

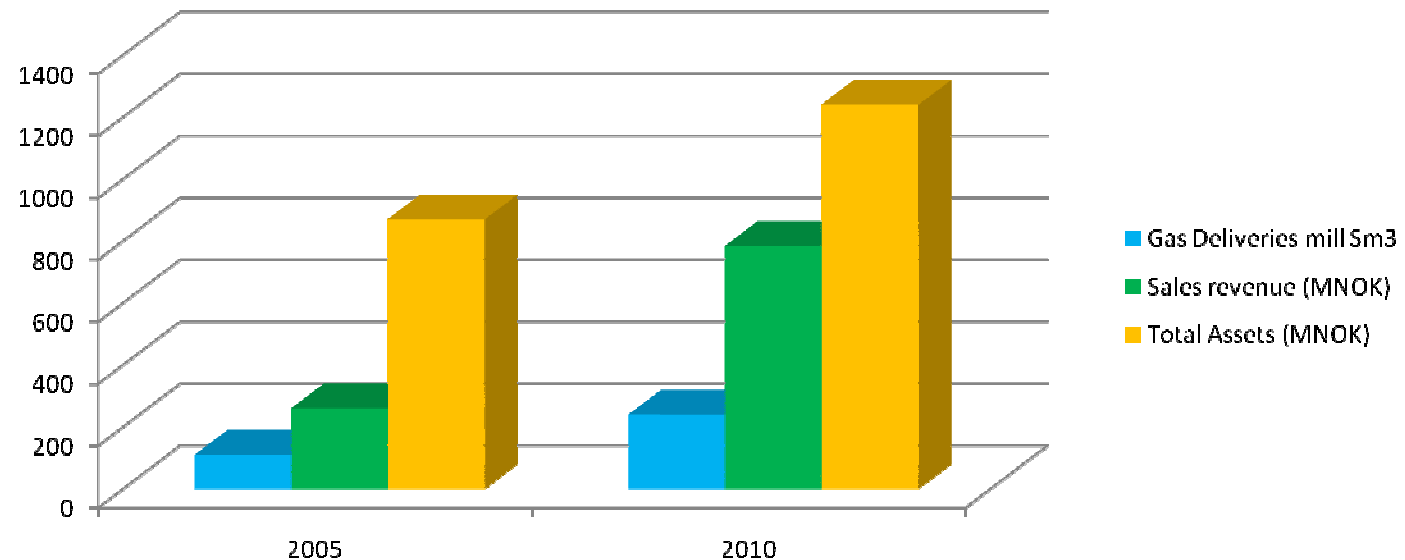


REDUCE EMISSIONS – **EXPAND POTENTIAL**

LNG fuel in shipping 2011

GASNOR KEY FACTS

- ▶ Natural gas pioneer – established 1989, first gas delivery 1994 (LNG - 2003)
- ▶ 52 employees
- ▶ ISO 9001 and 14001 certified



