

# LNG in Europe 2020: Current Trends, The European LNG Landscape and Country Focus

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## Overview

This article provides an overview of current trends in the European LNG market, describes the status of the pan-European LNG landscape, and looks at recent activities in individual European LNG-importing countries.

## Current Trends in the European LNG Market

### Before the Pandemic

The winter of 2018/2019 marked the beginning of a turbulent period for the global LNG sector as the combination of over-supply of LNG (partly due to new supply from the US) and weaker demand in Asia caused a significant drop in global delivered LNG prices. The trend towards an over-supply and low-price environment hit LNG suppliers (and LNG exporting countries) hard, however with 15 LNG importing countries, Europe was able to benefit from abundant lower-cost LNG supply. The continued convergence of global gas and LNG hubs prices – which really started in early 2015 – has allowed Europe's TTF and NBP markers to compete with Asia in attracting LNG volumes. Simultaneously, the ongoing reduction in Europe's indigenous gas production has resulted in the continued growth in demand for gas (including regasified LNG) imports across the Continent.

Europe's increasing prominence in the global LNG market continued throughout 2018, 2019 and the first quarter of 2020. Europe's 15 LNG importing countries (large- and small-scale LNG imports) collectively held a 15.6% share of the total global LNG import market (net of re-exports) in 2018, demonstrating a 6.4% rise on 2017. In 2019 these European importing countries increased their global market share of LNG imports to 24.2%, and the total volume of LNG imported into Europe increased by 75.6%. In fact, every European country with an LNG import terminal increased its LNG imports in 2019 compared to 2018. Qatar remained the largest exporter of LNG into Europe in 2019, followed by Russia and the US.

The trend of increasing volumes of LNG being unloaded at Europe's regasification terminals looked set to continue through 2020 despite a steep fall in wholesale gas prices globally during the second half of 2019 and in Q1 2020.

### Impact of COVID-19

The entire global LNG landscape changed as a result of COVID-19. Asia (notably China, Japan and South Korea) was first to experience a dramatic reduction in demand for LNG as the pandemic triggered a steep decline in economic and industrial activity in the region. Asian LNG buyers sought to reduce their offtake commitments under long-term LNG SPAs by rescheduling (or if possible cancelling) cargoes and exercising downward quantity mechanisms. As LNG storage tanks at Asian regasification terminals (particularly in China and India) reached "tank-top" a number of buyers claimed force majeure citing that they were physically unable to receive any more LNG.

Europe then followed Asia with a sudden and significant drop in demand for LNG due to COVID-19. Buyer force majeure claims were rare in Europe – partly because Europe’s LNG storage tanks had sufficient ullage to receive scheduled cargos, and also due to much of Europe having well connected and liquid gas hubs. US LNG was the real casualty when European gas prices hit record lows and LNG demand crumbled. 2018 and 2019 had marked a huge wave of US LNG imports into Europe – largely on a spot sale basis. However in May 2020 the European benchmark TTF price fell below the US Henry Hub leaving US suppliers facing negative value for LNG delivered into Europe. In that month, the US reportedly delivered just 14 LNG cargoes into Europe, effectively half of what was imported in March 2020 before the pandemic took hold.

As long-term LNG SPAs have evolved over the last five to 10 years they have provided increasing flexibility for buyers in terms of destination, rescheduling, quantity adjustments and, in some cases, cargo cancellations. However, the impact of COVID-19 for LNG sellers and buyers revealed that even the most sophisticated LNG SPAs don’t always adequately address “unforeseen” events – such as a pandemic. Buyer force majeure claims in Asia were rejected on the grounds that the pandemic did not in fact prevent delivery or acceptance of LNG. As the pandemic continues, particularly close scrutiny will be given to force majeure clauses in contracts across the LNG supply chain.

It is not in doubt that LNG will have a resurgence in Europe, however the speed of that resurgence will largely depend on the speed of economic recovery in Europe. Looking forward increased LNG supplies to Europe is also dependent on LNG competing with pipeline gas.

## **Role of LNG in the Europe’s Energy Transition**

The European Green Deal, approved by the European Parliament in January 2020, provides a framework for the EU’s energy transition with the aim of achieving net-zero greenhouse gas emissions by 2050. A European ‘Climate Law’ has also been submitted to the European Parliament and, when passed, will place binding commitments on EU Member States to achieve this net-zero target by 2050.

Gas (including regasified LNG) is being hailed as the “transition fuel” of the energy transition – in light of its lower carbon intensity compared to heavier fossil fuels. Gas may prove not to be “green enough” in the long term, but it is certainly “clean enough” to play an important and growing role in the European energy supply mix in the near and medium term. As Europe transitions from “dirty” fossil fuels (such as coal and oil) to renewable sources, gas bridges a gap by providing a reliable, non-intermittent source of energy. In turn LNG serves to diversify sources of natural gas imports into Europe.

