Between 2010 and 2014, EU28 gas demand lost 23% before recovering, gaining 16% between 2014 and 2017. Five main factors (weather conditions, energy efficiency, growth of renewable power, competition with coal and availability of nuclear power) explain both the fall in gas demand between 2010 and 2014 and its ensuing recovery.

Looking forward, energy efficiency gains are expected to continue and renewables are set to increase their share of the EU energy mix. But the phase-out of nuclear power in Germany and the EU switch from coal to gas in the power sector will support gas demand. CEDIGAZ believes this provides a window of opportunity for European gas demand to pursue its recovery in the short and medium-term (5-10 years). However, in a longer perspective (after 2030), structural trends will tend to erode the demand for gas.

Due to the rapid decline of domestic gas production EU gas imports will increase significantly by 2025 and remain at high a high level before declining post 2030. In this context, the prospects for EU LNG imports look bright. They will nevertheless face competition from Russia, the largest gas supplier to the EU. But the large gap between EU gas demand and production, combined with security of supply concerns, offers a window of opportunity for LNG suppliers. With ample availability of LNG in the global market expected in 2019, Europe may finally play its long-forecasted role of market of last resort for LNG. But the continuous ramp-up of renewables will weigh on medium-term EU gas demand and the window could start closing rapidly: time for gas and LNG in Europe is NOW!
European Gas Demand: Drivers and Medium-Term Outlook

Background: Three main sectors

The bulk of the European (EU28) gas demand comes from three sectors that account for around 95% of total consumption. The domestic and commercial sector is the largest consumer, with a share of total consumption that has fluctuated between 36% and 41% since 2010, with annual variations essentially due to weather conditions. The remaining gas demand is mainly spread between the industry, that has accounted for 22% to 27% of EU28 natural gas demand since 2010, and the power sector (including heat generation), which evolved from a maximum 34% share in 2010 to a minimum 26% in 2013, before recovering to 31% in 2017. Demand from the transport sector, although the fastest growing segment of gas demand (+8% per year on average since 2010) still represents less than 1% of the total.

Key drivers of European gas demand

Natural gas demand in the three main natural gas consumption sectors is influenced by different key drivers. In the industry, the general health of the economy (GDP growth), plays a major role. While this applies to a certain extent in other sectors, especially power, it is in the industrial sector that the GDP effect is felt the strongest. Due to the fact that natural gas is mainly used for heating in the residential and commercial sector, demand in this segment is strongly influenced by weather conditions. In the power sector, although both the GDP and the weather have some influence, year on year variations since 2010 have been better explained by competition between the different electricity production means, which is mainly influenced by the availability of nuclear and renewable capacity, on the backdrop of the growth trend in renewable generation, and the relative prices of coal and natural gas, including CO₂ cost. Finally, all three sectors have to contend with the growing energy efficiency of the economy (defined as the ratio of energy consumed by unit of GDP).

Obviously, the size of the economy influences energy consumption. European gross energy consumption grew together with GDP until 2006, but as GDP stagnated between 2007 and 2014, energy consumption declined, illustrating the growing energy efficiency of the economy.

In the main gas consumption sectors, the decline in energy consumption from 2007 is particularly strong in the power and industrial sectors. In the power sector, this evolution is due to an increase in energy efficiency of conventional power plants, to the growing penetration of renewables, and to a decline in power production and consumption. In the industrial sector, the decline in energy consumption reflects a growing evolution towards a more service-oriented economy as well as energy efficiency gains and implementation of conservation measures during the 2009 financial crisis and the following years of stagnating GDP.
Between 2010 and 2014 a series of mild winters led to a reduced energy demand from the residential and commercial sector, where an important share of energy consumption is used for heating, and gas consumption was strongly impacted. Between 2010 and 2014, gas demand from the sector declined by 22% and was responsible for 37% of the decline in total EU gas demand.

**In the power sector**, growth of renewable power, competition with coal and availability of nuclear power mainly explain changes in European gas demand since 2010.

