



# REDUCE EMISSIONS – EXPAND POTENTIAL

**Teknologikonferanse 2011**

*Gass som energibærer i  
fiskeflåten*

*13. oktober 2011 Ålesund*

*Aksel Skjervheim, Gasnor*



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

- Presently doing regular bunkering of 22 ships
- 1500 bunker operations annually
- 42.000 transfers of LNG in flexible hoses up to now

**REDUCE EMISSIONS  
EXPAND POTENTIAL**

# THE NATURAL GAS VALUE PROPOSITION

## REDUCE

COST

EMISSIONS

MAINTENANCE

## EXPAND

SAFETY

BRAND VALUE

PROFITABILITY

## AGENDA

- ▶ A little about Gasnor
- ▶ Availability of LNG as bunker
- ▶ Pricing of LNG
- ▶ Bottlenecks for increased use of LNG in fishing vessels
- ▶ Conclusions



**GASNOR –  
THE LEADING SCANDINAVIAN  
SMALL SCALE NATURAL GAS COMPANY**

**REDUCE EMISSIONS  
EXPAND POTENTIAL**

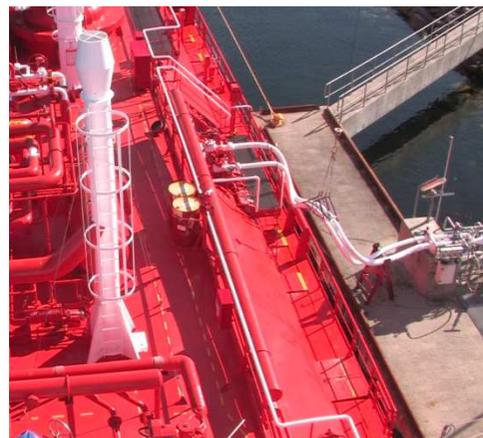
## GASNOR KEY FACTS\*

- ▶ Natural gas pioneer – established 1989, first gas delivery 1994
- ▶ 52 employees
- ▶ ISO 9001 and 14001 certified
  
- ▶ Revenue 2010: 783 mill NOK (98 mill euro)
- ▶ Profit before tax: 68 mill NOK (8,5 mill euro)
- ▶ Total assets: 1.240 mill NOK (155 mill euro)
- ▶ Equity: 331 mill NOK (41,5 mill euro)

\* 2010-figures. Euro-figures based on EUR/NOK=8,0



# «SMALL SCALE» MEETS «BIG NEED» FOR CLEAN ENERGY



# WE SERVE CUSTOMERS IN THREE MAIN SEGMENTS

## Industry



## Transport



## Pipeline customers



- ▶ Industry, commercial, residential and public buildings. District heating and power generation.



