LNG as a solution for land and sea transportation

POWERED BY LNG

Helsinki
230415/kpl

CONTAINERSHIPS

We take care

CONTAINERSHIPS

- Founded in 1966 by Mr. Veli Nordström, 100% family owned
- Headquartered in Helsinki, Finland
- 550 employees
- 20 own offices
- Present in over 21 countries (incl. agencies)
- Annual volumes : 250.000 TEU (2014)
- Annual turnover: 220 M. €
- 11-13 vessels in operation (depending on season)
- Over 15.000 own container fleet including 45’ pallet wide containers offering same cargo capacity as road trailers (33 euro pallets).
- Own truck fleet in Finland, Russia and the UK

CUSTOMER PORTFOLIO

Yves Rocher · Armstrong · nokian TYRES · IKEA

SCA · DANONE · UPM · BACARDI · SCANIA · Mars

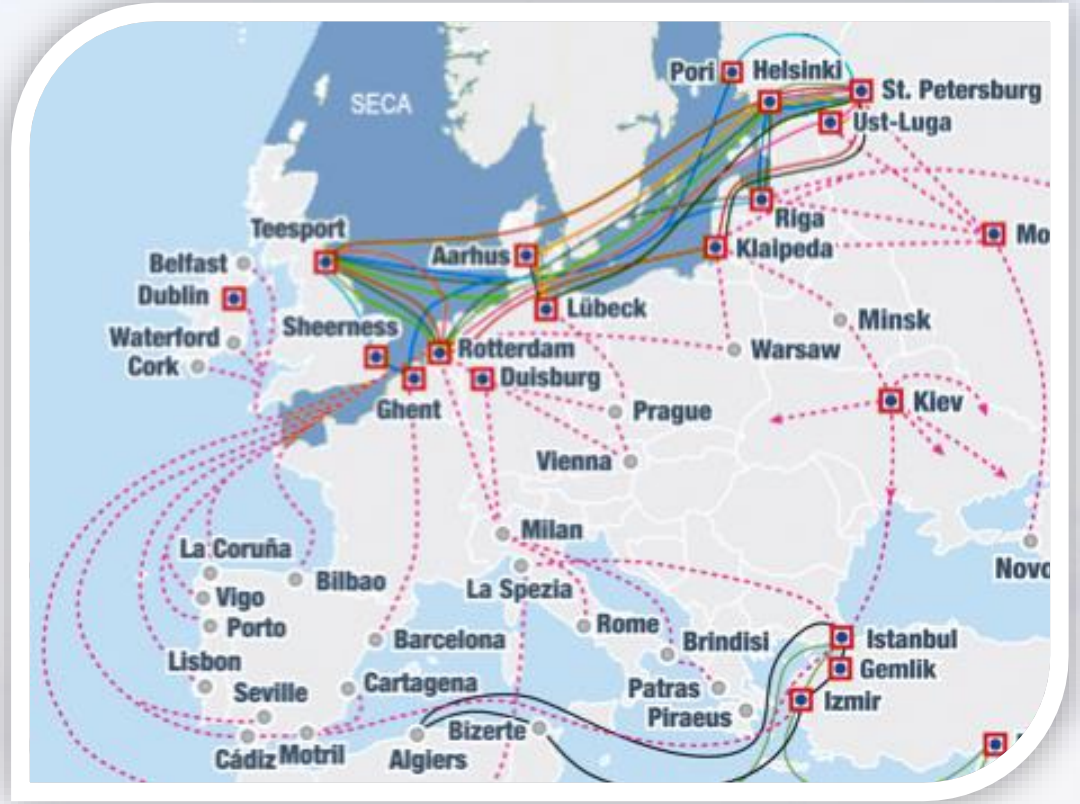
HYUNDAI · Ford · Nestlé · JF Hillebrand · DIAGEO

STORAENSO · Unilever · P&G

ENVIRONMENTAL CHALLENGE

SECA is the area in which environmental regulations set by IMO has came into force on the 1st of January 2015

- **Vessel operators must find an energy source that contains not more than 0,1% Sulphur against 1% currently**
- **Containerships exceeds this requirement by investing in brand new LNG powered vessels**



