

PRODUCTION AND DISTRIBUTION OF LNG IN THE NORDIC MARKET

APRIL 23RD 2015

DEVELOPMENT OF LNG MARKET
FINNISH GAS ASSOCIATION

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SKANGASS

- Global and Nordic LNG Market
- Building a competitive and reliable LNG supply chain
- About Skangass



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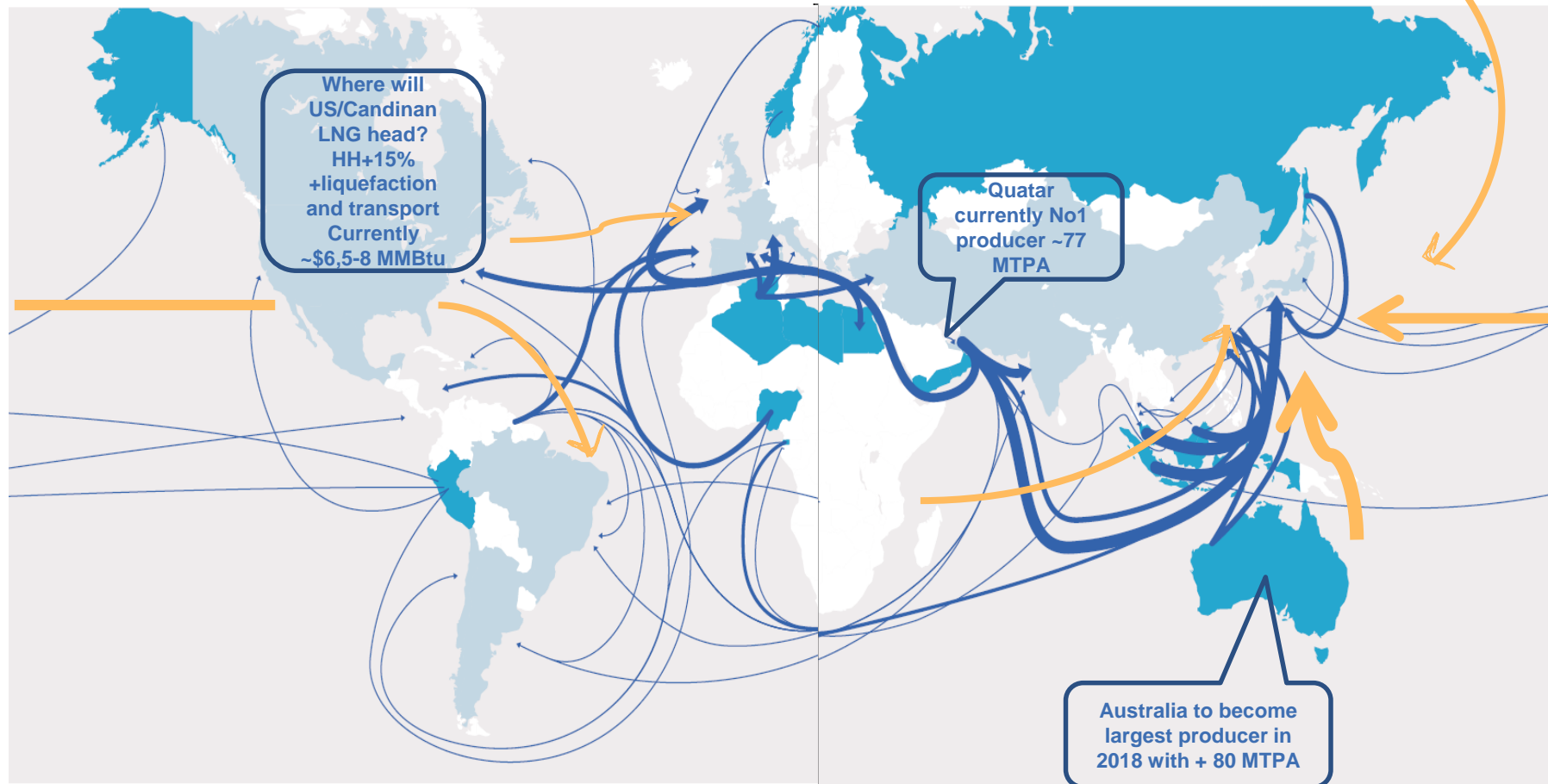
Beyond Oil and Into Gas