GASNOR HAS A WELL ESTABLISHED INFRASTRUCTURE

► LNG supply capacity: 300 000 tonnes/year

3 LNG production plants



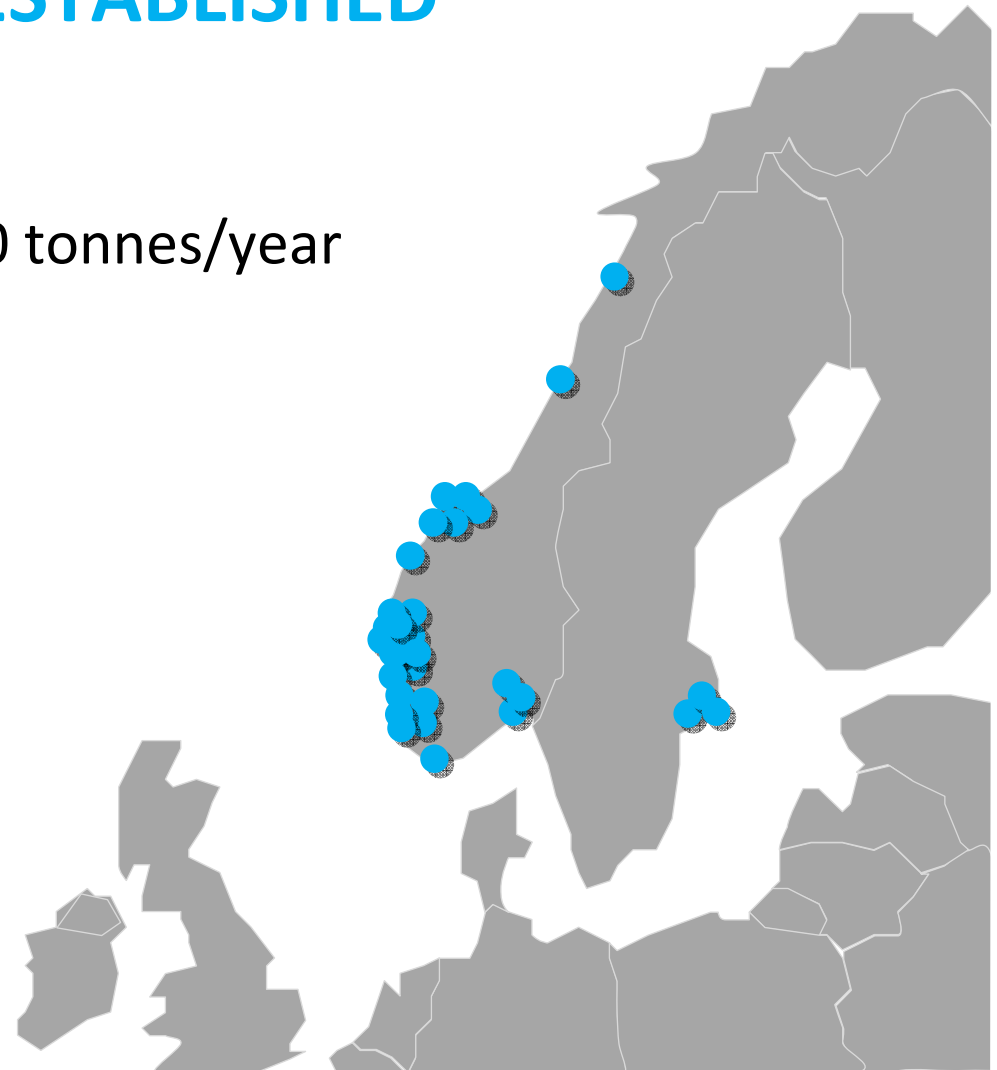
16 semitrailers LNG



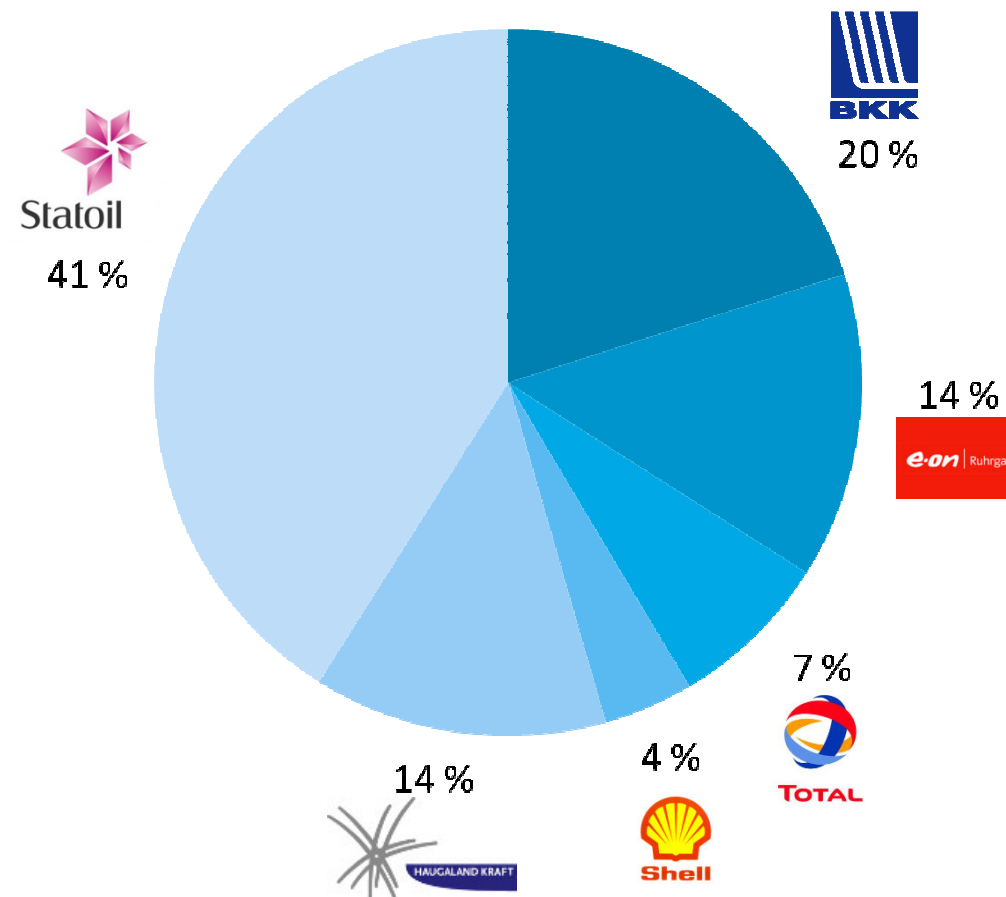
30 terminals



2 tankers



OWNED BY LEADING ENERGY COMPANIES



POTENTIAL FOR LNG ALONG THE NORWEGIAN COASTLINE

- ▶ The potential for LNG as fuel along the Norwegian Coast (based on today's consumption of oil) is equal to 1 450 000 tonnes/year.
- ▶ Realistic goal within 2020: 2 -300 000 tonnes of LNG/year.