Available solutions

Marine Gas Oil
(MGO)

Designed for use in all diesel-fuelled engines

Scrubber with
Heavy Fuel Oil
(HFO)

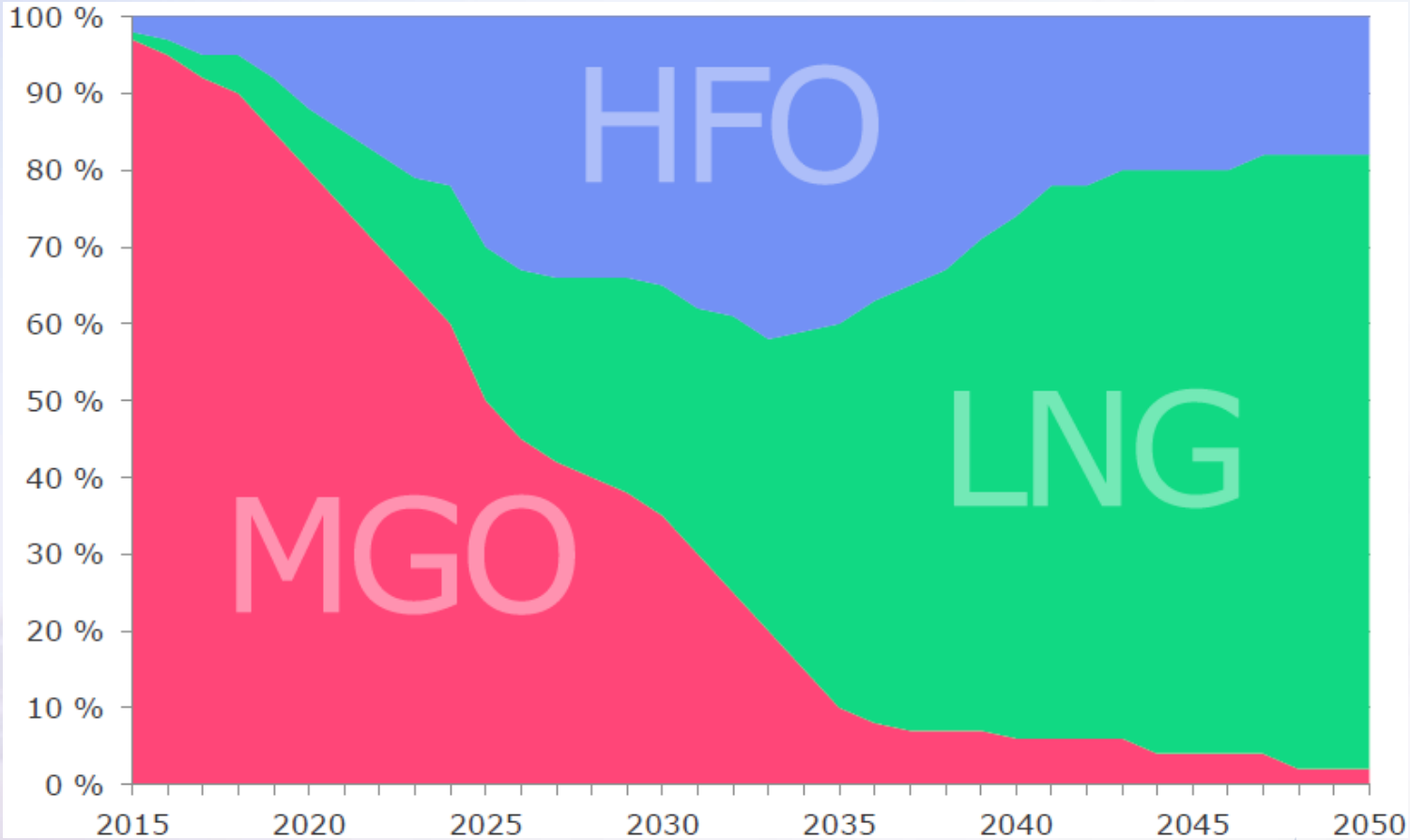
Alternative fuels

(methanol, biofuels)

