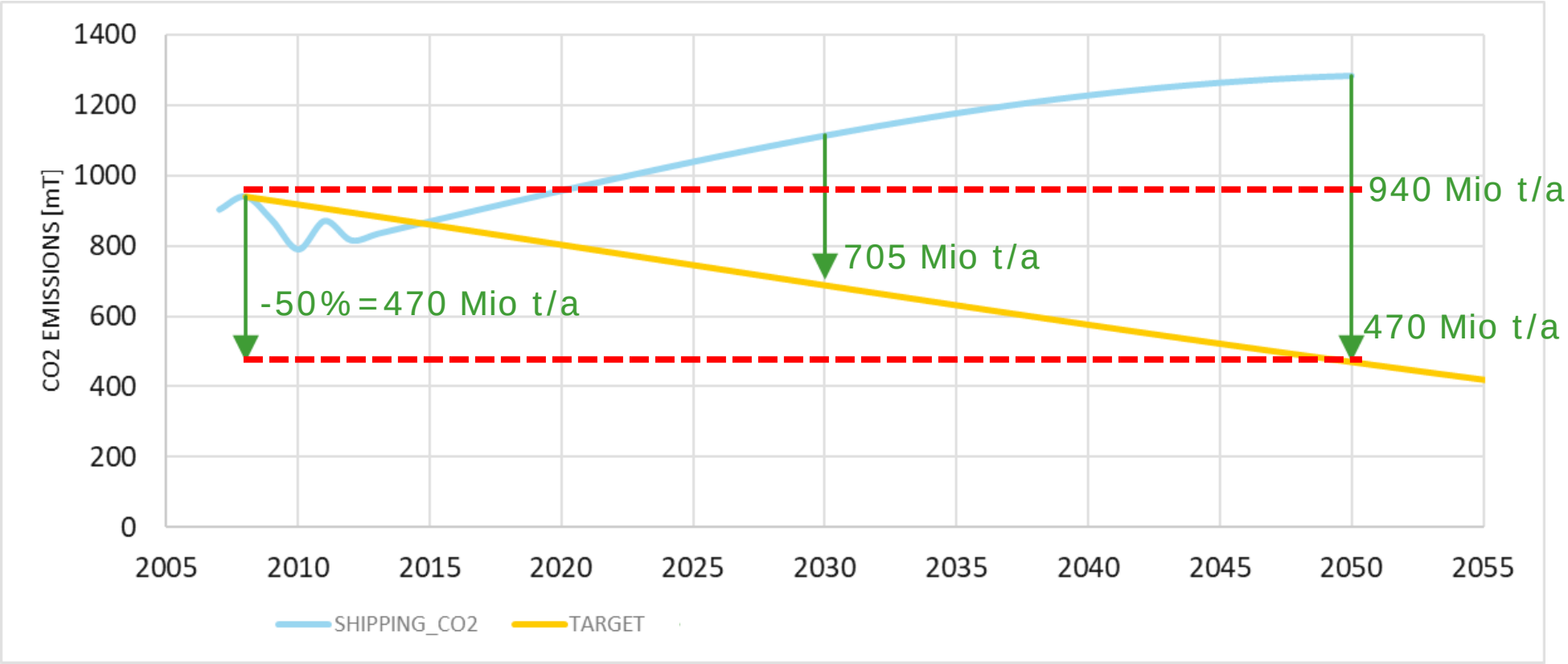
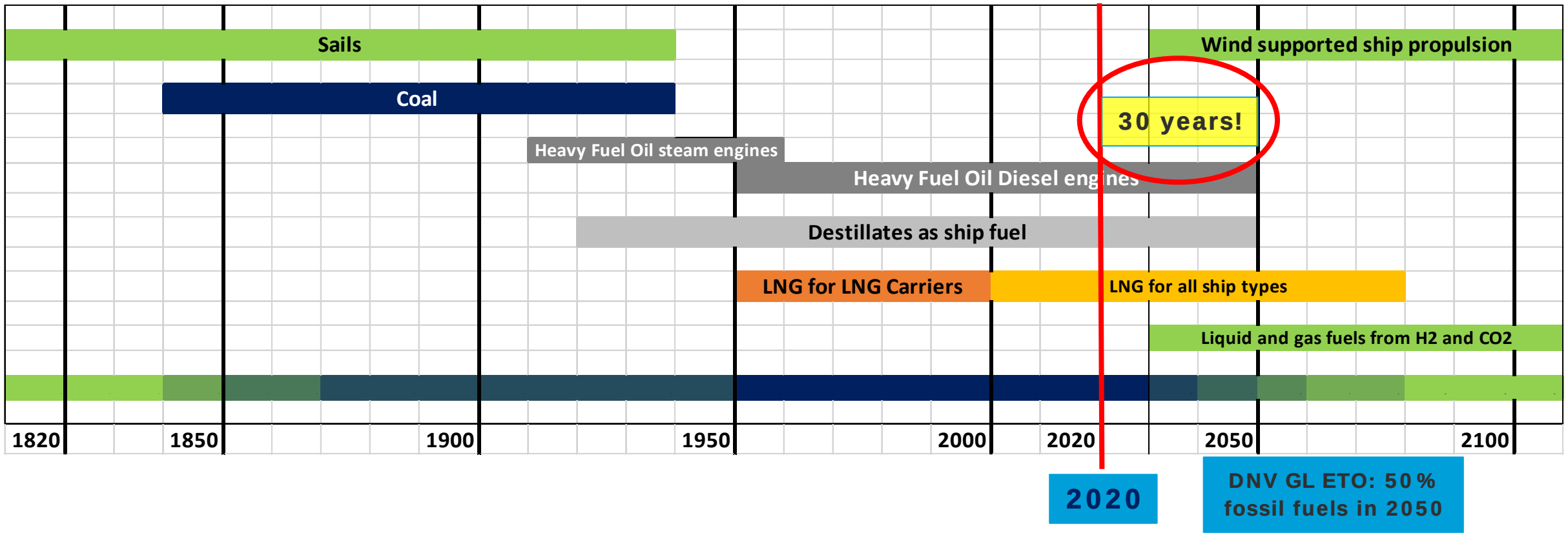
Current status of LNG and other fuel alternatives in shipping

