IMO Technical Seminar on Marine Biofuels, 12 February 2026

Biofuels for maritime: the context

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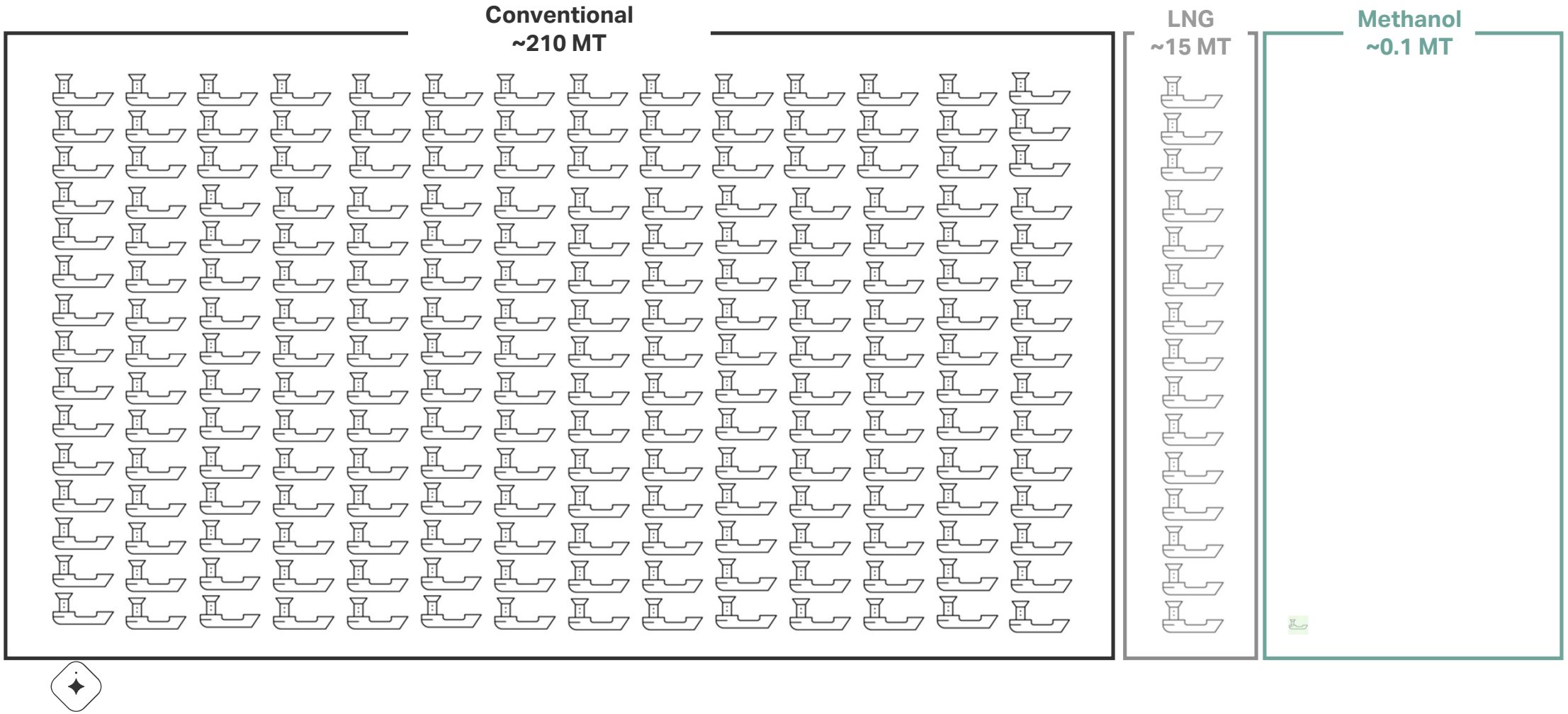
Share of global CO_2 emissions from maritime transport

