Gas Infrastructure Europe

# The benefits and role of LNG in Europe

## Providing Europe's Energy Today and in the Future


January 2018

# Who are we?

Gas Infrastructure Europe (GIE) is an association representing the interests of European natural gas infrastructure operators active in natural gas transmission, storage and LNG terminals.

15 European LNG terminal operators (LSOs) from 9 countries, operating around 90% of the existing LNG import capacity in the European Union are members of GIE. Given that the European Union does not produce large quantities of LNG, members of GIE 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. European LNG terminals operators are active in receiving LNG, but also in several other services like reloading, transhipment, small-scale services, etc.

# What is LNG?

## Liquefied Natural Gas (LNG) is natural gas cooled down to its liquid form. Natural gas is the cleanest, most efficient and versatile of fossil fuels.

The abundance of natural gas, its low carbon content, its immediate availability and its flexibility to back up renewable energy positions, make it the best energy source to reach greenhouse gas emission reduction targets whilst ensuring Europe's competitiveness on a global level.

Natural gas is converted to LNG by cooling it to -162° C, at which point it becomes a liquid. This process reduces its volume by a factor of more than 600, allowing it to be efficiently transported by specially designed LNG vessels. Once it reaches its destination, LNG is unloaded from the LNG vessel at LNG import terminals where it is stored as a liquid until it is warmed up to form natural gas (regasification process) and injected into the transmission network. It can also be reloaded or directly transhipped in LNG vessel toward other destinations. At many LNG Terminals, LNG can also be reloaded into smaller ships or trucks for distribution or to be used as a fuel for shipping or heavy-duty vehicles.

The $CO_2$ emissions reduction targets together with a decreasing indigenous gas production make LNG an essential source of energy for Europe. The high level of flexibility of LNG supplies turns it into the ideal partner for the development and integration of variable renewables. LNG makes gas reserves around the world accessible to the European market, contributing to security of supply by providing diversification of sources and routes as well as competition.

### Small scale LNG services

- New small scale LNG facilities are being constructed and operated across Europe, as part of LNG import terminals or as standalone facilities to meet customers demand.
- The SSLNG market is developing rapidly, especially as a transportation fuel and to serve end users in remote areas or not connected to the main pipeline infrastructure.
- Using LNG as a fuel leads to significant emission reduction in the maritime and road transport sector.
- Currently, the small-scale LNG (SSLNG) installed production capacity in Europe is only around 1 million ton/year. Therefore additional small scale LNG import services are offered by European LNG terminals to meet the growing European small-scale LNG demand.

Photo : OLT Offshore LNG Toscana, FSRU

# LNG Terminals in Europe

LNG terminals have been operating safely in Europe for more than 50 years as a reliable source of energy.

