The European LNG terminal infrastructure 2015: Status and Outlook

The GIE LNG Map as well as the LNG Investment Database provide comprehensive information on LNG Terminals in Europe. Both are updated annually with first-hand information provided by GLE members making it a reliable source of information for the LNG business.

Background

In 2003 for the first time GIE published the **LNG Map** showing the location and characteristics of 8 operational large-scale LNG terminals. Since then the European LNG terminal infrastructure landscape has changed significantly and GIE has improved the LNG Map continuously. The 2015 version of the LNG Map shows the main characteristics of all 23 large-scale and 4 small-scale operational LNG terminals in Europe, information on the LNG terminals under construction as well as the planned projects. Although still shown on the map, this number and all data presented in this article do not include the Teesside GasPort, a dockside floating regasification facility located near Middlesbrough in the United Kingdom. After the finalisation of the 2015 update of the GIE LNG Map, the facility was decommissioned as it came to the end of its commercially viable life.
Since 2008 the LNG Map has been accompanied by the **LNG Investment Database** which is based on the LNG Map. It shows the development of the regasification and storage capacity of large-scale LNG terminals from 2005 as well as projects for the next years.

Aims

GIE provides an **Excel database and a map** showing all LNG regasification terminals in Europe, large-scale as well as small-scale terminals. Additionally, the nearby liquefaction plants are covered. For all facilities the operational status is indicated: operational, under construction (final investment decision taken) or planned (no final investment decision taken yet).

The following information is provided for regasification terminals:

- Country / name of the terminal / operator and website/ start-up year / type of facility
- Nominal annual capacity
- LNG storage capacity

For large-scale LNG terminals in operation or under construction, the following additional information is shown:

- Maximum hourly capacity
- Number of tanks
- Maximum ship class size receivable
- Number of jetties
- Minimum sea depth alongside
- Maximum send out pressure
- Third party access regime

For the projects of these terminals it is also indicated, whether the final investment decision (FID) has been already taken or not.