& Down with Coal

GLOBAL LNG Market



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 CURRENT IMPORTING COUNTRIES

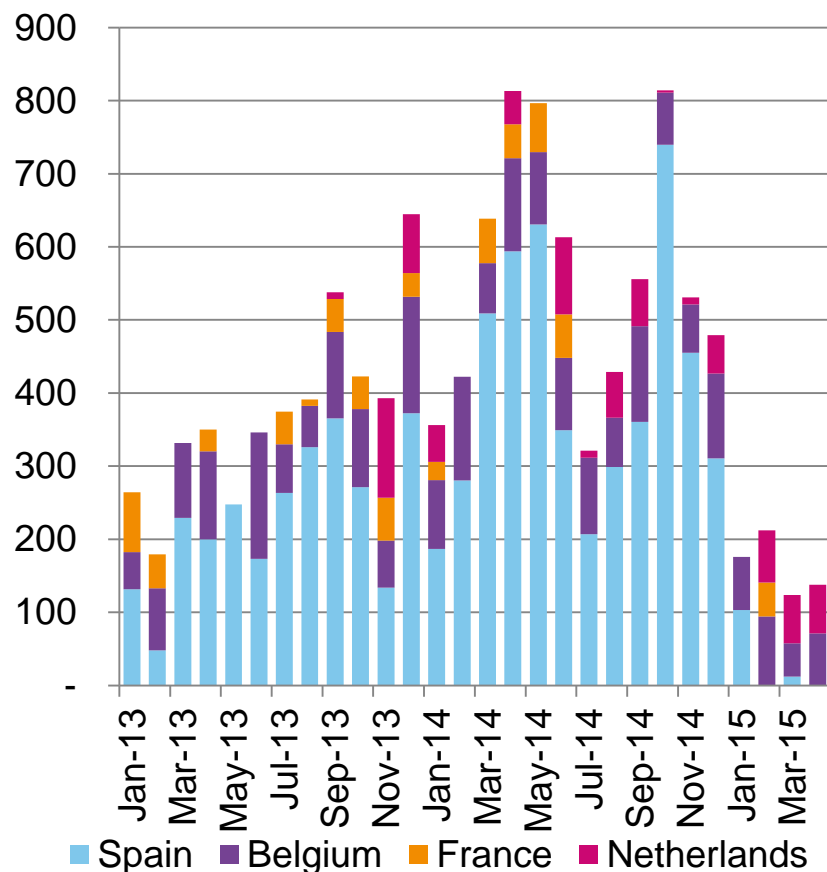
 CURRENT EXPORTING COUNTRIES

 CURRENT TRADE PATTERNS

 FUTURE TRADE PATTERNS

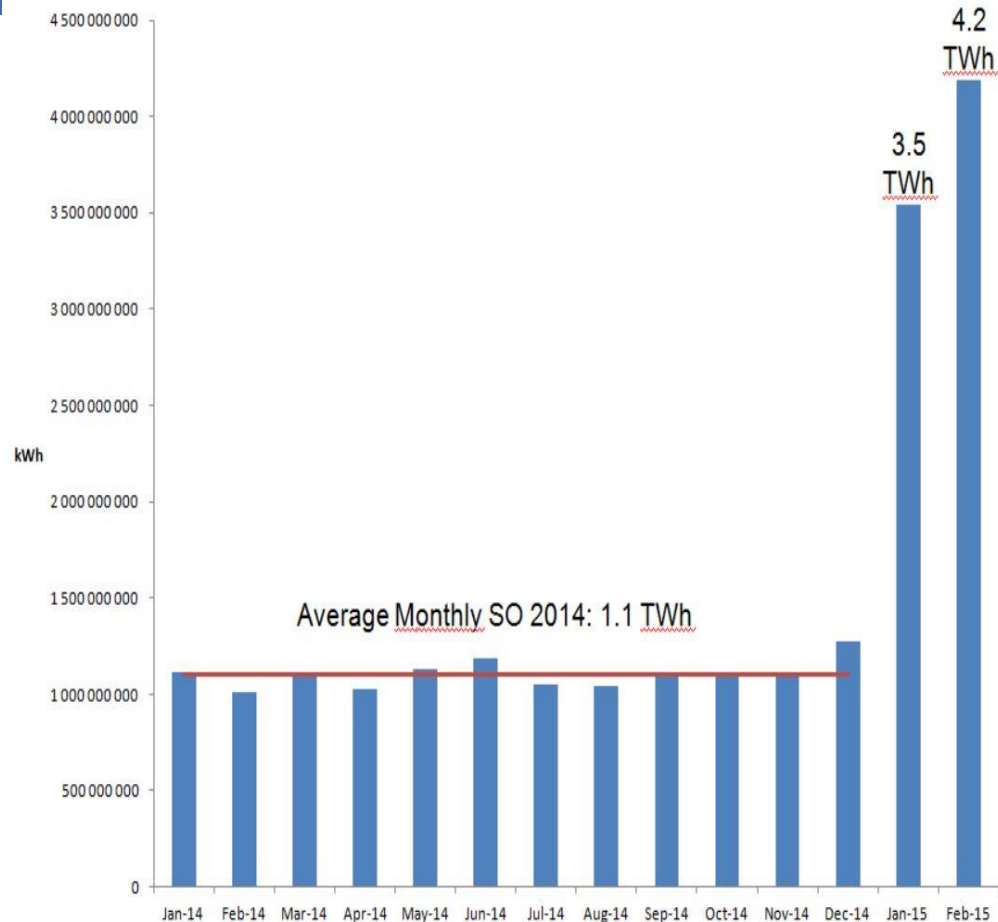
European LNG re-export significantly reduced – send out increased

Re-export of LNG from Europe – in 1,000 mt



Source: Waterborne LNG/Point Carbon

LNG Terminal Zeebrugge Send-out



The natural gas network in the Nordics



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The gas network in the Nordics is very limited and thus the primary energy share of natural gas is low compared to Europe.

Increasing emission regulations

- Industry
- Marine
- Traffic

Industrial Emissions Directive (IED) for Industry

SECA regulations and NOx for Marine

EU clean fuel strategy by 2025

- LNG in 139 harbors
- LNG truck filling stations each 400 km
- CNG car filling stations each 150 km



Long term drivers are environmental aspects & political ambitions



EU 2030 Framework



Increase energy efficiency by 30 %

- Methane high efficiency



Reduce greenhouse emissions by 40%

- 20 – 40 % less CO₂
- 60 – 85 % less NO_x
- No sulfur or particulate emissions



Increase the share of renewable energy by 27%

- Open technical solution
- 100% biogas compatible

Our customers choose natural gas energy since it helps them to;

1. Secure a future proof investment in an energy solution compatible with the long term political ambitions
2. Lower their cost of energy
3. Improve process efficiency and output quality
4. Reliable and stable market

LNG replacing at SSAB, Borlänge

”reduced CO2 emissions 40.000 tons/yr”



Preem using LNG as feedstock



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”reduced production costs 200 MSEK/yr”.

”reducing CO2 emissions with 130.000 tons/yr”



Marine Market - examples



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NORLINES leading the way in green transport



Available solutions



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Marine Gas Oil (MGO)


Designed for use in all
diesel-fuelled engines

Scrubber with **Heavy Fuel Oil (HFO)**



Alternative fuels

(methanol, biofuels)

A child's legs and hands are visible in the upper left corner, wearing light blue shorts and brown rubber boots. The child is holding a small wooden boat with a red interior and a white sail, which is floating in a shallow puddle on a wet, textured surface. The background is a wet, greyish-blue surface with some water ripples.