Renewable electricity production has almost tripled from 1997 to 2017, due to the exponential growth of wind and solar energies. This rapid growth has reduced the share of other energies in the power mix, a trend exacerbated by the decline in power consumption after 2008. Thermal production was hit the hardest, losing 10 percentage point from a maximum 59% in 2007 to 49% in 2014, while nuclear maintained its 28% share of the power mix and renewables share jumped from 13% to 23%. Since 2014, thermal power has modestly regained market share as the decline in nuclear power was not met by an equivalent growth of renewables due to reduced hydropower production.

Nuclear generation capacity in Europe has been declining from 131 GW in 2010 to 118 GW in 2017. In Germany, the gradual phase-out of nuclear power has reduced nuclear power generation by 46% since 2010. This decline is set to continue until 2022 when the nuclear phase-out is to be completed. European nuclear power generation has also been affected by the reduced availability of nuclear power plants in France. France accounts for almost half of total EU28's nuclear production, in 2015, this figure climbed to 51%. Due to prolonged maintenance operations, French nuclear output declined by 7% in 2016 and 8% in 2017 compared to the 2006-2015 average. As France has little remaining coal power capacity, this led to a significant increase in French gas demand by the power sector that contributed to the growth in European gas demand in 2016 and 2017.

As mentioned earlier, renewables were not able to compensate for the fall in nuclear output. Renewable power output is influenced by weather conditions. In 2017, droughts in Southern Europe and France led to a severe decline in hydropower production in Spain (-52%), France (-17%), Portugal (-58%), Italy (-14%) and many other countries. Total EU28 hydropower production declined by 16% that year. Similarly, unfavourable weather conditions led to a quasi-stagnation of wind power in 2016 against an average 15% growth between 2010 and 2015, and despite the fact that new wind power installation continued unabated.

**Competition between gas and coal in the power sector** has been a major driver of the evolution of gas demand in recent years. However, it should be noted that gas and coal compete for the shrinking share left by renewables to other energies.
Coal’s share in the European power mix had been following a declining trend since 1990 before briefly recovering between 2010 and 2012. It has since then resumed its declining path. Until 2008, gas benefited from the decline in coal’s share but the rapid growth of renewable power after 2007 brought the increase of gas’ share to a sudden halt. Then, from 2010 to 2012, the recovery in coal was mainly at the expense of natural gas. The decline of the share of natural gas in electricity continued in 2013 and 2014, due to the strong growth of renewables, despite the resumption of coal’s decline. Finally, between 2014 and 2017, the slowdown of renewables penetration allowed gas to benefit from the continuous decline of coal in the power mix.

Competitiveness of gas relative to coal is primarily driven by the relative cost of the two fuels, once the respective efficiency of coal and gas plant and the cost of CO₂ are taken into account. But, with the notable exception of the UK (thanks to the introduction of the carbon price floor) the historical price of CO₂ has remained too low to encourage the switch from coal to gas in the power sector. While coal prices started to decline in 2011 and followed a decline trend until mid-2016, gas prices remained at high levels from 2011 to 2014. They then started declining but as coal prices decline continued, gas did not become competitive again in continental Europe before coal prices started recovering in mid-2016. In the UK, the Carbon price floor, set at 18£/t since 2015 has enhanced competitiveness of gas in power, allowing generation cost of gas plants to remain below that of coal generation since end 2015.

A detailed analysis of the power sector between 2010 and 2017 shows that, although output from coal power stations started to decline as soon as 2013, gas demand in power only started to increase when power demand resumed growth in 2015. The role of coal-to-gas switching is undeniable in 2016 only. In 2015 and 2017, other factors (i.e. decline in nuclear and hydro power) were more important, and even in 2016, low output from wind power due to unfavourable weather conditions significantly bolstered gas demand. The UK accounted for almost 50% of the total decline in EU28’s coal generation in 2016, thanks to the implementation of the Carbon price floor.
To sum up, the combination of the five analyzed factors (weather, energy efficiency, growth of renewable power, competition with coal and availability of nuclear power) explains both the fall in gas demand between 2010 and 2014 and its recovery since 2015.