Photo : Enagás Cartagena LNG Terminal, Spain

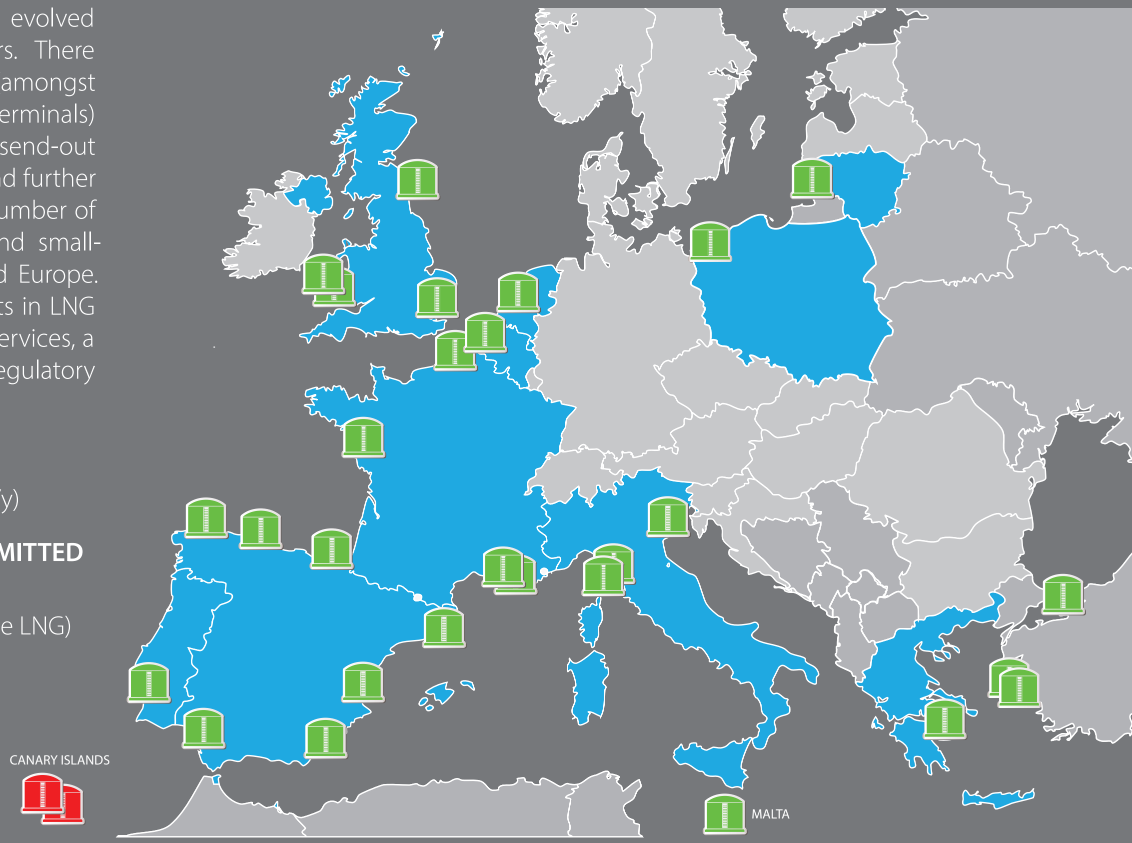
The LNG terminal business has evolved significantly over the last years. There are currently 29 LNG terminals (amongst which 6 are small-scale LNG terminals) operating in Europe (with a total send-out capacity of around 227 bcm/y) and further capacity is being developed. A number of LNG terminals projects (large and small-scale) are under study all around Europe. To continue to attract investments in LNG infrastructure and develop new services, a sound investment climate and regulatory stability is required.

**EXISTING**

29 LNG Terminals (227 bcm/y)

**UNDER CONSTRUCTION / COMMITTED**

6 LNG Terminals
(amongst which 4 small-scale LNG)




Detailed information available at www.gie.eu

# GLE Mission and Key Messages

The mission of GLE is to support its members by promoting a fully operational European internal market for LNG and helping them to create a safe and reliable LNG infrastructure system suitable for meeting present and future needs.

GLE seeks to contribute to the construction of a stable and predictable regulatory framework that is conducive to investments and ensures transparency and non-discriminatory treatment.

As a European platform for experience exchange and improvement, GLE aims to enhance the cooperation between the European LNG terminal operators with a view to facilitating access to LNG terminals, fostering new development, increasing transparency and accelerating progress towards completing the internal gas market. In addition, GLE will continue to demonstrate the important role of LNG in the European energy framework by highlighting the important contribution of LNG with respect to security of supply and the key role of LNG as a clean fuel in a low-carbon economy.


## GLE Key Messages

LNG plays an essential role in enhancing security and diversification of both sources and routes of supply in Europe. Everyone in the EU should have access to LNG.

LNG makes gas reserves around the world accessible to the European market, contributing to competition.

The high level of flexibility of LNG supplies together with the low emission of the natural gas make LNG the ideal partner for the development and integration of intermittent renewable energy such as solar and wind.

LNG plays different roles in different countries and LNG business specificities should be taken into account in any future EU regulatory evolution.

LNG terminal operators are developing new services to meet customers' needs. In order to continue to develop and attract investments in LNG infrastructure, a sound investment climate and regulatory stability is required.

