

IMO Technical Seminar on Marine Biofuels, 12 February 2026

# Biofuels for maritime: the context

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Internal

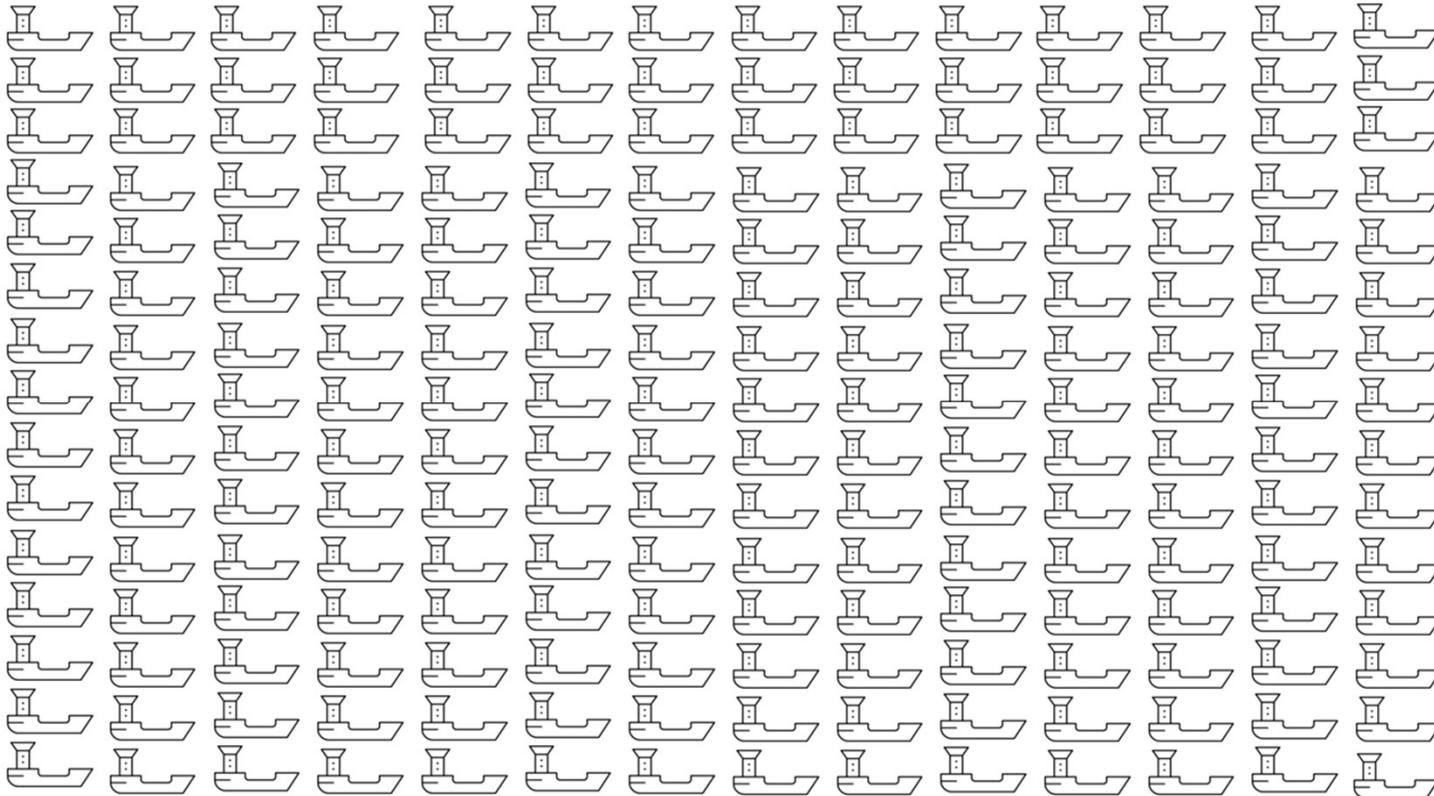
Share of global CO<sub>2</sub>  
emissions from  
maritime transport

