Offshore LNG terminals in Europe

Part 2

Poland

Austria

Germany

2025

Content

The role of LNG in the global gas infrastructure

The global hydrocarbon market is undergoing profound transformations.

The cost of key energy sources - oil, natural gas and coal - shows dynamic fluctuations in a wide range, directly influenced by political conditions and consumer demand fluctuations.

At the same time, a growing trend is taking hold: more and more countries are announcing plans to abandon hydrocarbon production altogether in favor of renewable energy sources.

It is noteworthy that the significant reduction in energy prices has contributed to a sharp rise in the sales figures of gas-producing corporations.

This dynamic confirms that, despite the volatility in global markets, the importance of natural gas in the energy balance will increase. This trend is particularly relevant in the context of Asia's economic expansion, where energy demand is steadily growing.

The additional competitive advantage of gas remains its relative environmental friendliness, which strengthens the position of this resource in the global transition to «green» energy. Thus, even in the era of energy disruption, natural gas remains a strategic element of the world's energy system.

Over the past two decades, the world market for liquefied natural gas has experienced unprecedented growth: its transport volumes have increased by more than 3.5 times. This dynamic is the result of global changes in energy strategy, technological breakthroughs and demand reorientation. While in the early 2000s LNG accounted for a modest share of international gas trade, by 2025 it had become a key element of energy security in many countries.

Europe, seeking to diversify its supply after the 2022 crisis, has increased LNG imports by 60% per year. In parallel, the US has become a major exporter thanks to the shale revolution, while Qatar and Australia have expanded their production capacity.

The improvement of liquefaction and regasification processes, as well as the creation of a new generation of specialized gas tankers have reduced transport costs and extended the geographical scope of deliveries. For example, the emergence of floating terminals (FSRU) has allowed countries without developed infrastructure to rapidly increase their imports of GHGs.

The growth of spot and short-term contracts has made LNG more attractive to buyers avoiding long-term commitments.

Many of the largest countries are actively replacing traditional energy sources, which stimulates LNG demand.

Global demand for LNG is expected to grow by another 25% by 2030, but the industry faces risks: high capital costs, competition with hydrogen power and pressure from eco-standards. Nevertheless, LNG will retain its role as a strategic resource combining affordability, sustainability (compared to coal and oil) and the possibility of integrating into future «green» energy systems.

LNG for Central European countries

The sharp increase in demand for liquefied natural gas (LNG) in the European Union countries is forcing these states to upgrade their port infrastructure at an accelerated pace to ensure the reception and regasification of increased volumes of fuel.

This dynamic stimulates the development of new LNG supply routes, creating serious competition with traditional pipeline gas.

This process facilitates the diversification of energy sources, reducing dependence on one supplier and increasing the flexibility of Europe's energy market.

As a result, there is a need for further expansion and optimization of the infrastructure to ensure stable gas flow through LNG terminals while maintaining energy security in the region.

For Central Europe, the SGP is not just an alternative to Russian gas, but a tool of geo-economic influence.

The region is becoming a «bridge» between global suppliers (US, Qatar) and the intra-European market, strengthening the energy security of the EU.

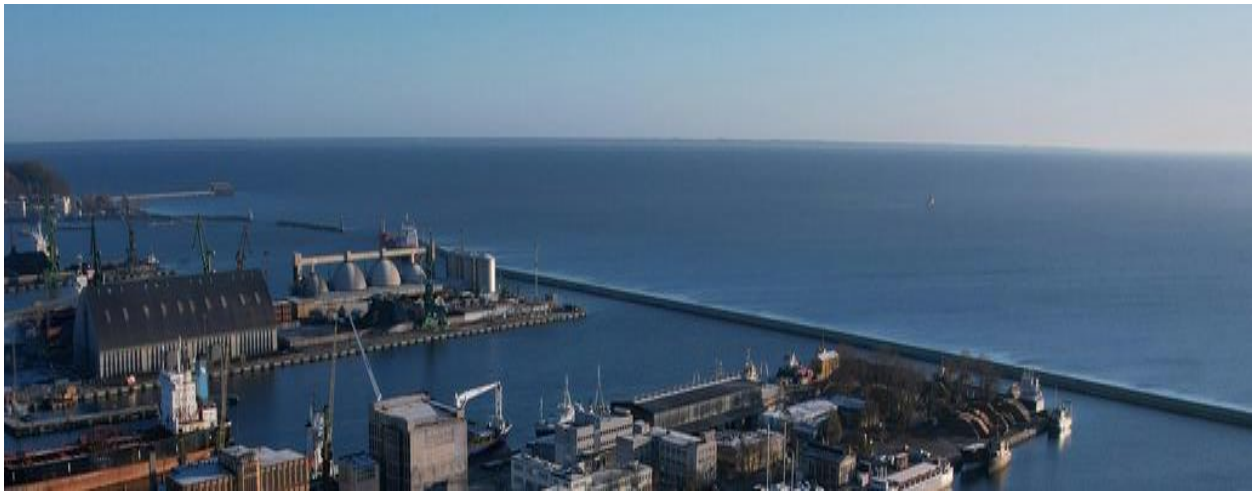
However, the success of this strategy depends on a balance between investments in gas infrastructure and decarbonization commitments.