SUPPLY OF LNG TO SHIPS IN NORWAY

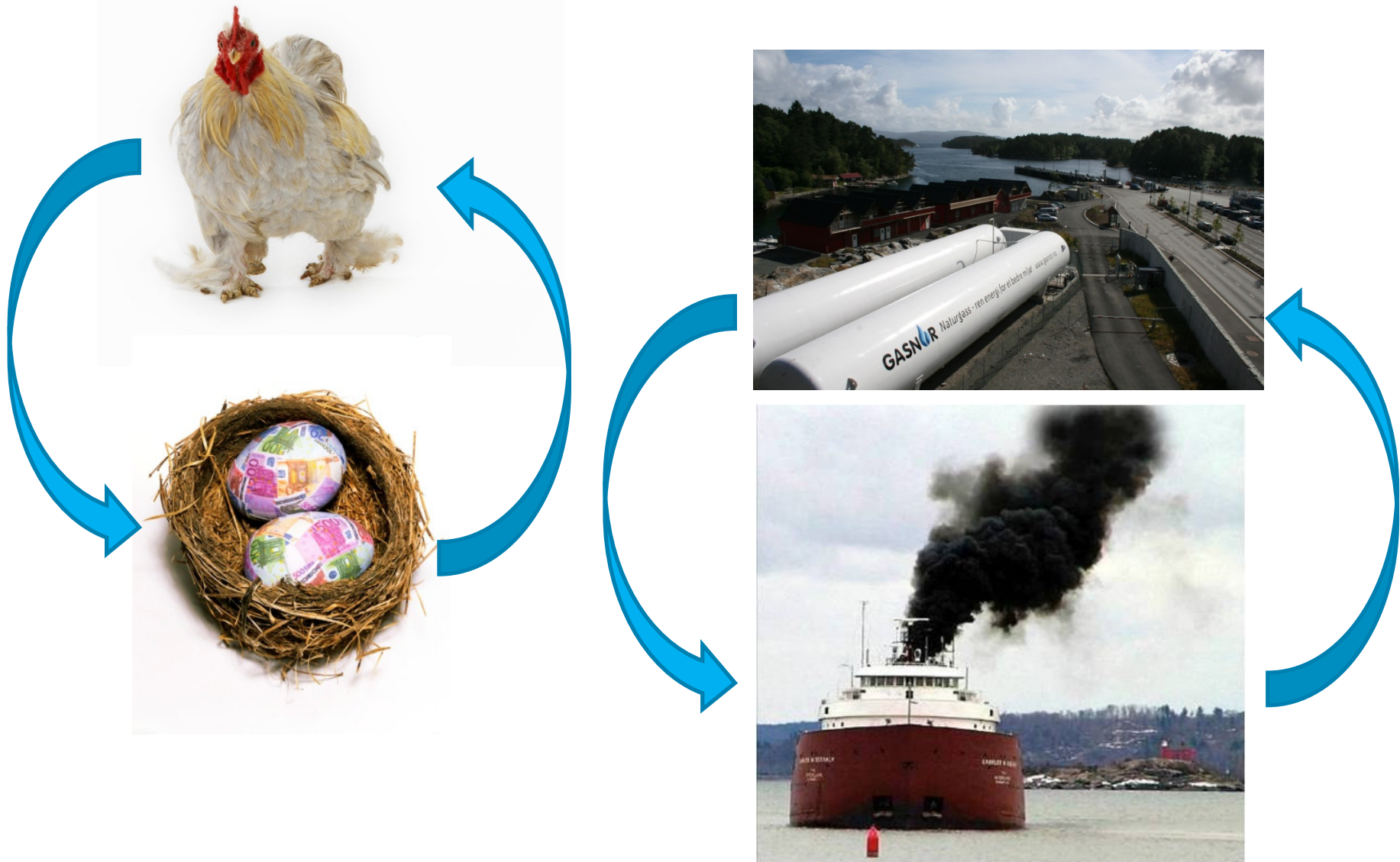
- ▶ LNG terminals are established in several harbours along the western coastline
- ▶ Additional LNG Terminals beeing planned where PSV operates
- ▶ There is a need for addittional (2 – 3) regional (large) bunker facilities along the coastline.

LNG bunkering facilities

- Well established
- To be increased
- To be established



A WELL-KNOWN CHALLENGE



THE CHALLENGE

- ▶ Important for Ship owners
 - Security of Supply



- ▶ Important for Terminal owners
 - Security of demand



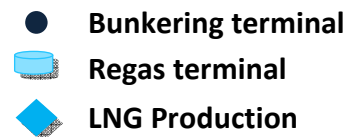
A SOLUTION ?

REDUCE THE RISK BY COMBINING SECURITY OF SUPPLY AND SECURITY OF DEMAND

- ▶ Public contribution to establish an infrastructure for a coming market
 - Economic support of infrastructure for LNG.
 - E.g. - Public Service Obligations and economical support based on the capacity of the terminal.
- ▶ Make sure that the market is present for commercial actors
 - Demand/request a cleaner fuel (LNG) for all ships. This can be done by public authorities and the customers.
 - Taxation reflecting the environmental impacts (public authorities)
- ▶ **This will Reduce the risk – and expand the potential for both LNG suppliers and ship owners.**

THERE IS A WELL-ESTABLISHED LNG INFRASTRUCTURE IN EUROPE

- ▶ Tapping contracts from large European LNG-terminals are in place
- ▶ New terminals can be made available in shorter time than normal lead time for a new ship
- ▶ LNG can be supplied to ships in most of Europe



BUNKER FACILITIES FOR LARGE SHIPS

► Gate terminal Rotterdam

- 540'000 m³
- In operation 2011





LNG – A CLEAN, COMPETITIVE FUEL. TODAY AND IN THE FUTURE

REDUCE EMISSIONS
EXPAND POTENTIAL