**Some decide
to wait and see, we
decided to **do and
learn.****

BUILDING A COMPETITIVE AND RELIABLE LNG SUPPLY CHAIN



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Large scale LNG to Small scale LNG

Pluto, Australia 4,4 MTPA



Galea 135 000 m3



Gate 540 000 m3



Risavika LNG Production
0,3 MTPA



Coral Energy 15 600 m3



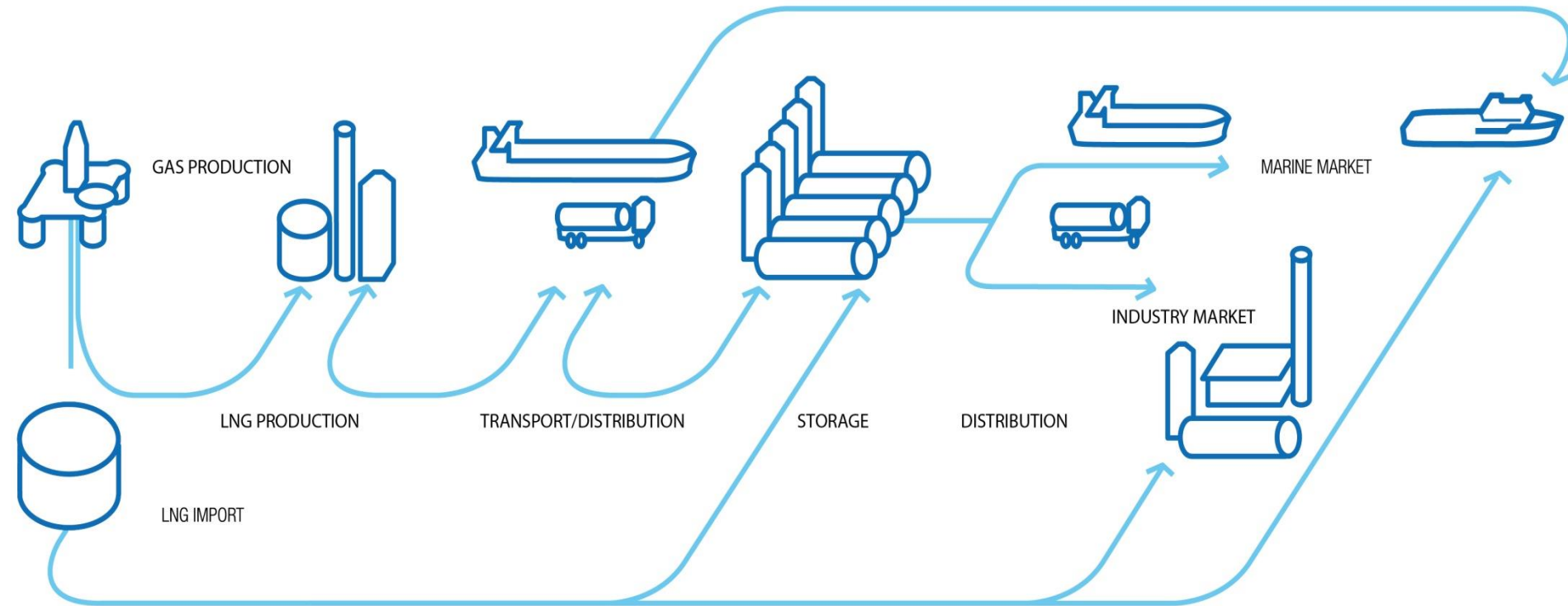
Lysekil 30 000 m3



Small Scale LNG supply chain



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“Energy-efficient and environmental friendly LNG plant ”

