LNG in Europe 2016/2017: An Overview of LNG Import Terminals in Europe

Gate terminal, Netherlands

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Overview of LNG in Europe

Gas is a key source of energy supply to Europe, and plays a fundamental role in Europe's energy supply mix. Europe is a net importer of gas, which enters Europe in one of two ways: as natural gas which is transported via pipeline, or as liquefied natural gas (LNG) which is regasified in an LNG import (or regasification) terminal. This report provides an overview of the large-scale LNG import terminals in Europe today – existing, under construction and planned – and the services provided at Europe's existing LNG import terminals.

Europe's Role in the Global LNG Market: Today and in the Future

In 2015 Europe regained its position as a viable and commercial market for global LNG. Following five years of decline in LNG imports to Europe between 2009 and 2014, Europe's net imports of LNG increased by 15.8% in 2015 to 37.6 million tonnes – slightly above their level in 2005. Almost half of this increase (2.4 million tonnes) is attributable to the lower number of reloads at Europe's LNG import terminals – particularly in Spain. Other factors contributing to the increase were a dramatic slowdown of demand for LNG in Asia, the convergence of European LNG prices and the Asian LNG spot price, increased regional demand, and declining levels of domestic production across Europe. While the surge in LNG imports continued in many of Europe's LNG import terminals across the first half of 2016, European LNG demand began to lag across much of Europe in the second half of 2016 – with France and Spain being notable exceptions – as Europe turned to increased imports of piped gas. Notwithstanding this overall slowdown in LNG imports to Europe in the second half of 2016, LNG is widely tipped to become Europe's choice of fuel over the coming years, with some forecasts that LNG imports into Europe may double from 2015 levels.

Overview, Cont'd.

The increase in the supply of LNG to Europe in 2015 and the first half of 2016 was led by the UK and Italy, with other significant increases in Spain and Belgium. Greece, Portugal, The Netherlands and Sweden (which has only small-scale LNG capacity) demonstrated more moderate increases in net LNG imports. Net LNG imports in France and Turkey fell slightly over the same period; however, imports to France picked up significantly over the second half of 2016 as a result of nuclear outages. Between August 2016 and October 2016, France and Spain were Europe's largest LNG importers - both importing 36 cargoes. Qatar was the largest exporter of LNG to Europe in 2015/2016 followed by Algeria, Nigeria and Norway.

Europe's LNG terminals have the capacity to absorb much of the anticipated global LNG supply glut, and if European LNG prices remain competitive, it is expected that Europe will take on an increasingly important role as the LNG market of last resort. The growing role of LNG in Europe's energy mix could have far-reaching implications for the region: European gas pipeline prices are likely to have to compete with LNG prices, and the regional nature of Europe's gas markets is likely to erode. Gas produced from LNG will offer an alternative to coal and nuclear for power generation, and will help to balance a growing reliance on renewable energy in parts of Europe.

The EU Commission (the EU's executive body) sees the import of LNG as essential in achieving its objective of diversifying sources of energy supply to its Member States, and as an important part of the EU's future energy mix, and has commenced implementation of a strategy to make sure all EU Member States have access to LNG. The EU Commission is also encouraging the use of LNG as a maritime fuel because of its more environmentally friendly properties.

Overview, Cont'd.

Evolving Use of Europe's LNG Terminals and Small-Scale Activities

All of Europe's existing LNG import terminals were developed as traditional import terminals where LNG is regasified and put into the national gas supply network. Largely as a result of oversupply and low margins, many of Europe's LNG import terminals have sought to create new demand opportunities by introducing new services at traditional LNG import facilities. Many European import terminals have adapted, or are adapting, their facilities to provide new services to customers that increases the flexibility of LNG. These new services often allow LNG to be moved to other markets, and include (i) ship reloading – the transfer of LNG from the terminal into a vessel (including smaller ships); (ii) trans-shipment – the direct transfer of LNG from one vessel to another; (iii) bunkering – the loading of LNG onto bunkering ships for supply to LNG-fuelled ships; (iv) truck loading – the loading of LNG onto tank trucks that transport LNG in smaller quantities; and (v) cooling-down and gassing-up service – making use of LNG to cool down and gas up ships. Rail loading (i.e., the loading of LNG onto railcars) is not yet offered in Europe but is being considered at a number of Europe's LNG import terminals.

The table below shows the new LNG services offered at the EU's operational LNG terminals in 2015 (in addition to regasification).[1]

Country	LNG Terminal	Reloading	Trans-shipment	Loading of bunkering ships	Truck loading	Rail loading
Belgium	Zeebrugge	✓	✓	✓	✓	
France	Fos Tonkin	✓		✓	✓	under study
	Montoir	✓	✓	✓	✓	under study
	Fos Cavaou	✓	✓	✓	✓	
	Dunkerque	✓		under study	under study	
Greece	Revithoussa	under study		under study		
Italy	Panigaglia	under study		under study	under study	
	Rovigo/Adriatic	under study				
	OLT Toscana					
Lithuania	Klaipėda	✓		available from 2017	available from 2017	
The Netherlands	Gate	✓	✓	✓	✓	under study
Poland	Świnoujście	under study	under study	under study	✓	under study
Portugal	Sines	✓			✓	under study
Spain	Barcelona	✓		under development	✓	under study
	Cartagena					
	Huelva	✓		under study	✓	
	Bilbao	✓			✓	
	Murgados	✓	under study	✓	✓	
United Kingdom	El Musel	✓	under study	under study	✓	
	Grain	✓	✓	available from 2016/2017	✓	
	South Hook					
	Dragon					

[1] *Source: Gas LNG Europe*

Overview, Cont'd.

Europe's Existing LNG Regasification Capacity

All of Europe's LNG terminals are import facilities, with the exception of (non-EU) Norway and Russia, which export LNG. There are currently 25 large-scale LNG import terminals in Europe. Of these 25 large-scale LNG import terminals, 23 are in EU countries (and therefore subject to EU regulation), two are in Turkey (which is a candidate for EU membership), 22 are land-based import terminals, and three are floating storage and regasification units (FSRUs).

Europe's existing regasification terminals show a balanced distribution along Europe's coastline, with most of them situated in Northwest and Southwest Europe. The current LNG receiving countries in Europe are Belgium, France, Greece, Italy, Lithuania, Netherlands, Poland, Portugal, Spain, Turkey and the UK.

By the end of 2016, total regasification capacity in Europe's 25 large-scale LNG terminals was 216 billion cubic meters (bcm), which is sufficient to cover approximately 40% of Europe's gas demand. Two new European LNG import terminals are currently under construction in Spain (Tenerife and Gran Canaria), and with the addition of these terminals the annual regasification capacity in Europe will increase to almost 220 bcm/year as of 2018. Europe's regasification capacity will also grow quite significantly by 2021 as a result of expansions that are underway or planned at some of Europe's existing LNG import terminals. In 2016 Spain's LNG terminals accounted for the highest regasification capacity in Europe (six operational terminals with a total combined capacity of 61.9 bcm/year, and a further terminal in hibernation with a capacity of 7 bcm/y), followed by the UK (three operational terminals with a total combined capacity of 42.7 bcm/year) and France (four operational terminals with a total combined capacity of 34.65 bcm/year).

Planned European LNG Import Terminals

There are currently in the region 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), Russia (Kaliningrad LNG), Albania (Eagle LNG) and Turkey (Aliaga LNG) – the latter two countries being candidates for EU membership. Many of these planned import terminals are in countries with existing regasification capacity, including Greece (where two additional import terminals are planned – Kavala FSRU and Alexandroupolis), Italy (which is considering or planning four additional terminals – the Falconara Marrittima FSRU, Porto Empedocle in Sicilia, Gioia Tauro LNG in Calabria and Trieste LNG), Turkey (Aliaga LNG), and the UK (which is planning the Port Meridian FSRU LNG project, and possibly another FSRU in Anglesey). Nine of the planned terminals will represent the first large-scale LNG import terminal for each of Albania (Eagle LNG), Croatia (Krk Island), Estonia (Muuga [Tallinn] LNG and Padalski LNG), Ireland (Shannon LNG), Latvia (Riga LNG), Malta (Delimara LNG), Romania (Constanta LNG) and Ukraine (Odessa). Seven of the planned terminals will be floating facilities (FSRUs): Albania, Croatia, Greece, Ireland, Malta, Romania, Ukraine and the UK. The floating storage unit (FSU) Armada LNG Mediterrana arrived in Malta in September 2016 to provide storage and supply gas to Malta's new Delimara LNG import facilities. In addition, there are numerous plans for expansion of existing terminals or terminals currently under construction, including in Belgium, France, Greece, Italy, the Netherlands, Poland, Spain, Turkey and the UK.

Overview, Cont'd.

Regulation of European Import Terminals

The European Commission has introduced three successive directives designed to facilitate competition, create a single Europe-wide gas market, and provide a clear and stable regulatory environment for Europe's gas sector. In Directive 2009/73/EC of the European Parliament and of the Council (the "Third Gas Directive"), the European Commission introduced further measures requiring member states to provide open access to gas infrastructure (including LNG terminals) on fair, transparent and nondiscriminatory terms. The conditions and tariffs of third-party access (TPA) to regulated LNG terminals must be published by terminal operators, as well as approved by the national regulator.