Whilst pipeline gas from Russia and Algeria (amongst others) will continue to supply a large proportion of Europe’s natural gas, with the phasing out of coal-fired and lignite-fired power production across parts of Europe, and the continued decline of domestic natural gas production, a larger LNG industry in Europe is almost an inevitability.

## **Role of LNG in Power Generation: Coal-to-Gas Switching**

Historically, a number of European countries, particularly in North West Europe and Eastern Europe, have relied heavily on coal-fired power production, primarily due to an abundance of cheap domestic coal. Today a number of those countries have made clear commitments to switch from coal and lignite to gas – incentivised by relatively high prices for EU carbon allowances and lower gas prices relative to coal. According to the International Energy Agency the use of gas to switch from coal-based electricity production is the most effective way to immediately reduce greenhouse gas emissions by up to 45-55%. However, the switch is not always an easy one – the power plant will need to undergo major modification to convert from one source of feedstock to another, and it will need to be connected to a local gas grid. Nonetheless, the enthusiasm for switching coal-to-gas will increase demand for regasified LNG in parts of Europe.

Germany has committed to phase out coal-fired power production entirely by 2038 – which is a strong driver for Germany’s plans to develop its first LNG import terminal. Poland – one of Europe’s coal champions – has taken steps to replace coal-fired power generation with gas-fired power generation using regasified LNG from Poland’s Swinjouscie LNG terminal, as well as LNG transported to Poland by road trucks from Lithuania’s Klaipedia LNG terminal.

## **Bunkering and other Small-Scale Services**

The rise of smaller-scale LNG services has been a major development in Europe in recent years. These are services in addition to traditional liquefaction and regasification, and large-scale LNG reloads. As stringent environmental regulations are imposed on the maritime sector – notably the 0.5% sulphur cap adopted by the International Maritime Organization - an increasing number of ships are using LNG as a fuel, including cruise ships. LNG’s sulphur content is negligible (5 ppm max), e.g. 1,000 times lower than the IMO’s cap. LNG as a fuel for sea-faring vessels has contributed to the growth of LNG bunkering (or break-bulk) services being offered at many of Europe’s LNG terminals.

Land-based transportation of LNG by road trucks is also becoming an increasingly popular means of delivering smaller cargoes of LNG in inland Europe. PGNiG, the Polish gas company, has signed a five-year contract with Lithuania's Klaipeda LNG terminal for the entirety of its reloading capacity for the purposes of loading LNG trucks for onward shipment. This new avenue of LNG transportation is likely to grow further, allowing for more ad hoc LNG transportation throughout Europe, particularly in countries without extensive pipeline infrastructure.

Today, the majority of Europe's LNG terminals offer truck loading services and further truck loading stations are due to become operational in Greece and Italy. A number of Europe's LNG terminals already offer small-scale ship reloading services and these services will be provided at most of Europe's terminals within the next couple of years. In September 2020, the Zeebrugge LNG terminal carried out Europe's first rail loading service for delivery into Italy. Additional rail loading services are under development in Poland, and are being considered in France and Spain.

LNG Protocol – a platform for the LNG industry – has recommended that in Europe small-scale LNG infrastructure projects are classified as “sustainable” with the European Commission's Sustainable Finance Programme which provides funding to projects that achieve Europe's decarbonisation target. Such geo-political support for small-scale LNG projects would further boost Europe's small-scale credentials.

## Current European LNG Landscape

### Europe's Existing Regasification Capacity

The vast majority of Europe's LNG terminals are import facilities, with the only exceptions being in (non-EU) Norway and Russia which export LNG. There are currently 29 large-scale LNG import terminals in Europe. Of these, 21 are in EU countries (and therefore subject to EU regulation), three are in the UK (which left the EU on 31 January 2020 but remains subject to EU regulation at the time of writing), four are in (non-EU) Turkey and one is in Russia, 23 are land-based import terminals, five are floating storage and regasification units (FSRUs), and the one import facility in Malta comprises a floating storage unit (FSU) and onshore regasification facilities. Six of Europe's LNG terminals – South Hook, Dragon, Isle of Grain (all in the United Kingdom), Gate (in the Netherlands), Rovigo (in Italy) and Dunkerque (in France) – have been granted exemptions from EU rules on regulated third party access.

The current large-scale LNG receiving countries in Europe are Belgium (one terminal), France (four terminals), Greece (one terminal), Italy (three terminals), Lithuania (one terminal), Malta (one terminal), the Netherlands (one terminal), Poland (one terminal), Portugal (one terminal), Spain (seven terminals – six operational), Turkey (four terminals) and the UK (three terminals). Collectively, their overall LNG capacity is 237 billion cubic metres (of gas) (bcm), which is sufficient to cover approximately 40% of Europe's gas demand. Russia also has an LNG regasification terminal which is supplied entirely by Russian gas.