Dr Gerd Wuersig, Business Director DNV GL

The Initial Green House Gas (GHG) Strategy (MEPC.304(72)) also is a potential “game changer”



How will ship propulsion power look like in the future?



- "Paris Agreement", 2015-12-12 → UN's climate science panel says net zero emissions must happen by 2070 to avoid dangerous warming.; IMO ambition to reduce GHG emission by 50% within 2050 (April 2018)
- Until now there are no taxes on ship fuel.

The 2020 0.5% S effect on global bunker demand

- In 2020 LNG cannot play a major role (low no of ships)
- Distillates and LSHFO will take the role of high sulphur HFO
- High S HFO will drop dramatically
- Development beyond 2020 is uncertain

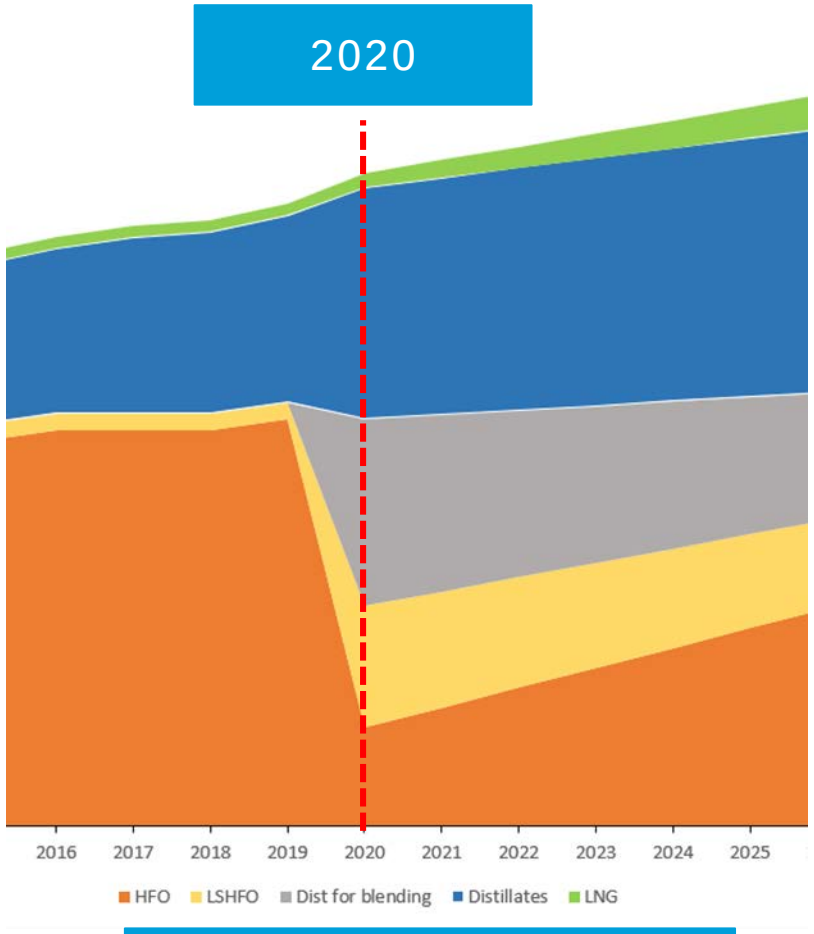
LNG

Distillates

Distillates/blend

LSHFO

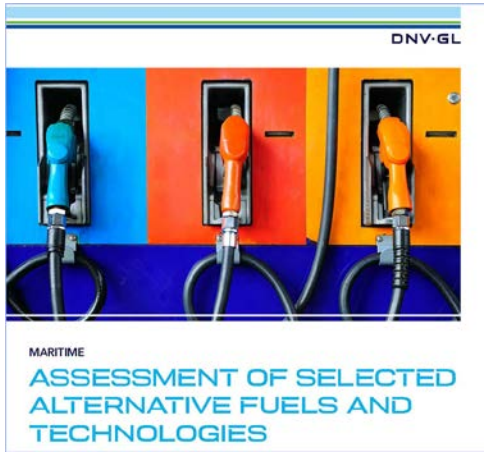
HFO (Scrubber)



One possible global bunker demand

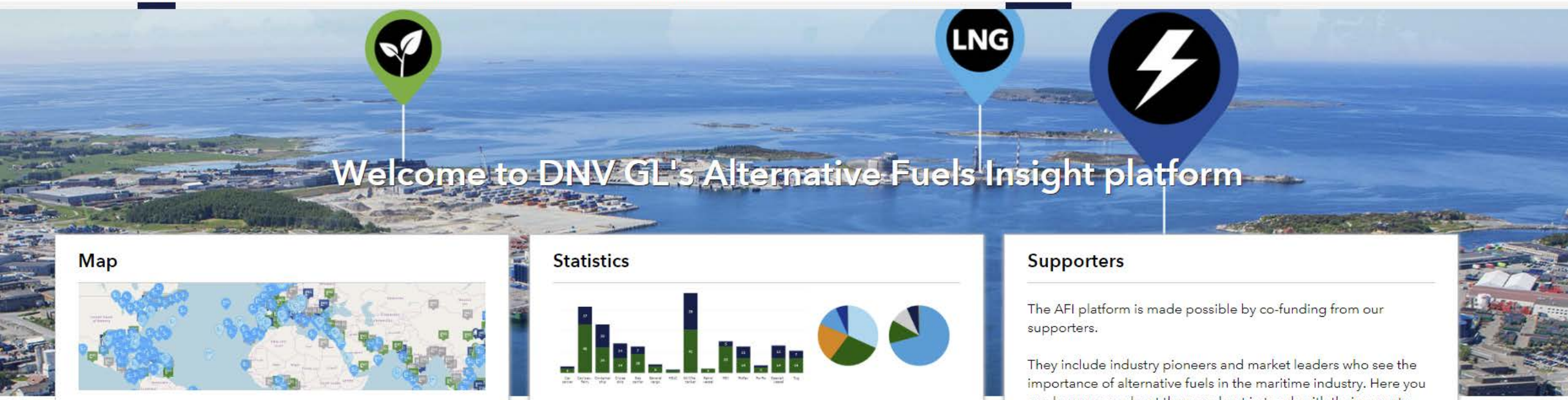
Link to DNV GL alternative fuel white paper and AFI platform