The use of LNG as a fuel for shipping or heavy-duty vehicles offers an excellent opportunity for improving the environmental footprint of the transport sector.

Gas quality specifications should have ranges as broad as safely and technically possible in order to increase Europe's competitiveness in the global LNG market and to minimise additional costs in the LNG/ gas supply chain.

Gas LNG Europe

Photo : Gate Terminal, The Netherlands

# GLE Main Deliverables

GLE strives to provide input and expertise on LNG infrastructure to the European institutions, regulatory bodies and other stakeholders.

GLE has been recognized as an important stakeholder which contributes to sharing its experience with regards to the LNG business and actively participates in different European forums (Gas Coordination Group, Madrid Forum, Copenhagen Forum…).

GLE regularly publishes position papers and presentations with the views of LNG terminal operators. It actively supports the development of small-scale LNG through publication and sharing of information. Transparency is a key issue for GLE members and several initiatives have been developed to enhance transparency in the LNG business in Europe. The main GLE deliverables are described hereunder.

All main deliverables can be found at:
www.gie.eu/maps-data

## ALSI (Aggregated LNG Storage Inventory)

Launched in March 2013, ALSI is a public platform making available data regarding the operation of the EU LNG terminals. In 2016 the platform was highly improved and now includes daily information by LNG terminal.

Online publication takes place 7 days a week. ALSI offers also several user-friendly functionalities such as historical files and graphs that allow a quick overview of the past and present operational status of the EU LNG terminals.


## LNG Transparency Template

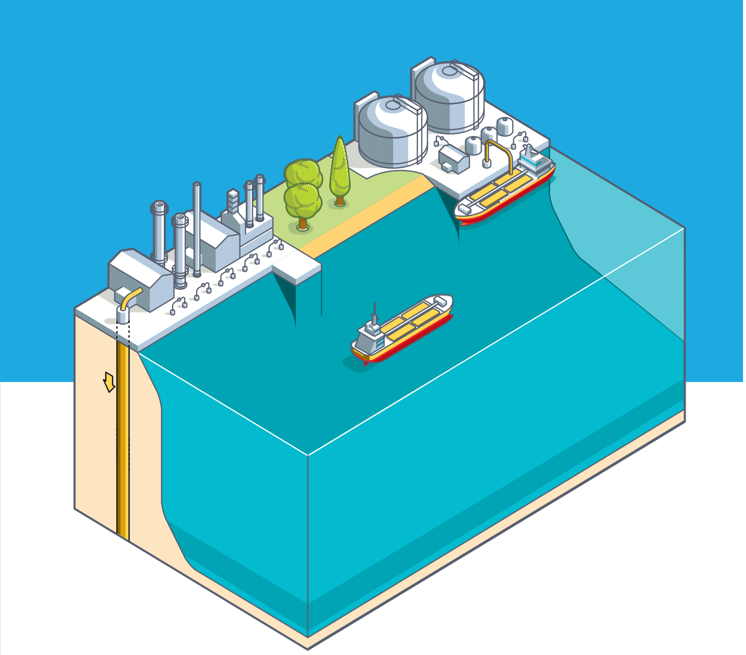
In order to promote the access to any European LNG terminal, GLE developed on a voluntarily basis and in agreement with regulators a harmonised transparency tool that fits all operators, while respecting the diversity of business models and regulatory regimes. This tool acts as a common gate allowing new users to have easy access to information by directing them via hyperlinks from menus and submenus to the necessary information already existing in the LNG Terminal Operators' websites.