### Planned LNG Terminals in Europe

There are currently in the region of 20 large-scale LNG import terminals being considered or planned in Europe, all of which would be located within the EU, except the planned terminals in Ukraine (Odessa FSRU LNG), Albania (Eagle LNG) and Turkey (FSRU Iskenderun and FSRU Gulf of Saros). Small-scale LNG import projects are also being considered across the continent, including in Latvia. About half of these terminals would be “first of kind” in the importing country. By the same measure about half of the planned terminals are FSRUs.

## Country Focus

This section highlights some of the recent activities in individual European LNG importing countries.

### Belgium

Belgium's only LNG import terminal – Fluxys' 6.6 mtpa Zeebrugge terminal – provides storage, regasification, bunkering, cool down, reloading, trans-shipment and truck loading services. A fifth storage tank was commissioned in December 2019 to support trans-shipment of cargoes from Russia's Yamal LNG. Qatar Petroleum has signed up for the full capacity of the Zeebrugge LNG terminal from the end of current long-term unloading contracts until 2044, seemingly evidencing Qatar's growing commitment to the European LNG market. With this portfolio approach, Belgium has set an example for adapting infrastructures and services to an evolving LNG market. This strategy appears to have paid off with Belgium increasing its LNG imports by 167.5% in 2019 (compared to 2018) and the Zeebrugge terminal receiving LNG above its nameplate capacity in Q1 2020. In September 2020, the Zeebrugge terminal loaded its first LNG cargo onto rail for delivery into Italy.

## Croatia

The 2.6 bcm FSRU LNG terminal on Krk Island is under construction and due to become operational in January 2021. The facility's full capacity is booked until October 2023 and 2.1bcm of capacity has been sold for the period from October 2023 to October 2027. The investment costs for the terminal are being met by: (i) an equity injection of €32.2 million from the LNG terminal company shareholders – LNG Croatia d.o.o (owned by the Croatian state owned oil and gas company) and Plinacro d.o.o (the Croatian transmission system operator (TSO)); (ii) a €108 million grant from the EU's Connecting Europe Facility (CEF); and (iii) €100 million from the Croatian State Budget (which the European Commission approved as being compatible with EU State aid rules).

The EU Commission's support for the Krk Island project stems from its ability to get gas into Central and South-Eastern Europe – areas which have historically been dependent on Russian gas – and as such has been designated as a European project of common interest since 2013. The FSRU will deliver gas into Croatia's national transmission network which is connected to Slovenia, Italy and Hungary, as well as into other EU countries via non-EU Serbia and Montenegro.

## Cyprus

Construction began on the 2.5 bcm/y Cynergy FSRU to be located offshore in Vasilikos Bay, near Limassol, in July 2020. The facility is due to come on line in 2022 – marking the first delivery of gas in Cyprus. The approximately €300 million investment costs are being met by the EU with grants of €105.8 million (from CEF), €150m from the European Investment Bank, €10m (from the European Energy Programme for Recovery or EEPR) with the remainder from the participants in the import terminal. The Cypriot Natural Gas Public Company, responsible for administering the project, has received approximately 25 expressions of interest for the supply of LNG to the facility.

The Cynergy terminal is being designed so it can be converted into a liquefaction terminal if Cyprus gas becomes available. It is a converted LNG tanker that can be upgraded for LNG exports and may, in the future, also facilitate LNG bunkering.

## France

France has four LNG import terminals with (currently) a total capacity of 34.65 bcm/y – (i) Dunkerque, (ii) Montoir de Bretagne; (iii) Fos Cavaou and (iv) Fos Tonkin. In 2019, France was the second largest European LNG importer (after Spain). All four terminals now provide bunkering and truck loading services. The Fos Cavaou terminal is considering doubling its capacity to 13 MTPA which would require the construction of two additional storage tanks and one additional jetty. Capacity at the Fos Tonkin and Montoir-de-Bretagne facilities has now been entirely booked until 2028 and 2035, respectively.

## Germany

In addition to its commitment to phase out coal-fired power by 2038, Germany has committed to stop nuclear power production by 2022, and gas supply to Germany from the Groningen field is also due to end in 2022. As a result, three terminals are currently racing to be Germany's first LNG import terminal. The first is an up to 8 bcm/y onshore terminal at Brunsbüttel, near Hamburg which is being developed by German LNG Terminal GmbH – a joint venture between Gasunie, Vopak and Oiltanking. The Brunsbüttel terminal will offer regasification, large-scale reloading, small scale reloading and truck loading services. The second is an FSRU to be located near Wilhelmshaven, and the third is an onshore terminal to be located at Stade in northern Germany.