Like its predecessor, the Third Gas Directive anticipates a system of regulated third-party access to LNG receiving terminals, and requires LNG terminals in the EU to provide transparent and nondiscriminatory access arrangements. Developers of new import facilities and existing import facilities for which new capacity is being developed may obtain an exemption to such TPA requirements from the national regulator if the project satisfies certain criteria. So far, exemptions to the TPA regime have been granted to six of the EU's operating LNG regasification terminals: three in the United Kingdom (Grain LNG, Dragon LNG and South Hook LNG), one in France (Dunkerque), one in Italy (Rovigo) and one in the Netherlands (Gate). Where a TPA exemption has been granted, the owner of the LNG terminal can negotiate contracts directly with its primary shippers/customers; however, the national regulator monitors anti-hoarding mechanisms, and ensures that shippers have access to a sufficiently transparent secondary market. The number of active LNG shippers is higher in terminals subject to regulated TPA than in TPA-exempt terminals.

King & Spalding: Lawyers to the LNG Industry

Our LNG Practice and Team

King & Spalding's LNG practice is one of the most active and experienced in the world. Our team is deep, with more than 100 lawyers who regularly handle LNG matters, and we have been counseling clients on LNG projects, transactions and disputes globally from the early 1990s through the industry's recent unprecedented growth. In addition, many of our team members have served in key in-house roles at leading global energy companies and as leaders of energy industry trade groups, providing us with more than two decades of unique insight into the commercial aspects of the LNG business.

King & Spalding has expertise in every aspect of the LNG field, from upstream projects and liquefaction to construction, financing, shipping, LNG sales, import projects (land-based and FSRUs) and downstream gas marketing. We are also extremely active in the evolving LNG-to-power sector, and have significant experience advising on a number of current LNG FSRU projects and transactions, acting both for FSRU owners/operators and for charterers/customers.

Chambers Asia Pacific said of us: "They have first-class LNG industry experience and are extremely knowledgeable in their respective fields. They focus on understanding their clients' needs, and on providing strong negotiation support."

Chambers Global 2016 ranks King & Spalding among the top firms for energy and projects globally, as well as in regions and countries including Africa, Asia Pacific, Latin America, the Middle East, Russia, Singapore, India, Indonesia, the United Arab Emirates, the UK and the US.

Import Terminal Experience

The King & Spalding LNG team has significant expertise in LNG import terminal development. Our lawyers have advised a range of clients on key aspects of LNG import terminal projects, in particular:

- commercialisation of terminal capacity;
- time charter parties for FSRUs;
- port liability and risk allocation;
- regulatory approvals and permits for the facility;
- arrangements for the engineering, procurement and construction of the facility;
- project financing of the facility.

Our recent LNG import (including FSRUs) experience includes:

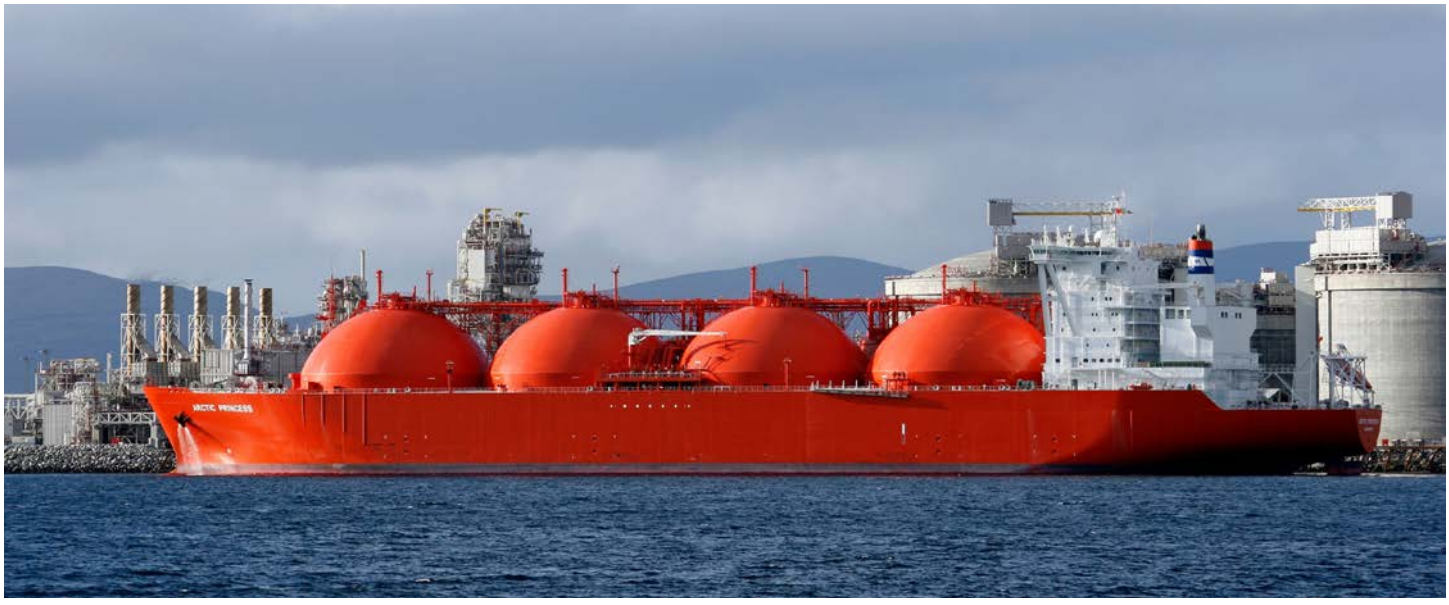
- Representing **Gate terminal B.V.** on LNG supply and transportation arrangements for the commissioning of the first LNG import terminal in The Netherlands.
- Representing the **Singapore government** on all aspects of the first multiuser, multiuse LNG import terminal to be built in Singapore, from the EPC agreement and related construction issues to LNG purchases, terminal use agreements and downstream gas sales agreements.
- Advising **Ghana National Petroleum Corporation** (as national gas aggregator) in connection with two proposed regasification terminals (offshore Tema and in Takoradi port) in Ghana, including the related FSRU terminal use agreement, LNG purchase agreements and gas sales agreements.
- Advising **Hawaii Gas** on all aspects of the development of the first LNG import terminal infrastructure (including the services of an LNG FSRU) in Hawaii's history, including procurement of LNG.
- Advising a joint venture between **two Uruguayan government entities** on the development of a floating LNG import terminal.
- Advising **Antillean Gas Ltd** on the development of an LNG import project in the Dominican Republic.
- Advising on the time charters for the **Energy Bridge LNG fleet (now Excelerate)**, the world's first onboard LNG regasification vessels.

King & Spalding: Lawyers to the LNG Industry, Cont'd.

Other Recent LNG Experience

Other recent LNG experience includes:

- Advising **Noble Energy** on the proposed LNG export project in Cyprus, which would be the first LNG export project in the EU. Our work was groundbreaking because we advised on the following EU law issues for the first time in the context of an LNG export project: (i) public procurement, (ii) state aid, (iii) merger control, (iv) third-party access under the Third Gas Directive and (v) joint selling.
- Representing **Anadarko** with respect to the development, sales, construction and shipping arrangements for a world-scale LNG export project in Mozambique, one of the largest infrastructure developments in Africa.
- Representing **Progress Energy/Petronas** in connection with its LNG export project under development in British Columbia, Canada.
- Representing **Pacific LNG Operations** in connection with the development and $900 million+ sale of its interest in the Interoil LNG export project in Papua New Guinea.
- Serving as counsel to **Statoil** on the development of an LNG export project in Tanzania.
- Representing **Freeport LNG** on the three-train liquefaction project in Freeport, Texas, including negotiation of tolling agreements with Osaka Gas, Chubu Electric, BP, SK and Toshiba.
- Representing **Cheniere Energy** in the drafting and negotiation of the multibillion-dollar EPC agreement and LNG license for liquefaction facilities at Sabine Pass LNG.
- Representing **Union Fenosa Gas** on its arbitrations related to the loss of gas supply to the Damietta LNG project in Egypt.
- Representing **Angola LNG** in relation to commencement of commercial operations of its LNG export project.