# A WELL ESTABLISHED INFRASTRUCTURE

► LNG supply capacity: 300 000 tonnes/year

3 LNG production plants



16 semitrailers LNG



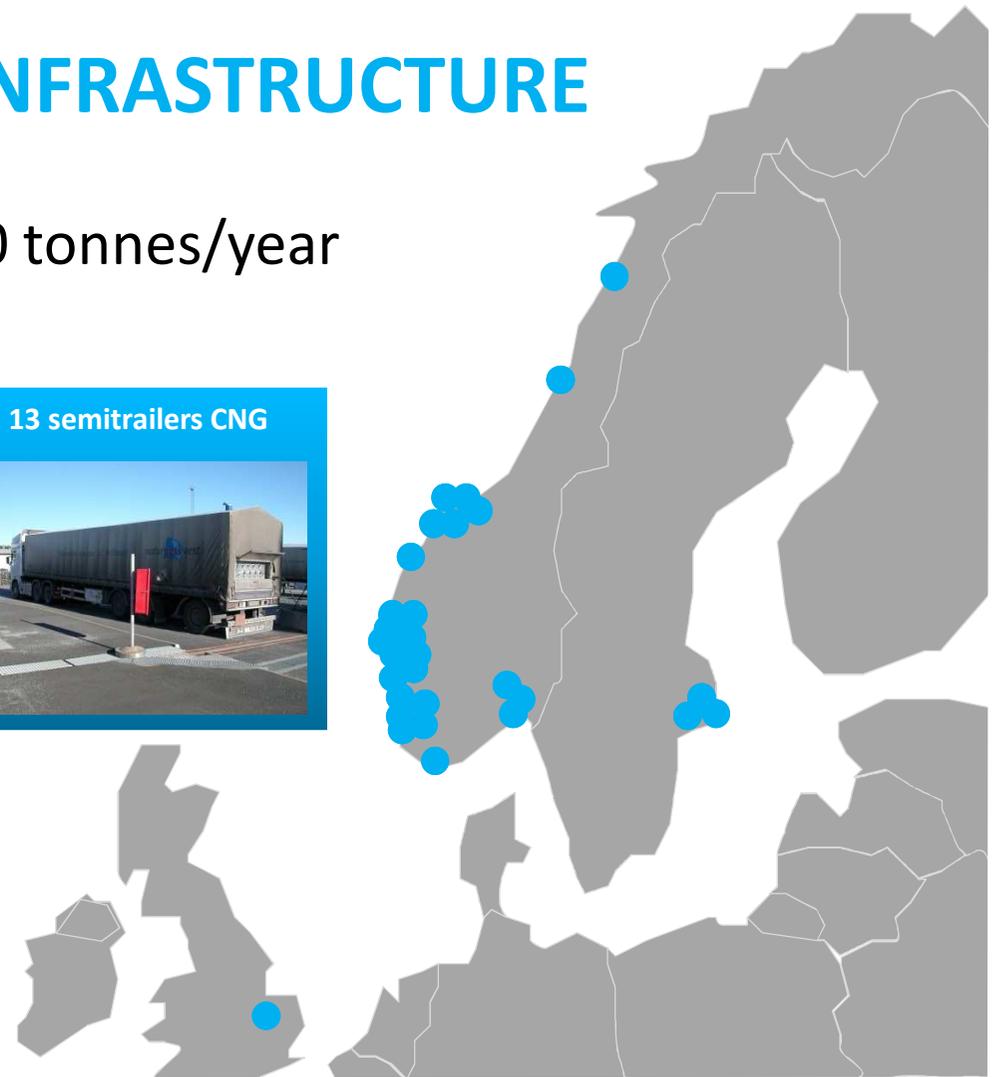
13 semitrailers CNG



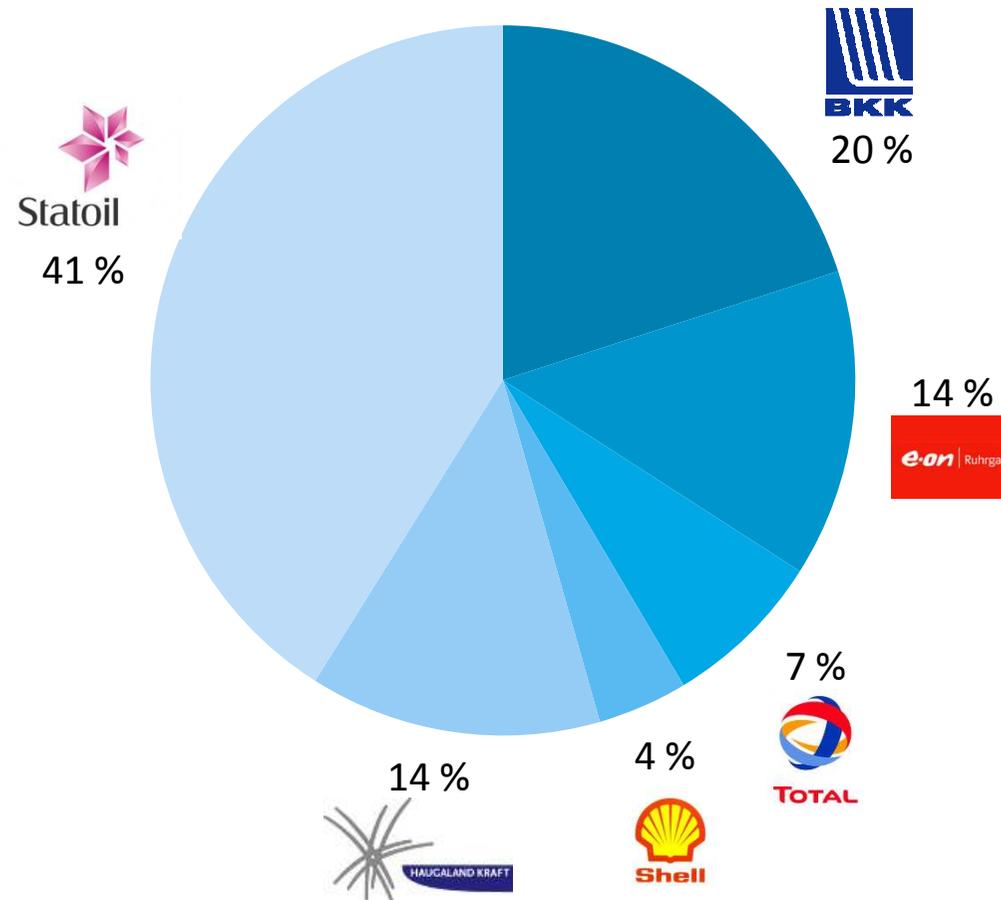
30 terminals



2 tankers



# OWNED BY LEADING ENERGY COMPANIES



# GASNOR'S PLANT AT KOLLSNES





**HYBRID POWERED VIKING LADY, USING LNG IN FUELCELLS AND ENGINES**

# BUNKERING VIKING LADY ON HER WAY TO COPENHAGEN



# BUNKERING OF CORAL METHANE BY PIONEER KNUTSEN AT KOLLSNES



# FIRST LNG FROM HUELVA, SPANIA



# GASNOR TAKING LNG FROM ZEEBRÜGGE – MAY 2010





# **GASNOR TAKING OUT LNG FROM HUELVA WITH SMALL SCALE TANKER IN AUGUST 2010**





# AVAILABILITY OF LNG FOR BUNKER

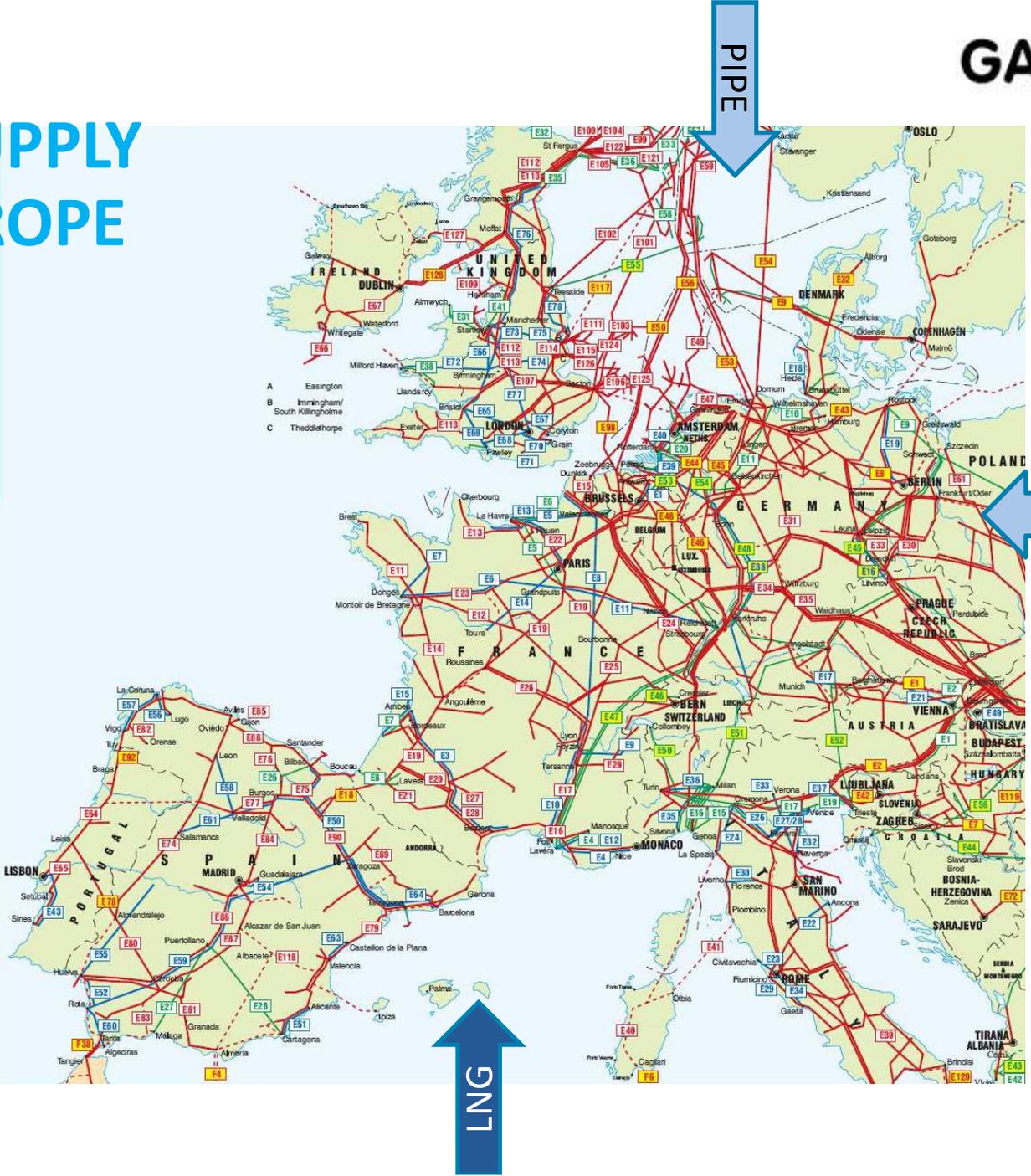
REDUCE EMISSIONS  
EXPAND POTENTIAL

## **GASNOR KEY BUSINESS AREAS**

- ▶ Supply natural gas, incl LNG for industry and bunker in Norway
- ▶ Supply LNG for bunker in North and Western Europe

# GAS SUPPLY TO EUROPE

LNG →



LNG ↑

## LNG VOLUMES IN EUROPE

- ▶ Annual LNG imports into Europe (2010) 60-70 mill tons
- ▶ Annual bunker volumes in Europe ~ 50 mill tons
- ▶ Annual bunker volumes  
in the North- and Baltic Seas ~15-20 mill tons

# THERE IS A WELL-ESTABLISHED LNG INFRASTRUCTURE FOR LNG 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

- Bunkering terminal
- Regas terminal
- ◆ Small scale Production



## AVAILABLE LOGISTICS

- ▶ A number of small LNG-carriers existing and ordered
- ▶ A relatively large number of LNG semi-trailers are in operation
- ▶ Several European LNG-terminals can fill semi-trailers with LNG
- ▶ Bunker boats are planned
- ▶ Bunker facilities can be made available where needed throughout Europe within the time scope for new LNG-fuelled vessels