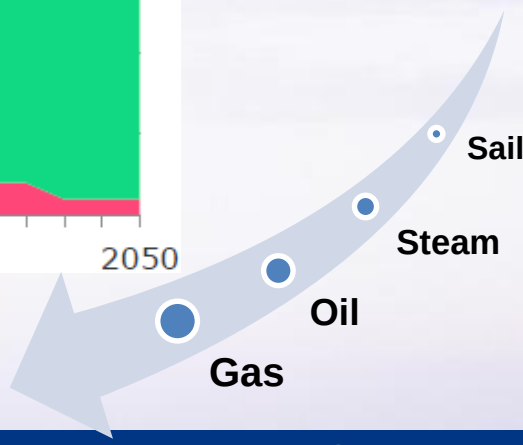
Available solutions

Technology	+	–
Marine Gas Oil (MGO)	• Normal diesel oil • 95–98 % of the vessel operators are expected to use this technology in 2015	• No major modifications to the vessels are needed	• Running cost are 50% more expensive than HFO • In order to keep the costs down, slow steaming is needed: • HBG/RTM – St. Petersburg: plus one day
Heavy Fuel Oil Scrubber (HFO)	• 'Wash' SOx emissions from exhaust gases	• Can be installed, but on specific vessels only	• Implementation cost: 3–6 M€ / vessel • Can not be fitted on all of the vessels • Limited market capability to install a sufficient number of scrubbers
LNG	• Use LNG as a fuel	• Environmentally friendly • Benefit from possible future emission trading (CO_2) • Tackling also future legislation needs: PM, No_X • A market price is already existing for natural gas	• The LNG supply infrastructure exists only in Rotterdam, but is building up in the North and Baltic Sea • LNG-engines and tanks are more expensive than traditional vessel engines & HFO tanks
Alternative fuels	• Utilize next generation fuels	• 'Clean' from an ecological perspective	• Large-scale technology is not yet in place • Uncertainty about its availability

Share of different vessel fuels in Baltics 2015 →



Source: Gasum



Most companies are choosing MGO or HFO with scrubber

		+	−
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2-phased solution

Target is to renew fleet by having a combination of LNG–fuelled vessels and scrubber equipped vessels

Plan for the fleet in 2015 - 2016:

• Vessel 1	scrubber	**in 2015**
• Vessels 2 and 3	scrubber	**in 2015**
• Vessels 4 and 5	scrubber	**in 2015**
• **Vessels 6 – 7**	**LNG equipped**	**in 2016**
• **Vessels 8 - 9**	**LNG equipped**	**in 2017**
• **Vessels 10 – 11**	**LNG equipped**	**in 2018**

2015: Half of the fleet equipped with scubber

2016: Starting to renew the fleet with LNG vessels

Containerships approach 2016 →

		+	–
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Long-term solution

LNG as a main fuel for whole end-to-end service

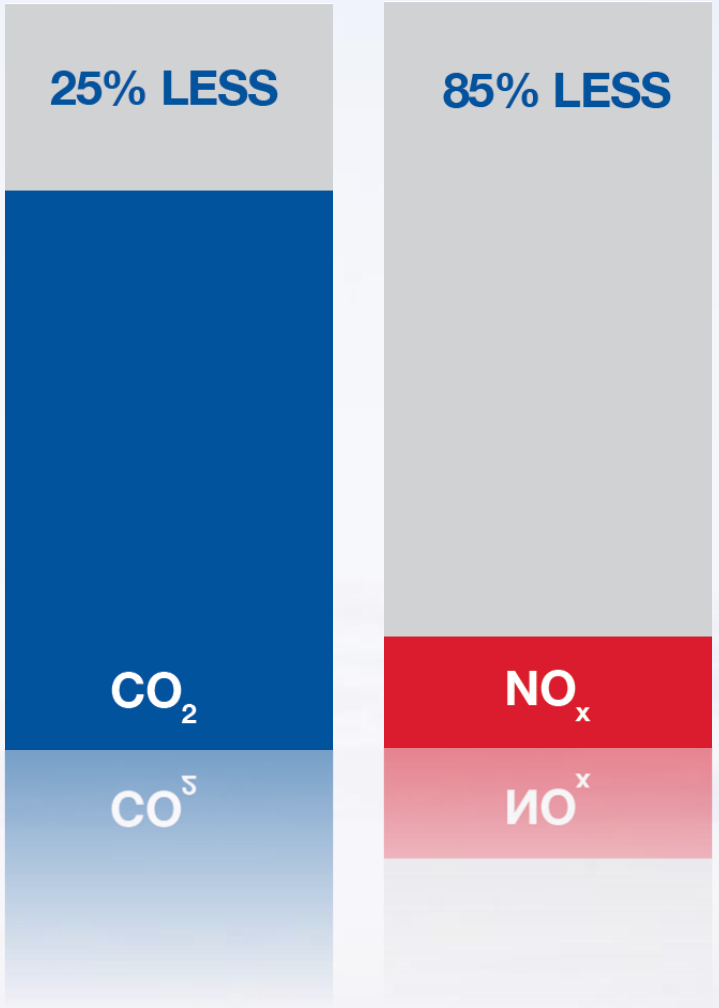
- Target to operate 6 to 8 LNG vessels (Sea)
- LNG powered trucks
- To improve the vessels' efficiency in order to maintain competitiveness
- To exceed all known future environmental regulations

