SNAME MARITIME 2022 CONVENTION

26-29 September | Houston, TX

Green Transport - Towards Zero-Emissions Waterborne Transport

SMC 2022 Topical Breakfast

WEDNESDAY, September 28

7:30 AM - 9:00 AM

Green Transport - Towards Zero-Emissions Waterborne Transport

Topical Breakfast on WEDNESDAY, September 28
at 7:30 AM - 9:00 AM

Moderator:

Professor Apostolos Papanikolaou
National Technical University of Athens

Panelists:

Mr. Mikal Dahle, Kolumbus/Stavanger
Dr. Karsten Hochkirch, DNV
Mrs. Thalia Krüger, Principle Power
Dr. Elizabeth Lindstad, SINTEF
Mr. Joshua Padeti, ABS

Agenda

1. Apostolos Papanikolaou/NTUA: 5 min introduction to subject and panelists
   - Introduction to Green Shipping and panel aims
   - Introduction of panelists
2. Panelists: 10 minutes/presentation
   - Mikal Dahle/Kolumbus: electric ships/TrAM project/Kolumbus/Medstraum ferry
   - Elizabeth Lindstad/SINTEF: alternative fuels & WASP
   - Thalia Krueger/Principle Power: offshore wind energy issues
   - Joshua Padeti/ABS: technologies for alternative fuels/energies
   - Karsten Hochkirch/DNV: IMO-regulatory/EEDI/EEXI/CII-compliance/financial issues
3. QA: 30 minutes
4. Moderator: 5 min summary

Green Transport - Towards Zero-Emissions Waterborne Transport

With the maritime industry striving to meet the **ambitious 2030 and 2050 GHG emission goals** of the International Maritime Organisation (IMO), there is an obvious **uncertainty and plenty of opinions about the "right" path to achieve these goals**. While the **2030 emission-reduction goals appear manageable by existing technology** (including the use of alternative fuels, e.g., **LNG**) and **operational measures**, it is not so with the **most ambitious 2050 targets**. Thus, both the **IMO targets and the available measures (technology and logistics) may need to be adjusted**. The **uncertainty** refers both to **candidate alternative fuels** (hydrogen, ammonia, methanol) and **to their implementation through innovative engine technology** to ship's energy/powering system, the **logistics of fuel availability** (including the energy demand for their production), **storage**, etc., and last but not least their **impact on ship's transport efficiency**. **Wind Assisted Powering Systems** (WASP) appear to be a competitive option to the use of "green" fuels, while also the use of **small nuclear power reactors (SMR)** is nowadays seriously discussed as an option for large cargo ships.

Acclaimed experts of the international maritime industry and research community will discuss the main challenges of the IMO GHG emission goals, the prospects of use of alternative fuels, the implementation of technical zero emission design solutions by fully electrical, hydrogen fueled and WASP powering systems and the most recent regulatory IMO developments (MEPC).