Between 2010 and 2014, EU28 gas demand declined by 121 bcm (-23%). The bulk of the decline (58%) was due to the power sector, where power consumption fell by 39%. The other important contributor (explaining 37% of the decline) was the domestic and commercial sector, where demand was negatively impacted by a very mild winter in 2011 and 2014. Similarly, the rebound of natural gas demand between 2014 and 2017 (+ 68 bcm, +16%) was primarily due (for 60%) to a recovery of demand in the power sector but other sectors also played a role. Thanks to coal-to-gas switching, demand by the power sector has recovered 37% over the period 2014-17. The residential and commercial sector also played a major role, mostly in 2015 and 2016 as return to normal weather conditions boosted heating demand. A recovery in economic and manufacturing growth has boosted demand by the industrial sector, particularly in 2017.
First estimates for 2018 (based on the first ten months of the year) indicate that after four years of recovery, European gas demand slightly declined in 2018 (-2%), mostly due to lower gas demand by the power sector. Higher nuclear availability (France) and more renewables (including hydropower) have reduced demand for thermal power, including coal and gas. For instance, in Germany, gas and coal power generation decreased in 2018 and renewables raised their share of total generation to 40.3%.

Medium-term outlook (2025-2030)

In the medium-term, no growth is expected in the residential & commercial and the industrial sectors. Increase in energy efficiency in these sectors is expected to weigh on their energy and gas demand. The new target on energy efficiency has been set at 32.5% by 2030 in the updated renewable energy directive (REDII) adopted in November 2018. Under these circumstances, gas demand in the residential & commercial sector to 2025 will be mainly weather driven. In the industrial sector, it will remain dependent on economic and manufacturing growth. Economic growth in the EU is expected to be sustained, but at a lower rate than in 2017. Growth in the euro area is forecast to ease from a 10-year high of 2.4% in 2017 to 2.1% in 2018 before moderating further to 1.9% in 2019 and 1.7% in 2020. The gas demand in transport is growing rapidly but it starts from too small a base to make a significant contribution to overall gas demand in the medium term.

Therefore, the only significant growth potential lies in the power sector, where natural gas can make a great contribution to CO₂ abatement by displacing coal and can contribute to reaching EU climate targets (a reduction of 40% of GHG emissions by 2030 compared to 1990). However, the expected continuation of the rapid growth in renewable power means that a rapid and significant coal-to-gas switching needs to occur for gas to increase, or even maintain, its share of the power mix. This rapid coal-to-gas switching is expected to occur in 2019-2025, leading to increased gas demand by the power sector by 2025, but is more uncertain after 2025.

The closure of aging coal plants, due to increasingly stringent emissions standards under the Industrial Emissions Directive offers an opportunity for gas to step in. EU28 coal generation capacity has already declined from 167 GW in 2015 to 148 GW in 2017 and coal power plants shut-down is expected to continue. An estimated 50 GW of coal capacity could close down by 2022-2023 according to the Oxford Institute for Energy Studies. Several countries, representing a total 37 GW have pledged to phase out coal by 2030 or before among which France by 2022, the UK and Italy by 2025, the Netherlands, Finland and Portugal by 2030. Additionally, Germany has established a commission to phase-out coal in the country, although the outcome and timing is not yet defined. Moreover, the phase-out of nuclear in Germany will take another 9.5 GW out of the market by 2022. In other countries, unavailability of nuclear capacity could also raise gas demand if nuclear either retires or operates at lower load factor as in Belgium today.

1 Anouk Honoré – Where Will New Gas Demand Come From? – presentation at Flame, May 2017
2 Sandbag – The European Power Sector in 2017
Nevertheless, the ability for gas to fill the gap left by the closure of coal and nuclear power plants will depend on how much new renewable capacity is installed and at what pace. The share of renewables in the power mix is expected to rise from 30% in 2017 to 35%-36% of the power mix in 2020. By 2030, the target share of renewables in final energy demand has been raised to 32% in the REDII. This 32% share in final energy demand translates into a **55% share of renewables in power**, which means a 25% loss of market share for fossil fuels and nuclear.