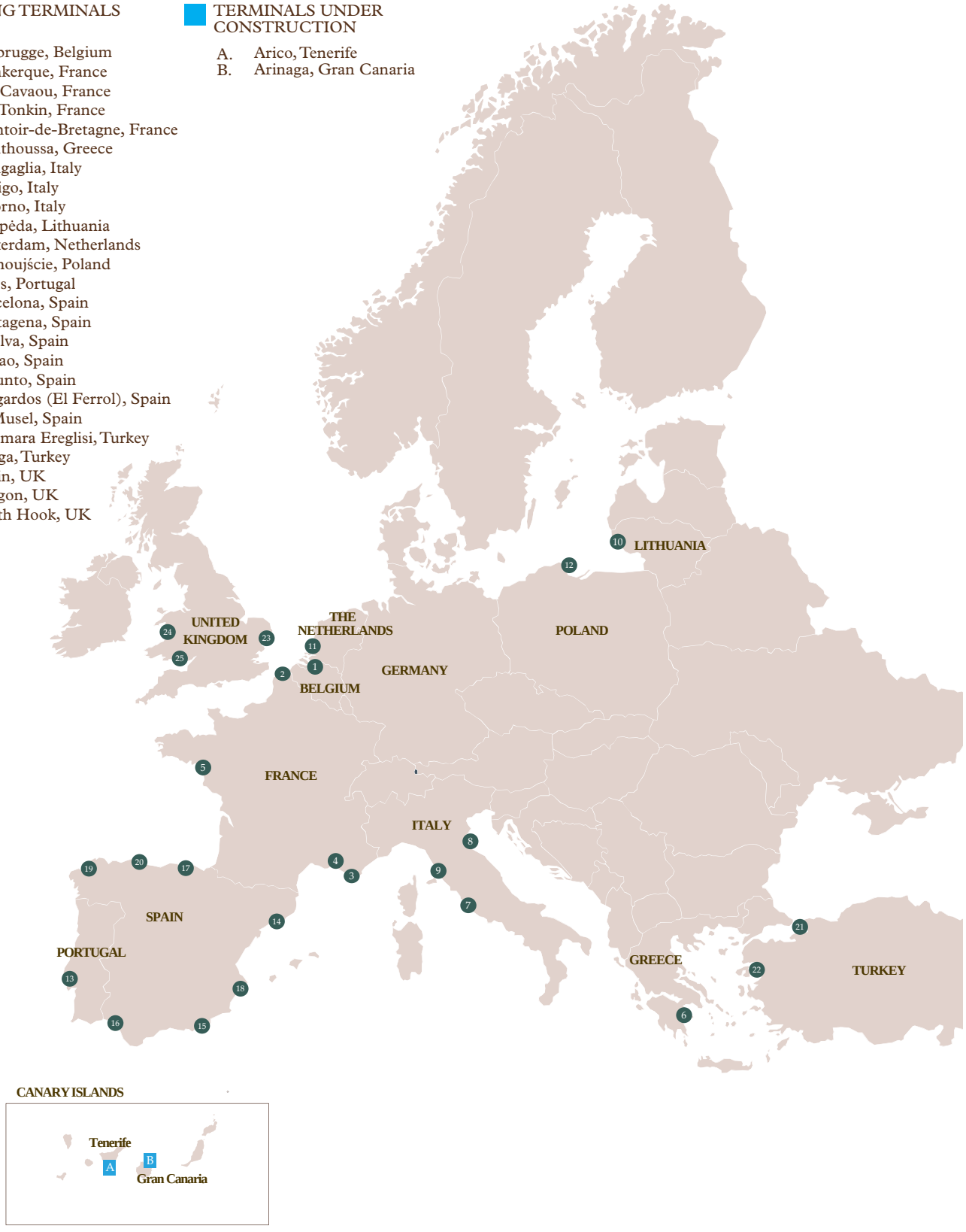
LNG Import Terminals in Europe

EXISTING TERMINALS

1. Zeebrugge, Belgium
2. Dunkerque, France
3. Fos Cavaou, France
4. Fos Tonkin, France
5. Montoir-de-Bretagne, France
6. Revithoussa, Greece
7. Panigaglia, Italy
8. Rovigo, Italy
9. Livorno, Italy
10. Klaipėda, Lithuania
11. Rotterdam, Netherlands
12. Świnoujście, Poland
13. Sines, Portugal
14. Barcelona, Spain
15. Cartagena, Spain
16. Huelva, Spain
17. Bilbao, Spain
18. Sagunto, Spain
19. Mugardos (El Ferrol), Spain
20. El Musel, Spain
21. Marmara Ereglisi, Turkey
22. Aliaga, Turkey
23. Grain, UK
24. Dragon, UK
25. South Hook, UK

TERMINALS UNDER CONSTRUCTION

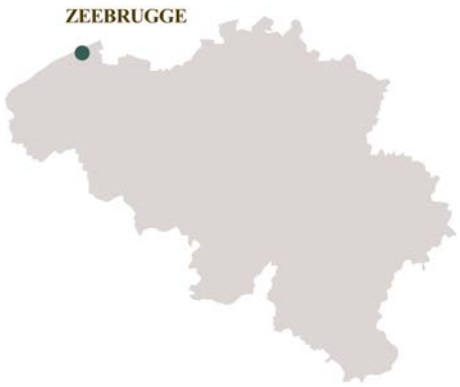
A. Arico, Tenerife
B. Arinaga, Gran Canaria



The following pages describe the large-scale LNG import terminals that are either currently operating or under construction in Belgium, France, Greece, Italy, Lithuania, the Netherlands, Poland, Portugal, Spain, Turkey and the United Kingdom.

Belgium

Belgium does not produce any natural gas and relies entirely on imports to supply its gas needs. Gas imports into Belgium are fairly diversified by origin and type of supply: The Netherlands and Norway are the principal pipeline suppliers, each providing about a third of total gas imports. Both the Zeepipe, which brings piped gas from Norway, and the Interconnector gas pipeline between Belgium and the UK, both land at Zeebrugge. LNG is imported into Belgium through its sole LNG terminal in Zeebrugge, which came into service in 1987. In 2015 Belgium imported 1.86 million tonnes of LNG, which represented an increase of 1 million tonnes (89.7%) compared with 2014, as Belgium took advantage of the low oil-linked price of LNG from Qatar.



Due to its geographical location between the sources of European gas to its north and west and their primary markets to the south and east of Belgium, and its developed infrastructure, Belgium is a major hub for gas supply in Europe, with some 80 bcm transiting the country each year, compared with domestic consumption of just over 17 bcm/ year. It has a robust transport network that is well integrated with other countries through 18 entry points.

Zeebrugge Terminal

The Zeebrugge LNG terminal is located along the northern part of the Belgian coastline and is built on a man-made island. It is owned and operated by Fluxys LNG SA. The terminal came into operation in 1987, initially having a single jetty, three storage tanks and send-out facilities. Between 2004 and 2007 the terminal was expanded to include a fourth storage tank and increased send-out capacity. Testing and commissioning of a second jetty were completed at the end of 2016. The second jetty can accommodate both small and large LNG carriers. The terminal is one of the few in the world that can accept all types of LNG carriers, from the smallest bunker ships to Q-Flex and Q-Max types.

LNG unloaded at the terminal can be regasified to be traded or consumed as natural gas within Belgium, or supplied to other end-consumer markets in any direction (UK, The Netherlands, Germany, Luxembourg, France and Southern Europe), or traded on the Zeebrugge Hub.

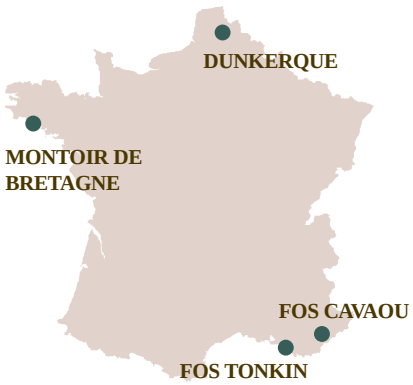
Between 1987 and 2007 all the capacity in the terminal was contracted by Distrigas (now a subsidiary of Eni), and all LNG was supplied from Algeria by Sonatrach under a 20-year supply contract. In 2004, in anticipation of the termination of the Sonatrach contract, Fluxys LNG concluded 20-year capacity reservation agreements with three terminal users for a combined annual throughput capacity of about 9 bcm/year, for the period 2007 to 2027: (i) Qatar Petroleum and Qatar Terminal Limited (a subsidiary of ExxonMobil) for 4.5 bcm/year, (ii) Distrigas for 2.75 bcm/ year, and (iii) Tractebel Global LNG (a Suez subsidiary) for 1.8 bcm/year. Although the terminal's entire capacity is sold on a long-term basis, shippers can go to the secondary market, which is functioning well.

Belgium, Cont'd.

The Zeebrugge LNG terminal is increasingly active in small-scale LNG. LNG loading services started at the terminal in 2008, and in 2010 the loading of LNG trucks for LNG transportation to truck fueling stations commenced. The terminal's truck loading facility has capacity to accommodate more than 3,000 LNG truck loadings a year. Since January 2015 smaller ships have been loaded to supply remote industrial end users and to supply LNG as a fuel for ships and trucks. At present, the majority of LNG used as a fuel for shipping and road haulage in Northwest Europe is loaded at Zeebrugge. In late 2016 Engie started operating its 5,100 m^3 bunkering vessel at Zeebrugge. Engie's LNG bunkering operations out of Zeebrugge will be the basis of a joint venture with Gas4Sea (a joint venture between NYK Line and Mitsubishi) that will market LNG as marine fuel. Fluxys is considering building a third jetty for small-scale needs as a result of its booming small-scale business (when compared with cargo imports and reloads).

EXISTING TERMINAL:	***Zeebrugge***
START-UP DATE:	1987
OWNER:	Fluxys LNG
OPERATOR:	266,000 m^3
VESSEL SIZE:	current: 380,000 m^3, by 2019: 560,000 m^3
STORAGE CAPACITY:	current: 9 bcm/year, by 2019: 12 bcm/year
SEND-OUT CAPACITY:	Qatar Petroleum/Qatar Terminal Limited (4.5 bcm/year), (ii) Distrigas (2.75 bcm/year) and (iii) Tractebel Global LNG (1.8 bcm/year)
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, reloading, transshipment, loading of bunkering ships, truck loading, small ship loading, cooling down and gassing up

France



France produces about 1% of the gas it consumes, and almost all gas consumed in France is imported. France's total natural gas imports are relatively well diversified with significant imports from Norway, The Netherlands, Russia and Algeria. About 72% of the entry capacity to the French gas network is for cross-border gas pipelines, and the remaining entry capacity (about 28%) is for gas from France's four existing LNG import terminals. France has historically been Europe's second largest importer of LNG (after Spain). However, in 2015 LNG imports to France fell to 4.77 million tonnes compared with 5.07 million tonnes in 2014 due to higher imports of gas from Norway by pipeline and higher withdrawal from France's gas storage facilities.