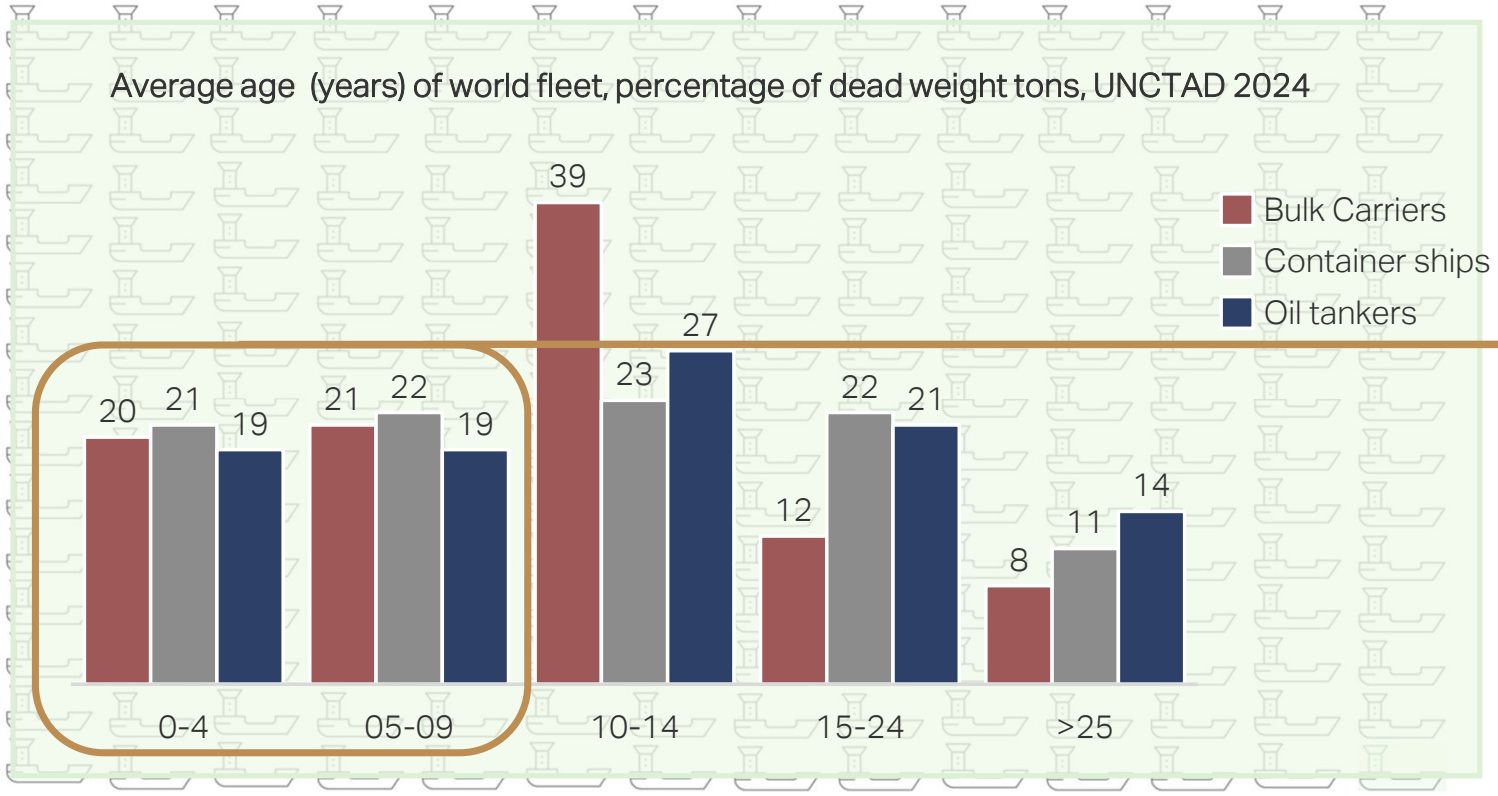
3%

Marine fuels - a snapshot from the 2024 IMO DCS



Young ships may retrofit – but not the old ones

Conventional ~210 MT



LNG ~15 MT

Methanol ~0.1 MT

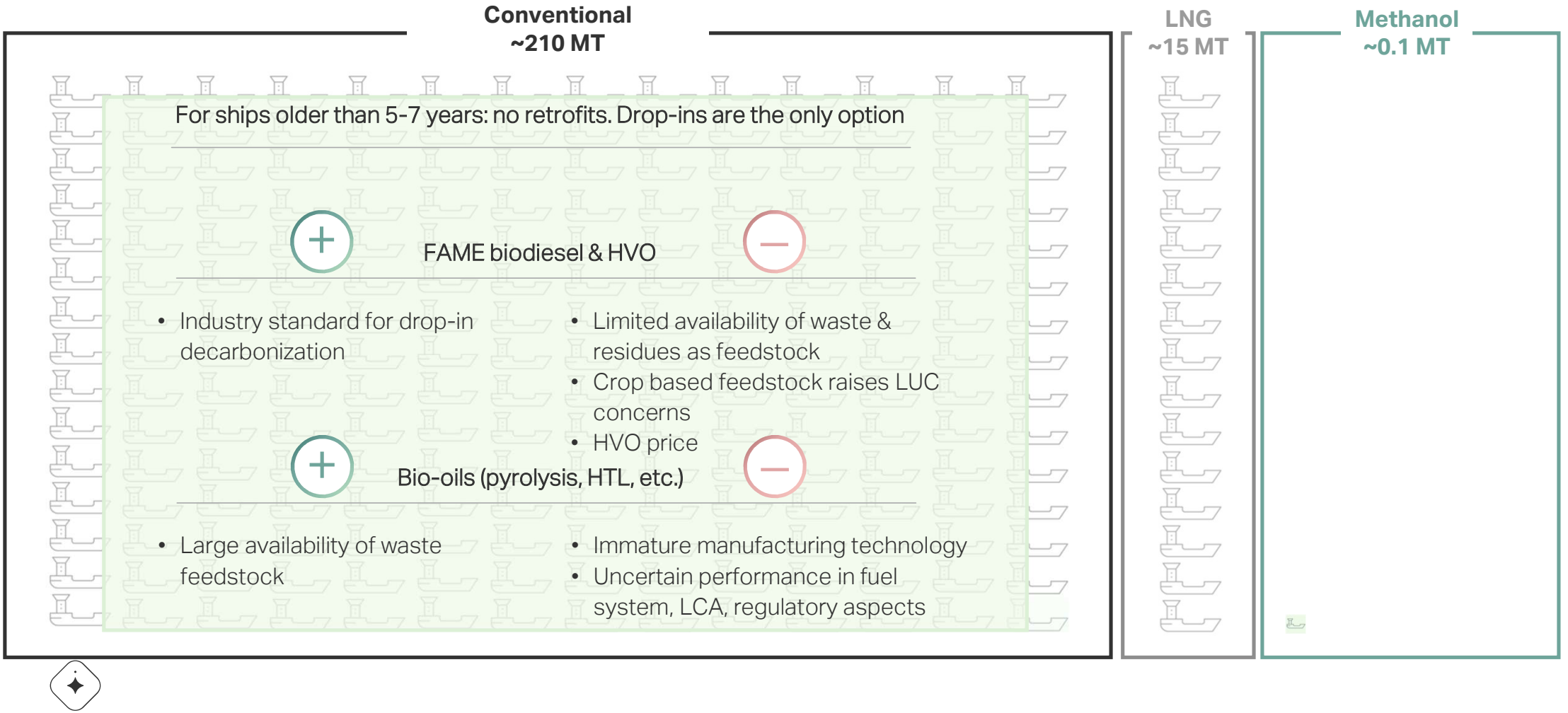
Eligible for retrofit (<7 y)

~10,000 ships

Yard capacity for retrofit

~400-500 ships / y

Decarbonization options for marine fuels: conventional vessels



Decarbonization options for marine fuels: LNG vessels

Conventional ~210 MT

For ships older than 5-7 years: no retrofits. Drop-ins are the only option

FAME biodiesel & HVO

+

- Industry standard for drop-in decarbonization

−

- Limited availability of waste & residues as feedstock
- Crop based feedstock raises LUC concerns
- HVO price

Bio-oils (pyrolysis, HTL, etc.)