Until 2022, up to 80% of the gas in Central Europe came through pipelines from Russia.

By 2024, the share of LNG in imports from Poland reached 40%, Lithuania - 100%, Hungary - 25% (via Croatian terminal).

Land-locked countries in the region, such as Slovakia and the Czech Republic, are connected to LNG chains via pipeline links with terminals in Poland and Croatia.

For example, gas from Krka is supplied to Hungary via the Hungary-Croatia pipeline and from there - to neighboring states.



Poland

- **LNG Regasification Terminal in Swinoujscie**

The terminal is located in Swinoujscie on the Baltic Sea. It has been operating since 2015.

Operator: operated by Polskie LNG (owned by state-owned company GAZ-SYSTEM S.A

Owner: OGP Gaz-System S.A.

Terminal characteristics

- Approximately 40 hectares
- Wave length of about 3 km
- Mooring system for unloading gas tankers with capacities from 120,000 m^3 to 217,000 m^3 (Q-flex)
- 3 full-containment containers for LNG storage, total capacity 500 thousand m^3
- SCV (Submerged Combustion Vaporiser) 5-evaporator regasification plant
- The nominal regasification rate is 946,000 m^3/h*.
- Regasification capacity 984,000 m3/h.
- Technical capacity of the LNG terminal - **8.3 billion** m^3 of natural gas per year.
- Transhipment capacity - 10,000 m^3 LPG / h
- Technical possibilities of installation of tank filling - 30 t /h
- The gas pipeline from Swinoujscie to Szczecin is 80 km long, 0.8 m in diameter, connecting the LNG terminal with the Polish transport system.
- Loading of LNG into ISO tank trucks and containers,
- Loading of LNG into small and large tankers and LNG bunkers**.**

The projected capacity of the **LNG terminal in Swinoujscie** is about one third of the country's annual consumption. The gas port can increase capacity to 10 billion cubic meters per year if necessary.

Supplier of liquefied gas to the terminal from Qatar: Qatargas Operating Company Limited

Polish side: Polskie Górnictwo Naftowe i Gazownictwo SA (PGNiG) is a national gas company engaged in the exploration, extraction, storage and sale of natural gas and oil.

Qatargas and PGNiG have signed a contract valid until June 2034 under which LNG shipments from Qatar to Poland will increase to 2.17 tons of LNG/year (2.9 billion m^3 gas) from the initial 1.5 billion m^3/year.

LNG supplier from the USA: Venture Global LNG

PGNiG has signed a contract with Venture Global LNG for 20 years until 2038, under which it will receive 2 million tons of LNG annually.

Example of calculation of the volume of gas carried by Q-flex after regasification:

Volume of LNG transported: *about 210 000-266 000 m^3 (depending on the modification).*
Density of liquefied natural gas (methane, main component of LNG): *approximately 0.42 kg/l (at 162 °C temperature).*
Conversion of storage volume to LNG mass: *M=V ρ, where: M - LNG mass (kg), V - storage volume (l), ρ - LNG density (kg/l)*
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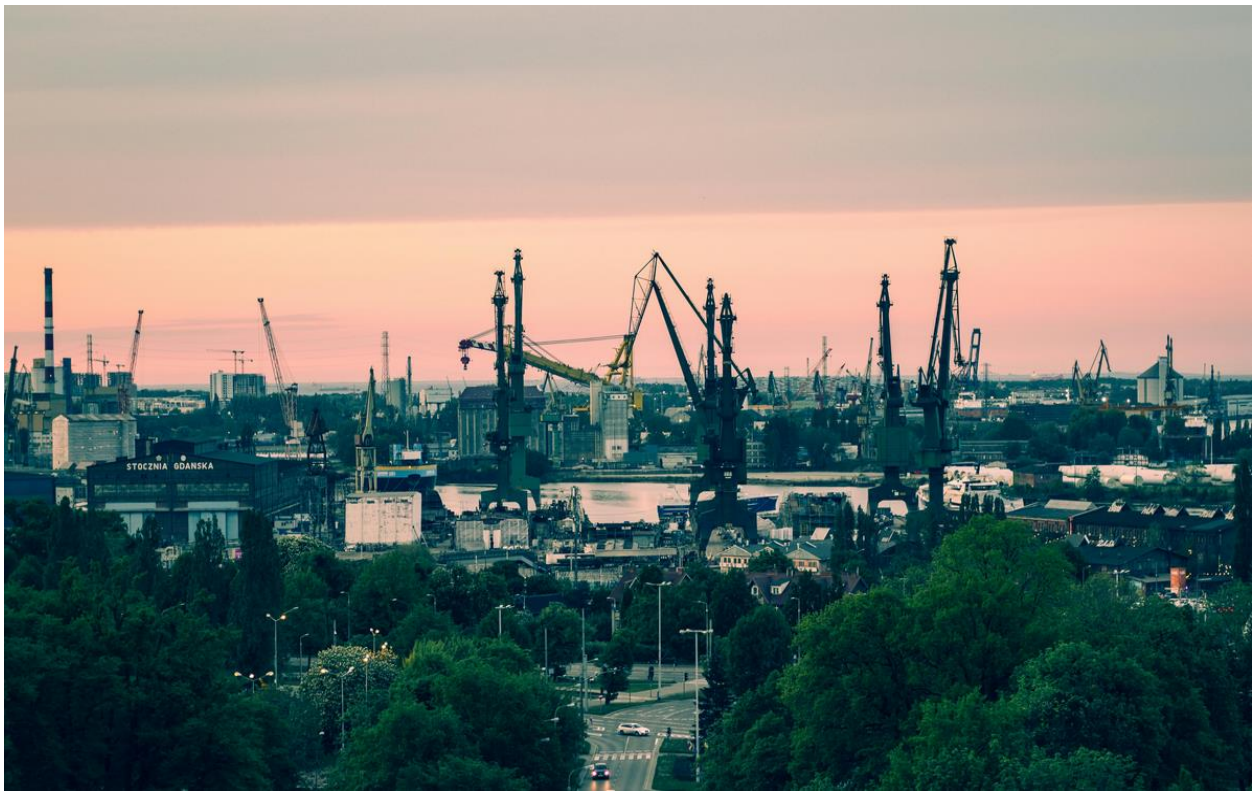
Conversion of storage volume to LNG mass: *M=V * ρ, where: M - LNG mass (kg), V - storage volume (l), ρ - LNG density (kg/l). For example, for 250,000 m^3:*
*M=250,000,000 * 0.42 kg/l = 105,000,000 kg.*
Determination of gas volume after regasification: *During regasification, 1 kg of methane is converted into 1.96 m^3 of gas under normal conditions (temperature 0°C, pressure 101.325 kPa).*
Total volume of gas after regasification: *V_{gaz}= M* k, where: V_{gas} - volume of gas after regasification (m^3), k - rate of regasification (about 1.96 m^3/kg).*
Total: *V_{gaz} = 105,000,000 * 1.96 m^3/kg=205, 800,000 m^3.*
*Thus, the **Q-Flex vessel** with a storage capacity of **250,000 m^3** will be able to deliver about **206 million m^3** of gas after regasification.*