France has four operational large scale on-shore LNG import terminals: Fos Cavaou and Fos Tonkin near Marseilles, and Montoir-de-Bretagne on the Atlantic coast, which are operated by Elengy (a subsidiary of Engie) under a common set of rules, and Dunkerque (in northwest France), which started up in late 2015 and is owned and operated by Dunkerque LNG (a company 65% owned by EDF, 25% by Fluxys and 10% by Total). Plans by Vopak and Shell to develop a fifth LNG import terminal at Fos-sur-Mer (known as Fos Faster LNG) were abandoned in 2015.

Dunkerque

The Dunkerque LNG terminal received its first cargo of LNG in July 2016 for commissioning, and came into commercial operation at the end of September 2016. The terminal has a jetty large enough to enable the unloading/reloading of the largest LNG carriers (267,000 m^3) and three storage tanks, each capable of storing 190,000 m^3 of LNG. The terminal is operated by Gaz-Opale, a company 51% owned by Dunkerque LNG and 49% by Fluxys.

The European Commission granted the Dunkerque terminal a full exemption from third-party access for 20 years. The exemption is subject to a number of conditions surrounding capacity allocations, including that EDF and its subsidiaries are not allowed to subscribe more than 8 bcm/year of long-term regasification capacity. The plant's capacity is contracted by EDF (60%) and Total. EDF has contracted with Cheniere Energy to supply LNG from its Sabine Pass liquefaction complex in the US.

The terminal is connected to both the French and Belgian gas distribution networks, and is capable of meeting about 20% of the two countries' annual gas demand. This link between Dunkerque and the Zeebrugge area contributes to the diversification of supply sources in North-Western Europe. Currently the terminal only offers regasification and reloading services; however, loading of bunkering ships and truck loading services are under study.

EXISTING TERMINAL:	***Dunkerque***
START-UP DATE:	2016
OWNER:	Dunkerque LNG (65% EDF, 25% Fluxys, 10% Total)
OPERATOR:	Gaz-Opale (51% Dunkerque LNG, 49% Fluxys)
VESSEL SIZE:	from 15,000 m^3 to 267,000 m^3
STORAGE CAPACITY:	570,000 m^3
SEND-OUT CAPACITY:	13 bcm/year
TPA REGIME:	Exempted
SERVICES:	Regasification, reloading; loading of bunkering ships and truck loading are being considered

France, Cont'd.

Fos Cavaou Terminal (Fos-sur-Mer)

The Fos Cavaou (Fos II) LNG terminal opened in 2010. It is located along the main LNG transport routes, and can easily receive gas from countries and regions such as Egypt, Algeria and the Middle East. The terminal is owned by Fosmax LNG, which is a joint venture between Elengy (71.99%) and Total (28.01%), and is operated by Elengy. Its regasification capacity of 8.25 bcm/year is equivalent to about one-sixth of France's annual gas consumption. Elengy is currently contemplating a possible expansion of the terminal (called the CAPMAX Project), which would double the terminal's send-out capacity.

Long-term subscriptions represent 90% of the terminal's capacity, and the remaining 10% of capacity is available for subscription on the basis of short-term contracts. A number of shippers have contracted for capacity on a long-term basis, including EDF, GDF Suez and Total. Shippers with long-term contracted capacity at the terminal may (on application to Fosmax LNG) assign all or part of their contracted capacity to the secondary market.

The Fos Cavaou terminal has offered reloading services since 2012. It has also offered a transshipment service since December 2015.

EXISTING TERMINAL:	***Fos Cavaou***
START-UP DATE:	2010
OWNER:	Fosmax LNG
OPERATOR:	Elengy
VESSEL SIZE:	from 15,000 m^3 to 267,000 m^3
STORAGE CAPACITY:	current: 330,000 m^3, by 2020: 550,000 m^3
SEND-OUT CAPACITY:	current: 8.25 bcm/year, by 2020: 16.5 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, ship loading, small ship loading, transshipment, truck loading, cooling down and gassing up

Fos-Tonkin Terminal

The Fos-Tonkin terminal is located 50 km west of Marseille. It started commercial operations in 1972, and was one of the first LNG terminals in Europe. Since then it has received over 5,500 ships. The terminal has send-out capacity of 3.4 bcm/year – which has been reduced to 3 bcm/year since April 2015. A €30 million renovation project has been undertaken since 2012 so that the terminal can operate until 2020. Elengy is set to make a decision in 2017 on the post-2020 future of the terminal.

Numerous shippers have signed LNG terminal access contracts for access to Elengy's Fos-Tonkin and Montoir-de-Bretagne terminals. Elengy offers different regasification services to shippers depending on their subscription and/or their requirements.

Since June 2015 the Fos-Tonkin terminal has offered LNG truck loading services for up to four trucks a day, and in July 2016 Elengy announced that it had doubled the capacity of the LNG truck loading facility at the terminal to accommodate eight trucks per day (up to 2,200 trucks a year). The terminal is considering the introduction of rail loading services, as a railway is available.

France, Cont'd.

EXISTING TERMINAL:	*Fos-Tonkin*
START-UP DATE:	1972
OPERATOR:	Elengy
VESSEL SIZE:	from 7,500 m^3 to 75,000 m^3
STORAGE CAPACITY:	150,000 m^3
SEND-OUT CAPACITY:	3.4 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, reloading, truck loading, small ship loading and cooling down and gassing up; rail loading is being considered.

Montoir-de-Bretagne Terminal

The Montoir-de-Bretagne LNG terminal is located on France's Atlantic coastline and was commissioned in 1980. Until 2005 it was the largest import terminal in Europe with a regasification capacity of 10 bcm/year. It has a storage capacity of 360,000 m^3 and handles around 100 tanker shipments a year.

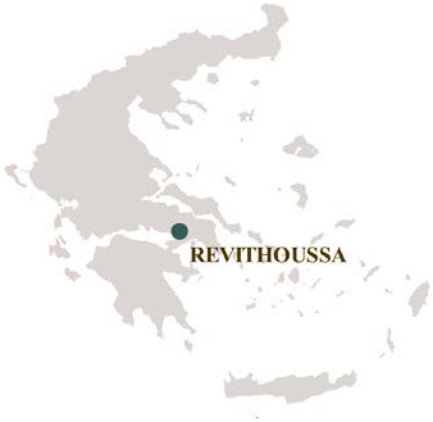
Since 2013 the terminal has been active in transshipment. In September 2015 FID was taken to develop upgraded transshipment services. Under an agreement between Engie (Elengy's parent company) and Novatek from 2018 onward, LNG carriers transporting LNG from Siberia will berth in Montoir-de-Bretagne to discharge LNG and engage in transshipment activity.

The terminal has provided an LNG loading service for LNG trucks and ISO containers since July 2013, and since October 2014 the terminal has been able to load eight LNG trucks each day. Like Fos-Tonkin, the Montoir-de-Bretagne terminal is considering the introduction of rail loading services, as a railway is available.

EXISTING TERMINAL:	*Montoir-De-Bretagne*
START-UP DATE:	1980
OPERATOR	Elengy
VESSEL SIZE:	from 65,000 m^3 (Medmax) to 267,000 m^3 (Q-Max)
STORAGE CAPACITY	360,000 m^3
SEND-OUT CAPACITY:	10 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, reloading/ship loading, transshipment, loading of bunkering ships, truck loading, cooling down and gassing up; rail loading is being considered.

Greece

Greece produces only a small amount of gas, and demand for natural gas is steadily increasing. Natural gas accounts for approximately 14% of Greece's total primary energy supply, of which approximately one-quarter is LNG, imported into Greece's only LNG terminal at Revithoussa. The remaining part is imported from Russia by pipeline. In 2015 LNG imports to Greece increased only slightly above the 2014 volume of around 0.45 million.



The Revithoussa Terminal

The Revithoussa LNG terminal is located on the islet of Revithoussa, west of Athens. It came into operation in 2000 and today has a capacity of 8.25 bcm/year. The combined storage capacity of its two LNG tanks is 130,000 m^3. The second expansion project at Revithoussa – the construction of a third tank of 95,000 m^3, and facilities for reloading small and medium-sized ships – commenced in May 2014 and is expected to reach completion in 2017. When completed, Revithoussa's storage capacity will have increased by 73% to 225,000 m^3, and the terminal will be able to handle fully laden Q-Flex vessels.

In February 2000 the LNG terminal started importing 0.69 bcm/year of LNG from Skikda in Algeria pursuant to an LNG sale and purchase agreement with Sonatrach. DEPA still has a contract for the supply of 0.5 bcm/year of natural gas with Sonatrach, which expires in 2019.

The terminal only offers regasification services; however, reloading services are being considered with a target date of the end of 2017, and loading of bunkering ships is also under consideration for vessels as small as 1,000 m^3. Truck loading at the terminal is scheduled to commence by the end of 2017.