3%



# Marine fuels - a snapshot from the 2024 IMO DCS

**Conventional**  
**~210 MT**



**LNG**  
**~15 MT**



**Methanol**  
**~0.1 MT**



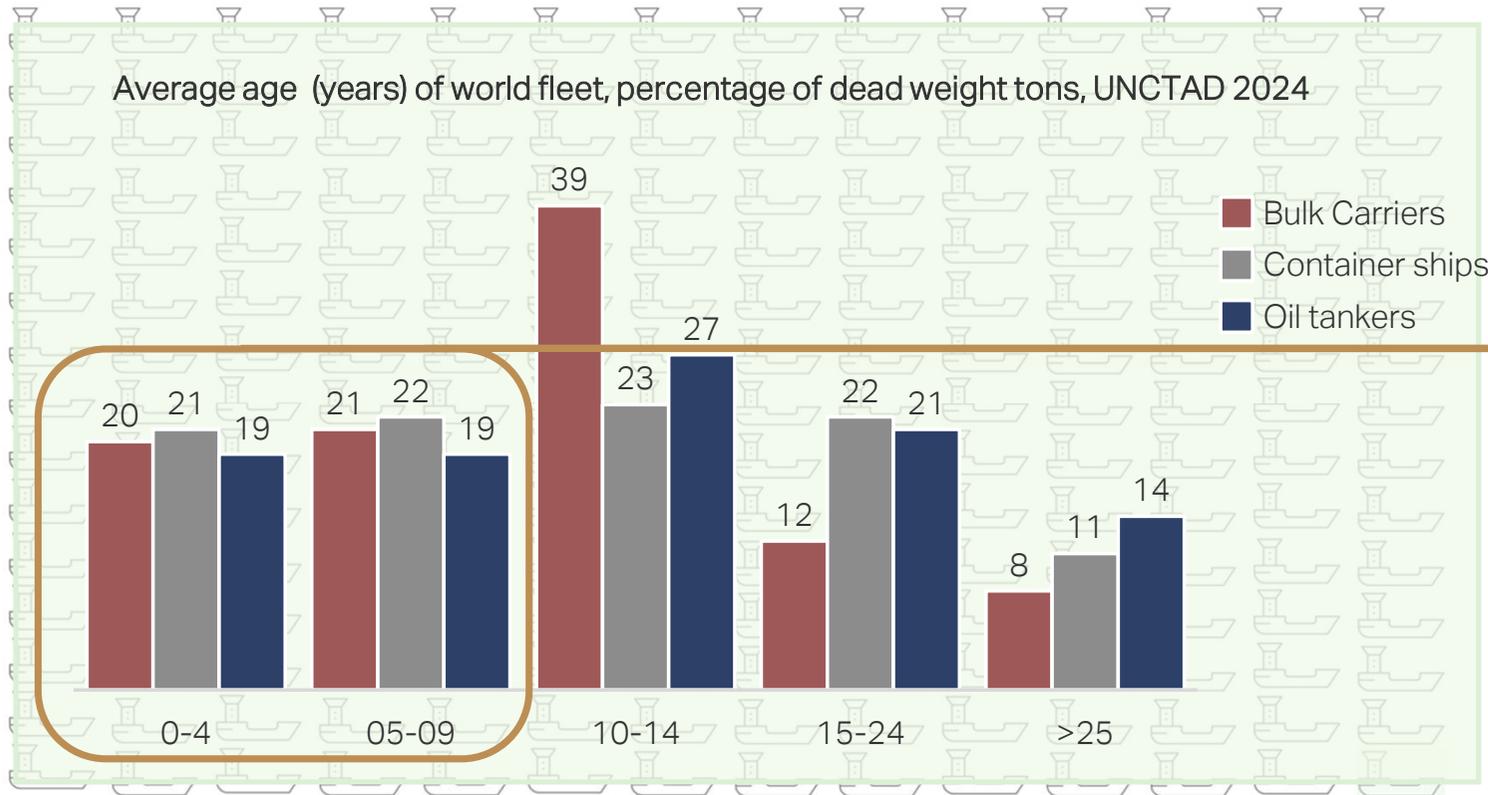
# Young ships may retrofit – but not the old ones

**Conventional  
~210 MT**

**LNG  
~15 MT**

**Methanol  
~0.1 MT**

Average age (years) of world fleet, percentage of dead weight tons, UNCTAD 2024



Eligible for retrofit (<7 y)

~10,000 ships

Yard capacity for retrofit

~400-500 ships / y



# Decarbonization options for marine fuels: conventional vessels

**Conventional**  
**~210 MT**

**LNG**  
**~15 MT**

**Methanol**  
**~0.1 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



# Decarbonization options for marine fuels: LNG vessels

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



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## LNG ~15 MT

### Bio-LNG



- TRL = 9
- CRL ~ 9



- CH<sub>4</sub> em.
- Certification

## Methanol ~0.1 MT



# Decarbonization options for marine fuels: methanol vessels

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



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- TRL = 9
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- CH<sub>4</sub> em.
- Certification

## Methanol ~0.1 MT

### Bio-Methanol



- Tested and approved



- Price
- Availability



# Decarbonization options for marine fuels: methanol vessels

## Conventional ~210 MT

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



### FAME biodiesel & HVO

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### Bio-oils (pyrolysis, HTL, etc.)

