

NATURAL GAS

SMALL SCALE DISTRIBUTION OF NATURAL GAS IN NORWAY



GASNOR



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2 Gasnor operates one small LNG vessel. This ship is very suitable for the distribution of LNG in narrow waters and to smaller LNG receiving terminals.

Gasnor's customers are mainly industrial end users, but we also deliver natural gas to smaller domestic users and as fuel for vehicles (mainly buses and heavy duty trucks).



Distribution of Natural Gas in Norway – establishing a new infrastructure for energy

GASNOR - THE LEADING NATURAL GAS COMPANY in Norway - was established in 1989 and was operational in 1994 when His Majesty King Harald V opened the gas supply to Hydro Aluminium Karmøy. Hydro was thus the first company in Norway to replace oil with Norwegian natural gas.

Gasnor distribute natural gas through pipelines (both low and high pressure), as CNG (Compressed Natural Gas) and as LNG (Liquefied Natural Gas). Gasnor owns and operates all infrastructures for natural gas from the landing point (Kårstø/Statpipe and Kollsnes gas plants) to the end users.

The environmental benefits by using natural gas instead of oil are significant, and our customers save both money and the environment.

LACK OF INFRASTRUCTURE is perhaps the greatest barrier to increased use of natural gas in Norway. Transporting liquid natural gas in bulk (LNG) is emphasized as the most appropriate solution for a country with the topography and population pattern of Norway. LNG is also the most suitable fuel for vessel and ship operators who are concerned about costs and environment.

In a matter of short time, Gasnor therefore has established two production facilities for LNG (Liquefied Natural Gas) at Karmøy and at Kollsnes. To meet a growing demand, we are now building a third production plant for LNG at Kollsnes.

At these LNG plants, Gasnor receive high pressure gas from an export pipeline (Statpipe and Troll). The gas is treated in the following steps:

- The gas is dried, where small amounts of moisture are removed.
- CO₂ are removed.
- “heavy” components such as propane and butane are taken out.
- The gas is cooled and the pressure reduced to 1 bar.
- The gas is now liquid at a pressure of 1 bar and at a temperature below minus 162°C.
- The LNG gas is stored in a site in a tank until further distribution.

From these production facilities Gasnor distribute LNG by tank lorries and ship. Gasnor operates one small LNG vessel. This ship is very suitable for the distribution of LNG in narrow waters and to smaller LNG receiving terminals. Due to increasing sale of natural gas, Gasnor has chartered yet another, larger vessel. This ship will be delivered by autumn 2008 and can carry a multitude of gas cargoes. With this ship Gasnor will be able to transport LNG to and from larger LNG terminals both in Norway and northern parts of Europe.

The LNG is stored in local terminals, and distributed to the end user through a pipeline. Some of the local terminals are designed for one single industrial user, but mainly the terminals are designed as a regional terminal for several customers and/or further distribution by tank lorries.

GASNOR CUSTOMERS are mainly industrial end users, but we also deliver natural gas to smaller domestic users and as fuel for vehicles (mainly buses and vessels).

In 2006, approximately 85 % of the natural gas supplied by Gasnor was consumed by industrial users, but LNG as fuel for vessels (ferries and supply vessels) is a rapidly growing market.

Gasnor also deliver LNG to other gas distribution companies in Norway, and some LNG as fuel for heavy duty trucks and buses in England and Sweden.

TITANIA PRODUCTION FACILITY.



GASNOR'S NEW LNG TANKER.

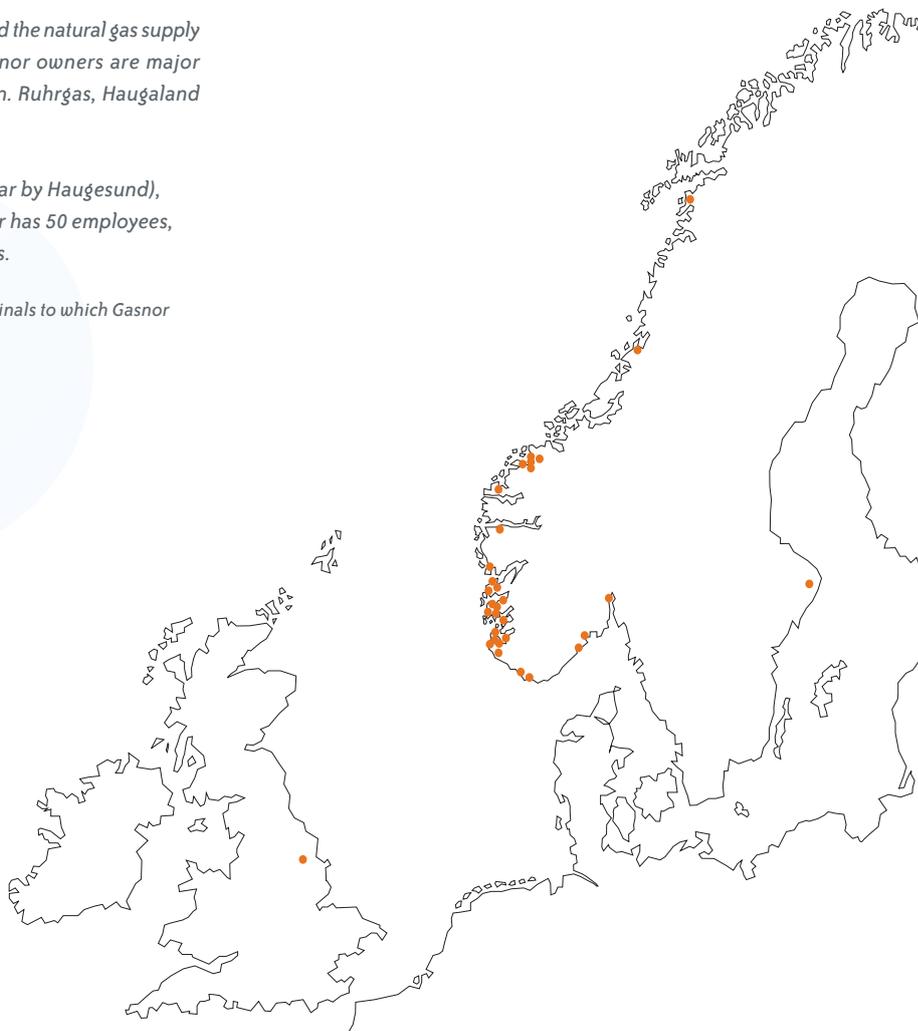




ABOUT GASNOR Established 1989, opened the natural gas supply to Hydro Aluminium Karmøy in 1994. Gasnor owners are major energy companies (Hydro, Statoil, BKK, E.on. Ruhrgas, Haugealand Kraft, Total, and Norske Shell).

Gasnor AS has its head office in Karmøy (near by Haugesund), and offices in Bergen and Stavanger. Gasnor has 50 employees, and approximately 200 industrial customers.

The map to the right shows some of the LNG terminals to which Gasnor operates and delivers LNG.



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