



REDUCE EMISSIONS EXPAND POTENTIAL

Sail into a cleaner and more profitable future with LNG

www.gasnor.no

LNG IS A CLEAN AND COMPETITIVE FUEL. TODAY AND IN THE FUTURE.

There are three main reasons why you should choose LNG as the fuel for your vessels:

01

Profitability – competitive fuel

02

Compliance – meeting environmental requirements

03

Efficiency – simple and safe operations

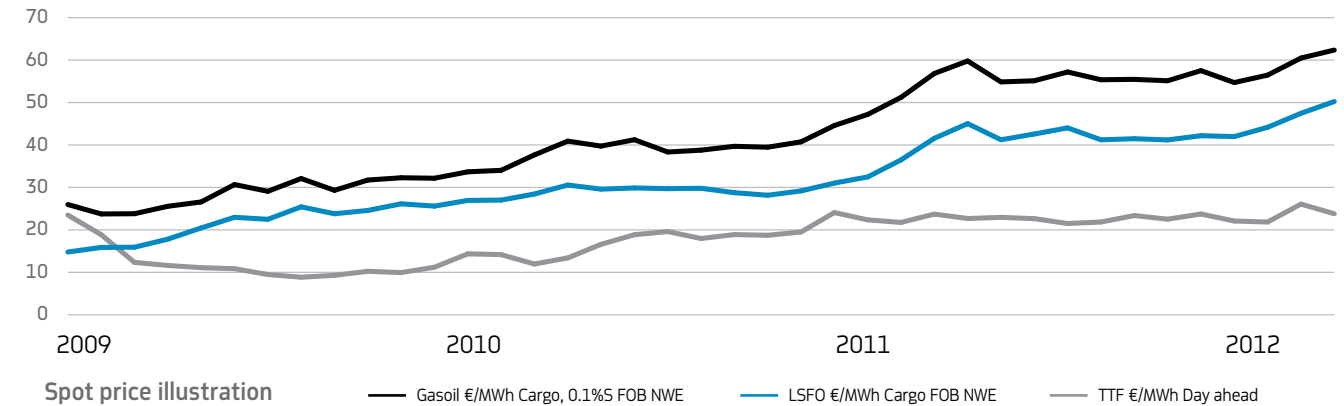
In short – with LNG you will make more money and meet the demands of the future.

01

Become more profitable

LNG is competitive compared to other fuels. Spot market price history shows that fuel prices are connected and fluctuate more or less in parallel. However, spot prices alone do not tell the full story.

Total fuel costs is also influenced by distribution costs and the operational costs, which will be different for each case.



02

Meet demands for reduced emissions

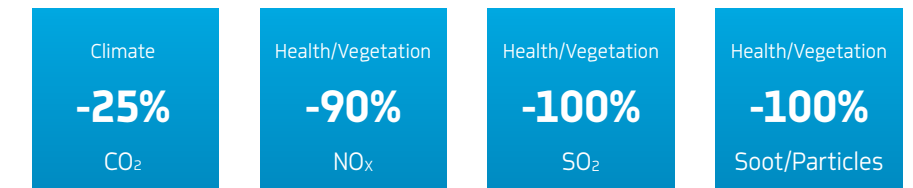
You have hardly missed it, nor failed to grasp its profound impact on your business: the increasingly sharp focus on environmental issues and the requirements for reduced emissions. The IMO regulations of sulphur in Emission Control Areas are only the beginning. The result will be major challenges and increased costs for traditional fuels. In short, it's a case of "comply or die".

Technology to clean exhaust fumes from sulphur and NO_x for ships burning fuel oil is already available, but the installation and running costs can often be very high and the effects are open to discussion. One should also take into consideration that the regulations of emissions will become even more stringent, and the investments done in cleaning equipment for oil today can be of less value in the near future.

LNG is the world's cleanest marine fuel and the obvious key to compliance. By using LNG instead of fuel oil, harmful emissions to the air are reduced significantly and additional costs for exhaust cleaning are unnecessary.

By using a clean fuel like LNG, additional fuel gas cleansing devices are unnecessary and the effects are stable and well-documented. Your ship will be more of a money making machine than a chemical plant for cleaning exhaust.