LNG POWERED TRUCK FLEET

- In Finland, Russia, UK and Netherlands
- Own refueling station
- Pilot phase in process since Q1/2014

REDUCING EMISSION WITH LNG

- Lighter than air (when in gas form)
- Easy to storage and transport
- Only 1/600 of volume of “pipe gas”



Environmental comparison

Emissions for 33 euro pallets from BE-Brussels to RU-Moscow

Emissions per journey Greenhouse gases	Road	Multimodal: Vessel with scrubbler	Multimodal: LNG technology vessel
Carbon Dioxide (CO2)	2 886,00	1 564,45	1 133,57
Methane (CH4)	0,11	0,03	55,81
Nitrous oxide (N2O)	25,79	11,28	9,60
Total Contribution to Global Warming (kg)	**2 911,90**	**1 575,75**	**1 198,98**
Saving on Contribution to Global Warming		**46%**	**59%**

Assumptions in above calculation:

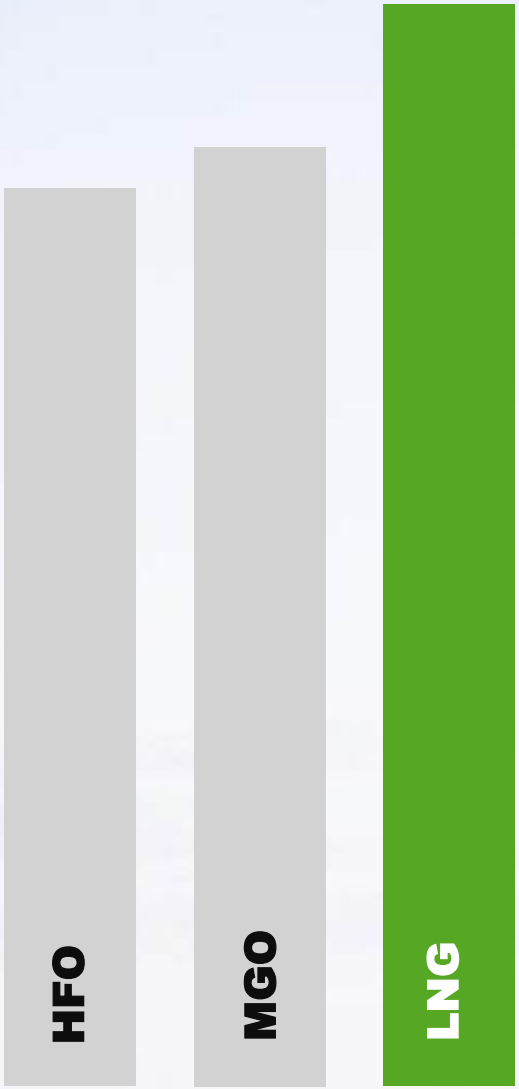
ROAD
Using EURO 5 truck
Brussels to Moscow direct

2.600 KM road

Multimodal HFO Road – Sea – Road (45' cnt)
Standard vessel with 450 TEU load
Fuel: HFO with Scrubber (0,1% SO)