+

- Large availability of waste feedstock

−

- Immature manufacturing technology
- Uncertain performance in fuel system, LCA, regulatory aspects

LNG ~15 MT

Bio-LNG

+

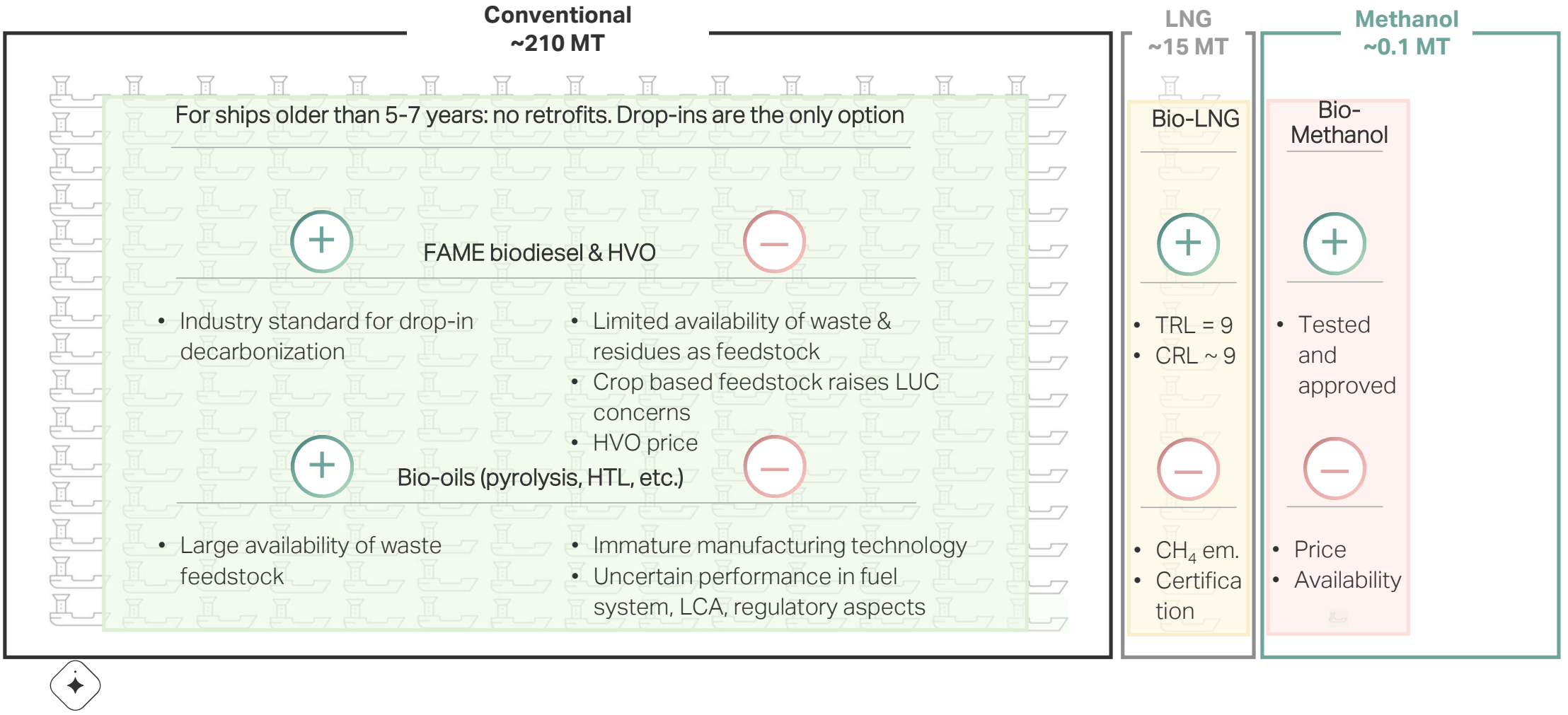
- TRL = 9
- CRL ~ 9

−

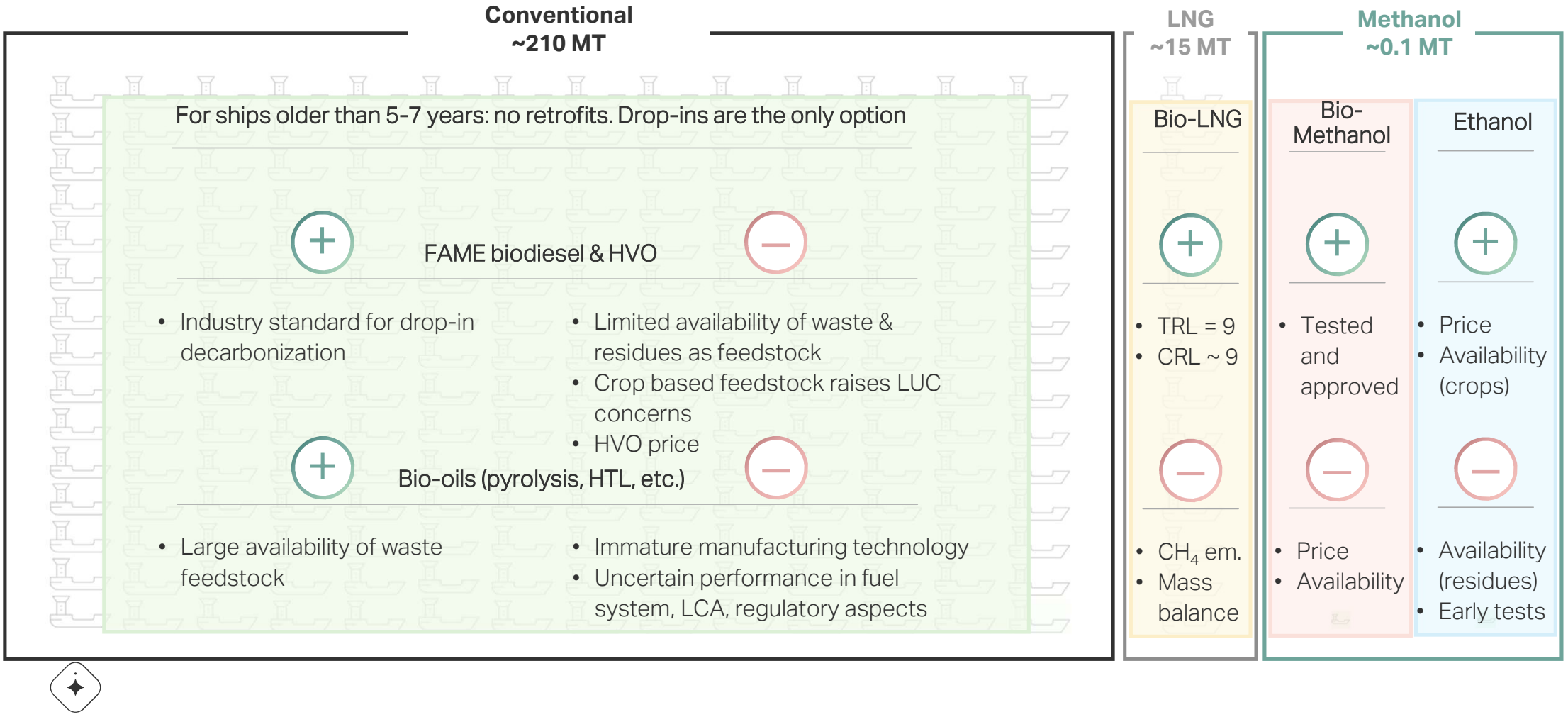
- CH_4 em.