Significant reduction of emissions with LNG:





Newman, Solstad, LNG-fueled by V.

SAIL INTO A BETTER FUTURE WITH LNG



LNG is a cheaper, cleaner and safer marine fuel. The best proof of LNG's attractiveness is perhaps the fact that owners and operators currently using LNG keep on ordering more LNG driven vessels.

By converting to LNG, you show that you care about your business, demonstrate a

willingness to act on behalf of the environment, and confirm that you are serving your customers in a future-oriented way.

Basing your business on LNG is building your brand for the future.

03 Keep it simple and safe – and lower your operational and maintenance costs

LNG is the safest of all liquefied/gaseous fuels – non-toxic and lighter than air so it evaporates rapidly to non-flammable concentrations. Moreover, its ignition temperature is above 500° C, double that of gas oil. But safety is not the only thing that makes LNG a safe bet.

LNG is a powerful fuel. Typically, LNG-fuelled engines have 5–10% better efficiency than oil-fuelled engines. They are also less noisy and have a less corrosive combustion than traditional marine fuels. An LNG propulsion system is virtually maintenance-free and self-cleaning.

The LNG fuel concept is well established and based on proven technology. It has been used by LNG tankers for two decades in deep sea shipping, as well as in ferries and platform supply vessels in coastline traffic in Norway.

The bunkering takes place from terminals, bunkering vessels or trucks. The bunkering procedures are safe and simple and are often handled by the crew of the ship or by the truck drivers. Gasnor had up until spring 2012 carried out more than 50 000 transfers of LNG without any incidents or interruptions of service.

THE NATURAL GAS VALUE PROPOSITION

Reduce
Cost
Emissions
Maintenance

Expand
Safety
Brand value
Profitability

GASNOR – THE LEADING SUPPLIER OF LNG FUEL

Gasnor is a small-scale LNG pioneer and a key supplier of LNG fuel to ships in northern Europe. Through our large and expanding distribution network, we offer the most cost effective and reliable solution for bunkering of a growing fleet of LNG-powered vessels.

Gasnor pioneered the distribution and sales of natural gas in Norway, and has developed innovative and ground-breaking solutions to offer natural gas to shipping and industry in Europe where piped gas is not feasible.

Gasnor started up as a "traditional" sales and distribution company serving industry on the western coast of Norway with natural gas through pipeline. Gasnor was early to understand the need for a cleaner fuel for ships, and in 2003 we opened our first production plant for Liquefied Natural Gas (LNG). Gasnor now owns and operates

three production plants for LNG located on the western coast of Norway. From these plants we supply industry companies and a growing fleet of LNG-powered ships with a cleaner fuel. Gasnor currently delivers LNG to approximately 30 ships. Gasnor also sources LNG from Import-terminals in Europe.

The core of the Gasnor concept is made up of customized terminals for storage and regasification of LNG. These local LNG terminals can supply one or several customers, and construction is demand-driven. Vessels can be bunkered at the terminals or the gas can be transported

to the location of the customer's vessel by one of our road tankers or by ship. Gasnor is expanding its terminal network in northern Europe. Terminals are under planning/construction.

Gasnor operates two tanker ships and a fleet of trucks transporting LNG to customers. The company is ISO 9001 and ISO 14001 certified.



Expanding bunkering network in Europe

Gasnor and Port of Brunsbüttel are planning to build a LNG bunker station in Brunsbüttel, Germany. The Brunsbüttel port is at the inlet of the river Elbe and the Kiel-Canal and is a very strategic location where about 40 000 ships are passing yearly. The bunker station will be designed for gradual development so that the capacity can be adjusted to a rising demand for LNG. The bunkering station can be in operation by the end of 2014 so that ship owners and operators can meet the demands for a cleaner fuel in 2015. Gasnor are investigating solutions to bunker smaller ships even before the bunkering station is completed.

Gasnor focus areas



How we operate

Gasnor makes LNG a simple choice for our customers, meeting their need for flexible refueling options.



LNG operation

LNG sourcing

Transport

Storage

Distribution



- ➔ Gasnor produces LNG or sources from terminals in Europe.
- ➔ Gasnor transports LNG to local storage facilities in northern Europe.
- ➔ Gasnor refuels vessels in port from terminal, truck or at sea from bunker ships.

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