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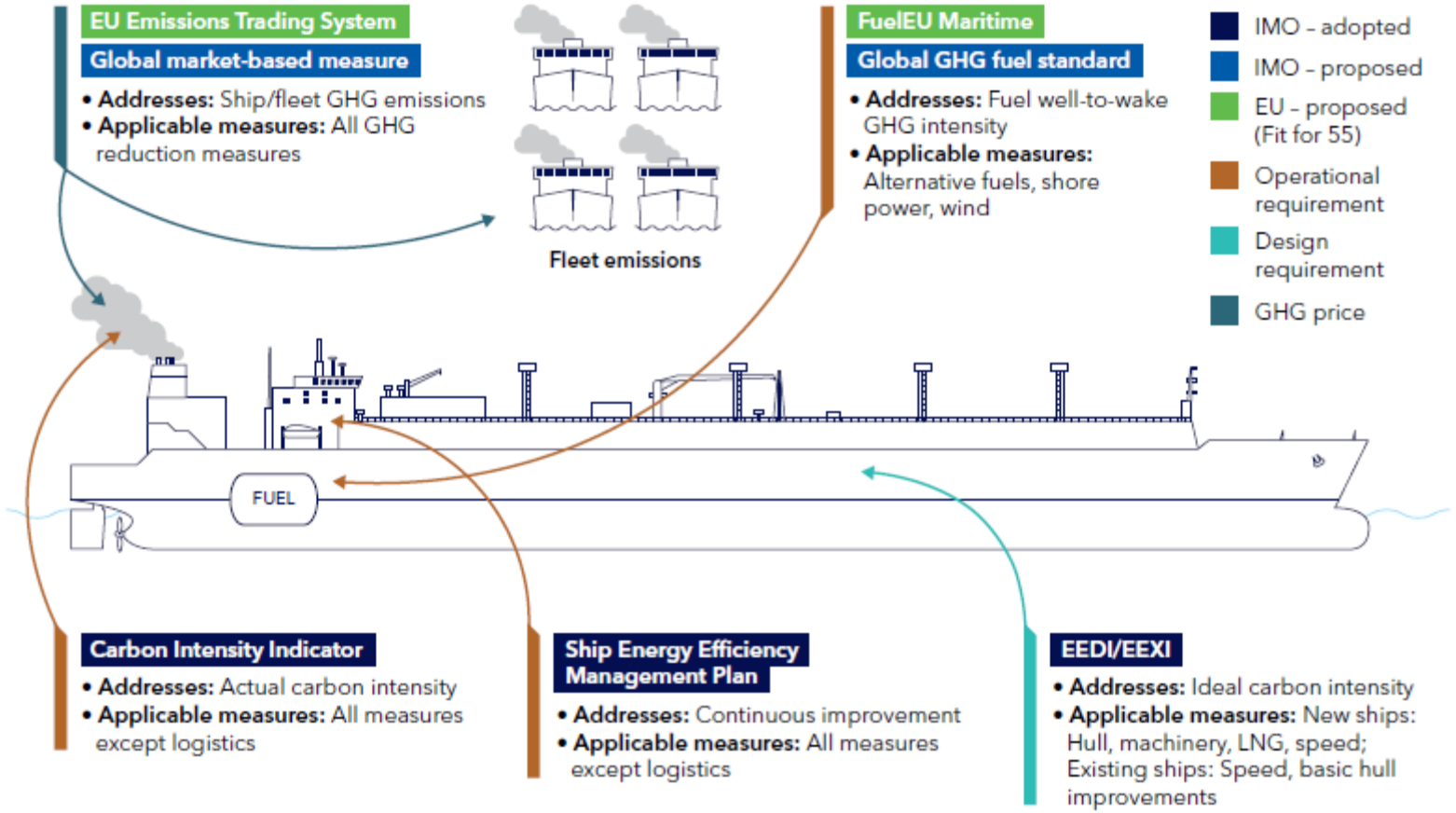