## Gibraltar

Gibraltar's first LNG terminal (small-scale) became operational in May 2019. Its purpose is to allow Gibraltar to convert from diesel-fuelled power generation to (regasified) natural gas power generation.

## Greece

Greece has one operational LNG terminal at Revithoussa. According to DESFA's 10-year Development Plan, the Revithoussa terminal will provide truck loading services by 2021 and small-scale reloading services by 2023. Greece imported 1.9bcm of LNG in H1 2020, benefiting from low spot prices. Gastrade is developing a second facility in Greece – an FSRU which will be stationed 17.6 km offshore the town of Alexandroupolis in Northeastern Greece. The FSRU will have a nominal regasification and send-out capacity of 5.5 bcm per year and a peak send-out capacity of 22.8 million cubic meters per day. The project is included in the European Union list of Projects of Common Interest and is fully licensed.

## Italy

Italy has three LNG import terminals – (i) the FSRU OLT Toscana Terminal; (ii) Adriatic LNG; and (iii) the Panigaglia terminal at La Spezia. The Panigaglia facility's storage capacity is currently being expanded. In 2019 Italy was Europe's fourth largest LNG importer. A fourth terminal is being developed at Porto Empedocle in Sicily which will have a nominal send-out capacity of 6 MPTA.

## Lithuania

Lithuania has one LNG terminal - the Independence (Klaipeda) FSRU. In 2019 LNG imports to Lithuania increased by 133.2% compared to 2018 showing significantly higher utilisation rates – largely due to high levels of spot cargoes acquired from the US. The terminal continues to play an important geo-political role by reducing Eastern Europe's dependence on gas from Russia. The Independence FSRU is currently leased by state-owned Klaipedos Nafta from Norway's Høegh LNG until 2024 when it will be acquired by Klaipedos Nafta. The terminal offers bunkering and truck loading services. In November 2019 PGNiG, the Polish gas company, signed a contract for the full truck reloading capacity for a five-year term.

## Netherlands

The Netherlands has one LNG import terminal – the Gate terminal – in the Port of Rotterdam. The Gate terminal provides bunkering services and truck loading services. The Gate terminal had a record 2019, unloading and reloading 171 cargoes, an increase of 67 cargoes on the previous year. In fact, the Netherlands was Europe's fifth largest LNG importer in 2019, and had the highest increase in imports in 2019 (compared to 2018) of any European country – a staggering 186.7% increase.

## Poland

Poland's 5 bcm/y Swinoujscie terminal has received €332 million of EU funding – €130 million from EEPR and €202 million from the European Regional Development Fund – showing the EU Commission's commitment to diversifying sources of energy supply in Eastern Europe and to reducing the region's dependency on Russian gas. The capacity of the Swinoujscie terminal is due to rise to 7.5 bcm/y by 2023. Poland plans a 5bn m<sup>3</sup>/yr FSRU offshore Gdansk by 2025.

## Portugal

Portugal has one LNG import terminal located at Sines. The terminal provides truck loading services and carried out its first LNG bunkering in March 2020. Portugal increased its LNG imports by 44.4% in 2019 compared to 2018.

## Spain

Spain's six operating LNG terminals account for almost one third of Europe's LNG import capacity. In 2019 Spain hung on to its title as the EU largest importer, importing 35.67 bcm of LNG which marked an 11 year high. This increase ended a 10 year period in which Spain's LNG terminals only showed small increases in import levels. The illiquidity of the Spanish gas market is one of the key reasons for Spain failing to attract a larger share of the additional LNG volumes coming into Europe: the Spanish gas hub has much lower traded volumes than other gas hubs in Western Europe. The range of Pyrenees mountains between Spain and France poses obstacles to building gas pipeline infrastructure which would better connect the Spanish gas market to the rest of Europe.

Spain is leading the way in small-scale LNG services. Two LNG bunkering projects in Barcelona and Algeciras have received €27m of funding via the EU's Connecting Europe Facility, demonstrating the EU's intention to reduce pollution in the maritime sector by replacing heavy fuel oil with LNG.

## Turkey

Turkey has four LNG import terminals: two onshore terminals (Aliaga (Etki) and Dortyol) and two FSRUs (Aliaga (Izmir) and Marmara Ereglisi). In 2019, Turkey imported 12.7bcm of LNG, an all-time high, and in 2020 has been an active player acquiring cheap spot-market cargoes from the US in addition to its long term suppliers: Algeria, Qatar and Nigeria.

## UK

The UK has three large-scale LNG import terminals – Isle of Grain, South Hook and Dragon. The UK receives virtually all of its LNG deliveries on a spot (rather than long-term) basis allowing it to be flexible on its LNG import levels. It increased its LNG imports by 173.7 % in 2019 compared to 2018, becoming Europe's third biggest importer behind Spain and France.

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