- White paper alternative fuels and technologies
  www.dnvgl.com/alternative-fuel



- Alternative Fuels Insight platform: afi.dnvgl.com
  - The content of the white paper is provided and maintained on our web platform


Alternative Fuels Insight
LNG
LNG
afi.dnvgl.com



Welcome to DNV GL's Alternative Fuels Insight platform

Map

Explore the development of bunkering infrastructure for alternative fuels. You can also see where ships using alternative fuels and technologies are already operating.

Statistics

Get detailed insights to the uptake of alternative fuels and technologies on ships. Filter on ship types, region, technology and more to create your own graphs.

Supporters

The AFI platform is made possible by co-funding from our supporters.

They include industry pioneers and market leaders who see the importance of alternative fuels in the maritime industry. Here you can learn more about them and get in touch with their experts.

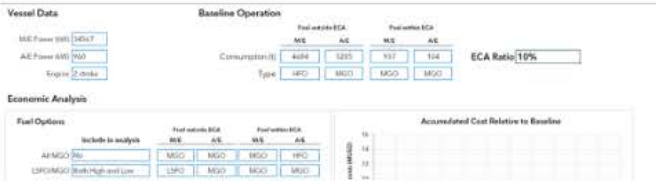
Fuel Finder

Connect instantly with suppliers of alternative fuels by submitting your own bunker request.

Encyclopedia

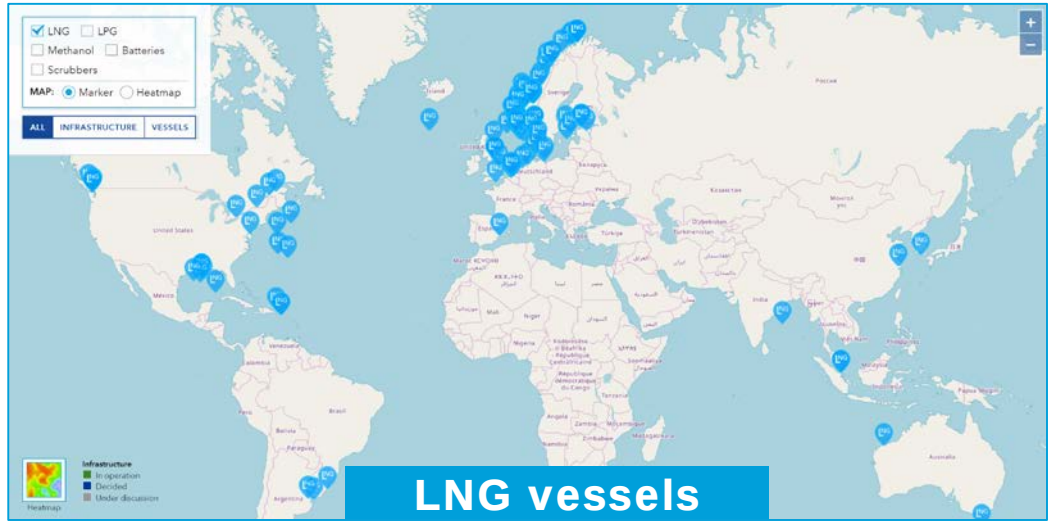
Learn more about the properties of a wide range of alternative fuels and technologies.