Using EURO 5 truck
Brussels to Ghent 58 km
Ghent to St. Petersburg 1.200 n. miles
St. Petersburg to Moscow 700 km

Multimodal LNG Road – Sea – Road (45' cnt)
LNG vessel with 800 TEU load
Fuel: LNG with 16% less consumption than HFO
- Dual-Fuel engine vessel will burn 99% of LNG and 1% of MGO
Using EURO 5 truck
Brussels to Ghent 58 km
Ghent to St. Petersburg 1.200 n. miles
St. Petersburg to Moscow 700 km



HIGHEST ENERGY CONTENT

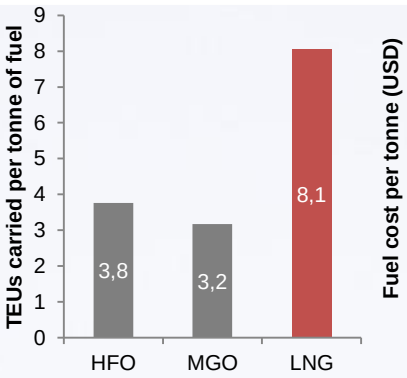
PER TON

LNG is a superior fuel solution

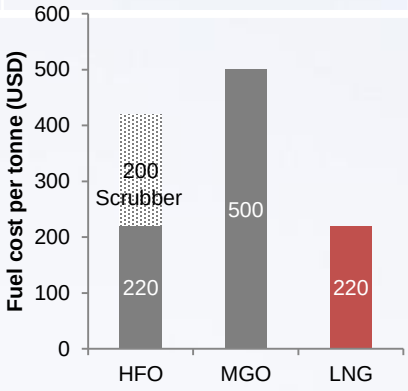
- **Proven technology and readily available**
  - **Ensures at least 2-3 years of first mover advantage**
- **Significant, tangible benefits of using LNG**
  - **Significantly greater mileage per tonne compared to conventional fuels due to higher energy density**
  - **LNG prices can be locked to HFO development**
  - **Environmentally friendly; strong marketing point towards customers**
  - **The only fuel compliant with all current/anticipated regulations**
- **Importantly, necessary LNG infrastructure already in place**
  - **LNG terminals in Rotterdam and Klaipeda enough for Containerships**
  - **Ongoing construction of several other LNG terminals**
  - **2 week fuel autonomy of the vessels allows for fuelling in the market already and where prices are lowest**

Vastly superior cost profile of LNG

> double vessel capacity at same consumption (TEUs carried per fuel tonne)



Half as expensive fuel solution (USD per tonne)



Greener product offering – reduction of CO_2

	LNG	HFO	MGO	HFO Scrubber	LNG vs. HFO	LNG vs. MGO
CO_2	0.3	0.8	1.1	0.8	-62%	-70%
NO_x	0.001	0.020	0.017	0.020	-95%	-94%
SO_x	0.000	5.654	0.702	0.000	-100%	-100%
Particulate Matter	0.000	0.001	0.001	0.001	-97%	-97%

Emissions are calculated as per annual kg per TEU carried.

LONG-TERM SOLUTION

- Integrating LNG as a main fuel source in the whole End-to-End service including sea (LNG vessels) and land (LNG trucks).

- Target to have 6-8 new built LNG-fuelled vessels and 5000 new containers:
  - to offer the most environmentally friendly solution on the market
  - to improve vessels´ efficiency in order to maintain competitiveness
  - to exceed all future environmental regulations
  - project scope is 250 - 300 M€ of investments
- Target to have LNG powered own truck fleet in Finland, Russia and the UK
  - pilot phase in process since Q4/2013
- Target to work with LNG powered trucks from suppliers in other countries

THANK YOU

Costs impact of SECA

Switching to MGO at current energy prices

95–98 %

of vessel operators are expected to switch to Marine Gas Oil in 2015

COST INCREASE

Marine Gas Oil is 40-50% more expensive than currently used fuel (Low Sulphur Fuel Oil)

A COST INCREASE of about € 100-150

per truck / container depending on distance and mode of transport (ferries or container vessels)