Considering that the share of coal in the power sector was 21% in 2017, and that German nuclear accounted for 2% of EU’s power generation, a complete switch from coal to gas in the power mix and additional nuclear plant shut-down would be necessary for gas to maintain its share of the power mix. Despite calls for a complete phase out of coal power in the EU by 2030, this is unlikely to occur, as some countries, such as Poland, are willing to keep coal in their electricity mix. Thus, the increase in gas demand by the power sector through coal-to-gas switching is also called to decrease after 2025.

The IEA’s World Energy Outlook 2018 (WEO2018) illustrates this new trend. In the New Policies Scenario, EU gas demand has been revised downwards compared to WEO2017 on the back of new targets for efficiency and renewables (REDII). EU gas demand remains stable to 2025 but declines after that reflecting improved efficiency in buildings and industry, and more rapid decarbonisation of power. Gas power generation increases slightly by 2025, before starting to decline. Gas share in the power mix returns to 19% in 2030, its level of 2016.

**Figure 6 - Natural gas demand in the European Union in WEO2018**

Source: IEA, World Energy Outlook 2018 (New Policies Scenario)

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3 Ibid.
European Gas Supply: Growing Import Dependency in the Short and Medium Term

How gas supply adapted to the evolution of gas demand during 2010-2017

Gas imports totalled 62% of EU gas supply in 2010. In view of the sharp decline in EU production, from 205 bcm in 2010 to 131 bcm in 2017, EU dependency has not decreased over the period 2010-17 (even when gas demand declined) and reached 74% in 2017. In absolute terms, EU gas imports declined over the period 2010-14 (although at a lower rate than gas demand), and then started to increase rapidly to fill the gap between rising gas demand and declining gas production across 2014-17. As shown in Figure 7, among sources of imports, LNG has been the main source to adjust EU gas supplies to declining demand over the period 2010-14. EU LNG imports (net imports) were around 80 bcm/year in 2010 and fell to only 36 bcm in 2014. Exports by pipelines from Russia, Norway and North Africa were variable during the period, but generally maintained or even increased their levels (except North Africa pipeline gas). During the period 2014-17, EU imports increased by 88 bcm, Russian gas provided 53% of this increase, Norway 18% and LNG 17%. Russian exports to the EU rose from 117 bcm in 2014 to 164 bcm in 2017 and now represents 44% of EU gas imports. Since 2014, EU LNG imports have bounced back and now represent 14% of EU gas imports.

![Figure 7 – EU gas supply](source: Cedigaz)

A sharp decline in EU gas production

EU production declined sharply over the period 2010-17 (from 205 bcm to 131 bcm), following the gradual depletion of conventional gas reserves, and this trend will continue. The decline is exacerbated by the drop in Dutch gas production since 2014. Following earthquakes in the Groningen region, whose frequency and intensity have worsened, the Dutch government has capped the output of the giant Groningen field. The output of the field, which produced 53.8 bcm in 2013 was capped at 42.5 bcm in the gas year 2014-15 (October-September) and the cap was drastically reduced since then (19.4 bcm for the gas year 2018-19). Moreover, in July 2018, the Dutch Parliament passed a bill, committing the state to reduce and ultimately stop production at the Groningen field as « quickly as possible ». Production at the Groningen field is now projected to drop below 5 bcm/year from 2023 before its production ceases by 2030.5

In addition, the production of unconventional gas (‘shale gas’) in Europe is not promised to significant development. In general, geological, geographic, societal and economic barriers hinder any significant development in Europe. Only the United Kingdom can now expect to develop its shale gas resources thanks to government incentive policies and potentially high (but still to be confirmed) resources.