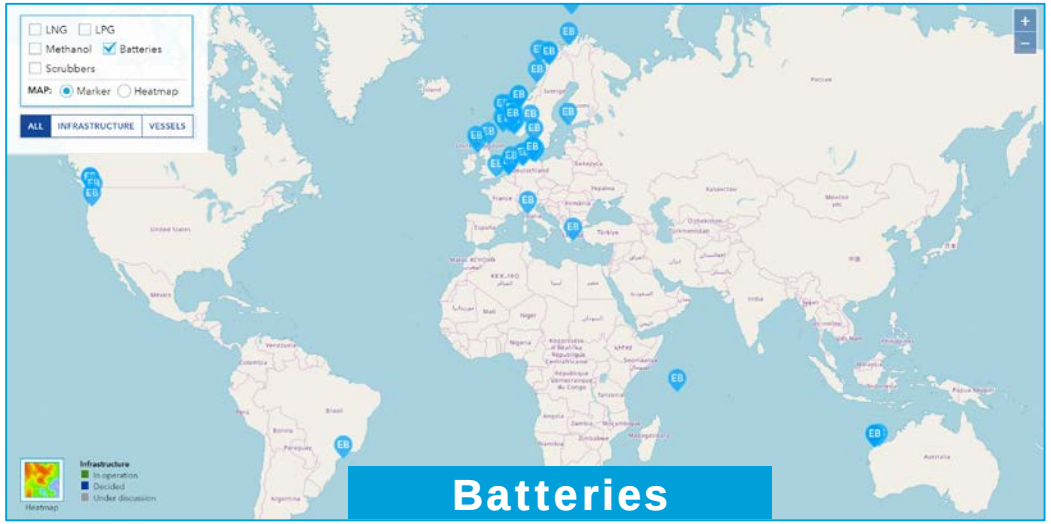
Fuel Selector



Compare the financial performance of LSFO, HFO with scrubber, LNG, LPG and methanol for your ship. Use DNV GL's assumptions or apply your own to calculate lifecycle costs, payback time and