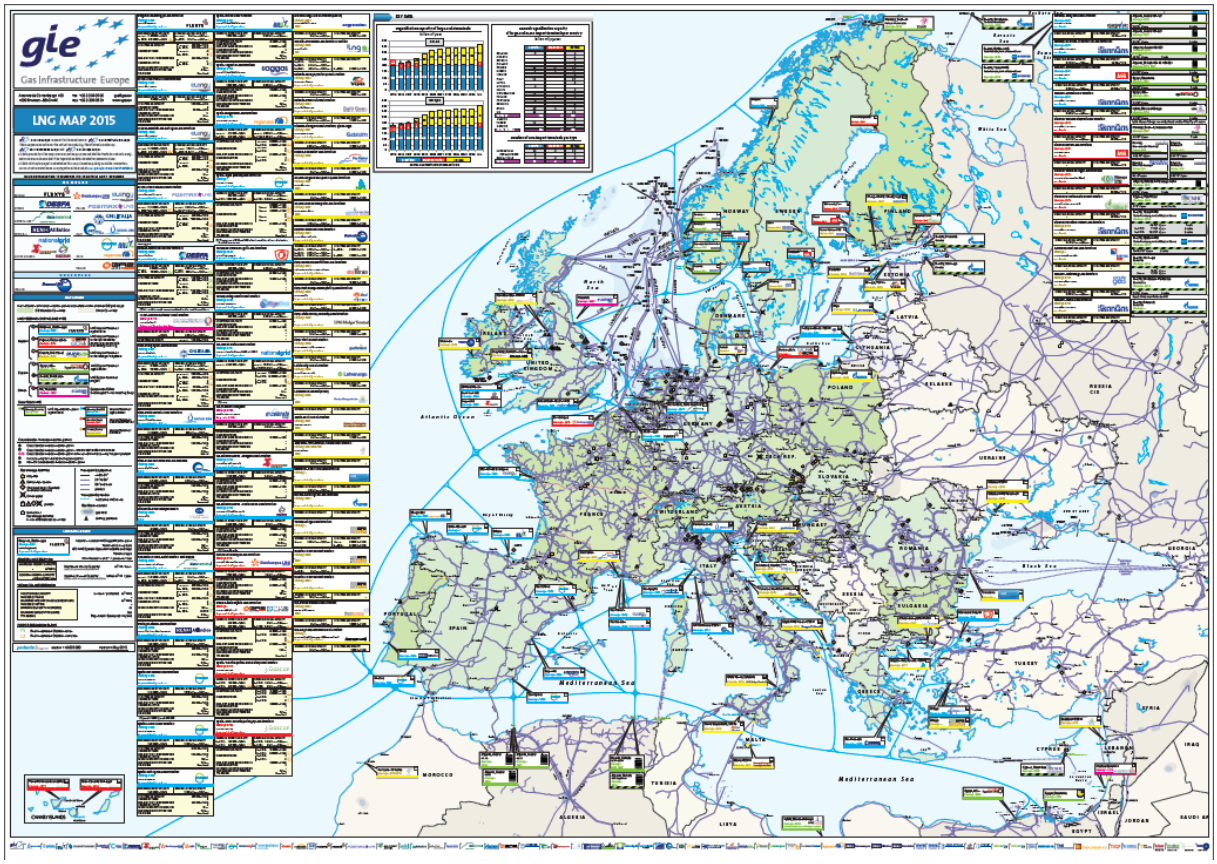
Methods

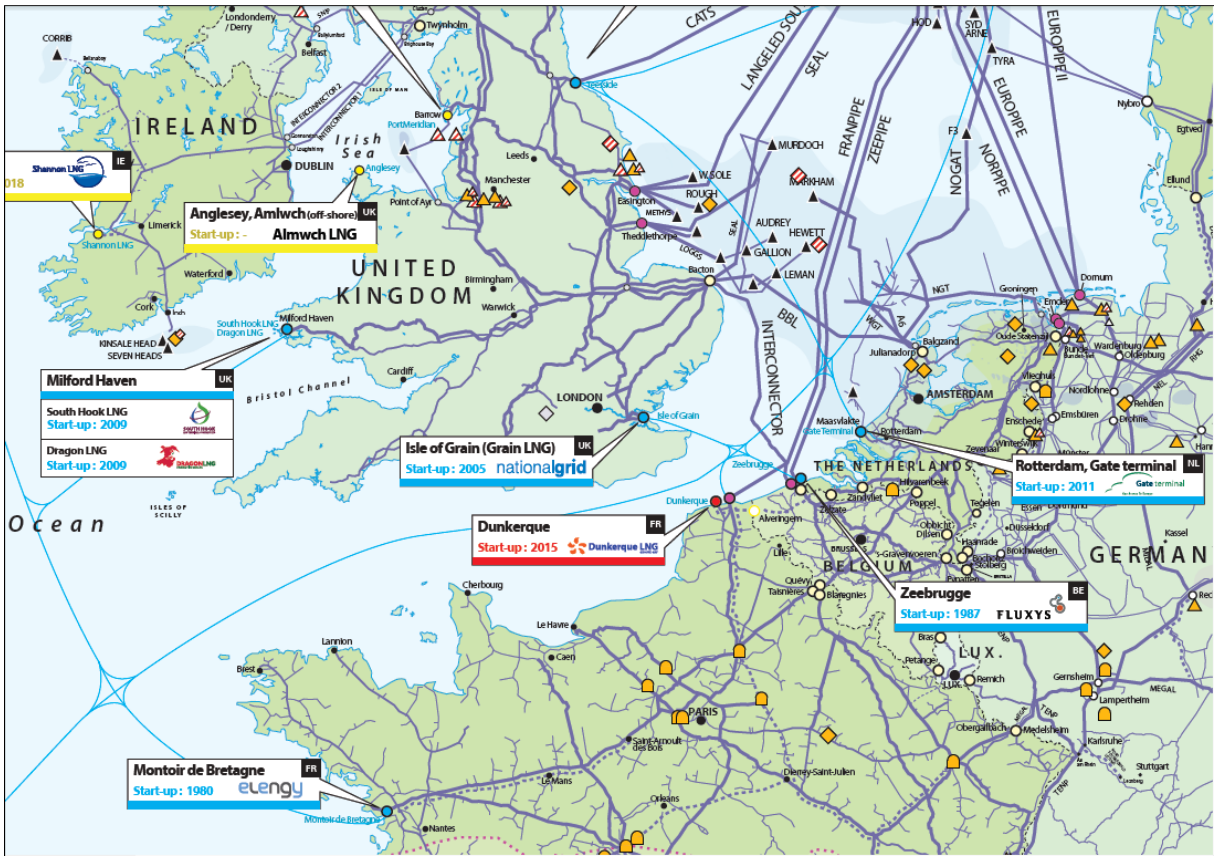
The following **sources of information** are used:

1. GIE gathers all information available among its members who operate LNG terminal(s).
2. Data from ENTSOG (European Network of Transmission System Operators for Gas, http://www.entsog.eu/), e.g. the TYNDP (Ten Year Network Development Plan) and the PCI list (Projects of Common Interest, https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest), as well as authorities are considered as reliable sources and are taken into account.
3. Other public sources (e.g. company/project website) are used but reviewed by the GIE members (for example with respect to planned projects).
4. Additionally, on a case by case basis, non-GLE members are contacted and invited to provide an update.

Results

On the website of GIE (Gas Infrastructure Europe, http://www.gie.eu/) the LNG Map with the corresponding database as well as the LNG Investment Database are available in electronic format. The map is available in printed format (A0, 1189 x 841mm) as well and can be ordered on the website. It thereby greatly enhances the visibility of the European LNG terminal infrastructure.





MAP LEGEND

the indication of interconnection points is consistent with all other GIE grid maps

GIE Member Countries | Other Countries

LNG TERMINAL STATUS AND TYPE

Import

- Belgium, Zeebrugge — Start-up: 1987 — FLUXYS — LNG Import Terminal Operational
- Poland, Świnoujście — Start-up: 2015 — GAZ-SYSTEM POLSKIE LNG — LNG Import Terminal Under construction and/or included within Mandatory Planning
- Croatia, Krk island — Start-up: 2019 — plinacro — LNG Import Terminal Under study or Proposed

Export

- Egypt, Idku — Start-up: 2005 — Egyptian LNG — LNG Export Terminal Operational
- Russia, Shtokman — Start-up: 2019 — GAZPROM — LNG Export Terminal Project

Other

- UK, Teesside — Start-up: 2007 — excelerate energy — Gasport for FSRUs Submerged Turret Loading Buoy

Small Scale LNG

- Norway, Kollsnes — Start-up: 2003 — LNG Liquefaction plant Operational
- Norway, Øra LNG — Start-up: 2011 — Import Terminal Operational
- Sweden, Raum — Start-up: 2017 — Import Terminal Under construction
- Finland, Pansio — Start-up: 2016 — Import Terminal Planned

LNG DATA LEGEND

Belgium, Zeebrugge
Start-up: 1987 FLUXYS
www.fluxys.com
large-scale facility on-shore

Location, name of LNG regasification plant
Terminal start-up date
LSO (LNG System Operator) website and logo
Terminal type