LNG Terminals Transparency Template

| | Macro Area | Submenu |
|---|---|---|
| 1 | CONTACT | Contact |
| 2 | TERMINAL CHARACTERISTICS | Facilities main characteristics |
| | | Service Description |
| | | LNG Quality |
| 3 | HOW TO BECOME A CUSTOMER / USER | Main steps for applying for access |
| | | Contract information |
| | | TSO information |
| | | Ship procedures |
| 4 | CAPACITIES | Primary market |
| | | Secondary market |
| 5 | TARIFF | Regulated terminals |
| | | Exempted terminals |
| 6 | LEGAL DOCUMENTATION | Contracts/Codes |
| | | Regulation/Legislation |
| 7 | OPERATIONAL DATA | Historical data |
| | | Operational data |
| 8 | MISCELLANEOUS | Projects |

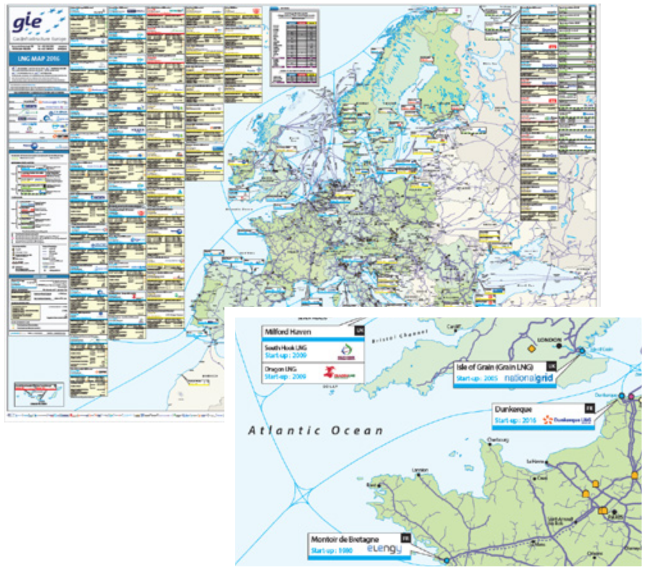
## REMIT Reporting

Since April 2016, GIE is offering a service for reporting data to ACER on a daily basis under the REMIT regulation on behalf of LNG terminal operators.



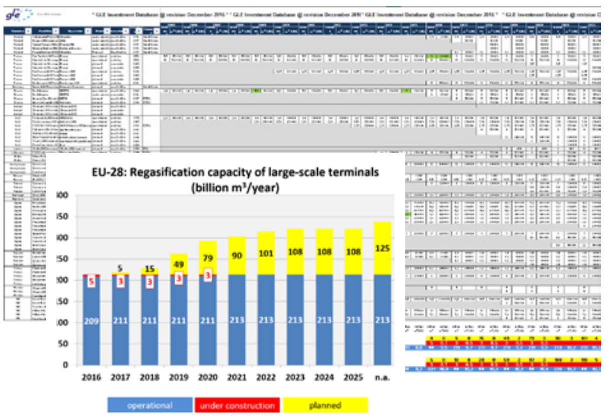
## GLE LNG Map

The GLE LNG Map provides comprehensive information on existing and under construction LNG Terminals in Europe, including send-out capacity, LNG storage capacity and other main terminal characteristics. The 'planned' or 'under study' LNG terminals are also detailed. The GLE map is updated annually with first-hand information provided by GLE members, making it a reliable source of information for the LNG business.




## GLE Investment Database

The GLE Investment Database is a simple but comprehensive tool providing information on existing, under construction and planned LNG terminals in Europe. It was first published in 2008 and has been updated regularly since then. The GLE Investment Database provides a broad picture of the development of LNG terminals over the past years and together with the GLE Map it is a valuable source of information for stakeholders.

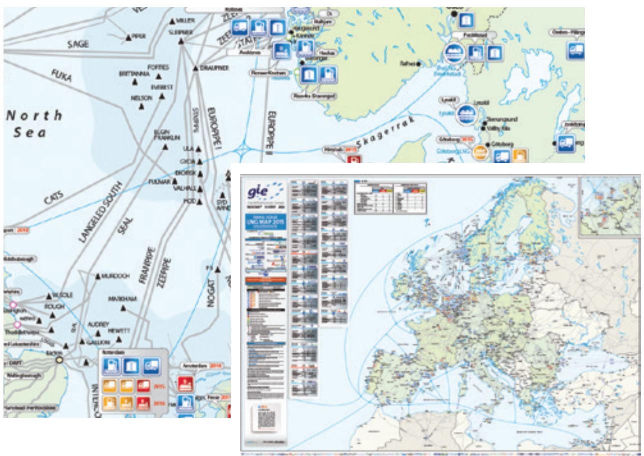



## GLE Small-Scale LNG Map

In 2014 the GLE Small-Scale LNG map was launched. The map provides an overview of the small-scale LNG infrastructure in Europe. It covers the following facilities:

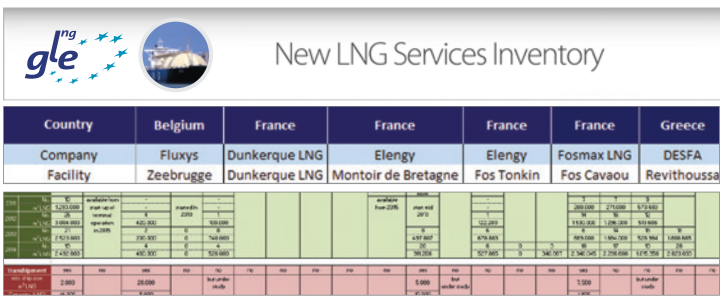
- LNG import terminals offering small-scale services,
- LNG small-scale liquefaction plants,
- LNG (stationary) bunkering facilities for vessels,
- LNG bunkering ships
- LNG refuelling stations for trucks.

The details provided for each facility include the status (in operation/under construction/planned/ announced).




## GLE LNG New Services Inventory

The GLE LNG New Services Inventory was launched in 2014 and provides an overview of new services offered by GLE members to meet market needs. In addition, it has a special focus on small-scale LNG. Most of the services included are already being provided at various terminals around Europe, or are under development. The GLE LNG Services Inventory shows data such as the minimum ship size, the hourly capacity and in particular the use of these services over the past years. The data is presented per LNG terminal.


New LNG Services Inventory

| Country | Belgium | France | France | France | France | Greece |
|---|---|---|---|---|---|---|
| Company | Fluxys | Dunkerque LNG | Elengy | Elengy | Fosmax LNG | DESFA |
| Facility | Zeebrugge | Dunkerque LNG | Montoir de Bretagne | Fos Tonkin | Fos Cavaou | Revithoussa |

# GLE Structure and Organisation

Gas LNG Europe (GLE) is structured around several working groups focusing on specific issues of particular interest and relevance for LNG terminal operators.

## Main work areas of GLE

The GLE Working Groups are aligned with the main work areas of GLE and currently include:

- Transparency
- Small-Scale LNG

It is important to note that several others on-spot working groups may be activated if it is deemed necessary. These may handle topics such as gas advocacy, gas quality or international organisations liaison depending on the priorities of LNG terminal operators.

The decision-making bodies of GLE are the GLE Executive Committee and the GLE Plenary which meet jointly on a regular basis and are chaired by the GLE President, Wim Groenendijk.

GLE develops its activities within the legal framework of GIE, which was formally established in 2002 as a legally independent and non-profit association with official statutes. Its Secretariat is based in Brussels (Avenue de Cortenbergh 100).

Photo : Saggas / Sagunto LNG terminal, Spain

## GLE Membership

15 member companies from 9 countries

BELGIUM

FLUXYS

FRANCE

Dunkerque LNG GROUPE EDF

elengy

GREECE

DESFA Hellenic Gas Transmission System Operator S.A.

ITALY

Adriatic LNG

SNAM GNL ITALIA

OLT Offshore LNG Toscana

THE NETHERLANDS

Gate terminal Gas Access To Europe

POLAND

GAZ system

PORTUGAL

REN Atlântico

SPAIN

BBG BAHIA DE BIZKAIA

enagas

reganosa

UNITED KINGDOM

nationalgrid

SOUTH HOOK LNG TERMINAL COMPANY LTD

## GLE Observers

Shannon LNG

gastrade

Photo : Enagás / Huelva LNG terminal, Spain

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Photos : Fluxys / Zeebrugge LNG terminal - © D. Samyn
Elengy / Transshipment activities