Interactive maps with filtering capabilities





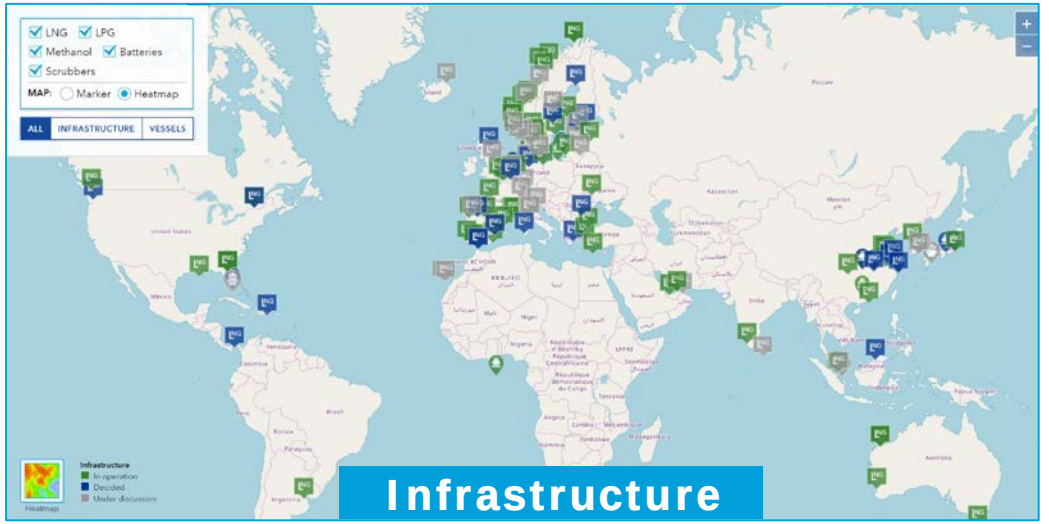
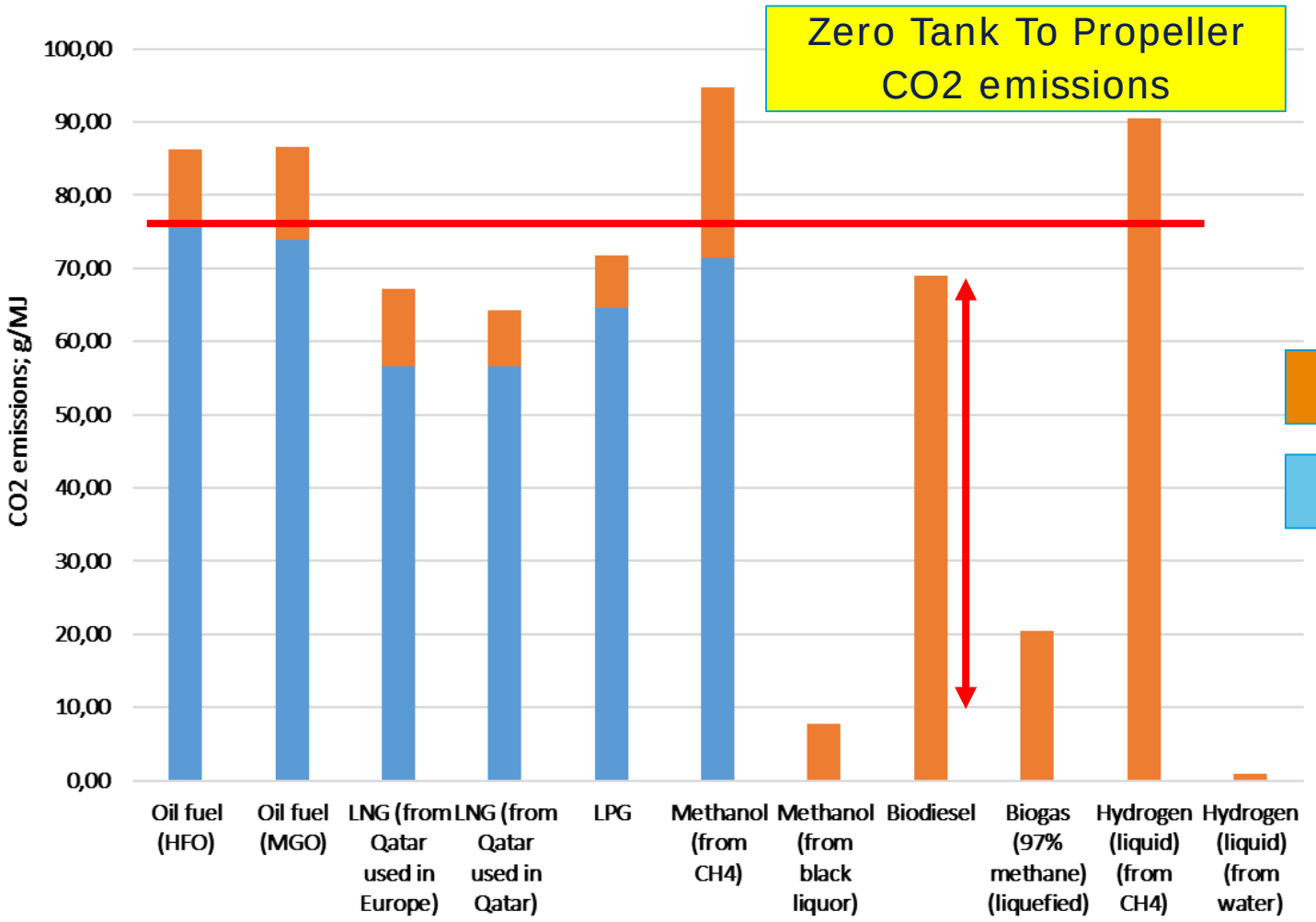