300' tons of LNG a year ~ 4,5 TWh

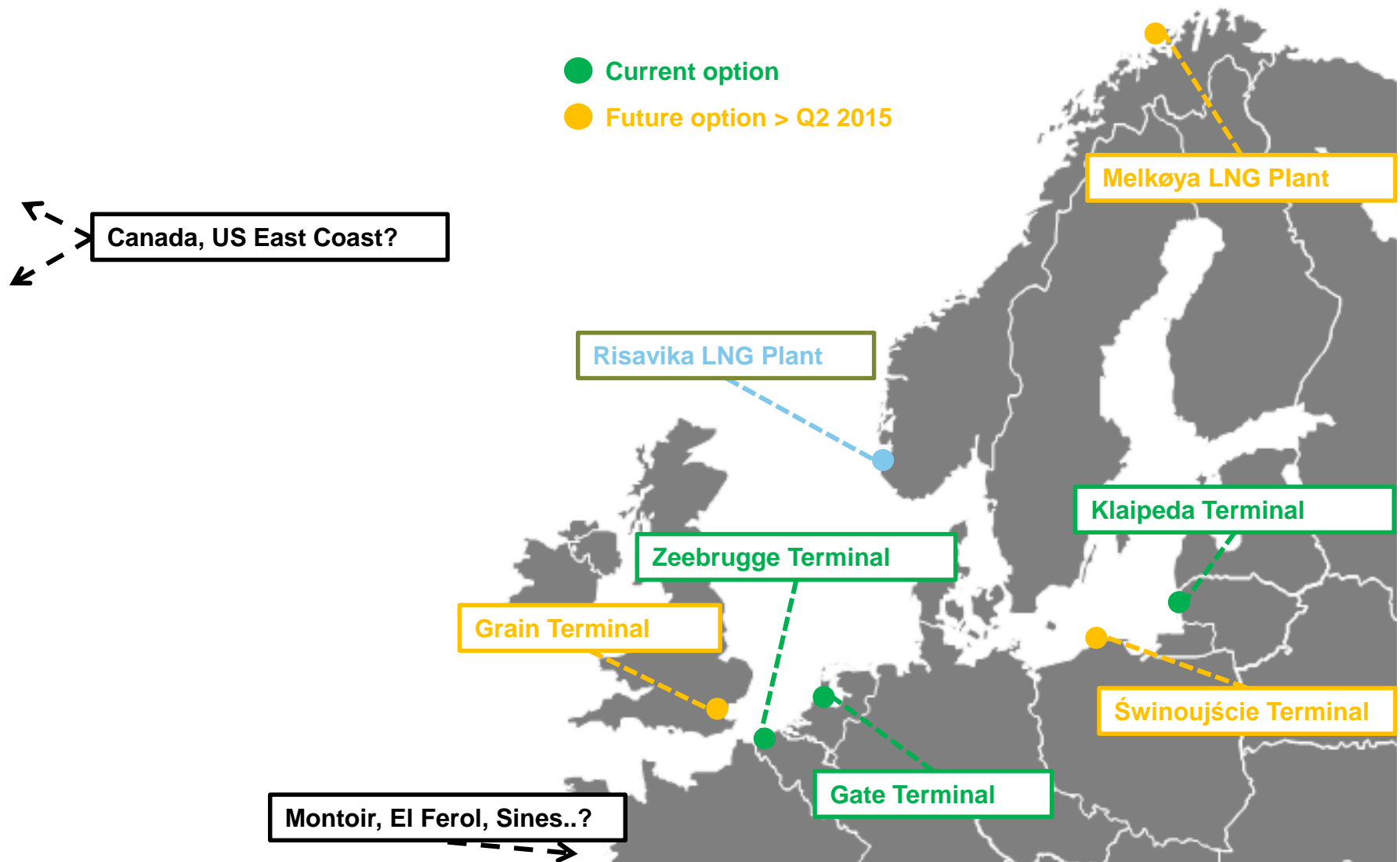
In addition Skangass supply the Lyse Neo Grid with ~ 0,7 TWh a year



