

## The European small-scale LNG infrastructure: Status and Outlook

LNG as fuel in maritime and road transport and energy solution in off-grid destinations is gathering ground throughout Europe. In March 2014 Gas LNG Europe (GLE) launched the **European small-scale LNG map and database** with an update in June 2014. This for the first time provides the LNG industry and interested parties with an overview of the available, planned and announced small-scale LNG infrastructure and services in Europe.

### Background

On 24 January 2013 the European Commission announced within the **Clean Power for Transport Package** a Communication on a European alternative fuels strategy, a Directive focusing on infrastructure and standards and an accompanying document describing an action plan for the development of LNG in shipping.

The GLE small-scale LNG study supports this initiative not only by showing existing small scale LNG infrastructure and projects but also by identifying missing links in the network. **In addition to the transport sector, the study supports the development of the use of LNG in off pipeline locations.**

### Aims

The result of the study was an **Excel database and a map** showing the small scale LNG infrastructure in Europe. It covers the infrastructure for sea transport, transport on inland waterways as well as road transport. Additionally, it shows the existing infrastructure as well as the planned infrastructure (i.e. projects) and public accessible and private facilities (e.g. LNG filling stations).

It shows not only the type and location of the infrastructure, but also standardised additional information of each facility (e.g. company, website, capacity, start-up year).

The small scale LNG infrastructure study covers the following facilities (in addition to the 'large-scale' LNG infrastructure):

#### 1. LNG import terminals offering new LNG services

- Reloading: Transfer of LNG from the LNG reservoirs of the terminal into a vessel
- Transshipment: 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

#### 2. LNG small-scale liquefaction plants

LNG is produced in small scale liquefaction plants to respond to peak shaving demand or make available natural gas to regions where it is not economically or technically feasible to build new pipelines.

#### 3. LNG bunkering facilities for vessels

This stationary facility allows ships to bunker LNG to be used as fuel for the vessel.

#### 4. LNG bunker ship

This ship supplies LNG directly to LNG-fuelled ships or to LNG bunkering facilities for vessels.

#### 5. LNG refuelling stations for trucks

This facility allows trucks to fill LNG to be used as fuel.

## 6. LNG satellite storage

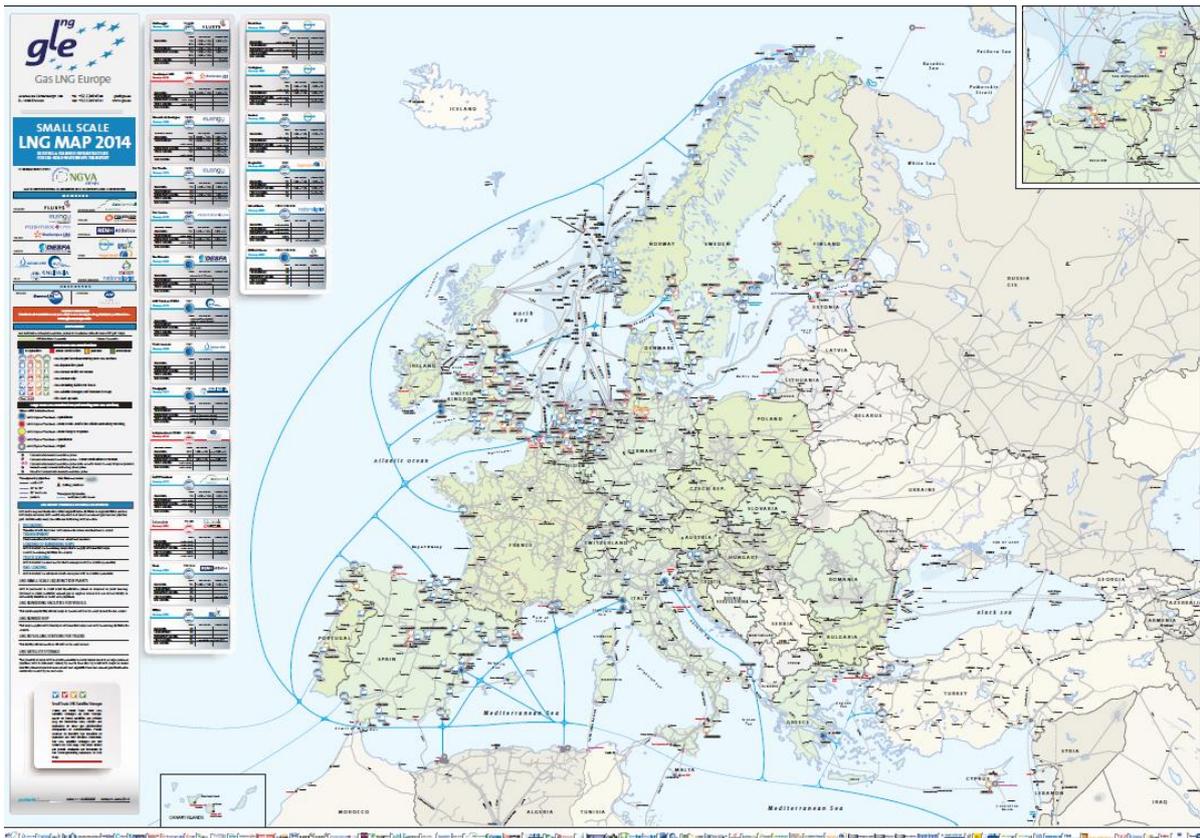
They enable to store LNG in small quantities in areas where there is no high pressure pipeline. LNG is delivered mainly by trucks (but also by small LNG ships) to these satellite plants where it is then stored and regasified into the natural gas distribution networks or used by an end user.