GENERAL INFORMATION

(N) = Normal = at 0 ° / pressure 1 bar

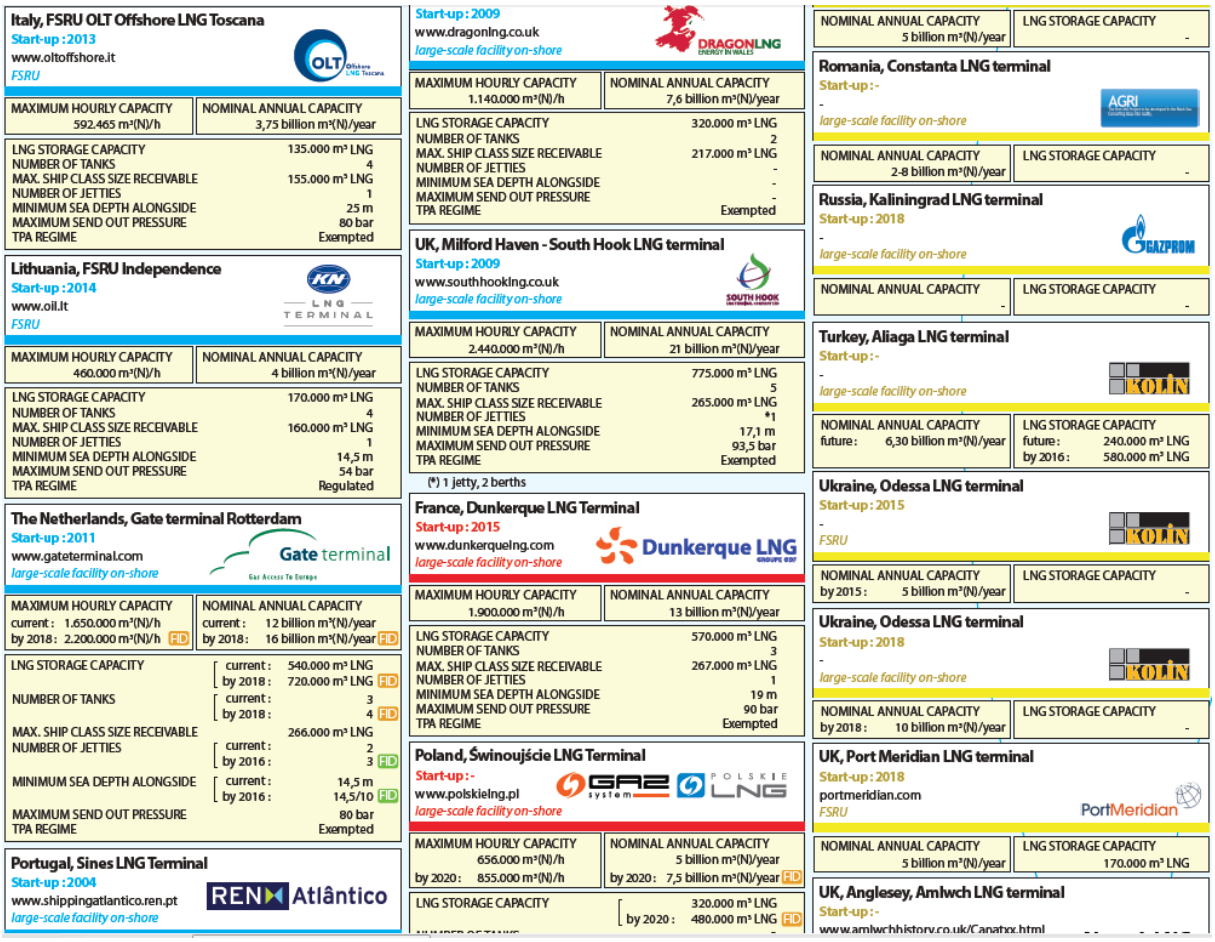
MAXIMUM HOURLY CAPACITY - m³(N)/ h	Maximum Hourly Capacity cubic meter at normal conditions	m³(N) / hour
NOMINAL ANNUAL CAPACITY - billion m³(N) / year	Nominal Annual Capacity billion cubic meter at normal conditions	billion m³(N) / year

TECHNICAL INFORMATION

LNG STORAGE CAPACITY	current / projected m³ LNG
NUMBER OF TANKS	-
MAXIMUM LNG SHIP CLASS SIZE RECEIVABLE	m³ LNG
NUMBER OF JETTIES	-
MINIMUM SEA DEPTH ALONGSIDE	m
MAXIMUM SEND OUT PRESSURE	bar
TPA REGIME	Regulated / Exempted / Hybrid

FID FOR EXPANSION PLANS

- FID — Final Investment Decision taken
- FID — Final Investment Decision not taken



Summary/Conclusions

Location: The operational large-scale terminals are along the Western and Southern European seaside as well as in the Baltic Sea since the end of 2014. The current LNG receiving countries are Lithuania, the United Kingdom, The Netherlands, Belgium, France, Portugal, Spain, Italy, Greece and Turkey. The majority of the projects are located in the Baltic Sea as well in Southern Europe. Most probably the next new LNG receiving country will be Poland. Referring to small- scale LNG terminals, all terminals (operational, under construction, planned) are located in Northern Europe.