Skangass LNG sourcing options



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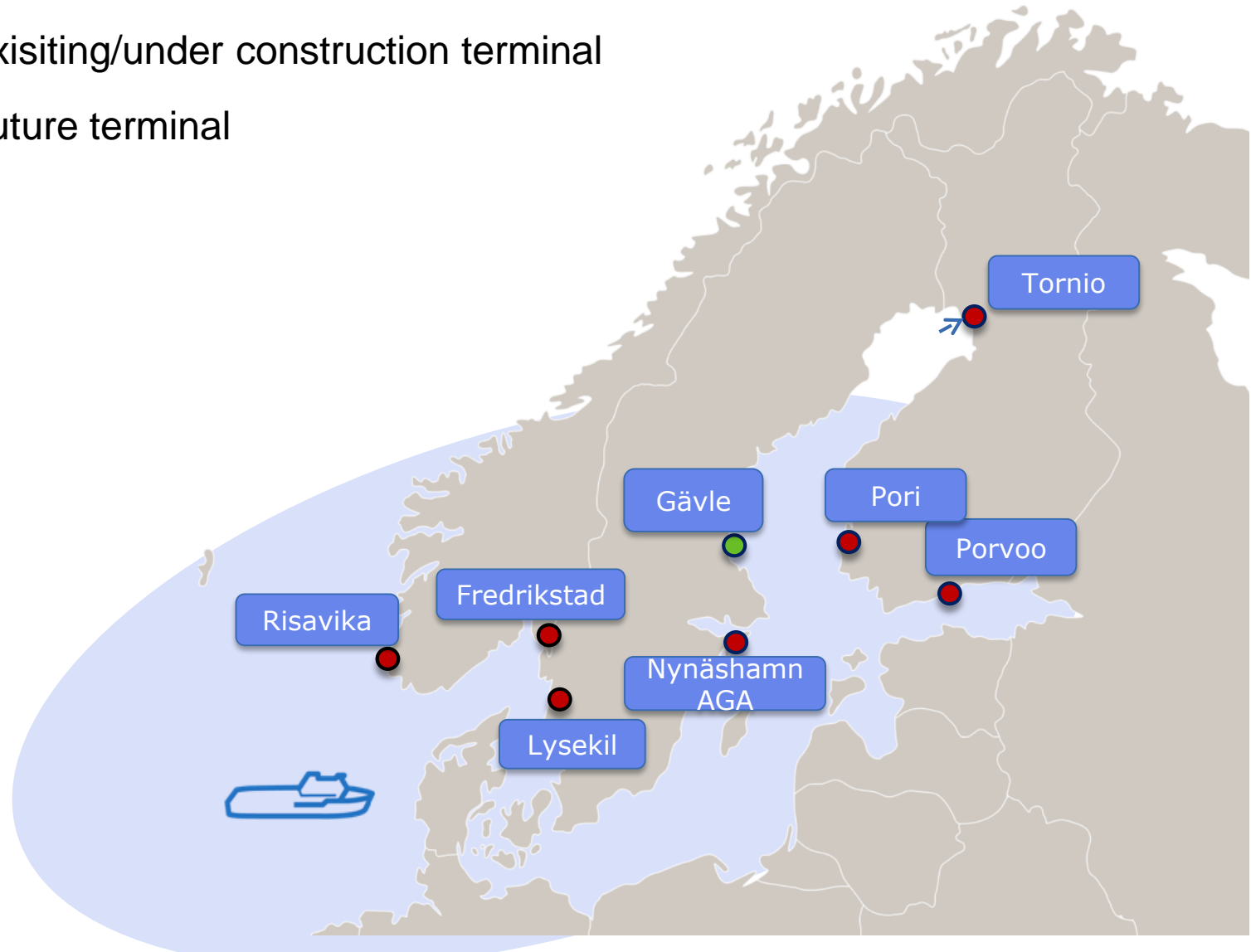


Terminals



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- Existing/under construction terminal
- Future terminal



Transportation by truck



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20 trucks in operation
5 172 Truck loadings in 2014,
soon to reach 10.000



Transportation by ship



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Coral Energy - 15600 cubic

- 22 months in operation
- 25 years TC contract
- Ice class 1A
- Owner Anthony Veder



Coral Anthelia - 6500 cubic

- 1 month in operation
- 2 years TC contract (+1 year option)
- Owner Anthony Veder



Risavika - LNG bunker port NO 1 in N/W Europ 

350 m³/h

200 m³/h ?