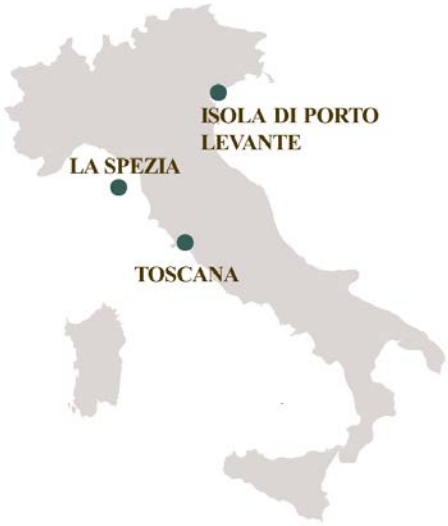
EXISTING TERMINAL	***Revithoussa***
START-UP DATE:	2000
OWNER/OPERATOR:	DESFA (Public Gas Corporation)
MAXIMUM VESSEL SIZE:	current: 130,000 m^3, by 2017: 260,000 m^3
STORAGE CAPACITY	current: 130,000 m^3, by 2017: 225,000 m^3
SEND-OUT CAPACITY:	current: 5.2 bcm/year, by 2017: 7 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, storage as unbundled service, cooling down and gassing up; reloading, loading of bunkering ships and truck loading are under study or planned.

Planned LNG Terminals in Greece

PLANNED TERMINAL:	***Aegean Sea (Kavala)***	***Alexandroupolis***
DEVELOPER:	DEPA	Gastrade
SEND-OUT CAPACITY:	5 bcm/year	6.1 bcm/year
START-UP DATE:	2017	2017
PROJECT COST:	Not available	€300 million

Italy

Although Italy produces significant volumes of indigenous gas, it is one of Europe's largest gas consumers at around 78 bcm/year and imports about 90% of the gas it consumes. 60% of Italy's imported natural gas is made up by just two countries – Algeria and Russia. Libya, Qatar, The Netherlands and Norway are also significant sources of natural gas imports for Italy. Most of Italy's gas is imported by pipeline. LNG, which is imported into Italy's three existing operational LNG import terminals at La Spezia (Panigaglia), Porto Levante (Adriatic LNG – offshore) and Toscana (offshore), has until recently accounted for only around 11% of the total volume of gas imported into the country. In 2015, however, LNG imports to Italy increased by almost 32% to around 4.3 million tonnes, largely due to supply of LNG from Qatar to the Adriatic LNG terminal (at Porto Levante). Italy is planning four additional LNG import terminals – the Falconara Marittima, which is an FSRU, and three large-scale onshore terminals – Porto Empedocle in Sicilia, Gioia Tauro LNG in Calabria and Trieste LNG.



Panigaglia Terminal (La Spezia)

The Panigaglia LNG import terminal, located in the municipality of Porto Venere in the western part of the Gulf of La Spezia, started operations in 1971, and is one of the oldest LNG import terminals in Europe. It is owned and operated by GNL Italia, part of the Snam group.

The Panigaglia terminal currently has capacity of 3.4 bcm/year. A planned expansion project includes increasing the terminal's capability to unload ships of up to 140,000 m^3, an update to the terminal's storage tanks and equipment, and installation of a new 32 MW cogeneration plant for the production of gas-fired electricity. The expansion, which is scheduled for completion in 2022, will raise Panigaglia's capacity to 8 bcm/year and its storage capacity to 240,000m^3.

Since 2013 the Panigaglia terminal has been in low send-out conditions. Only 1% of the terminal's capacity was used in 2013. In 2014/2015 the natural boil-off was the largest proportion of the terminal's total send-out.

EXISTING TERMINAL:	***La Spezia (Panigaglia)***
START-UP DATE:	1971
OWNER/OPERATOR:	GNL Italia S.p.A.
MAXIMUM VESSEL SIZE:	current: 70,000 m^3, by 2022: 140,000 m^3
STORAGE CAPACITY:	current: 100,000 m^3, by 2022: 240,000 m^3
SEND-OUT CAPACITY:	current: 3.5 bcm/year, by 2022: 8 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification

Italy, Cont'd.

Isola di Porto Levante LNG Terminal (Adriatic LNG)

The Isola di Porto Levante (Rovigo) LNG terminal (also known as "Adriatic LNG") is located in the northern Adriatic 9 miles (14 km) offshore of Porto Viro, in Porto Levante, near Rovigo. The terminal received its first cargo of LNG in August 2009 and was officially inaugurated in October 2009. The Porto Levante Terminal is the first-ever offshore gravity-based structure (GBS) for the unloading, storage and regasification of LNG.

The terminal has a regasification capacity of 8 bcm/year, which accounts for approximately 10% of Italy's natural gas requirements. It was granted an exemption from third-party access for 80% of its capacity for 25 years. Edison has the right to 80% of the terminal's capacity to regasify LNG imported from Qatar's North Field under a supply agreement with RasGas II. Of the remaining 20%, 12% has been assigned to another gas supplier for 10 years (until 2019). The remaining capacity of the terminal (approximately 600 bcm or about six LNG carriers per year), together with any capacity not consumed by its users, is offered on the market through capacity subscription procedures.

EXISTING TERMINAL:	***Porto Levante (Rovigo)***
START-UP DATE:	2009
OWNER/OPERATOR:	Terminale GNL Adriatico Srl.
MAXIMUM VESSEL SIZE:	152,000 m^3
STORAGE CAPACITY:	250,000 m^3
SEND-OUT CAPACITY:	8 bcm/year
TPA REGIME:	80% TPA exemption for 25 years
SERVICES:	Regasification; a feasibility study for reloading is in progress

FSRU OLT Offshore LNG Toscana

The OLT Offshore LNG Toscana project converted the Golar Frost LNG carrier into a floating regasification terminal, which is permanently anchored about 22 km off the Italian coast between Livorno and Pisa. The terminal became fully operational on 20 December 2013. The Toscana LNG terminal's regasification capacity is 3.75 bcm/year, which is around 4% of Italy's gas requirements. Its storage capacity is 135,000 m^3.

EXISTING TERMINAL:	***OLT Offshore LNG Toscana S.p.A***
START-UP DATE:	2013
OWNER/OPERATOR:	ECOS (Exmar, Fratelli Cosulich)
STORAGE CAPACITY:	135,000 m^3
SEND-OUT CAPACITY:	3.75 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification

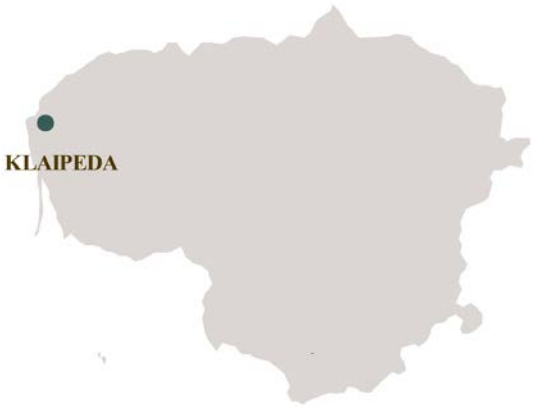
Italy, Cont'd.

Planned LNG Terminals in Italy

PLANNED TERMINAL:	***Gioia Tauro (Calabria)***	***Porto Empedocle (Sicily)***	***Trieste***	***Falconara Marittima (Ancona)***
DEVELOPER:	LNG MedGas Terminal	Enel	Gas Natural Rigassificazione Italia	api Nòva Energia S.r.l.
SEND-OUT CAPACITY:	12 bcm/year	8 bcm/year	8 bcm/year	4 bcm/year
START-UP DATE:	2019	2019	2020	2018

Lithuania

Lithuania has no domestic gas production, and historically has relied on Russia for 100% of its gas supply. In December 2014 the first commercial cargo of LNG was delivered at Lithuania's first LNG import terminal – Klaipėda LNG - marking the start of the country's diversification of gas supply.



In its first year full operational year (2015) the Klaipėda LNG terminal operated primarily as a political tool to ensure security of supply to countries that have traditionally relied on imported gas from Russia, and only imported 0.32 million tonnes of LNG. In 2016, however, the terminal established its commercial viability. In the first three quarters of 2016 imports increased significantly with an average utilisation rate of 40% compared with 14% in 2015. In 2017/2018 the terminal's operator, Klaipėdos Nafta, expects small-scale capacity holders using the terminal to bolster utilisation rates. The terminal has amended its regasification and capacity rights to accommodate small-scale users.

Klaipėda LNG FSRU Terminal

The Klaipėda LNG FSRU is situated in the port of Klaipėda, Lithuania. It is the most northerly of all FSRUs in the world.

The FSRU vessel Independence was developed by Hyundai Heavy Industries at a cost of approximately US$128 million and is 294 metres long, 46 metres wide and 47 metres high. It has four storage tanks with a total capacity of 170,000 cubic metres, and has a send-out capacity of 4 bcm/year. Capacity will initially be limited due to limited pipeline capacity in Lithuania and underground storage in Latvia, and due to a closed gas market in Latvia.

Lithuanian company Klaipėdos Naptha (70.63% of its shares are state-owned) has a 10-year lease with Norway's Höegh LNG for use of the FSRU at a cost of US$189,000 a day, with an option for Klaipėdos Naptha to acquire it after 10 years. Norway's Statoil contracted to supply Lithuania with LNG for five years with 540 million cubic metres of natural gas a year, to be increased to 4 bcm/year.

Plans have been put in place to develop the LNG bunker supply vessel that will provide bunkering services in the entire Baltic and North Sea. The vessel will also transport LNG to other LNG terminals and to the LNG reloading station in Klaipėda, which is being developed by Klaipėdos Nafta.