Type of facilities: Most of the large-scale regasification terminals are located on-shore. There is one off-shore terminal operated as well as two Floating Storage and Regasification Units (FSRUs). Out of the 22 planned large-scale facilities another 7 are indicated as FSRUs.

Number of LNG import terminals per type

	operational	under construction	planned
Large-scale	23	4	22
FSRUs and others	2	0	7
Small-scale	4	4	4
Total	**27**	**8**	**26**

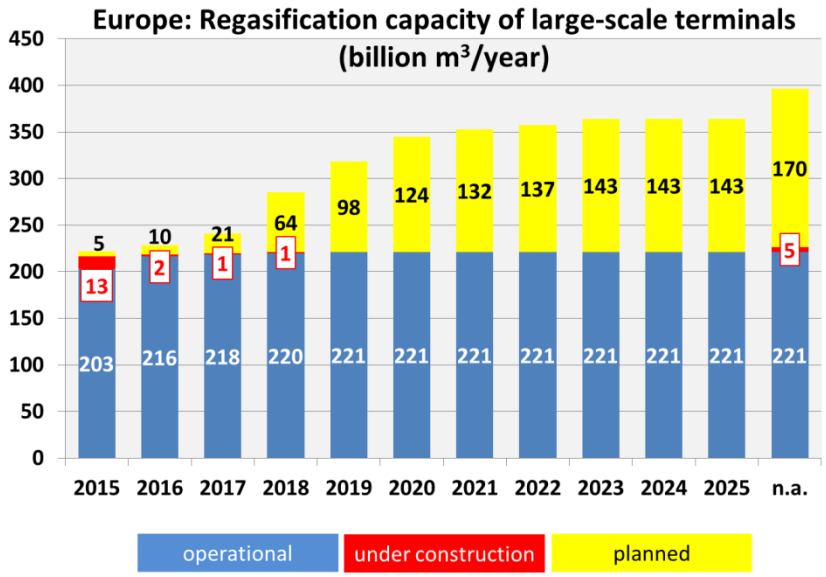
Regasification capacity: The existing regasification capacity of European large-scale terminals is 203 billion m^3.The large-scale terminals under construction are expected to be finalised in 2018.

Therefore, the annual regasification capacity in Europe will be 221 billion m^3 from 2019. However, the potential of the planned projects could result in additional 170 billion m^3. As for some projects the schedule (including start-up year) has not been announced, these projects are added to the column 'n.a.' (not available) in the chart.

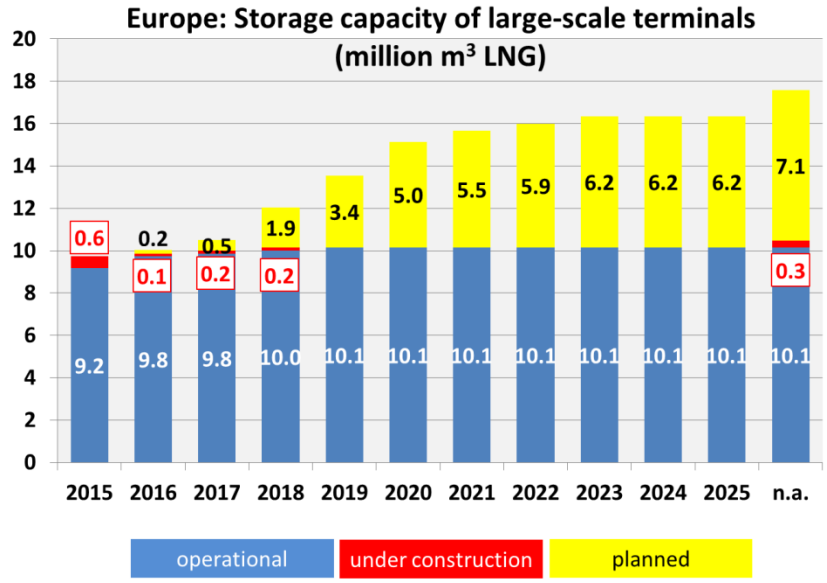
Annual regasification capacity of large-scale LNG import terminals per country

