package and the Clean Energy Package. Already, Europe's energy system is moving fast from a fossil-fuelled energy system to a low-carbon, more digital and consumer centric system. In this new context, the role of gas in the clean energy transition needs to be defined.

**2. EU gas demand:** Since 2015, EU gas demand has increased, reversing the declines registered over the period 2011-14. EU gas demand reached an estimated 483 bcm in 2017, up 5% over 2016, helped by a strong pickup in economic activity and a continuous expansion of gas use in the power sector. Coal-to-gas switching has played a pivotal role. The share of gas in electricity generation rose to 19.7% in 2017, 5.2 percentage points above 2014. During the same period, the share of coal declined by 4.6 percentage points to 20.6% in 2017. Since 2015, natural gas has also shown its flexibility to replace lost output due to lower nuclear, hydro or wind availability.

**3. EU gas production:** The EU natural gas production is in structural decline due to the depletion of conventional gas reserves. The decline is accelerated by the fall of the Dutch Groningen gas field, following earthquakes in the region. Shale gas is not expected to reverse the trend. Except the United Kingdom, there is no significant development in Europe, and even in the United Kingdom, shale gas development is still uncertain.

**4. EU gas imports:** Strong consumption and falling indigenous production have provided support to rising EU imports, which have increased by some 80 bcm since 2014. Most of the increase has been covered by imports by pipeline, mainly from Russia. So far, and despite their substantial rise in 2017, EU LNG imports remain much below their peak in 2010, as competitive gas supplies by pipeline are available. In the future, EU LNG demand is expected to increase: new outlets are being developed, e.g. the transport sector; major energy companies are building the required infrastructure; and some EU countries are diversifying their gas supplies to avoid over-reliance on Russian gas. Russian gas and US LNG are expected to compete for market shares on the EU gas market. The outcome will mainly depend on the supply glut on the global LNG market (so far not realised), the response of Russia to rising competition, and the extent of coal-to-gas switching in the EU power sector.

**5. Trading hubs and gas pricing:** Market hubs in Europe are becoming more and more mature, resulting in an increased price convergence of the gas markets. However, Europe is still some way from being fully liberalised across all countries. Only the Dutch TTF and the UK NBP can be considered as mature hubs. In 2017, traded volumes decreased slightly in most hubs. TTF has remained the leading European gas hub, outpacing NBP for the second consecutive year. In line with improved liquidity at hubs, gas pricing has continuously evolved towards market prices at the expense of oil indexation, although there are still major differences between European sub-regions. The average price of EU gas imports rose to \$5.65/million Btu in 2017 but, still, remained relatively low.



**6. Role of gas in the energy transition in the medium term:** Natural gas is expected to be a key pillar of the EU energy transition. As the cleanest of all fossil fuels, it allows a quick reduction of the power sector's emissions thanks to coal-to-gas switching. Moreover, thanks to its flexibility, natural gas is an ideal partner to renewables. Gas-fired power plants are well suited to follow rapid swings in power supply of variable renewables. In the transport sector, the cleanliness of natural gas is a key advantage for improving air quality, a major health and economic issue. In maritime transport, new regulations to reduce sulphur emissions from shipping play a key role in the development of LNG as a marine fuel. Natural gas, if it cannot decarbonise the heating sector, can make an effective contribution to reducing emissions from the sector and, in the long term, can be replaced by renewable gas.

**7. Renewable gas:** Renewable gas is set to play a greater role than before in the EU's energy transition. Renewable gas is a way for Europe to decarbonise energy end-user sectors and utilise surplus renewable energy. Biogas is today the most developed form of renewable gas in the EU with 18,000 biogas plants. Another sector that is taking off is the upgrading of biogas to produce biomethane for injection into the natural gas grid (more than 500 plants today). Additionally, as the issue of curtailment of surplus electricity persists, the concept of power-to-gas is also gaining traction. The EU has 70 operating and planned power-to-gas projects. In all these sectors and associated technologies, Europe is positioning itself as a world leader.

**8. Outlook for gas demand:** The outlook for natural gas demand is contrasted between the medium and long term. In the medium term, in all scenarios, EU natural gas is expected to remain stable until 2025 compared to 2016. The decline in gas demand from the building and industrial sectors is offset by an increase in gas demand by the power sector, due to coal-to-gas switching. In the longer term (after 2025), the scenarios diverge substantially. In the central

scenario of the International Energy Agency, natural gas demand remains stable until 2035, before falling slightly. In the Sustainable Energy Development scenario, natural gas demand drops after 2025 due to a sharp decline of demand by the power sector. The uncertainty over long-term demand is a key challenge for EU's external suppliers, but also for European players. As most projections do not include green gas (not only biogas/biomethane, but also power-to-gas and hydrogen) into the outlooks for gas demand, they do not give an accurate view of the EU gas system of the future. According to Eurogas, in an Innovative Gas Scenario, EU gas demand in 2050 would be almost the same as today, but innovative gas solutions could represent 76% of this consumption. This scenario also shows that the cost of massive renewables integration is lower by tapping at an early stage the vast potential that gas (natural and renewable) offers.

**9. Security of supply:** EU regional security of supply is being enhanced due to a new regulation on security of gas supply, investments in new gas infrastructure, increased competition on the European market and the abundance of global gas supply. However, European players are faced with new challenges. The nature of security of supply is evolving and is more and more focussed on gas assets, necessary for ensuring security of gas supply (and that of electricity supply), but hardly used. However, investment in key assets (e.g. gas-fired power plants, storage facilities) is at a standstill. The current market design does not allow to recover their costs. This loss of profitability has led to the mothballing and closure of several gas-fired power plants and storage sites. In the transmission segment, changes in the geography of production and consumption are restructuring the gas flows in Europe. Some infrastructures favouring the integration of markets and/or security of supply will only be used sporadically, in exceptional supply situations. A key challenge will be to provide sufficient remuneration to the network owners to keep the infrastructure in place.



**10. Shifting strategies of major European energy utilities:** The largest European integrated utilities have been hit heavily by the sector mutation, but most of them have now adapted to changes by shifting strategies and embracing the energy transition. They are engaged in a profound mutation to lessen their exposure to merchant power (and in some cases upstream gas activities), increase investments in renewables and regulated networks, and accelerate growth in energy supply and services (customer solutions). These

strategies aim to lower risks of business portfolios, but also to reposition the companies into a sustainable growth path. The new focus reflects three fundamental market developments and corresponding growth businesses: the global trend toward renewables, the evolution of energy networks into a platform for distributed-energy solutions, and customers' changing needs. The European utility landscape is being reshaped by the structural mutation in the energy world.