Overall, EU28 gas production is projected to decline steeply to some 65 bcm by 2025 (half of current level) and to some 50 bcm by 2030, according to the IEA’s WEO2018. This is a sharp reduction compared to WEO2017,

5 Reuters, Groningen gas production to drop below 5 bcm per year from 2023, 14 November 2018
which projected EU gas production to decline to 91 bcm by 2025 and 85 bcm by 2030. In just one year, projections for EU production have been reduced by 26 bcm in 2025, a reduction that significantly raises short-term outlook for EU gas imports. It should be pointed out that recent discoveries in Cyprus could limit the reduction in gas production by the middle of the 2020s, although the timing of the production is still uncertain.

**Increased import dependence in the European Union**

The rapid decline in EU production suggests a steep increase in EU gas imports in the short and medium term even in a scenario of declining demand. To fill the gap between gas demand and production, the EU needs to increase its annual imports by some 50 bcm compared to 2017 to 407 bcm by 2025, a level which remains almost stable until 2030 (401 bcm).

![Figure 8 – EU gas import needs](image)

**Russian gas exports to the EU**

Between 2014 and 2017, Russia's exports to the EU increased by 46 bcm, more than offsetting the decline in Dutch production (26 bcm over the same period). They have allowed the north-western European market to absorb the sharp drop in Groningen production without significant price increases and thus secure the European energy supply at a lower cost, given the importance of the Dutch TTF prices as a reference for the European market, and increasingly for the global LNG market. In view of the projected sharp decline in European production, Gazprom's export growth could continue: the Russian group has huge gas reserves (35.4 trillion cubic meters at the end of 2017) and is developing fields in the Yamal region to make up for the natural decline of its mature fields in the Nadym-Pur-Taz region of Russia.

Increased competition in the European market has prompted Gazprom to adapt its strategy and adopt a more commercial approach in line with European market realities. Gazprom has reviewed its contracts with its main EU partners and incorporated hub pricing. The group has also reviewed its sales policy with Central and Eastern European buyers. Europe is indeed a key partner of the Russian group, accounting for two-thirds of its revenue from gas sales. Over the last three years, this strategy, which includes a commercial component and an

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6 Times of Israel, Israel, Cyprus, Greece and Italy agree on $7b. East Med gas pipeline to Europe, 24 November 2018
infrastructure component, has been reflected in the growth of gas exports to Europe. The alignment of Russian prices with market prices and the fall in the price of oil have made Russian gas very competitive in all its markets, allowing Gazprom to achieve record sales. In 2018, Gazprom’s gas exports to Europe (all countries including non-EU countries, and notably the large Turkish market) are expected to reach the 200 bcm mark, against 194 bcm exported in 2017. Gazprom has clearly indicated its willingness to maintain its share of the European gas market in the future. This share could even increase, according to Gazprom.7

Figure 9 - Gazprom’s sales to Europe and average export price

On the infrastructure side, Gazprom’s strategy involves optimizing transport and access routes to its main markets in Europe, with the construction of two direct routes to Germany and Turkey, both expected to be launched at the end of 2019. The pipelines bypass Ukraine, a key transit route for current Russian exports to Europe (87 bcm of Russian gas transited through Ukraine in 2018).

- **Nord Stream 2**: The pipeline is designed to carry up to 55 bcm/year from Russia to Germany directly. The pipeline will run across the Baltic Sea, for the most part following the route of the pre-existing Nord Stream 1 pipeline, which became operational in 2011. The pipeline still divides European countries and has attracted high-level opposition from the US, which has threatened sanctions against EU companies involved in the project. Construction of the offshore section of Nord Stream 2 began in September 2018 and Gazprom reiterated that the pipeline will be finished in time to start commercial deliveries by 1 January 2020 (although without specifying at which volumes). Given political opposition, as well as regulatory and permitting problems, operation at full capacity by 2021 or 2022 seem more likely.8

- **TurkStream**: The pipeline consists of two lines of 15.75 bcm/year each, the first string is dedicated to Turkey, the second to Southern Europe. The offshore section of the first string crossing the Black Sea was completed in November 2018. Full commissioning is expected at the end of 2019. Construction of the second string has begun, but the line still faces regulatory issues. Its entry point on the EU network has not been confirmed yet; the line is reported to join Bulgaria, from which gas would flow to Serbia, Hungary, Slovakia and the rest of Europe.9 The start of natural gas deliveries to Bulgaria and Serbia is projected in 2020, and it is anticipated that gas flows to Hungary will begin in 2021. Due to political opposition and regulatory issues, the second string is much likely to reach full capacity between 2021 and 2025, and effectively replaces 15.75 bcm/year of Ukrainian transit capacity.