EXISTING TERMINAL:	***Klaipėdos, Lithuania***
START-UP DATE:	2014
OWNER/OPERATOR:	Hoegh LNG/Klaipėdos Nafta
MAXIMUM VESSEL SIZE:	160,000 m³
STORAGE CAPACITY:	170,000 m³
SEND-OUT CAPACITY:	4 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, bunkering and reloading from 2017

The Netherlands

The Netherlands is the biggest producer of gas in the EU. The Groningen gas field in the north-eastern part of the Netherlands is the largest natural gas field in Europe and the tenth-largest in the world. Recently it has accounted for approximately 50% of natural gas production in The Netherlands and has been projected to last for another 50 years. However, in response to earthquakes in the region the Dutch Government has capped production from the Groningen field for the foreseeable future, and Dutch gas production is forecast to decline significantly by 2020.

LNG is imported into The Netherlands' only LNG import terminal – the Gate terminal - in the Port of Rotterdam. In 2015 net LNG imports into The Netherlands was 2.3 bcm, compared to 1 bcm in 2014. However, although The Netherlands imported more LNG in 2015 than in 2014 it also reloaded more. As the market in North West Europe was well supplied The Netherlands took advantage of the low price of LNG it imported to re-export to markets with a higher margin. In 2015 The Netherlands sent large reloads to the Middle East, South America, South Korea, Egypt and India, and smaller reloads to Norway and Sweden.

Gate Terminal

The Gate (Gas Access to Europe) terminal was officially opened in September 2011. It is located on the Maasvlakte in Rotterdam, and consists of three storage tanks, three jetties (the third having been added in 2016) and a regasification process area. The terminal was developed by Gate terminal B.V. – a joint venture between Gasunie and Vopak – to address the rising demand for gas in Northwest Europe due to declining gas production in that region.

The terminal has an initial annual capacity of 12 bcm/year (which can be increased to 16 bcm/year with the addition of a fourth LNG tank), and delivers gas into the Dutch gas transport network, which can be transported to north western European markets, including Germany, Austria and Hungary.

The terminal was granted an exemption from third-party access requirements for a period of 20 years and for a capacity of 16 bcm. Its initial capacity was contracted by five major European energy suppliers (Dong Energy, EconGas, Eneco, E. ON Ruhrgas and RWE) under long-term throughput agreements for a combined throughput of 12 bcm/year (which represents all the terminal's initial capacity). Gate terminal B.V. has been marketing the 1 bcm of capacity that was returned before the terminal's start-up in 2011. In February 2015 RWE sold its capacity in the terminal to Shell. Gate operates a 'use-it-or-lose-it' system in which unused capacity is released for sale on the secondary market.

Since August 2016 the Gate terminal has operated a third berth and specialised new infrastructure for the loading of small LNG vessels, which strengthens Gate's role as a hub terminal in Northwest Europe. The terminal will add two new truck loading facilities in the first half of 2017.

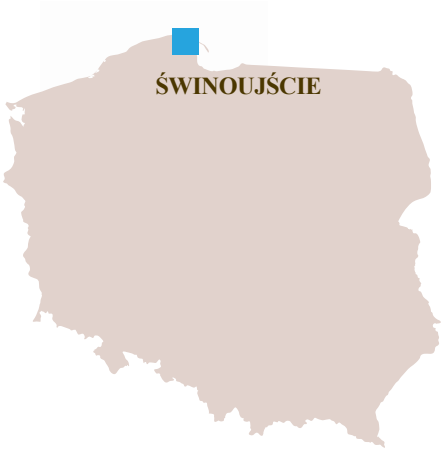
In late September 2016 Shell began its break bulk business at the Gate terminal by shipping a reload to a small-scale LNG import terminal in Sweden. This occurred three years after Shell's decision to take 2 bcm/year of capacity in the Gate terminal for its small-scale business. Other capacity holders at Gate already serve the small-scale LNG market. In 2017 Shell will deliver one of the world's first LNG bunkering vessels (from South Korea) to the Gate terminal to support increased LNG bunkering in northern Europe.

The Netherlands, Cont'd.

EXISTING TERMINAL:	***Gate Terminal***
START-UP DATE:	September 2011
OWNER/OPERATOR:	Gate terminal B.V. (Vopak and Gasunie)
MAXIMUM VESSEL SIZE:	266,000m³
STORAGE CAPACITY:	current: 540,000 m³; by 2018: 720,000 m³
SEND-OUT CAPACITY:	current 12 bcm/year; by 2018: 16 bcm/year
TPA REGIME:	TPA exemption for 16 bcm for 20 years
SERVICES:	Regasification, ship loading, small-ship loading, cooling down and gassing up

Poland

Although Poland has significant (but declining) domestic gas production, it is a net importer of gas – primarily from Russia. In 2014, 28.2% of Poland's natural gas requirements were met through domestic natural gas production. Poland remains heavily dependent on coal as a primary energy source, and the vast majority of electricity generation in Poland is coal-based. Poland is seeking to diversify its energy mix, with natural gas and other energy sources becoming a strategic priority. Natural gas is the third most important energy source consumed in Poland (after coal and crude oil), accounting for approximately 14.1% of consumption. The first commercial cargo of LNG was delivered to Poland's only LNG import terminal – the Świnoujście terminal in northwestern Poland – in July 2016. In October 2016 the terminal received its sixth commercial cargo under a term deal with Qatargas.



Świnoujście Terminal

The Świnoujście LNG terminal is Poland's flagship project to diversify gas supplies and reduce dependence on pipeline imports from Russia. It is operated by Polskie LNG (owned by the state-owned GAZ-SYSTEM S.A.). The terminal is able to receive, regasify and deliver 5 bcm of gas per annum into the Polish national grid. It consists of a 3 km breakwater, a jetty that is able to unload carriers with a capacity ranging from 120,000 to 217,000 m³, two 160,000 m³ LNG storage tanks, regasification facilities and an 85 km pipeline connecting the facility with the Polish gas grid. The terminal (via PGNiG) has a 20-year contract with Qatargas to deliver 1 million tons per annum of LNG.

EXISTING TERMINAL:	***Świnoujście LNG terminal***
START-UP DATE:	July 2016
OWNER/OPERATOR:	Polskie LNG
MAXIMUM VESSEL SIZE:	216,000 m³
STORAGE CAPACITY:	current: 320,000 m³, by 2020: 480,000 m³
SEND-OUT CAPACITY:	current 5 bcm/year, by 2020: 7.5 bcm/year
TPA REGIME:	Regulated
SERVICES:	Regasification, truck loading

Portugal

Portugal does not produce any natural gas, and is therefore dependent on imports for 100% of its gas requirements of about 4 bcm/year. Natural gas is imported into Portugal via the Maghreb–Europe Gas Pipeline from Algeria, and Portugal's only LNG terminal – the Sines LNG terminal. In 2015 net LNG imports to Portugal grew to 1.12 million tonnes, representing a 16.2% increase from 2014.

Sines Terminal

The Sines LNG terminal is located on Portugal's Atlantic coast, in the Sines port about 120 km south of Lisbon. It is owned by REN Atlântico, a wholly owned subsidiary of REN. The terminal started operations on 26 October 2003, and now consists of a docking station for ships with a capacity from 40,000 m^3 to 216,000 m^3, three storage tanks with a combined capacity of 390,000 m^3 and seven open-rack vaporizers for LNG regasification. More than 216 LNG carriers have called at the facility since operations first began, with the majority supplying LNG from Nigeria under a long-term 2 bcm/year supply deal. The concept of contracted capacity was introduced at the Sines terminal in 2013. Until then, payment was done according to usage.

Due to its strategic location, the Sines terminal has become active in transshipment activities. The terminal also provides on average about six "cooling" operations a year.

EXISTING TERMINAL:	***Sines – REN Atlântico***
START-UP DATE:	2003
OWNER/OPERATOR:	REN Atlântico
SEND-OUT CAPACITY:	7.6 bcm/year
STORAGE CAPACITY:	390,000 m^3
VESSEL SIZE:	40,000 m^3 to 216,000 m^3
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, ship loading, truck loading, cooling down and gassing up

Spain

Spain has one of the highest levels of natural gas consumption in Europe, and produces less than 0.5% of the gas it consumes.

With six LNG import terminals currently in operation, Spain has more regasification capacity than any other European country. A seventh terminal, El Musel, has been in hibernation since it was completed in 2013. Spain's six operating LNG terminals have a regasification capacity of 60 bcm/year. New LNG import terminals on the Spanish islands of Tenerife and Gran Canaria will come into operation in 2017 and 2018, respectively. Both terminals will have a nominal annual capacity of 1.3 bcm/year with plans to increase capacity to 2 bcm/year by 2021.

Due to a decline in gas demand in Spain between 2009 and 2014, Spain had high levels of unused capacity in its terminals, and a significant volume of reloads. In 2014 60% of LNG ships unloaded in Spain (about 3.99 million tonnes) were reloaded. However, in 2015 Spain was Europe's second-largest LNG buyer (with Huelva, Barcelona and Sagunto receiving the lion's share of delivered LNG cargoes) – LNG net imports grew to 8.96 million tonnes (an increase of 0.7 million tonnes from 2014) largely due to increased demand for natural gas for power generation, and reloads fell to 1.05 million tonnes.

Barcelona LNG Terminal

The Barcelona LNG terminal is one of three Spanish import terminals owned by Enagas. The other two are Cartagena and Huelva.