LNG Supplier from the USA: Cheniere Energy

PGNiG has signed a contract with Cheniere Energyna 20 years before 2038, under which it will receive 2 million tons of LNG annually.

Total US shipments were 4.66 million tonnes of LNG. From the American ports in Swinoujscie, 41 ships left as part of long-term and spot purchases. Qatar was second with 19 deliveries.

One ship headed to the gas port of Swinoujscie from Trinidad and Tobago and Equatorial Guinea.

Example of calculation of the volume of natural gas after regasification 2 million tons of liquefied natural gas:
LNG density: *430 kg/m^3*
Regasification ratio*: 600 m^3 of natural gas per m^3 of liquefied gas.*
Convert LNG mass to volume:
V_{LNG} = Mass/Density = 2,000,000/430 = 4,653,000 m^3
Volume the natural gas production after regasification:
*$V_{natural\ gas}$= V_{LNG} * 600 = 4,653* 600 = 2,791, 800, 000 m^3*
So, after regasification 2 million tons of LNG per year will produce about 2.79 billion m^3 of natural gas.

Current demand of the country: 20 billion m^3 of gas per year.

Population of Poland 37.9 million people.

How the country's needs are covered:

1. **Own production of gas** 4 billion m^3 a year.
2. **Annual gas imports** of 10-15 billion m^3**:**

- **9 underground gas storage facilities** with a total active capacity of 3.5 billion m^3 (37.493 billion sq.m.)
- **LNG terminal in Swinoujscie 8.3 bn.** m^3**,** capable of meeting half of the country's gas needs.
- **The Baltic Pipe pipeline** for gas supplies from Norway transports natural gas from the North Sea to Poland via Denmark in a volume of up to 10 billion m^3 per year.
  Launched in September 2022.
- **Gas Interconnection Poland-Lithuania (GIPL)** is a main gas pipeline with a capacity of 2.4 billion m^3 per year in Lithuania and 1.9 billion m3 per year from Lithuania to Poland.
  GIPL has become an alternative delivery option, via the Independence LNG terminal in Poland.
  Launched in May 2022. Used at 25% capacity.
- **Gdańsk LNG floating terminal with capacity of 6.1 billion** m^3 gas per year, planned to be completed by 2028 Gas.

Major gas consumers:

Industry -25%
Population -25%
Organization of the service sector -15%
Electricity 8%
Share of cars running on gas 2%.

Austria

Austria, which is landlocked and has its own infrastructure for receiving liquefied natural gas (LNG), is nevertheless actively integrating into the pan-European gas supply system through cooperation with neighbouring countries.

After 2022, when the EU announced a reduction in its dependence on Russian gas, Austria, which had previously received up to 80% of gas from Russia via pipelines and had the longest contract with it until 2040, started diversifying supplies, including LNG in its energy supply.