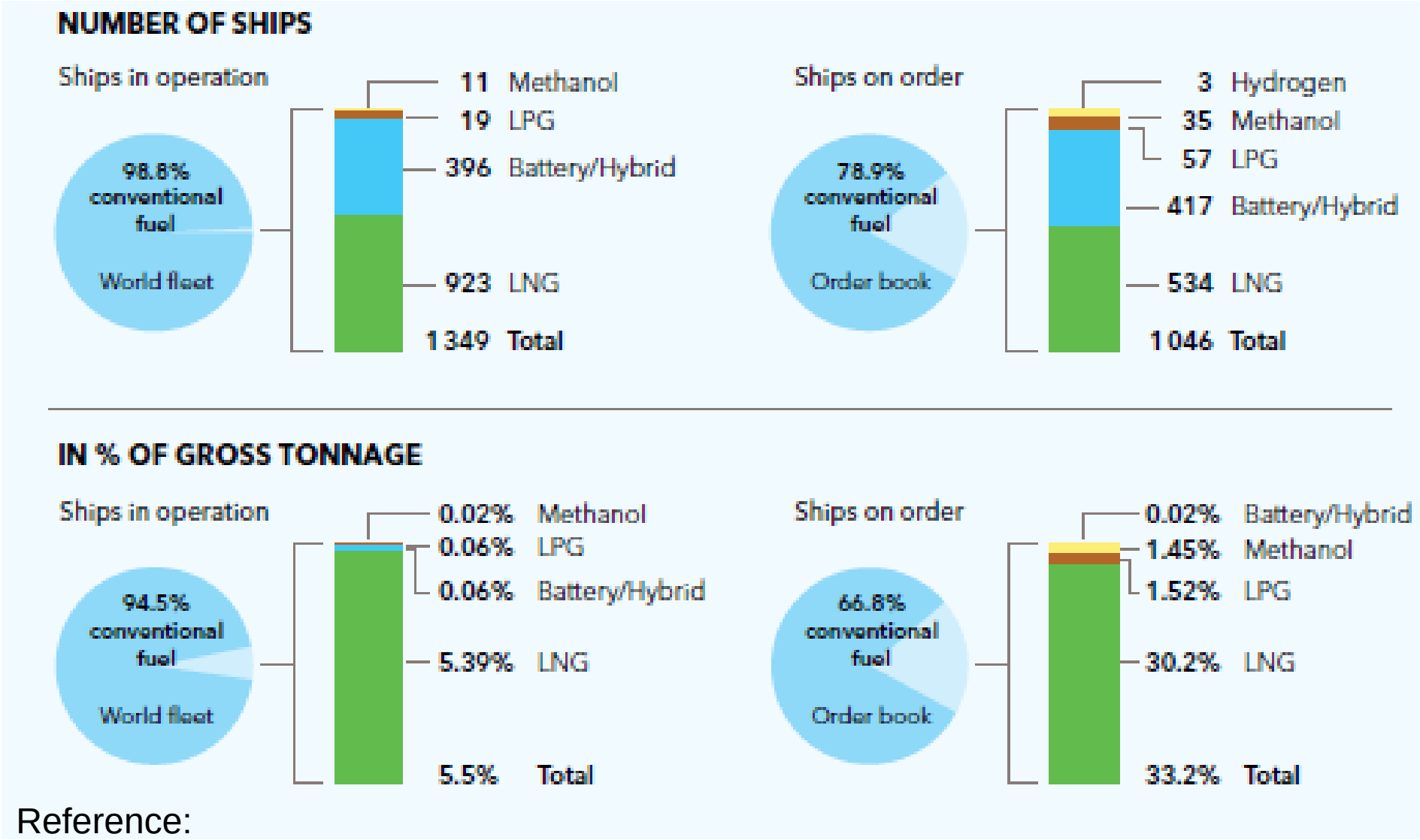
IMO Regulatory Framework for GHG Emmissions Reduction



