



# LNG: The Future Fit Solution for the Maritime Sector

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# THE INDUSTRY ADVOCATE

Working across the marine value chain





- LNG far out performs conventional marine fueling solutions on a local emission basis
  - Zero **SO<sub>x</sub>**
  - 90% **NO<sub>x</sub>** reduction
  - 99% decrease in **PM**
- And no waste disposal or discharge issues (closed and open loop scrubbers)
- LNG is a major step forward for GHG emissions reductions and will be one of the solutions to meet IMO's decarbonization targets
  - Realistic reductions of 10-20%; up to 25% compared to conventional marine fuels
  - In combination with EEDI measures can achieve a 40% reduction in carbon intensity with potential for more

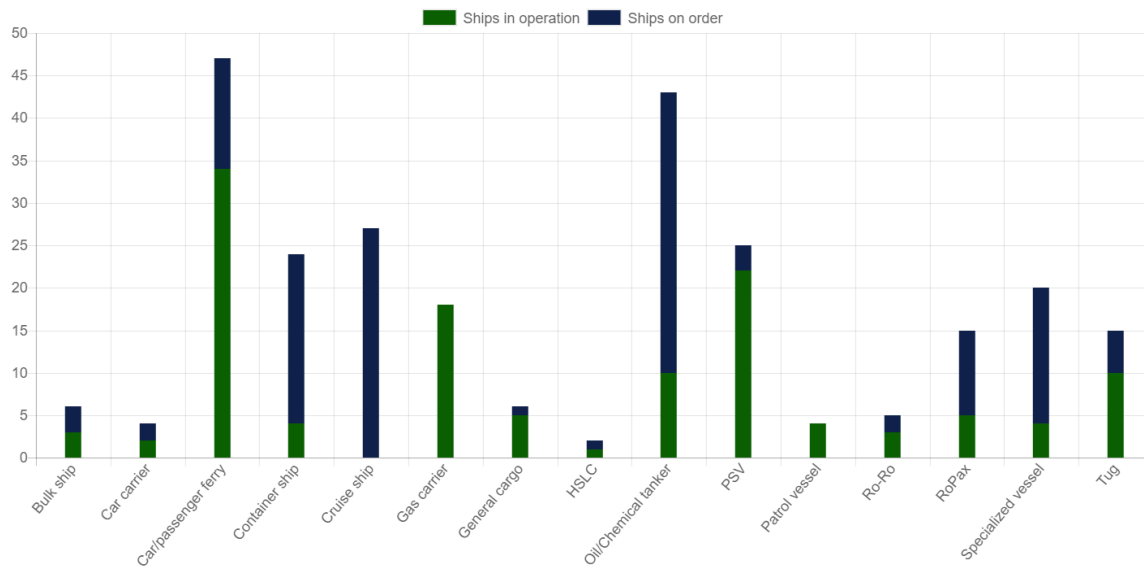
LNG provides a future-fit local emissions solution for shipping companies and the associated supply chain



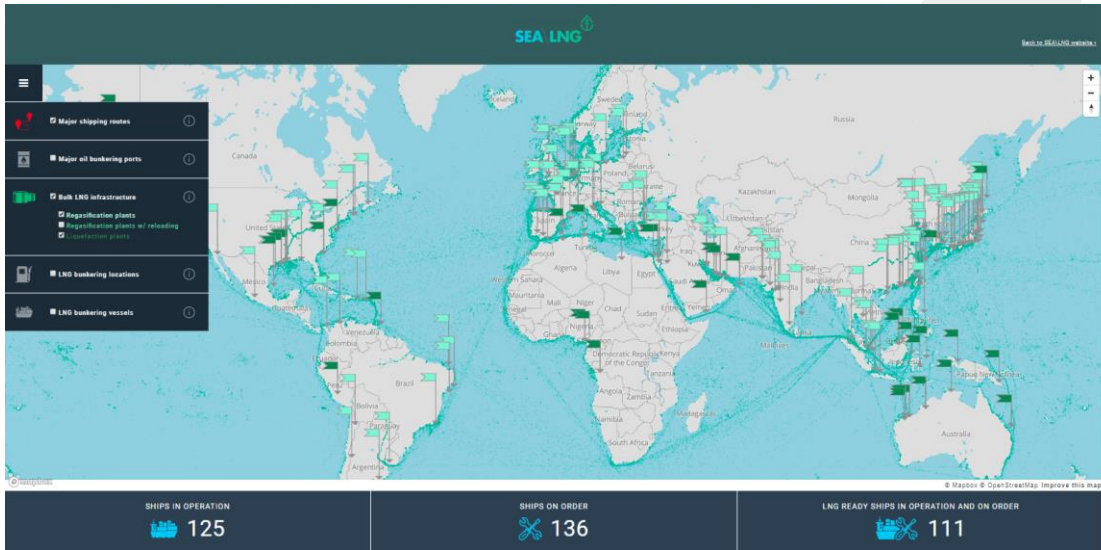
*“LNG is the fuel of the future for shipping,”* Rodolphe Saade, Chairman & CEO CMA CGM

- Higher CAPEX offset by OPEX savings (significantly lower fuel prices)
- LNG much less volatile than oil
- Numbers of LNG fueled ships growing strongly:
  - 125 in operation
  - 136 on order
  - 20%-40% annual growth since 2010
- Move from short-sea shipping to deep-sea shipping space

Fleet by vessel type



Source: DNV GL LNGi, August 2018



Source: SEA | LNG Bunker Navigator

- Plentiful and growing LNG supply
- Bulk LNG infrastructure exists & is in the right places
- ‘Last mile’ investments are happening (globally)
- Bunker vessels – 6 in operation and many more on order

# SEA LNG SUMMARY

- LNG is proven for shipping operations
- LNG is available now, commercially viable, and scalable to meet the industry's needs
- LNG makes sense as a long-term solution for the marine industry





At the helm of shipping's energy future

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