7 Financial Times, Europe to boost Russian gas imports by 25% says Gazprom, 3 December 2018
9 Yeni Safak, Bulgaria reported as route choice for TurkStream 2 gas, 22 November 2018
Baltic LNG: The construction of an LNG export terminal on the Baltic Sea is also planned (Baltic LNG, with a capacity of 10 Mt/year of LNG, for which Gazprom has signed a joint venture agreement with Shell).

The Nord Stream 2 and TurkStream pipelines will add 86.5 bcm/year of export capacity and could between them cover almost all the 87 bcm Russia sent via the Ukrainian route to Europe in 2018. The transit contract between Gazprom and Ukraine’s Naftogaz expires at the end of 2019 and so far little progress has been made on its renewal, creating major uncertainty on EU gas supply in winter 2019-20. This will certainly boost EU gas imports in 2019 to fill underground gas storage to their maximum capacity.

The Yamal LNG project, operated by Novatek, which started in November 2017, should also be mentioned here as European LNG import terminals act as receiving terminals for Russian LNG imports, but also as a transshipment base for Russian LNG exports. Most of this activity has concentrated on Montoir LNG terminal in France and Rotterdam Gate LNG terminal in the Netherlands, but Zeebrugge in Belgium, Isle of Grain in the UK and Dunkirk in France are also used for transhipments of Russian LNG. A first ship-to-ship transhipment was also completed in Norway in November 2018. Transhipment allows Novatek and its partners to optimise transportation cost by transferring LNG from ice-breaker LNG tankers to conventional LNG tankers. This operation is also an opportunity for European LNG terminals to increase their utilization rates and for traders to optimize LNG trade flows. On the market side, the EU is able to take the cheapest LNG from Yamal, which has pushed out US LNG out of Europe. In the first ten months of 2018, only 0.75 Mt of US LNG was imported in the EU, while EU LNG imports from Russia totalled 2.4 Mt.

European LNG imports on the rise

After their decline from 79 bcm in 2010 to 36 bcm in 2014, EU LNG imports (net imports) have recovered and reached almost 52 bcm in 2017. The growth was substantial in 2017 (+15%) and the EU accounted for 22% of global LNG demand growth. Most of this activity occurred in Southern European states (including France), which registered a healthy 10 bcm growth. North-western European countries reduced their LNG imports (-3 bcm). First data for 2018 (based on the first ten months of 2018) indicate a stagnation of EU LNG imports, although this may change when final data are available as EU LNG imports started to increase after September 2018 when LNG prices softened from their peak in summer 2018 and closed the LNG price arbitrage between Europe and Asia. Despite the increase in global LNG supply, the European market has not been the “market of last resort” for LNG exporters as expected some few years ago when most analysts projected a global LNG over-supply. The predicted LNG over-supply has not materialised: strong Asian LNG demand has absorbed new global supply to date. The expectation of a wave of US LNG entering the EU market did not materialize either. Firstly, Russian gas imports were more economical for European buyers due to lower Russian gas prices. Secondly, LNG sellers (American and Qatari in particular) had other more lucrative markets than Europe. But things could be different in 2019. 2019 may see Europe finally playing its long-forecasted role of being a liquid market where suppliers, portfolio players and traders are able to market surplus LNG. Growth in Asian LNG demand is expected to slow down: Japan is increasing its nuclear power generation and China is going to start pipeline imports from Russia. Asia may not absorb the new LNG supplies coming on stream. Global LNG export capacity is expected to increase significantly over the period 2018-22. According to CEDIGAZ, total effective capacity10 from existing and under construction projects is expected to increase significantly from 290 Mtpa in 2017 to 387 Mtpa in 2022. The United States contributes 55% of this expansion over the five-year period, followed by Australia (28%) and Russia (15%). This will have major impact on the European gas market. Europe is expected to provide a growing outlet for new LNG supplies and to become more and more the global flexibility provider in LNG. Indeed, the EU has high unused import capacities, very liquid hubs, but generally offers lower prices than in Asia, the Middle East and Latin America. The EU had 27 LNG import terminals at the beginning of 2018 (large and small-scale terminals) with a total import capacity of 203 bcm/year.11 In addition, expansion and new terminals are currently under construction or planned (notably in Croatia, which today has no access to LNG).