1000 m³/h

Truckdeliveries 50 m³/h



Coralius — LNG bunkering ship ready Spring 2017




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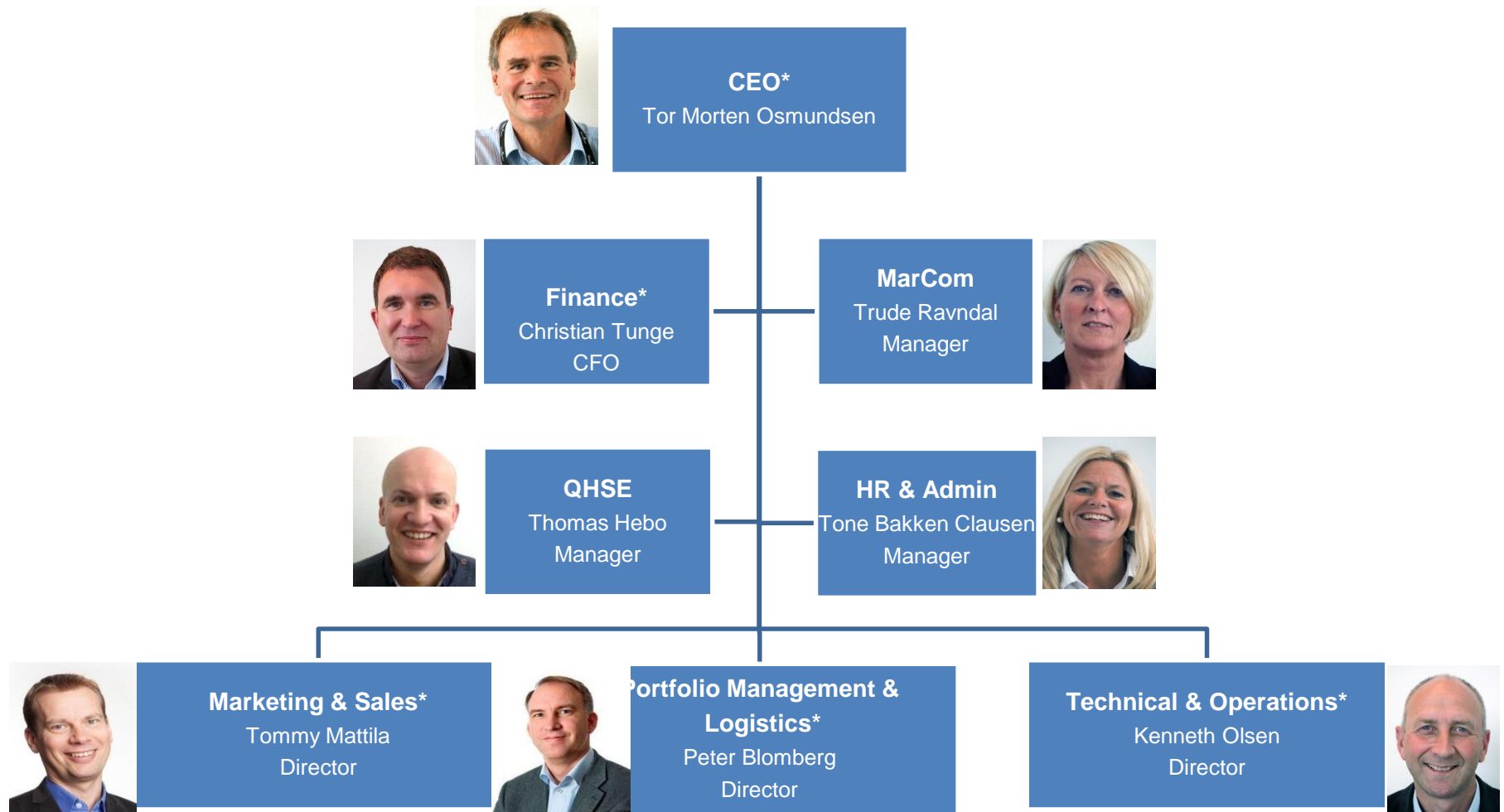
ABOUT SKANGASS

Skangass established in 2007



- Mission : ***Helping our customers achieve their energy goals***
- Vision: ***To Earn a leading position in the Nordic LNG market***
- 50 Employees located in Norway, Sweden and Finland
- Owners: **Gasum** 51 %  49%

Skangass Management Team



Customer Value Propositions

- ✓ Cost efficient
- ✓ Reduced emissions
- ✓ Reliable
- ✓ Partnership



THANK YOU