Access mechanisms for LNG

1. **Transboundary pipelines**
   Austria is connected to LNG terminals in neighbouring countries through the European gas transport network:
   - **Croatian terminal** on the island of Krk (capacity 2.6 billion m^3 per year). Gas is supplied to Austria through **the Croatia-Hungary-Austria pipeline.** In 2023, the share of Croatian LNG in Austrian imports reached 15%

- **Italian terminals (e.g., Adriatic LNG). G**as is supplied via the Trans Austria Gasleitung (TAG) pipeline connecting Italy with Austria.
- **German floating terminals** (FSRU in Wilhelmshaven and Lübeck). After 2023, Germany started to re-export LNG to Austria through the GRTgaz and MEGAL network**.**

Austria participates in the EU Energy Platform, which brings together European countries' demand for joint LNG procurement. This allows to reduce prices and guarantee volumes.

Consumption of the country:

Annual gas consumption in the country is about 8.5 billion m^3 per year. Fuel consumption in Austria in 2024 was 75 MW/h.

Population 9,132 million people.

How the country's needs are covered:

1. **Own production** of gas 900 mln. m^3per year.

   - The new Wittau Tief-2a field with reserves of 48 TWh (4.6 billion m^3) will increase production by 50% - 460 million m^3 per year in 10 years.

2. **Annual gas imports** of 10-15 billion m^3:

   - Long-term supply of liquefied natural gas at the Dutch Gate terminal in Rotterdam and through the European Union’s Joint Gas Procurement Platform,
   - Contract with the Norwegian energy group Equinorgaz to supply 12 terawatt-hours (TWh) of gas through the German virtual trading hub THE (Trading Hub Europe) until 2028.
   - Imports from Germany, Italy and other countries that themselves diversify the supply.

- Since 2026, 1.4 billion m^3 of LNG have been delivered under a contract between OMV and the British BP.
- Underground gas storage facilities of 98.973 billion kW/h to stabilize the energy balance.
- Imports from Germany, Italy and other countries that diversify their supplies themselves.

This year, the main source of gas supply in Austria has been through own storage facilities. ***According to E-Control****,* ***45%*** *of consumption was supplied by gas stores,* ***24%*** *by maritime deliveries of liquefied natural gas to Europe, and* ***16%*** *came via Germany from Norway. Remaining (****15%****) purchased from suppliers in the Caspian region, North Africa and the UK.*

Austria has a strategic gas reserve of 21 TWh (up to 2027).

The volume of working gas and the volumes of gas injection and extraction by storage facilities in Austria as of December 2024 was about 100.1 TWh.

The main gas hubs of Europe and their storage capacity:
NBP (United Kingdom) 3.3 bn m^3,
CEGH (Austria) 8.6 bn m^3,
TTF(Netherlands) 12.5 bn m^3,
GASPOOL, NCG (Germany 24.4 bn m^3),
PEG (France) 12.4 bn m^3,
PSV(Italy) 17 bn m^3,
EEZ (Belgium) 1.1 bn m^3.
Total PCB capacity in the EU ~100 bn m^3 (about 25% of annual EU consumption)

Germany

In Germany, liquefied natural gas has become an important element of the energy strategy after the reduction of Russian gas supplies, when more than half of the country's total demand remained unmet.

In May 2022, in order to make up for supply shortages and improve security, the country adopted the LNG Supply Acceleration Act, after which it actively developed the infrastructure for receiving LNG, in record time in cooperation with experienced partners by building new LNG terminals in Wilhelmshaven, Brunsbüttel and Lubmin.

Although the share of these LNG terminals in German gas imports is negligible and represents 7-9% of total consumption in Germany, it makes a significant contribution to the stability of the energy system on the way to climate neutrality.

As of **2025**, there are **two** private and four public maritime terminals **for** the reception of liquefied natural gas:

1. **Lubmin** (private, launched in January 2023)
2. **Deutsche Ostsee in Mukran** (private, since September 2024)
3. **Wilhelmshaven 1** (commissioned in December 2022).
4. **Wilhelmshaven 2** (to be commissioned in early 2025).
5. **Brunsbüttel** (operating since 2023).
6. **State** (launched in March 2024).

All of them are floating terminals (FSRU - Floating Storage and Regasification Unit), which allowed Germany to quickly increase its imports of LNG after the abandonment of Russian gas.

In addition, it is planned to build and put into operation two LNG land terminals:

- **German LNG Terminal in Brunsbüttel** (launch at the end of 2026)
- **Hanseatic Energy Hub in Stade** (start 2027) private project

Consider the characteristics of the above-mentioned LNG terminals in detail.

Docked in 2022 and commissioned in January 2023 from French energy giant TotalEnergies regasification vessel Neptune under the management of private company Deutsche ReGas.

- **FSRU Neptune in Lubmin**

Germany's first private floating terminal FSRU Neptune is located in Lublin (Mecklenburg-Vorpommern) on the Baltic Sea and uses infrastructure that was used to receive gas from the currently non-operational main pipelines of the North Flow system.

Operator: start-up company Deutsche ReGas

Terminal characteristics

- Length: 280 m
- Capacity: 170,000 m^3.
- **Capacity:** 4.5 billion m^3 per year, the second phase of the project will increase to 13.5 billion annually
- Terminal connected to gas network via pipeline.