The Barcelona terminal is located in Barcelona Port. It was opened in 1969 and is the oldest regasification plant in Spain. The initial facilities consisted of two storage tanks with a combined capacity of 80,000 m^3. Between 1975 and 1976, the plant was enlarged, and a third tank (capacity 80,000 m^3) was added. A fourth tank (also 80,000 m^3) was added between 1978 and 1981. In 2005, LNG storage capacity was increased with a fifth 150,000 m^3 tank, and another similar tank was added in 2006. In 2005, LNG storage capacity was increased with a fifth 150,000 m^3 tank, and another similar tank was added in 2006. In 2010 and 2011, its storage capacity was expanded again with the construction of two new tanks of 150,000 m^3 each. The seventh tank was finished in October 2010 and the eighth tank in the first quarter of 2011. The first two tanks (of 40,000 m^3 each) have been dismantled. The terminal's send-out capacity has been increased at the same time and now stands at 17.1 bcm/year. Since December 2010 the terminal can receive LNG vessels of up to 266.000 m^3.

The terminal provides capacity on an open-access basis. It provides truck loading services for up to 50 trucks a day. Loading of bunkering ships services are being developed at the terminal, and rail loading services are being considered.

EXISTING TERMINAL:	***Barcelona***
START-UP DATE:	1969
OWNER/OPERATOR:	Enagas S.A.
MAXIMUM VESSEL SIZE:	266,000 m^3
STORAGE CAPACITY:	840,000 m^3
SEND-OUT CAPACITY:	17.1 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, truck loading, cooling down and gassing up; loading of bunkering ships is being developed

Spain, Cont'd.

Cartagena LNG Terminal

The Cartagena LNG terminal is located in Murcia's Escombreras Dock in southern Spain. The terminal entered into operation in 1989 and originally consisted of a single storage tank, send-out facilities and a single container berth of 40,000 m^3. The terminal was linked up to the basic gas pipeline network in 1997, when the send-out capacity gas was increased. In 2000, a new container berth was opened for vessels of up to 130,000 m^3. In 2002 a second storage tank of 105,000 m^3 came into operation, and the third of 127,000 m^3 entered into service in 2005. In September 2008 a fourth tank and in October 2010 a fifth tank, each of 150,000 m3, entered into operation. The send-out capacity also increased over this period and now stands at 11.8 bcm/year. Since the 2009 the terminal has been capable of receiving vessels of up to 266,000 m^3.

The terminal offers LNG truck loading for up to 50 trucks a day, as well as transshipment services for small and large vessels, and cooling-down and gassing-up services. Loading of bunkering ships is being considered.

EXISTING TERMINAL:	***Cartagena***
START-UP DATE:	1989
OWNER/OPERATOR:	Enagas S.A.
MAXIMUM VESSEL SIZE:	266,000 m^3
STORAGE CAPACITY:	619,500 m^3
SEND-OUT CAPACITY:	11.8 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, ship loading, truck loading, small ship loading, cooling down and gassing up, transshipment; loading of bunkering ships is under study

Huelva LNG Terminal

The Huelva LNG plant is located at the mouth of the rivers Tinto and Odiel in Andalusia, southern Spain. In June 1988 the first tanker of LNG at the terminal was unloaded. Initially the terminal had a single storage tank with a capacity of 60,000 m^3 and sufficient capacity to supply gas to Huelva, Palos and their industrial areas, as well as Seville, where it was linked via a 20' gas pipeline. The terminal underwent its first expansion when the Seville-Madrid gas network pipeline was built. Subsequent expansions were carried out in 1992, 2004 and 2007, and the terminal's storage capacity now stands at 619,500 m^3 and its send-out capacity stands at 11.8 bcm/year. The terminal can receive ships with a capacity of up to 173,400 m^3.

The terminal offers ship loading and cooling-down and gassing-up services for ships between 29,500 and 173,400 m^3, and truck loading services for approximately 50 trucks per day. Loading of bunkering ships is being considered.

EXISTING TERMINAL:	***Huelva***
START-UP DATE:	1988
OWNER/OPERATOR:	Enagas S.A.
MAXIMUM VESSEL SIZE:	173,400 m^3
STORAGE CAPACITY:	619,500 m^3
SEND-OUT CAPACITY:	11.8 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, ship loading, truck loading, small ship loading, transshipment, cooling down and gassing up; loading of bunkering ships is being considered.

Spain, Cont'd.

Bilbao Bahía de Bizkaia Terminal

The Bahía de Bizkaia LNG terminal is located near Bilbao and operated by Bahía de Bizkaia Gas (BBG). It started commercial operations in 2003 and underwent an expansion in early 2015 with the addition of a third 150,000 m^3 tank, which increased the terminal's storage capacity to 450,000 m^3. The terminal supplies gas for domestic, commercial and industrial consumption and also for producing electric energy in the Bahía de Bizkaia Electricidad (BBE) 800 MW combined cycle electric power plant that sits adjacent to the terminal. BBG plans to increase send-out capacity over the coming years. Since November 2015 the terminal has provided truck loading services.

EXISTING TERMINAL:	***Bilbao Bahía de Bizkaia***
START-UP DATE:	2003
OPERATOR:	Bahía de Bizkaia Gas (BBG)
MAXIMUM VESSEL SIZE:	270,000 m^3
STORAGE CAPACITY:	450,000 m^3
SEND-OUT CAPACITY:	8.8 bcm/year
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, truck loading, cooling down and gassing up

Sagunto Terminal

The Sagunto terminal is located in the Port of Sagunto in Valencia. It is operated and maintained by SAGGAS. The first LNG carrier, from Algeria's Sonatrach, unloaded its cargo at the Sagunto terminal on February 15, 2006. The plant came onstream two months later in April 2006, initially comprising a jetty, a regasification facility and two 150,000 m^3 storage tanks, but with expansion plans already in place. A third tank was started in September 2006, bringing LNG storage capacity at Sagunto up to 450,000 m^3 by the beginning of 2009. A fourth tank has since been added and the terminal now consists of four 150,000 m^3 storage tanks, six vaporizers and all the infrastructure required for unloading methane tankers, storage, regasification of LNG and consignment of natural gas to the network, as well as a tanker-truck loading facility. The terminal satisfies up to 25% of the gas demand throughout Spain, and its location is ideal for both the LNG-producing regions of North Africa and the Persian Gulf, and the energy consumers in the Mediterranean Arc.

Since 2011 the terminal has offered truck loading services, and since 2013 it has offered ship reloading and ccooling-down and gassing-up services.

EXISTING TERMINAL:	***Sagunto***
START-UP DATE:	2006
OPERATOR:	SAGGAS
MAXIMUM VESSEL SIZE:	267,000 m^3
STORAGE CAPACITY:	600,000 m^3
SEND-OUT CAPACITY:	8.8 bcm/year
RESERVED CAPACITY:	Union Fenosa and others
TPA REGIME:	Regulated TPA
SERVICES:	Regasification, truck loading, ship reloading, cooling down and gassing up; loading of bunkering ships is under study.

Spain, Cont'd.

Mugardos (El Ferrol) Terminal

The Mugardos LNG terminal is located at Ferrol port on the northwestern coast of Spain in the Galicia region. It is owned and operated by Regasificacion del Noroeste S.A. (Reganosa) on an open-access basis whereby third parties can contract to use the terminal's facilities. The terminal received its first cargo in May 2007 and went into operation in November of that year, becoming Spain's sixth receiving LNG terminal to come onstream. The majority of the gas generated at the terminal is consumed by gas-fired power plants located nearby and owned by Endesa and Union Fenosa. The former was a shareholder but sold its stake in 2010. There are expansion plans to add two more 150,000 m^3 storage tanks and increase annual capacity to 7.2 bcm/year over the next decade.

EXISTING TERMINAL:	***Murgados – El Ferrol (Galicia)***
START-UP DATE:	November 2007
OPERATOR:	Regasificacion del Noroeste, S.A. (Reganosa)
MAXIMUM VESSEL SIZE:	266,000 m^3
STORAGE CAPACITY:	current: 300,000 m^3, by 2023: 500,000 m^3
SEND-OUT CAPACITY:	current: 3.6 bcm/year, by 2023: 7.2 bcm/year
TPA REGIME:	Regulated TPA (open access)
SERVICES:	Regasification, ship loading, truck loading, cooling down and gassing up, loading of bunkering ship; transshipment is under study

El Musel Terminal

Located in Gijon (Asturias) on the northern coast, the El Musel terminal is owned by Enagas. The plant was completed in 2013 but was immediately mothballed, and under Spain's Royal Decree 13/2012, El Musel will remain in hibernation until gas demand rises. The site was designed for expansion with plans to install an additional two tanks in the second phase of the project, taking total storage capacity to 600,000 m^3.

EXISTING TERMINAL:	***El Musel – Gijon (Asturias)***
START-UP DATE:	In hibernation
OWNER/OPERATOR:	Enagas S.A.
MAXIMUM VESSEL SIZE:	266,000 m^3
STORAGE CAPACITY:	current: 300,000 m^3, future: 600,000 m^3
SEND-OUT CAPACITY:	current: 7 bcm/year, by 2021 8.8 bcm/year
SERVICES:	Regasification, reloading, truckloading; transshipment and bunkering are under study

LNG Terminals under Construction: Canary Islands (Spain)

TERMINAL:	***Las Palmas de Gran Canaria***	***Santa Cruz de Tenerife***
START-UP DATE:	2018	2017
DEVELOPER:	Gascan	Gascan
STORAGE CAPACITY:	150,000 m^3	150,000 m^3
SEND-OUT CAPACITY:	1.3 bcm/year	1.3 bcm/year

Turkey

Turkey produces about 2% of the gas it consumes, and the balance (98%) of its gas requirements is met by gas imported via pipeline from Russia, Azerbaijan and Iran, and LNG from a number of supplier countries - particularly Algeria, Nigeria and Qatar – which is imported through its Aliaga and Marmara receiving terminals.