- Certification

Methanol ~0.1 MT

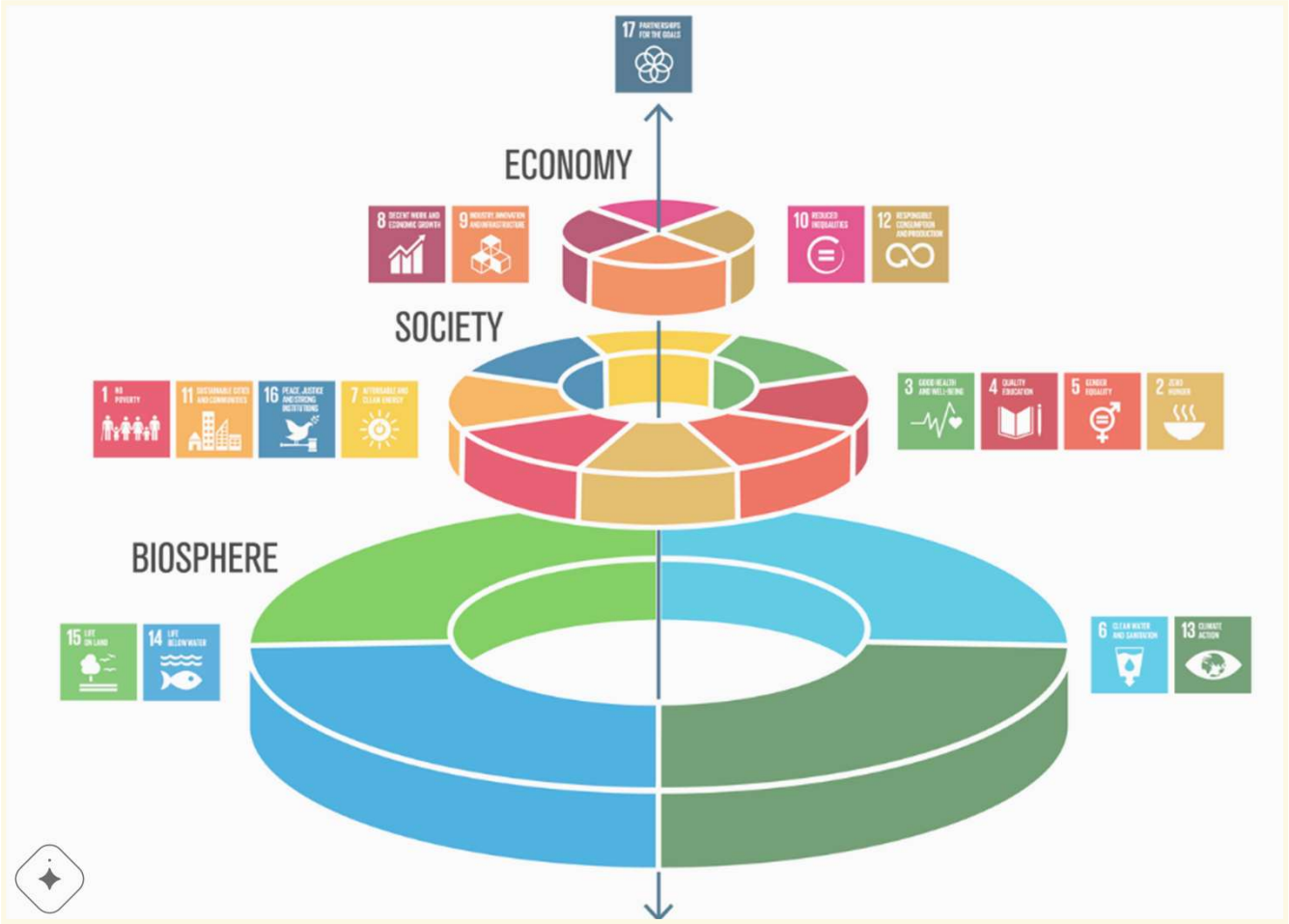
Decarbonization options for marine fuels: methanol vessels



Decarbonization options for marine fuels: methanol vessels



Biofuels offer synergies and trade-offs for global sustainability challenges



Synergies

- Potential for large GHG emissions reduction vs. fossil
- Use of waste and residues
- Use and recovery of degraded land
- Fuel *and* food
- Farming jobs
- Upskilling
- Affordability of freighted goods
- Energy security and diversification
- Regional and international cooperation
- …..