In the second phase of the project, Deutsche Regas plans to install a Dynagas-owned floating regasification **terminal Transgas Power.**

- **FSRU Terminal «Deutsche Ostsee» in Mukran**

The power terminal has been in operation since September 2024.

Terminal operation: Deutsche ReGas Betriebs GmbH

Acquisition, management and development of land for energy projects: Deutsche ReGas Immobilien GmbH

Purchase, management and rental of mobile equipment and associated maintenance services: Deutsche ReGas Service GmbH

Planning and operation of hydrogen plants, both production plants in Lubmin and Mukran (electrolysers) and future hydrogen import plants: Deutsche ReGas Wasserstoff GmbH

Management: Deutsche ReGas Verwaltung GmbH

Deutsche ReGas Betriebs GmbH, Deutsche ReGas Immobilien GmbH, Deutsche ReGas Service GmbH, Deutsche ReGas Wasserstoff GmbH являются дочерними компанией Deutsche ReGas GmbH & Co. KGaA.

Deutsche ReGas Verwaltung GmbH is a general partner of Deutsche ReGas GmbH & Co.,

Terminal characteristics

- FSRU Transgas Power
- Capacity up to 13.5 billion m^3 with a throughput of 16 GW/h
- With a capacity of 174,000 m^3.
- Overall length is 294 m, width - 46.95 m, depth of the main deck - 26.25 m.

According to the company Deutsche ReGas, the regasification vessel «Energos Power» was withdrawn from the energy terminal «Deutsche Ostsee» in the industrial port of Mukran on 16 February. The destructive pricing policy of the state DET is one of several reasons for the termination of the subcharter contract.

The statements indicate that since December 2024, DET has systematically sold its capacity for regulated LNG terminals at prices significantly lower than the cost-covering rates approved by the Federal Network Agency of Germany. This has led and continues to lead to significant market distortion in Germany. »
Operation of the power terminal «Deutsche Ostsee» will continue with the help of the regasification vessel «Neptune».

Terminal Deutsche Ostsee in Lubmin was less popular than the rest - since its launch, its load amounted to 18%.

The terminal transferred significant gas capacities via the German (EUGAL/OPAL/MEGAL) and Czech gas pipeline networks (GAZELA) to Austria. At the same time, Austria's annual consumption (about 75 TWh) could be covered by one terminal of Deutsche Ostsee, which is the largest gas supply point in all of Germany.

The FSRU Neptune installation is planned to be moved there later in the year. LNG regasification will take place directly in Mukran, after which the gas will be transported to Lubmin through a new pipeline, whose construction is entrusted to the company Gascade.

It is also planned to install hydrogen electrolysis from 2026 and create infrastructure for hydrogen import from 2027/28.

Consider the operating capacity of the state-owned company DET.

Deutsche Energy Terminal GmbH (DET) is a state-owned German company responsible for the operation of LNG terminals, operates four floating LNG terminals at three sites: Brunsbüttel, Staden and Wilhelmshaven.

Regasification is the process of turning liquefied natural gas (LNG) back into gaseous form. LNG is produced by cooling natural gas to -162^{o} C, which reduces its volume by about 600 times, making transport easier. For example, 165,000 m^{3} of LNG on a tank after regasification is converted into 100 million m^{3} of gas in the network. This is enough to cover the annual needs of approximately 73,000 households in Germany.

- **Wilhelmshaven 1 LNG on the FSRU Höegh Esperanza**

The terminal is located in Wilhelmshaven, close to the port of Yade-Vezer on the North Sea. A ten-year operating contract.

Owner: shipping company Höegh Evi
Operator: Deutsche Energy Terminal
Operation and maintenance management: LTeW GmbH, a subsidiary of Uniper
Commercial management: KN Energies
Regasification: Höegh Evi

Terminal characteristics

- Vessel built in 2018.
- Length: 294 m
- Capacity: 170,000 m^{3}.
- Regasification capacity: 750 mkb per day
- Annual capacity up to 4.7 billion m^{3}.

- **Wilhelmshaven 2 LNG on the FSRU Excelerate Excelsior**

The terminal is located 1.5 km from the shore, and 2 km south of the Wilhelmshaven 1 terminal and is under construction.