Fig. 2. CO2 equivalent emissions of fuel alternatives in shipping



WTT — Well To Tank

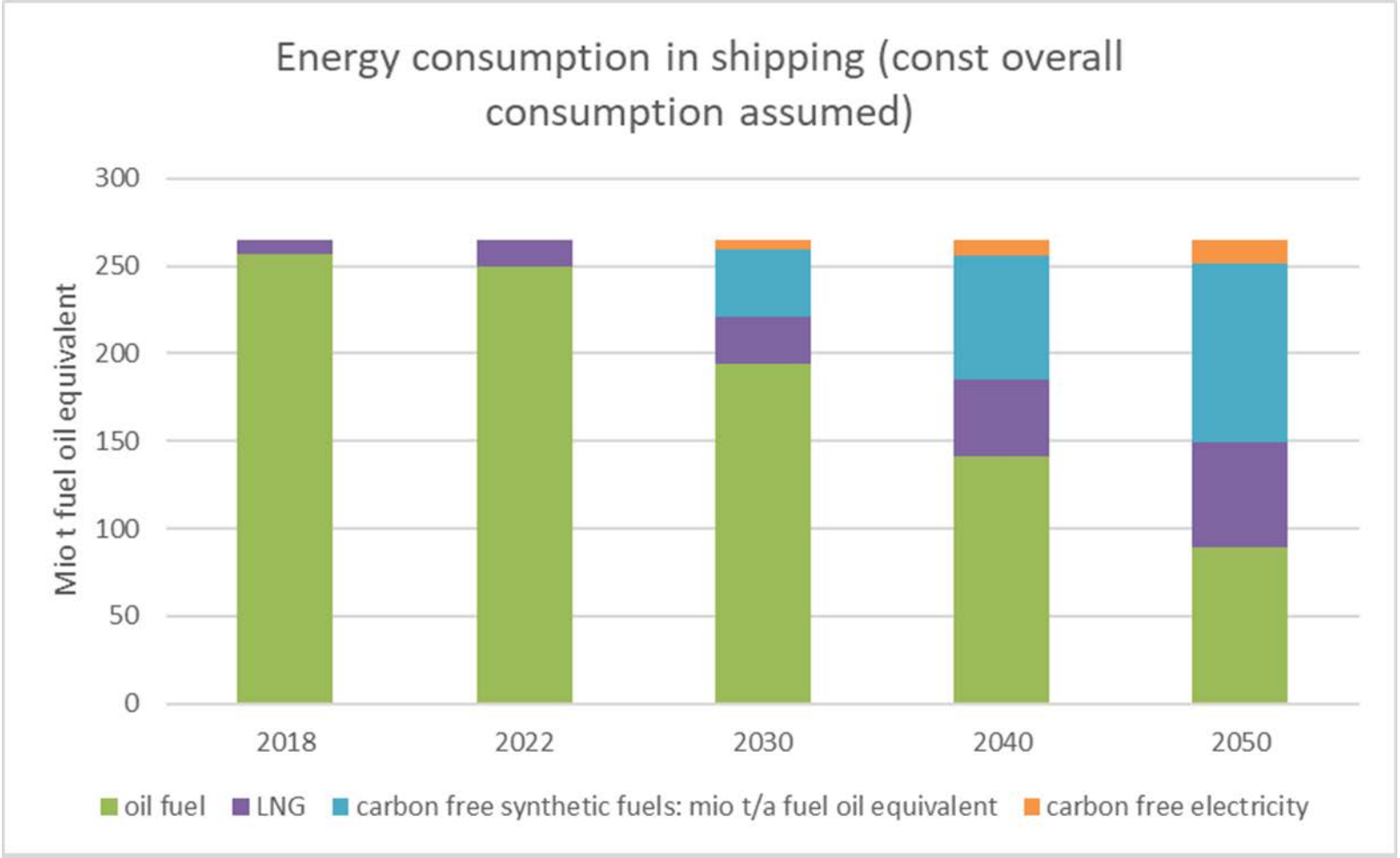
TTP — Tank To propeller

For TTP no slip effects considered

For WTT slip is considered

Fig. 1. Consumption figures for substitution of 50 % oil fuel by PtoF

- Efficiency increase compensates growth in fleet only.
- Fuel supply for shipping: comp DNV GL ETO 2018
- Assumed: PtoF application starts “today”
  - PtoF: In 2030 approx. 38 mio t/a fuel oil equivalent might be needed!



Source: DNV GL, ETO 2018

Thank you for your attention!