The expected global LNG over-supply (which is anticipated to be a short-term phenomenon12) is likely to exacerbate competition between Russian gas and US LNG (and more generally between gas imported by pipelines and via LNG tankers). The capacity of European hubs to absorb LNG surpluses is indeed determined by the capacity of LNG to replace the flexible volumes of long-term contracts, notably Russian gas, whose contracts include significant flexibility. Competition between Russian gas and US LNG (which is not tied to any particular

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10 Effective capacity is the maximum LNG output given the current operating constraints
12 Only four new LNG projects have been sanctioned since 2016 (Coral, Corpus T3, LNG Canada, Tortue FLNG), this will not be sufficient to cover demand from 2022.
destination), depends on many factors, but ultimately on the price of gas delivered to Europe, and obviously on LNG demand by non-European LNG buyers. Some volumes of LNG, which were earlier directed to the premium Asian and other markets, are anticipated to return to Europe. However, demand for gas in Asia, including the new emerging markets, will be the main factor that will determine the availability of the new volumes of LNG. In terms of prices, the price of Russian gas is well below the long-run marginal cost (LRMC) of US LNG (about $7.5/MBtu in 2017), but close to the short-run marginal cost (SRMC) of US LNG (an average of $4.5 in 2017).

**Figure 10: Comparison of gas prices: import price from Russia, TTF and marginal costs of US LNG imports**

Sources: IMF, US EIA, Cedigaz
Conclusion: A growing role for LNG NOW!

In the short to mid-term, European LNG demand is expected to increase. The flexibility of the European electricity system, thanks to coal-to-gas switching, could ensure the clearing role of the global LNG market. Europe already took this clearing role at the end of the 2000s, when the EU absorbed a large part of the LNG bubble created by the shale gas revolution and the shift of the United States from a net importer to a net exporter. EU LNG imports increased from 42 bcm in 2005 to 79 bcm in 2010. Two other factors will increase EU LNG demand. Major energy companies are developing demand for LNG (mainly for road and maritime transport) and are building related infrastructure to support the growth. In addition, gas supply diversification policies and security of supply issues will increase LNG demand in some countries (notably Poland, Lithuania, Croatia), which have recently (or will) build LNG import capacity. These policies are promoted by the Commission’s Strategy for LNG and Gas Storage, which reinforces the role of LNG in Europe. The uncertainty about the renewal of the transit contract between Russia and Ukraine will also boost EU imports to maximize the filling of underground gas storage. Finally, Brexit could bolster UK imports of flexible LNG to secure supply, a trend reinforced by the closure of its only seasonal gas storage facility in 2017.

There is no consensus on the market share that LNG could take in Europe. This is conditional on the development of LNG demand by other regions, notably Asia and new emerging importers, but also competition in the European market and the response of exporters to the threat of a wave of LNG coming to Europe. CEDIGAZ projects EU LNG imports to grow to some 88 bcm by 2025, i.e. a growth of 36 bcm compared to 2017.13 In the next few years, the EU is therefore expected to regain, and even exceed, the level of its LNG imports at the beginning of the 2010s. Coal-to-gas switching and the substantial drop in EU gas production may help both pipeline gas and LNG suppliers to deliver more gas to the EU, as was seen in 2017.

13 CEDIGAZ, Medium and Long Term Natural Gas Outlook 2018, Armelle Lecarpentier, July 2018