In 2015 Turkey imported 5.6 million tonnes of LNG, making it Europe's third-largest LNG importer after the UK and Spain. Turkey has one of the fastest-growing power markets and uses gas for more than 50% of its electricity generation. According to the state gas company BOTAS' forecasts, Turkey's gas demand will almost double from 45 bcm in 2012 to 81 bcm by 2030. Turkey continues to rely heavily on Russian gas and received 12 bcm during the first half of 2016. In December 2015 Turkey and Qatar reached a preliminary agreement on the possible development of a third LNG import terminal in Turkey. Demonstrating new trade flows from the US, Turkey received its first cargo from Cheniere's Sabine Pass facility in September 2016.

Marmara Ereglisi Terminal

The Marmara Ereglisi terminal is located 100 km west of Istanbul and is owned and operated by BOTAS. Imports to Turkey via the terminal started in 1994. LNG deliveries are made pursuant to long-term sale and purchase agreements with Algeria's Sonatrach, Nigeria LNG and Iran's NIGC. Spot cargoes from Qatar, Australia and Abu Dhabi are also imported to the Marmara Ereglisi terminal.

The terminal provides truck loading services for up to 75 trucks a day.

EXISTING TERMINAL:	***Marmara Ereglisi***
START-UP DATE:	1994
OWNER/OPERATOR:	Botas Petroleum Pipeline Corporation
MAXIMUM VESSEL SIZE:	130,000 m^3
STORAGE CAPACITY:	255,000 m^3
SEND-OUT CAPACITY:	6.2 bcm/year
TPA REGIME:	Not applicable (Turkey is not in EU)
SERVICES:	Regasification, truck loading

Turkey, Cont'd.

Aliaga LNG Terminal

The Aliaga Izmir LNG terminal is located at Izmir-Aliaga on the Aegean Sea. It came into operation in December 2006, and received its first LNG cargo in 2009, and since then has mainly been used as a backup facility to meet peak consumption during winter months, and to offset interruptions or reductions to supply from the Trans-Balkan Gas Pipeline. The terminal's regasification and send-out capacity is 6 bcm/year.

The terminal started providing truck loading services in May 2009.

EXISTING TERMINAL:	***Aliaga (Izmir)***
START-UP DATE:	2006
OWNER/OPERATOR:	EgeGaz LNG
MAXIMUM VESSEL SIZE:	265,000 m^3
STORAGE CAPACITY:	280,000 m^3
SEND-OUT CAPACITY:	6 bcm/year
TPA REGIME:	Not applicable (Turkey is not in EU)
SERVICES:	Regasification, truck loading

Planned LNG Import Terminal in Turkey

PLANNED TERMINAL:	***Aliaga***
START-UP DATE:	-
DEVELOPER:	Kolin Insaat
SEND-OUT CAPACITY:	6.3 bcm/year

United Kingdom

The UK (along with the Netherlands) remains one of the two major gas-producing nations in the EU. However, production of gas in the UK has been in decline since 2009, and since 2004 the UK has been a net importer of gas. The UK imports natural gas by pipeline from Norway, Belgium and the Netherlands, and by LNG to its three operational large-scale LNG terminals – Grain LNG, Dragon LNG and South Hook LNG.

The import of LNG into Europe occurred for the first time in the UK. In response to declining production from the UK North Sea, the UK government encouraged the development of large-scale import infrastructure. The Grain LNG terminal came into operation in 2002. In 2009 two new terminals at Milford Haven, Wales (Dragon and South Hook), increased the UK's regasification capacity by 147%. By 2014 the UK's LNG imports had declined by 45% from their 2011 peak; however, 2014 saw a 21% increase in UK LNG imports driven in part by weaker-than-expected prices in Asia. In 2015 net LNG imports grew a further 12.4% to 9.43 million tonnes, making the UK the largest importer of LNG in Europe. Most of the incremental volumes were supplied by Qatar. However, although the UK imported more LNG in 2015 than 2014, it also reloaded more LNG.

All three existing LNG import terminals in the UK benefit from an exemption from the EU's requirements on third-party access. To comply with the requirements of the national regulator (OFGEM), the UK terminals are required to have a "use-it-or-lose-it" mechanism, which means that the primary holder of regasification capacity must either use its capacity or offer it to the secondary market.

Grain LNG Terminal

The Grain LNG terminal is located on the Isle of Grain on the River Medway, Kent, 30 km east of London. The first commercial cargo of LNG arrived at Grain in September 2005. The first tranche of capacity was acquired by BP and Sonatrach in October 2003 under a contract to import 4.4 bcm/year of LNG for 20 years. The terminal was expanded to accommodate an additional 9.3 bcm per year in December 2008 under supply contracts with Centrica, GDF SUEZ and Sonatrach. The most recent expansion was in 2010 when a further 6.9 bcm/year of capacity was contracted to Centrica, E. ON and Iberdrola. Grain LNG is planning a fourth-phase expansion that will make capacity available on an open-season basis. This expansion will increase the terminal's capacity from 19.5 bcm/year to up to 27.5 bcm/year as of 2018, and will make it the largest import terminal in Europe.

The LNG terminal recently began offering cool-down and ship reloading services, and put in service a new road tanker loading facility. There are also plans to offer break bulk services through an open-season mechanism. In October 2017 the terminal conducted a rare reload.

EXISTING TERMINAL:	***Grain LNG***
START-UP DATE:	July 2005
OPERATOR:	National Grid
MAXIMUM VESSEL SIZE:	265,000 m^3
STORAGE CAPACITY:	1,000,000 m^3
SEND-OUT CAPACITY:	current: 19.5 bcm/year, by 2018: 27.5 bcm/year
TPA REGIME:	TPA exemption for 100% for 20 years
SERVICES:	Regasification, ship reloading, transshipment, truck loading, cooling down and gassing up; loading of bunkering ships will be available from 2017

United Kingdom, Cont'd.

Dragon LNG

The Dragon LNG terminal located at Milford Haven in West Wales came into operation in 2009, and is jointly owned by BG Group (now Shell) and Petronas. The terminal has a maximum gas send-out rate of 7.6 bcm/year. BG Group and Petronas have each entered into a 20-year terminal use agreement for a 50% share of the terminal's capacity. As primary shippers, BG Group and Petronas have the right to sell or sublet their capacity to the secondary market.

EXISTING TERMINAL:	***Dragon LNG (BG Group and Petronas)***
Dragon LNG (BG Group and Petronas)	2009
START-UP DATE:	2009
MAXIMUM VESSEL SIZE:	217,000 m^3
STORAGE CAPACITY:	320,000 m^3
SEND-OUT CAPACITY:	7.6 bcm/year
TPA REGIME:	TPA exemption for 100% for 25 years
SERVICES:	Regasification

South Hook LNG

South Hook, also located at Milford Haven, was commissioned in 2010. The terminal is owned by South Hook LNG, which is jointly owned by Qatar Petroleum International (67.5%), Exxon Mobil Corporation (24.15%) and Total (8.35%). The capacity of the terminal is 21 bcm/year, making it the largest LNG receiving terminal in Europe. It has received more than 450 LNG cargoes. The terminal was granted an exemption from regulated TPA for 25 years from commercial operations, which enabled South Hook Gas to purchase 100% of the terminal's capacity. The terminal now has an active secondary market.

EXISTING TERMINAL:	***South Hook LNG***
South Hook LNG	Phase 1: Q4 2007/Q1 2008; phase 2: Q4 2009/Q1 2010
START-UP DATE:	Phase 1: Q4 2007/Q1 2008; phase 2: Q4 2009/Q1 2010
OPERATOR:	South Hook Terminal Company Ltd.
MAXIMUM VESSEL SIZE:	250,000 m^3
STORAGE CAPACITY:	775,000 m^3
SEND-OUT CAPACITY:	21 bcm/year
TPA REGIME:	TPA exemption for 100% for 25 years
SERVICES:	Regasification

Planned LNG Terminals in the UK

PLANNED TERMINAL:	***Anglesey LNG***	***Port Meridien FSRU***
START-UP DATE	-	2018
DEVELOPER:	Amlwch LNG	Port Meridien Energy
LOCATION:	Anglesey	Morecambe Bay

Planned LNG Import Terminals in Europe

The following is a list of planned new LNG import terminals in European countries that do not have an existing large-scale LNG import terminal.

COUNTRY	PROPOSED TERMINAL	DEVELOPER	INITIAL CAPACITY	POSSIBLE START-UP YEAR
Albania	Eagle LNG FSRU	Gruppo Falcone	8 bcm/year	2018
Croatia	Krk Island FRU	LNG Croatia	2 bcm/year	2019
Estonia	Padalski Terminal	Balti Gas	2.5 bcm/year	2018
Estonia	Muuga (Tallinn) LNG	Vopak	4 bcm/year	2018
Ireland	Shannon LNG	Shannon LNG	2.7 bcm/year	2018
Latvia	Riga LNG	Latvenergo	5 bcm/year	2017
Malta	Malta LNG FSRU	Maltese Ministry for Energy	4 bcm/year	2021
Romania	Constanta LNG	AGRI LNG	8 bcm/year	2025
Russia	Kaliningrad LNG	Gazprom	-	
Ukraine	Odessa LNG	KOLIN	5 bcm/year	2017

For more information about our LNG practice, please refer to www.kslaw.com/energy.