### Methods

1. GLE gathered all information available among its members.
2. In order to guarantee efficiency and to avoid redundancies, GLE discussed the agreed scope of work with other relevant organisations for a potential cooperation. The Natural Gas Vehicles Association Europe (NGVA) provided information regarding the LNG filling stations in Europe.
3. A consultant completed the study by collecting information from public sources.

### Results

On the website of [Gas Infrastructure Europe \(GIE\)](#) the database and map are available in electronic format. The map is available in printed format (A0) as well. It will thereby greatly enhance the visibility of the small-scale LNG infrastructure.



**MAP LEGEND**

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

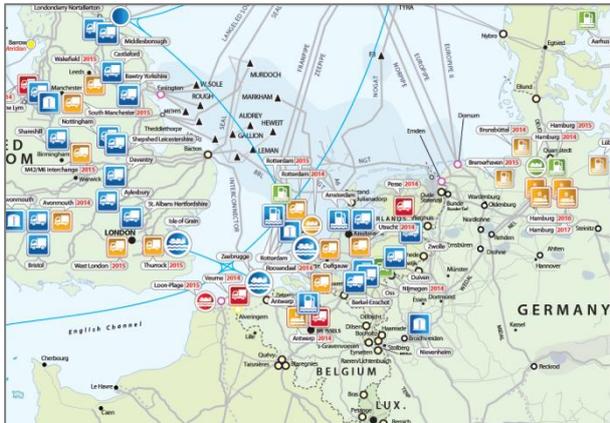
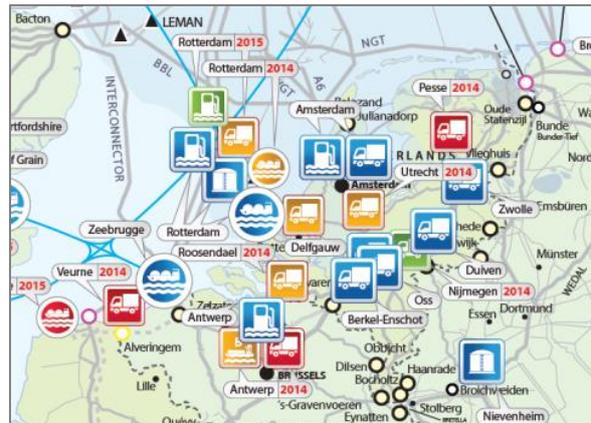
GIE Member Countries      Other Countries

**Small Scale LNG Infrastructure**

- in operation
- under construction
- planned
- announced

- LNG import terminal offering new LNG services
- LNG liquefaction plant
- LNG bunker facility for vessels
- LNG bunker ship
- LNG refuelling station for trucks
- LNG satellite storages (not included in map)