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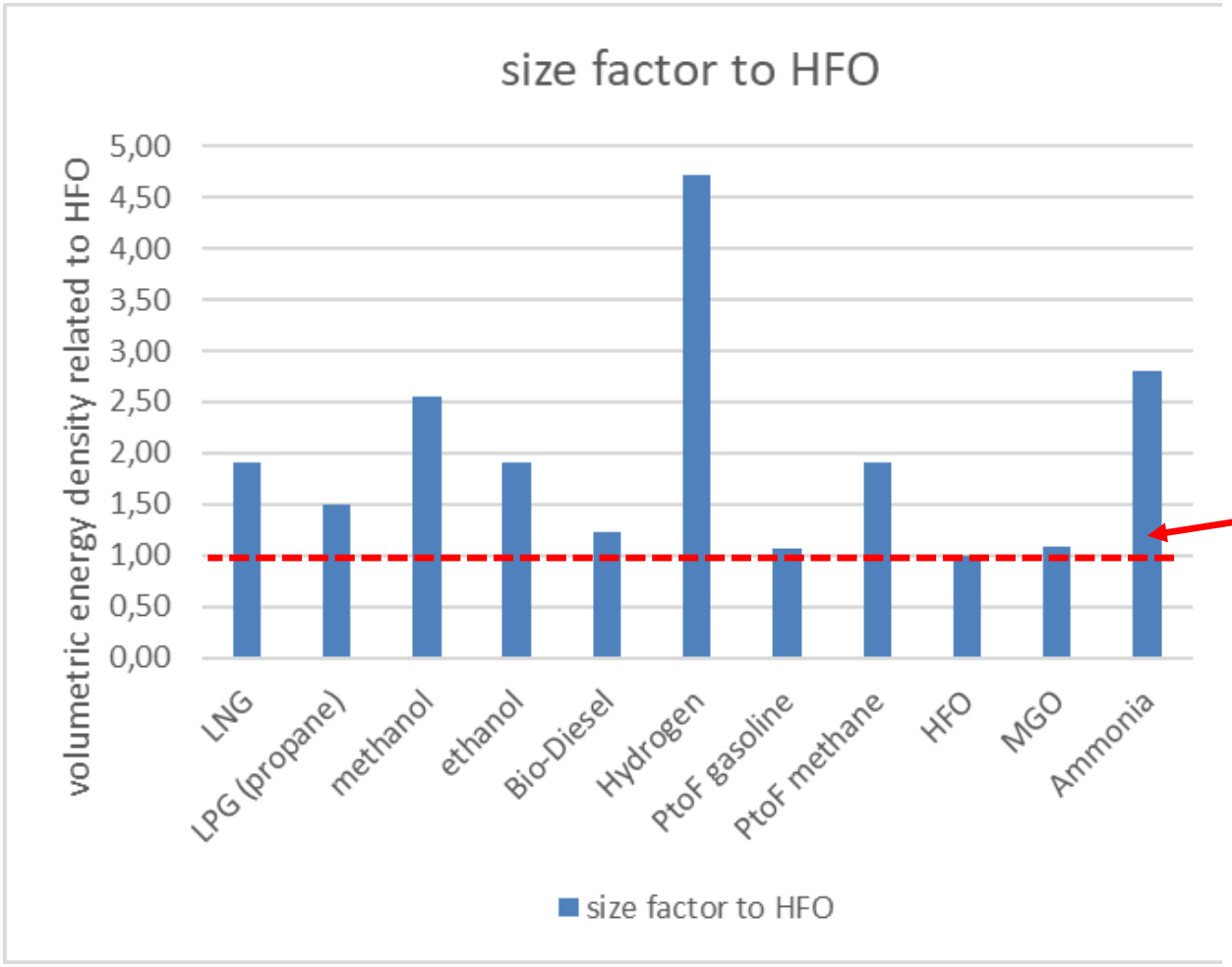
Fig. 3. Fuel volume
- How much space future fuels will need? -

- Todays ship fuel has the highest volumetric energy density
- Hydrogen needs more than 4,5 times the volume of oil based fuel. → not suitable for deep sea shipping
- Other fuel alternatives are acceptable for deep see shipping with regard to required volume



Reference energy density