To reduce costs operators could implement slow steaming

- **Current sailing times will be prolonged. Ex. RTM to Helsinki**

> + 1 day in transit time

- **To reduce vessel speed a special "slowsteamkit" has to be installed**

> additional investments needed

- **Slower rotation, means more ships needed**

> impact on environmental friendliness

Transformative investment plan progressing as planned

Project status: Mar '15

- The Group has already commissioned the construction of 4 LNG vessels, with the first expected to be delivered in Q3 2016
- The vessels will be leased on 7 year contracts by the Group
- **Two more vessels are ordered for delivery in 2018 and purchased outright by the Group**
- **Investment of EUR 30m per vessel, of which 20% (EUR 12m in total) to come from bond proceeds**
- The Group has an option to order and lease additional 2 LNG-fuelled vessels delivered in 2019-2020

Rationale behind investing

1. **Some degree of ownership is desirable in order to gain full control of the value chain, cost base, etc.**
2. **The Group will be the first European operator of LNG-fuelled container vessels, owning some vessels may facilitate corporate learning and efficiency maximisation**

Containerships can act on the opportunity

- **Location:** few competitors have all operations in the SECA area and are thus less incentivised to react at the current time
- **Business model:** Containerships' intermodal business model allows for the incorporation of LNG across the value chain
- **Life cycle:** many competitors have recently invested in new vessels and are required to amortise on these for a number of years before further investments can be made
- **Infrastructure:** Despite currently limited access to LNG bunkering in the Baltic Sea, the routing and the 2 week fuel autonomy of the vessels allow them to utilise the already existing bunkering facilities in Rotterdam and Klaipeda

Opportunity presented by new SECA regulations

Window of opportunity to be amongst first players using LNG-fuelled container vessels

From January 2015, all vessels must utilise low-emissions bunker fuel according to new SECA (Sulphur Emission Control Areas) regulations

Vessels entering the Baltic and North Sea, the English Channel and the coast of the US and Canada must use fuel containing less than 0.1% sulphur or equivalent (SOx)

Regulations to apply globally from 2020-2025; LNG will be the only fuel currently available to comply with all anticipated regulation

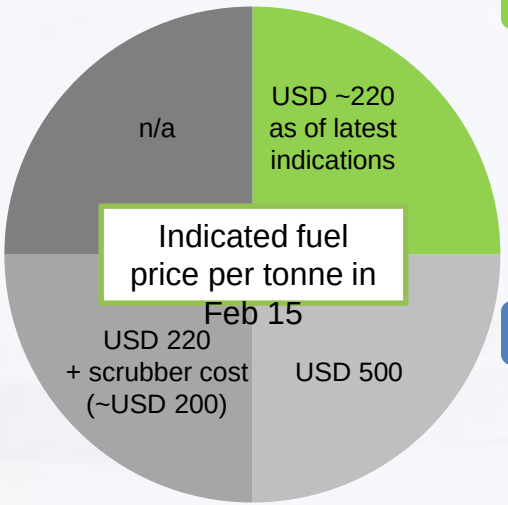
Significant cost implications to operators from retrofitting scrubbers, switching to more expensive MGO, etc. estimated at up to EUR 500-700 million p.a. just for vessels calling in Finland[1]

Alternative fuels

- E.g. biofuels
- Not currently available and not expected to become a realistic alternative in the near to medium term

Heavy Fuel Oil ("HFO") w/ scrubber

- Regular heavy bunker, but used on vessels that are equipped with a scrubber device which "washes" the exhausts of emissions
- Can be retrofitted only to 1/3 vessels
- Retrofitting cost of EUR 3-6 million per vessel
- Only a temporary solution; not expected to comply with future legislation



Liquefied Natural Gas ("LNG")

- Requires new vessels that can run on LNG
- No other European operator is currently using LNG vessels; infrastructure is still under development
- Most competitors cannot undertake this investment as they own vessels or they are tied up on long leases

Marine Gas Oil ("MGO")

- Regular diesel oil that complies with current emissions standards
- No vessel modifications or capex required
- ~50 per cent more expensive than HFO
- Slow steaming required to control costs
- Existing HFO tanks must be cleaned to use MGO

1 Based on estimates by the Finnish export council.