Pease 2014      City, Start-up date



TYPE of installation	Country	Status	Start-up Year	Name of installation	Owner
1	Belgium	in operation	1967	Zeebrugge LNG Terminal	Phygas
2	Denmark	announced	2018	Hertofels	n.a.
3	Denmark	announced	2015	Paniso Harbour LNG terminal	Gasum
4	Finland	announced	2017	Tornio Manga LNG	Outokumpu
5	France	in operation	1972	Fos-Tonkin LNG Terminal	Energy
6	France	in operation	1980	Montbon-de-Bretagne LNG Terminal	Energy
7	France	in operation	2010	Fos Cavaux LNG Terminal	Fluinais LNG
8	France	in operation	2015	Dunkerque LNG Terminal	Dunkerque LNG
9	Germany	announced	2014	Hamburg LNG Terminal	Burton Linde
10	Greece	in operation	2009	Reythousa LNG Terminal	OSPA
11	Italy	in operation	1971	Panagaglia LNG terminal	ENI Italia
12	Italy	in operation	2013	CST Offshore LNG Terminal	CST Offshore LNG Terminal
13	Netherlands	in operation	2011	Rotterdam (Gate) LNG Terminal	Gasunie, Vopak
14	Netherlands	planned	2015	Rotterdam LNG Break Bulk	Vopak
15	Norway	in operation	2007	Moeynes LNG terminal	Gasnor
16	Norway	in operation	2011	Øra LNG, Fredrikstad	Silangos
17	Poland	under construction	2014	Swinoujscie LNG Terminal	Polonia LNG
18	Portugal	in operation	2004	Sines LNG Terminal	REN Atlantic
19	Spain	in operation	1969	Bareilona LNG Terminal	ENAGAS
20	Spain	in operation	2005	Bilbao LNG Terminal	ENAGAS
21	Spain	in operation	1988	Huelva LNG Terminal	ENAGAS
22	Spain	in operation	1989	Cartagena Phase I	ENAGAS
23	Spain	in operation	2007	El Ferrol, Alagadros LNG Terminal	Engesa
24	Spain	under construction	2018	Gijón, El Musel LNG Terminal	ENAGAS
25	Sweden	in operation	2011	Nynäshamn (Borealis/Shell) LNG Terminal	ASGA
26	Sweden	under construction	2014	Lysvik LNG Terminal	Silangos
27	Sweden	planned	2015	Gotteborg LNG terminal	Svaldags, Vopak
28	Turkey	planned	2018	Gazifuat LNG terminal	n.a.
29	Turkey	in operation	1994	Marmara Ereglii LNG Terminal	BOGAS
30	Turkey	in operation	2006	Akinci Ismeri LNG Terminal	IGGAS

Small-Scale LNG per type of installation	Status		
	In operation	Under construction	Planned or announced
LNG terminals (large + small):			
Reloading	9	3	4
Transshipment	2	1	5
Loading of bunker ships	5	2	12
Truck loading	15	3	7
Rail loading	-	-	3
Liquefaction plants	>19	-	3
Bunkering facilities for vessels	16	1	15
Bunker ships	2	-	5
Refuelling stations for trucks	54	7	16
Satellite Storages	>1000	n.a.	n.a.

Small-scale LNG installations per country (top 10)	Number of Installations*		
	In operation	Under construction	Planned or announced
1. Spain	22	3	8
2. Norway	21	1	1
3. UK	17	2	8
4. Netherlands	12	1	6
5. Sweden	6	3	6
6. France	5	-	2
7. Portugal	4	-	3
8. Belgium	3	2	-
9. Germany	3	-	4
10. Italy, Slovenia	2	-	-

\* excl. LNG Satellite Storages

### Summary/Conclusions

Regarding small-scale LNG installations per country, the study shows a clear reduction of installations from the West to the East. Considering the types of installations, most of the European LNG terminal operators already offer truck loading and there are many plans to provide loading of bunkering ships as well. The number of refuelling stations for trucks (currently mainly in Spain, UK and Netherlands) and bunkering facilities for vessels (currently mainly in Norway) are increasing continuously. The number of liquefaction plants and satellite storages is expected to be higher. Many of these facilities are private (e.g. for industrial use). Others are operated by local gas distribution companies or communities. Public sources to identify the location or operator are very limited. Therefore, GLE welcomes any additional information for improvement. The next update is scheduled in April 2015.

### Authors

**Gas LNG Europe (GLE)** currently represents 16 European LNG terminal operators (LSOs) from 9 countries, operating around 90% of the existing LNG regasification capacity in Europe. GLE is 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**, GLE President: *“GLE has gathered all information available among its members to provide this first small-scale LNG map for Europe. We are committed to keep the map updated and welcome any comments or suggestions for improvement.”*

**Pieterjan Renier**, GLE Vice-President and Chairman of the GLE Small Scale LNG Work Group: *“For small-scale LNG solutions to gain momentum LNG operators are developing new infrastructure and services to accommodate transport of LNG by road and fuelling facilities for trucks, trains and ships. However, visibility of these initiatives is fragmented and the GLE small-scale LNG map fills this gap for the market.”*