Trade offs

- Land-Use Change, incl. deforestation
- Monoculture / biodiversity
- Fertilizer, pesticides
- Water demand
- Diversion of food to fuel
- Land-grabbing / Price squeeze
- ……

Highlights of current activities at MMMCZCS relating to biofuels

Feasibility of untapped resources

Various platforms to share and establish knowledge

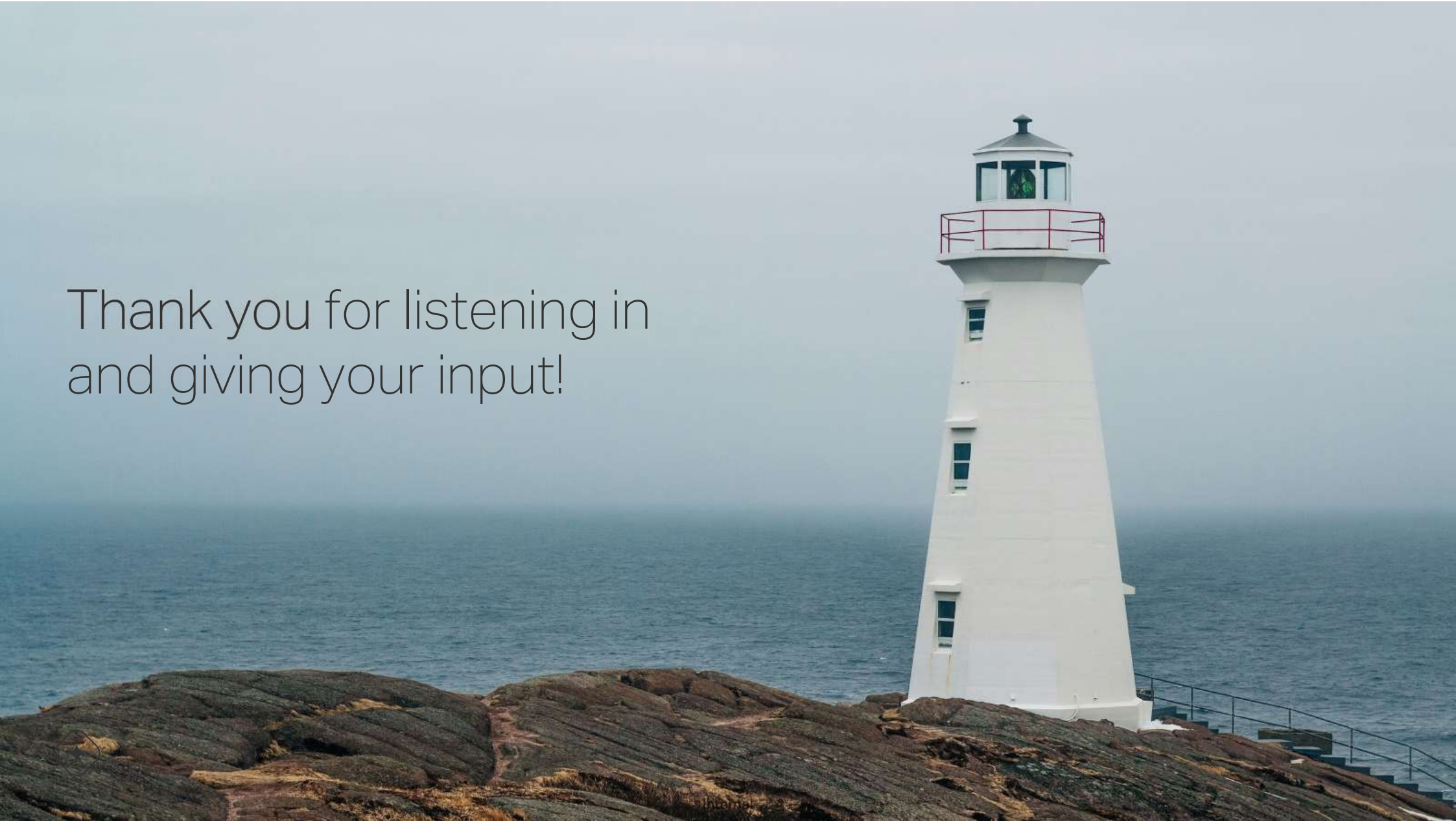
- Certification
- On-board experience
- Sustainability
- Opportunities for J & E

Today’s program

01 State of play for the use of biofuels in shipping

02 Production, certification and market dynamics of different biofuel pathways

03 Onboard experience in the use of biofuels


Thank you for listening in
and giving your input!