Owner: American Excelerate Energy
Operator: Deutsche Energy Terminal

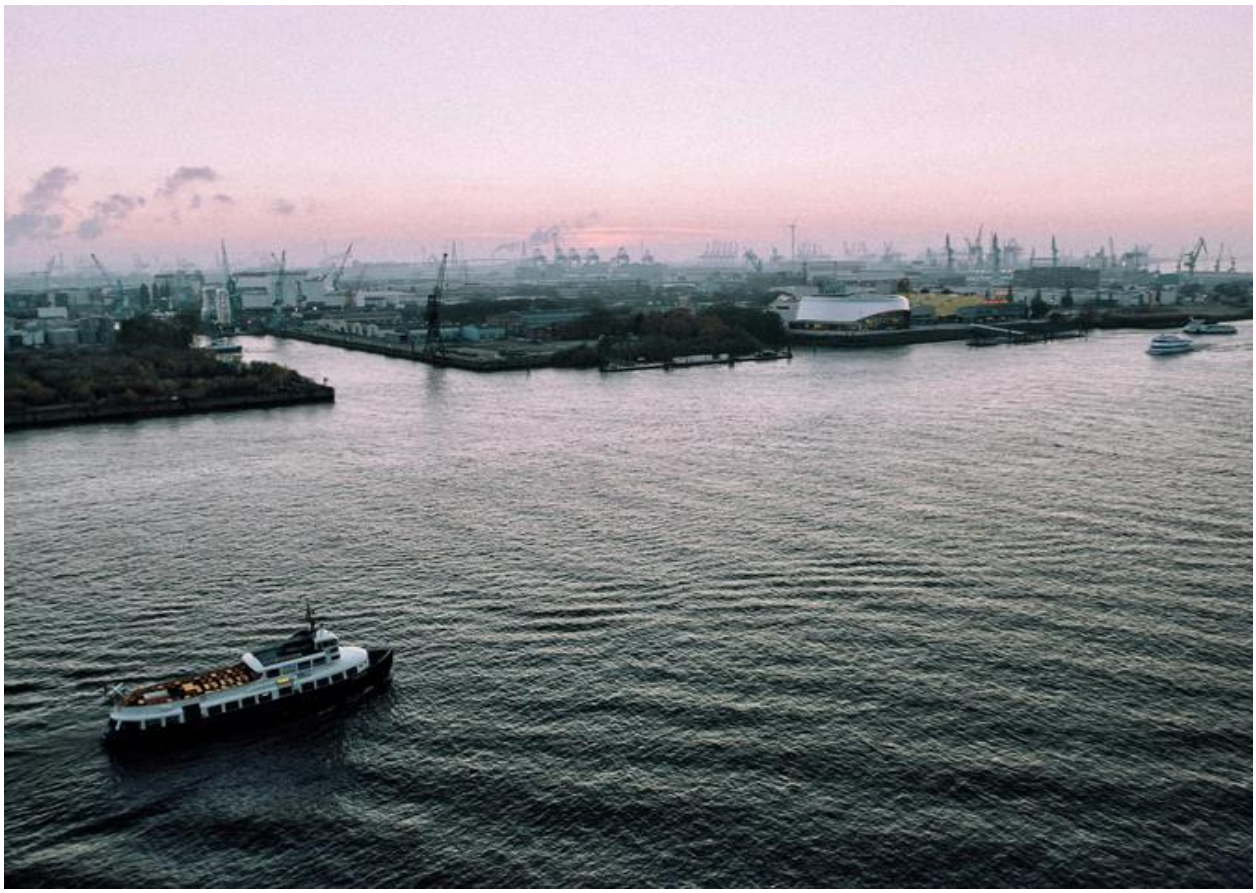
Commercial management, operation and maintenance: KN Energies
Regasification: Excelerate Energy

Terminal characteristics

- Vessel built in 2005 and taken on a five-year charter
- Length: 277 m
- FSRU tank capacity is 138,000 m^3
- Regasification capacity up to 500 million standard cubic feet per day (MMSCFD).
- Annual injection capacity - up to 5 billion m^3.

The terminal is connected to the WAL 1 pipeline, to which the Wilhelmshaven 1 terminal is connected via the two-kilometre WAL 2 pipeline.

1.7-kilometer gas pipeline at a depth of 14 meters under sea directly connects FSRU Excelsior with the German gas grid.



- **Brunsbüttel LNG on the FSRU Höegh Gannet**

The terminal is located in the port of Elbehafen in Brunsbüttel (Hamburg, Germany), a strategic location on the banks of the River Elbe near its crossing with the Kiel Canal.
Thanks to this location, the terminal has access to deep fairways, which makes it convenient for large ocean vessels.
This allows us to accept and process large volumes of cargo, ensuring efficient logistics and communication with international markets.

Owner: shipping company Höegh Evi
Operator: Deutsche Energy Terminal
Terminal management: Gasfin Development SA
Operation and maintenance: Reganosa Deutschland
Commercial management: KN Energies
Regasification: Höegh Evi

Terminal characteristics

- Vessel built in 2018.
- Length: 294 m
- Capacity: 170,000 m^3.
- Regasification capacity: 750 m^3 per day (regardless of season due to external heat supply)
- Annual regasification capacity up to 3.7 billion m^3 per year.

The terminal is connected to the gas network through a pipeline.

The German company RWE, implementing the project on behalf of the German government, has concluded an agreement with the national oil company Abu-Dhabi - a corporation Adnoc for supplies of liquefied natural gas (LNG).

Terminal load since launch - 22% capacity.

- **German LNG Terminal in Brunsbüttel** (planned ground terminal)

In mid-2023, the European Commission (EC) approved financial support of 40 million euros for the construction and operation of a new LNG terminal at Brunsbüttel. This will replace the FSRU operating there. Subsequently FSRU Höegh Gannet can be rented or used as an LNG tanker.

