# LNG Bunkering Market – Challenges and Opportunities

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## Why talking about using LNG as a fuel in shipping – The wider environmental context of shipping

l Forecasts for 3 billion tons of $CO_2$ emissions in year 2050 alone, unless measures are taken.
l 60,000 vessels rely on diesel — only 600 ships use alternative fuels
l 10% of the global shipping fleet is expected to use LNG, by 2030
l New GHG emission related regulations:

- IMO Sulphur CAP 2020
- EEDI (Energy Efficiency Design Index) Regulation
- EU-MRV

IMO Initial Strategy targets compared to 2008 levels:

- Reduce carbon intensity by 40% by 2030
- Reduce carbon intensity by 70% by 2050
- Reduce GHG emissions 50% by 2050

- Pressures from new regulations bring new challenges for the shipping industry
- Possibility (?) for a new EU ships emission taxation / Emission trading scheme

## Why talking about using LNG as a fuel in shipping – The wider environmental context of shipping

Comparing alternative fuels.

| | LNG | LPG | Methanol | Ethane | Ammonia | Hydrogen |
|---|---|---|---|---|---|---|
| **Emission Reduction** | | | | | | |
| $CO_2$ | -20% | -16% | -9% (-100%*) | -20% | no $CO_2$ | no $CO_2$ |
| $NO_x$ | -25% to -85% | -13% to -70% | -55% to -60% | -30% to -80% | SCR needed | ? |
| $SO_x$ | -99% | -99% | -97% | -99% | -99% | No $SO_x$ |

Source: ABS (2020)

Low Sulphur, low density, cleaner FO

**LNG** as marine fuel is a matured proposal both from technological and supply point of view. It can be the bridge fuel in the course of the next decades towards decarbonization.

High Sulphur, high Density, dirty FO

# The puzzle of using LNG as a fuel in shipping – The market

1

## The Vessels

- 175 LNG-fueled vessels in operation
- 141 LNG-ready vessels
- 203 on order

2

## The Ports

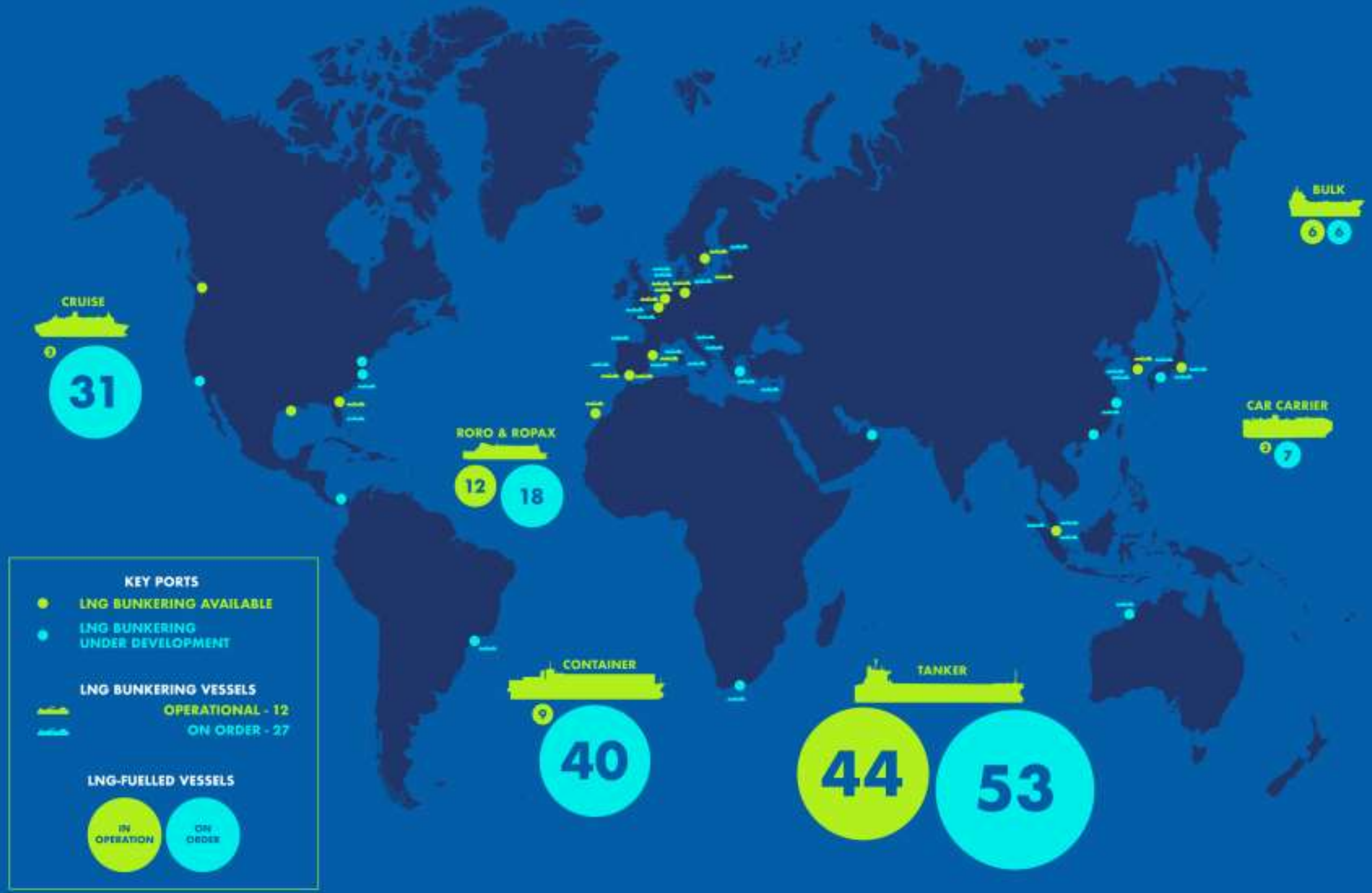
37 Truck-to-Ship
20 Ship-to-Ship
67 Port-to-Ship

3

## LNG bunkering vessels

- 9 Existing
- 11 On order

## WORLDWIDE GROWTH IN LNG USE & INFRASTRUCTURE




Source: https://sea-lng.org/

## LNG Bunkering Challenges

- Forecasts for 35% of LNG market growth - LNG Bunkering can benefit form oversupply
- Growth rate of LNG-fueled vessels in the world fleet
- Development of «green» pricing schemes
- Big investment costs
- Cost components for LNG as fuel
  - The price of fuel at major European import hubs
  - The costs of storage
  - The cost of transhipment between hubs and local port facilities and further to the end user
- Uncertainty with regard to demand

## LNG Bunkering Opportunities

- Alternative Fuels Ifrastructure Directive – Provision of LNG Bunkering facilities by TEN-T core network ports (104 ports across EU)
- **ECA facilitates investments in ecological technologies and efficiency**
- Availability of LNG at a competitive price
- **Environmentally friendly (lower CO2, Nox, Sox and PM emissions).**
- **Alternative fuels will be gradually adopted by the industry**
- **Significant growth of LNG on newbuilds.**

## Conclusions

Interest in LNG as a bunker fuel has been on the rise in Europe for some time, supported by EU policies aimed at increasing the use of this clean, low emission profile fuel in transport.

The creation of the new fuels infrastructure continues to be thought as a chicken and egg game.
Shipowners’ wait and see strategy (MGO)

Initial capital commitments of LNG equipment will continue to restrict widespread adoption, despite LNG’s price advantage and lower overall cost of ownership

Tight conversion economics and slow new-build rate (from slow economic growth) also limits LNG demand

# THANK YOU FOR YOUR ATTENTION

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