Reference:
DNV Maritime Forecast to 2050 – Energy Transition Outlook

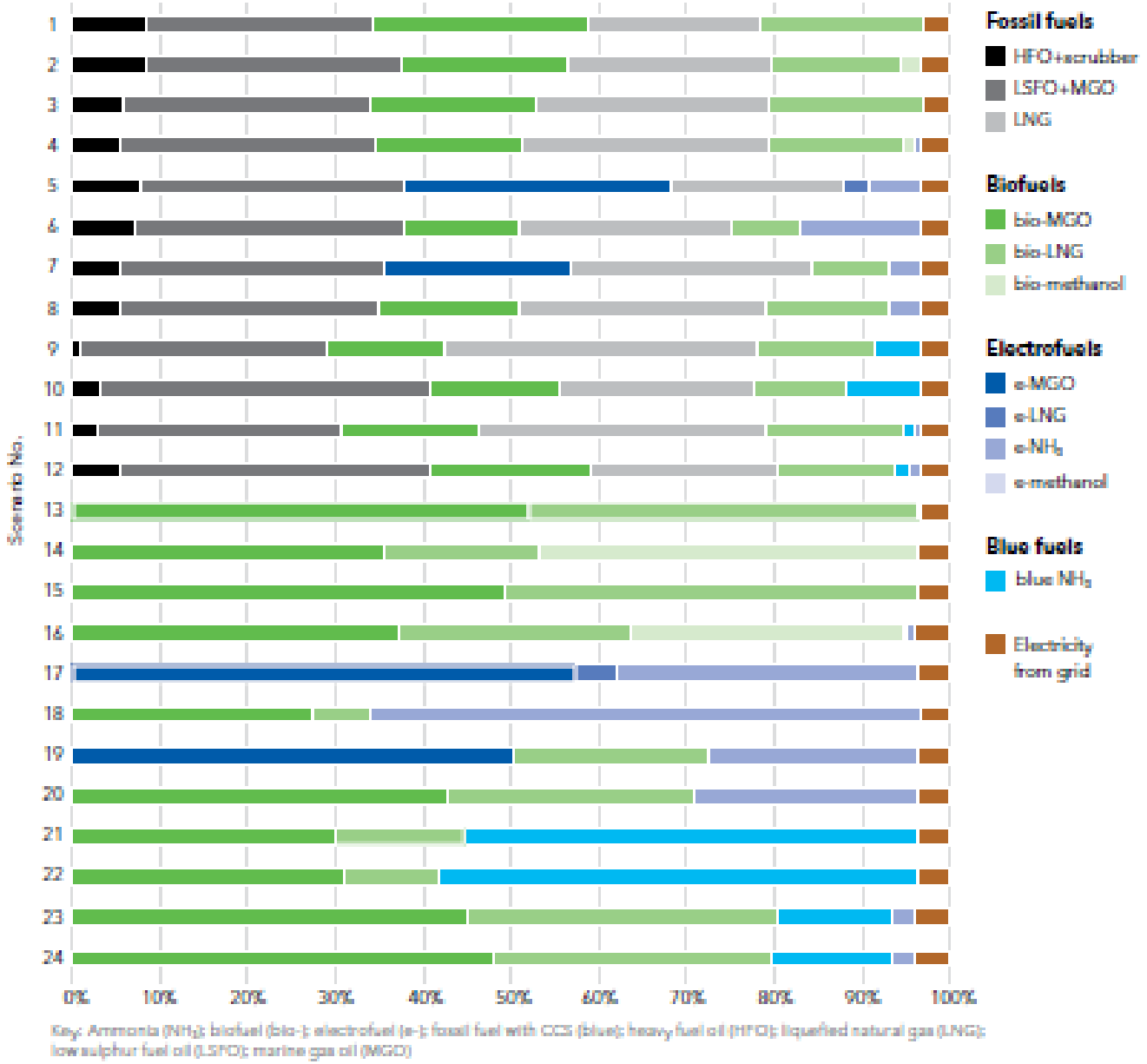
Alternative Fuel Uptake in the World Fleet by Number of Ships and Gross Tonnage



Reference:
DNV Maritime Forecast to 2050 – Energy Transition Outlook

DNV's 24 Scenarios for the Maritime Energy Mix in 2050

Reference:
DNV Maritime Forecast to 2050 – Energy Transition Outlook



REFERENCES

- DNV Maritime Forecast to 2050 – Energy Transition Outlook

- SNAME Marine Technology, Issue July 2022
  "The Future of Fuel – Net zero is out there, but isn't' a straight line", ed. by Rich Delpizzo and Peter Noble

With contributions of

- Dave Belisle/Andrew Kendrik on "Perverse Consequences",
- Elisabeth Lindblad on "Zero-Carbon E-Fuels",
- Geogios Plevrakis on "Only Part of the Picture",
- Dominic Hudson on "A New Era for Sail",
- Peter Noble/Jose Femenia on "Atomic Cargo Ships".

Thank you for your attention

We proceed with the panelists!