Land terminal with capacity of 10 billion m^3per year is planned to be put into operation by the end of 2026.

Shareholders: The Government of Germany through KfW, a 50% investment and development bank.
German energy operator RWE with 10% share
Dutch energy network operator Gasunie with 40% share.

Construction and operation: German LNG Terminal GmbH (GLNG)

Total investment in the project is around €1.3 billion.

Terminal will be converted after 15 years of operation, by 2043, into a terminal for the import of renewable hydrogen or its derivatives.

The long-term lease of 4 floating factories FSRU until 2038, will cost the German state, according to preliminary estimates BMWK, 9.7 billion euros.

There are 49 such regasification vessels worldwide.

- **Stade LNG on the FSRU Energos Force**

In August 2023, Transgas Force, FSRU, chartered on behalf of the German government from the Greek shipping company Dynagas, arrived in Bremerhaven, for a further transfer to the energy port of Staden.

The vessel will be located and operated in State before commissioning of the LNG Hanseatic Energy Hub ground private terminal, which is planned to be completed in 2027 and provide gas supplies in the short term.

Owner: shipping company Energos Infrastructure Management
Operator: Deutsche Energy Terminal
Terminal management: Gasfin Development SA
Operation and maintenance: Reganosa Deutschland
Commercial management: KN Energies
Regasification: Energos Infrastructure Management

- The vessel was built in 2021.
- Length: 294 m
- Capacity: 174,000 m^3.
- Regasification capacity: 750 mkb per day
- Annual regasification capacity up to 7.5 bn m^3.

Import terminal will be connected to gas network through pipeline.

- **Hanseatic Energy Hub в Stade**

By 2027, FSRU is planned to be replaced with a land-based and privately funded LNG, bio-LNG and synthetic natural gas (LNG) terminal, with two tanks of **240,000** m^3 capacity, with the potential to increase gasification capacity to **13.3 billion** m^3 per year.

The planned output power is 21.7 GW t/h.

Shareholders: Buss Group, Partners Group, Enagás and Dow.

Operating activity: Enagás

Construction: international company Técnicas Reunidas, specialized in planning, procurement and construction, and partners FCC and Enka.

About 1 billion euros will be invested in the construction.

The company envisages that customers who have contracts for more than 10 years will be able to switch to ammonia as a hydrogen-based energy source in the future.

The following terminal capacities have been reserved since 2027:

- EnBW (German energy supplier) 6 bn m^3
- SEFE (German energy supplier) 4 bn m^3
- ČEZ (Czech Energy Company) 2 bn m^3

Germany, traditionally a transit country for gas flows in Europe, imports more than 90% of natural gas, which is then distributed among European countries through international deliveries.

Since the start of operations, Deutsche Energy Terminal has made 100 deliveries to LNG terminals in Germany, with 71 being processed in Wilhelmshaven and 29 in Brunsbüttel.

Population of Germany **83.28 million people.**

Country consumption by sector:

Industry 301 billion KWT/h
Private households and housing partnerships 254 billion CQ/h
Trade, commerce, services 95 billion CQ/h
Electricity supply 106 billion CQ/h
Heating and cooling 62 billion KWT/h
Transport 2 billion KWT/h

How the country's needs are covered:

- **Own gas production** of 41.5 billion kWh per year.
- **Annual gas imports** of 80-100 billion m3 (2024: 972.3 billion kW/h, which is about 94.4 billion m^3**):**

    - **Pipeline gas** from Norway 437.53 billion CTV/h (45% of total consumption in the country) *. Norwegian company Equinor will supply 111 CTV/h for a 10-year contract until 2034, which corresponds

to approximately 10 billion m^3 natural gas. There is also an option to supply 319 TV/h for another five years.

- **44 underground gas storage facilities** with total active capacity of 24.6 bn m^3 (or 251.4 bn KB/h - 4th place in Europe by capacity) They meet 28% of the country's gas needs.
- **State-owned FSRU** produces a total of 25 billion m^3 LNG per year. In 2024 and 2023, terminals were able to feed about 59 TWh of energy into the German gas network, which was 7% of total consumption in Germany and about 18% of all domestic and commercial consumers. In 2024, this represented 9% of total consumption.
- **German LNG Terminal** - LNG ground terminal under construction in Brunsbüttel, planned to be launched in 2027, the project site is located in Brunsbüttel on a 31-hectare plot in Elbe, close to the entrance of the Kiel Canal. 1 berth will be able to accept LNG tankers with a total length of up to 345 meters and a capacity of about 267,000 m^3 LNG tankers Qmax. Maximum terminal capacity will be 14,000 m^3/h. Loading to tank trucks and rail tanks.

** According to the report of the Bundesverband der Energie- und Wasserwirtschaft (BDEW), the German association of the energy and water industry.*

Gas suppliers

The main sources of LNG are the United States, Qatar and Norway.

This segment is heavily dependent on US-sourced fuel - 91% of the deliveries were made by the US.

Some of this gas also transits to neighbouring countries, including Austria, via gas transport networks.

The share of LNG in Germany's energy balance is growing, at 7-9%, although so far it is much less than pipeline gas from Norway and other sources.