billion m^3(N) / year

	operational	under construction	planned
Belgium	9		3
Croatia			6
Estonia			7
Finland			3
France	22	13	23
Greece	5	2	11
Ireland			3
Italy	15		37
Latvia			5
Lithuania	4		
Malta			2
Netherlands	12		4
Poland		5	3
Portugal	8		
Romania			8
Spain	69	3	7
UK	48		26
EU-28	**191**	**23**	**146**
Albania			8
Turkey	12		6
Ukraine			10
Europe	**203**	**23**	**170**



Storage capacity: Actually, the European storage capacity of the large-scale terminals is 9.2 million^3 LNG. From 2019 it is expected to reach 10.1 million^3 LNG. As mentioned before, some projects do not indicate a schedule. Therefore, the storage capacity could increase up to 17.5 million^3 LNG as shown in the column 'n.a.'.



Other: From the LNG receiving countries, Belgium, France, The Netherlands, Spain, United Kingdom and Turkey are able to accommodate a Q-Max. This LNG tanker has a cargo capacity up to 266,000 m^3 LNG.

More statistical data can be found in the databases (http://www.gie.eu/index.php/maps-data) which support individual analysis as well.

Excursus: Small-Scale LNG

Natural gas as fuel in maritime and road transport and energy solution in off-grid destinations is gathering ground throughout Europe. Therefore, in addition to the LNG Map with focus on the large-scale LNG infrastructure, GIE also provides a European small-scale LNG (SSLNG) map (accompanied by a database) as well as the LNG New Services Inventory.

This data include information on the new services offered by the large-scale LNG terminal operators to meet the market needs:

- Reloading: Transfer of LNG from the LNG reservoirs of the terminal into a vessel
- Transhipment: Direct transfer of LNG from one vessel into another
- Loading of bunker ships: LNG is loaded on bunkering ships which supply to LNG-fuelled ships or LNG bunkering facilities for vessels
- Truck loading: LNG is loaded on tank trucks which transport LNG in smaller quantities
- Rail loading: LNG is loaded on rail tanks which transport LNG in smaller quantities

The availability and use of these services from 2011 show the gaining importance of reloading and truck loading. The number of reloading, the transfer of LNG from the LNG reservoirs of the terminal into a vessel, quadrupled in the past 4 years. In 2014, with almost 14 million m_3 LNG, the quantity reloaded was even six times higher compared to 2011.

While truck loading of LNG has had a long tradition on the Iberian Peninsula to supply communities in off-grid locations with natural gas, this service has become popular all over Europe. This is also due to the significant potential for reducing emissions by using LNG as fuel for heavy transport. In 2014,

more than 42,000 trucks supplied almost 1.9 million m^3 LNG, which is the equivalent of 1.14 billion m^3 natural gas.

The GIE SSLNG Map with corresponding database as well as the LNG New Services Inventory can be found on the website of GIE as well.

Authors

Gas Infrastructure Europe (GIE) is an association representing the interests of European natural gas infrastructure operators active in natural gas transmission, storage and LNG regasification. 17 European LNG terminal operators (LSOs) from 9 countries, operating around 90% of the existing LNG regasification capacity in the European Union are members of GIE. They are committed to promote the development of transparent and non-discriminatory access for LNG within a fully operational European internal market, underpinned by a stable and predictable regulatory framework.

Wim Groenendijk, Gas LNG Europe (GLE) President: *"GLE has gathered all information available among its members and analysed many external sources to provide the LNG Map for Europe. We are committed to keep the map updated and welcome any comments or suggestions for improvement."*

Jacques Rottenberg, Gas LNG Europe (GLE) Vice-President and Chairman of the GLE Transparency Work Group: *"Since the publication of the first LNG Map in 2003, GLE developed and improved the dataset as well as the design of the LNG Map continuously. For example, infographics were added in 2015. It is reliable source of information for the LNG business."*