**AVAILABILITY OF LNG IS PROBABLY NOT A BOTTLENECK FOR INCREASED USE OF LNG IN SHIPPING**



# PRICING OF LNG

REDUCE EMISSIONS  
EXPAND POTENTIAL

# COST OF THE LNG CHAINS

BASED ON SMALL SCALE LNG-PRODUCTION



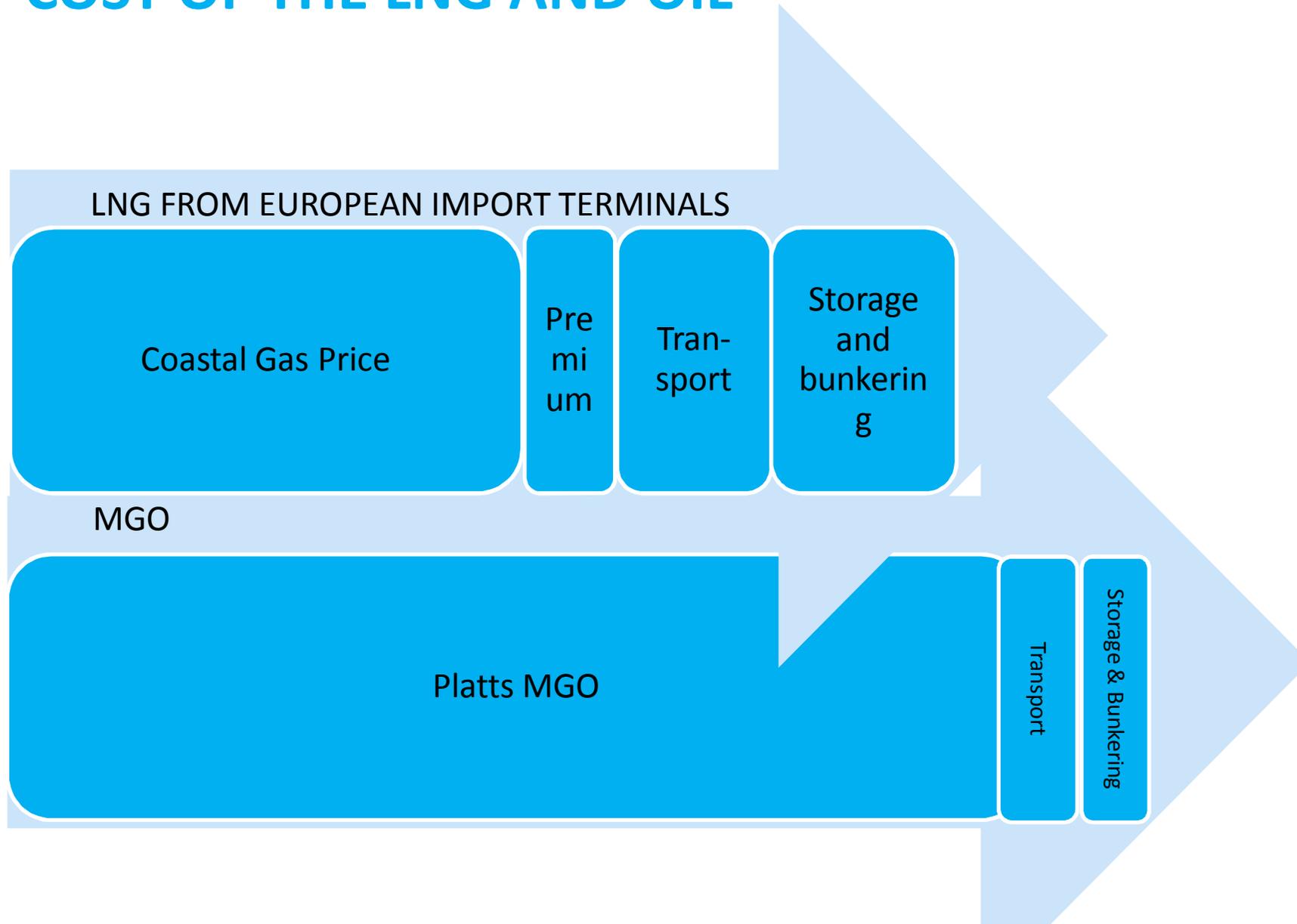
BASED ON LNG FROM EUROPEAN IMPORT TERMINALS



# LNG I SKIP/LNG PÅ NORSKEKYSTEN/LNG I FISKEFARTØY

- ▶ Drivstofforbruk i Europa
- ▶ Drivstofforbruk i Norge
- ▶ LNG i skip – et norsk eksportpotensial
- ▶ Hvor er det mest å hente?
  - Container, tank, cruise, ferge
- ▶ Hvordan oppnås lave priser på LNG
- ▶ Er fiskefartøy feil fokus?
  - Varierende fartsmønster
  - Lange tokt – behov for stor tank
  - Lite ubenyttet volum om bord – hver kubikkmeter utnyttet
  - Lavt årsforbruk i forhold til investering i gassutstyr

# COST OF THE LNG AND OIL



# LAGRINGSTEKNOLOGI FOR OLJE OG LNG



## VIRKELIG LAVE LOGISTIKKOSTNADER FOR LNG KREVER

- ▶ Få ledd i forsyningskjeden – LNG forsynes direkte til hvert bunkringssted
- ▶ Store volumer på hvert bunkringssted

## INDEXATION OF THE LNG-PRIC

- ▶ By oil (Platts Gasoil, IFO or similar index)
- ▶ By natural gas (TTF or similar index)
- ▶ Today we see a development towards gas pricing more independent from oil

## PRICE LEVELS

- ▶ Between MGO and IFO 380, depending on volume and location

**LNG CAN ALREADY BE SUPPLIED  
AT COMPETITIVE PRICES**

## OPPSUMMERING

- ▶ LNG er godt tilgjengelig på norskekysten i dag, selv om logistikken og kostnadene foreløpig er krevende nord for Bodø.
- ▶ LNG er også tilgjengelig i resten av Europa.
- ▶ Prisen på LNG er allerede konkurransedyktig mot MGO, til og med mot IFO for kontrakter om store volum.