Germany ranked 10th in the global ranking of total natural gas supplies in 2022, with 2,795,241 TDw, which was about 2% as a percentage.

In the regional ranking, Germany is 1st in Europe with 14.9% of total European deliveries 18,760,293 TJ*.

** Supplies of natural gas include production and imports less gas that is exported or stored.*

Deutsche Energy Terminal GmbH is exhibiting its terminal regasification capacity at the **PRISMA digital auction platform**, which guarantees traders transparent and equal access to the global gas market in accordance with the German LNG Regulation (LNGV).

Germany aims to achieve climate neutrality by 2045. Effective management of the transition to renewable and low-carbon gas resources is a key aspect of this process. In the adaptation period, ensuring reliable and diversified natural gas supplies remains a priority. At the same time, there is a rapidly growing market for clean and low-carbon gas sources. Gas power plays an important role in the synergy with renewable energy sources, ensuring the sustainability of the energy system during the transformation process and maintaining its relevance in various fields of application.

Summary of the 2d Part

Following the 2022-2023 structural adjustment, gas markets by 2024 reached historical highs, helped by a recovery in demand and geopolitical reorientation. Analysts estimate that the positive trend will continue in the medium term, despite continuing challenges such as price volatility and logistical constraints.

The supply deficit is aggravated by the slow growth of LNG production, which remains below pre-crisis levels. At the same time, extreme weather events - abnormal cold in Asia and droughts in exporting regions - have increased competition for resources, putting additional pressure on global supply chains.

In Europe, despite a partial recovery of the industrial sector, gas consumption remains 15-20% below 2021 levels. This is due to both energy efficiency measures and the transition to RES, as well as continuing economic uncertainty.

In this context, diversification of import sources, expansion of regasification capacity and upgrading of pipeline networks become key priorities for energy security, Strategic filling of storage and strengthening international coordination through digital platforms and EU demand aggregators, which increases market transparency and reduces the risk of price shocks.

The ENTSOG information panel helps stakeholders to understand and use data related to European gas flows, LNG and storage.

Experts emphasize that the sustainability of the gas sector will depend on the balance between short-term stabilization measures and long-term transformation of energy systems.

In Germany, for example, in a short time it was possible to establish partnerships with new exporting countries, deepen cooperation with existing suppliers, and in an unprecedented short time create infrastructure for the supply of liquefied natural gas, including terminals and trunk networks.

The bill, which was adopted in a short period of time, has accelerated the procedures for agreeing on the construction and operation of fixed and floating LNG terminals and the construction of the necessary connections to the gas supply networks.

All this, in general, contributed to the strengthening of integration and stability of the pan-European energy market.

In the light of current challenges to ensure energy security, Central Europe is intensively developing and strengthening infrastructure capacities for liquefied gas regasification.

The review of marine terminals for liquefied natural gas takes into account three key importing countries, namely Poland, Austria and Germany, which play a significant role in the regional structure of LNG imports.

For other continental countries in Central Europe, such as the Czech Republic and Slovakia, dependence on transit through Germany and Poland is a regional feature that forces to concentrate efforts on investments in gas storage facilities and networks.

Creation of reserve capacities to reduce logistics risks, construction of mini-regasification plants on the borders of countries, combining storage capacities and transit flows - such common infrastructure initiatives provide guarantees in the supply of blue fuel.

Glossary

Spot transactions - with payment «on the spot» (on the spot), means that the cash settlement is carried out at the time of purchase, and the goods are delivered if not immediately, then within 1-2 days.

Full-containment is the type of design for storage tanks for slurry and other cryogenic liquids that provides maximum safety under extreme conditions.

Has double walls: the inner shell is made of frost-resistant stainless steel, resistant to extremely low temperatures (-162°C), the outer one is made of pre-stressed reinforced concrete, able to withstand mechanical damage, natural disasters (earthquake) or external effects (such as plane crash). Additional layers of protection in the form of heat insulation between walls (for example, perlite or foam glass) prevent loss from cold.

SCV (Submerged Combustion Vaporizer) type evaporators - equipment for LNG regasification, in which heat for the evaporation of cryogenic liquid is generated by burning fuel (usually natural gas) under a layer of water. This is one of the most efficient and fast methods to convert LNG from liquid to gaseous state.

Able to work at extremely low temperatures (-160°C) and adapt quickly to changing loads. Takes up less space compared to atmospheric vaporizers (ORV - Open Rack Vaporizers). Does not depend on external sources of heat (such as sea water) making it suitable for work in cold climates or away from the coast.

Transhipment capacity is the ability of a terminal, port or logistics hub to transfer LNG from one mode of transport to another or between supply chain stages.

This option reflects the amount of LNG that can be processed over a certain time period (e.g., in tons/year) and depends on equipment capability, process efficiency and operational safety.

LNGV (LNG-Verordnung) - Regulation on the regulatory framework for CNG plants. The Regulation defines the regulatory framework for access, including fees, to both stationary and mobile LNG plants in accordance with section 118a of the German Energy Industry Act of 7 July 2005.

ENTSOG - European Network of Transmission System Operators**.**

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