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## LNG ~15 MT

### Bio-LNG



- TRL = 9
- CRL ~ 9



- CH<sub>4</sub> em.
- Mass balance

## Methanol ~0.1 MT

### Bio-Methanol



- Tested and approved



- Price
- Availability

### Ethanol



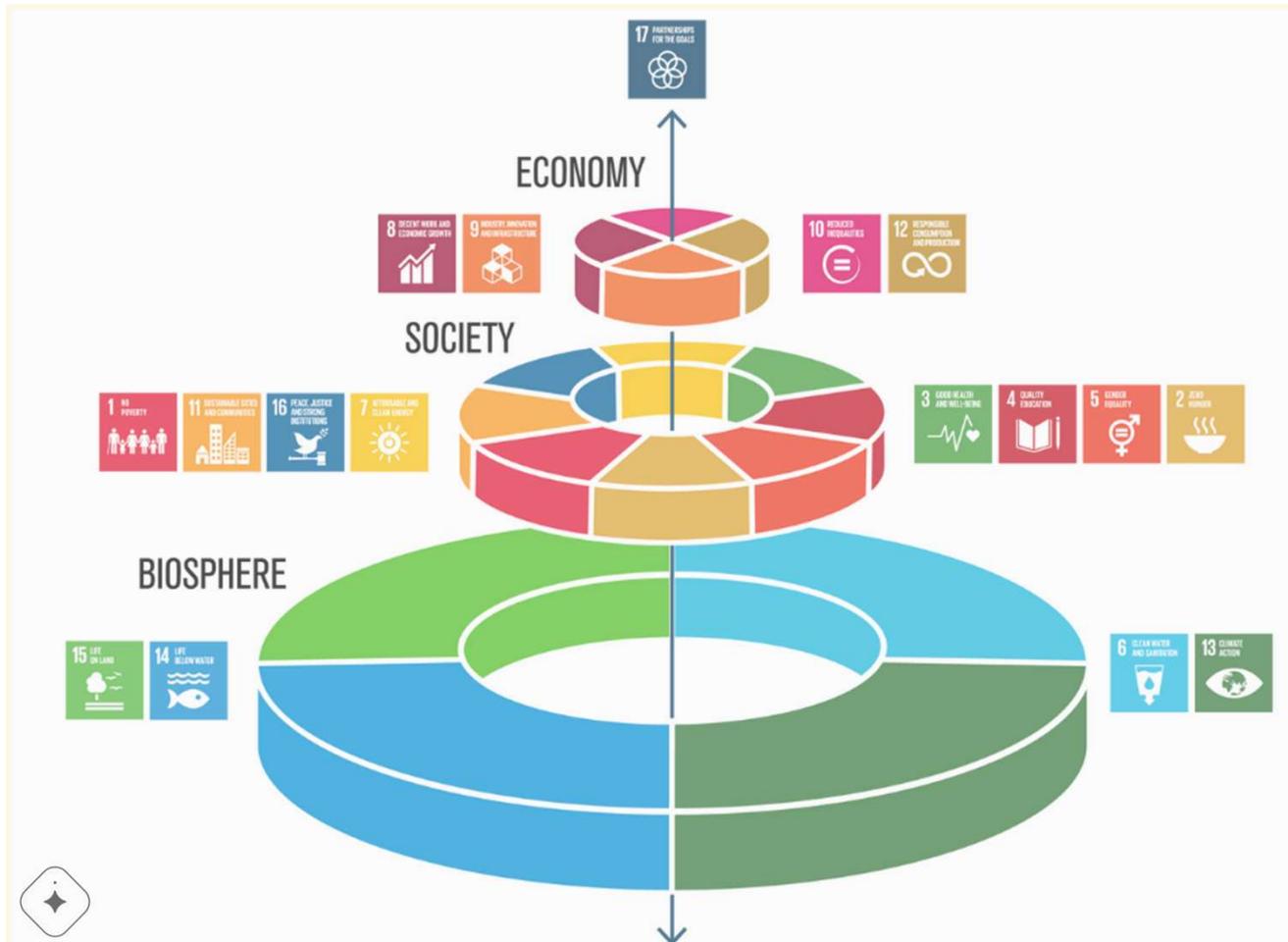
- Price
- Availability (crops)



- Availability (residues)
- Early tests



# 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



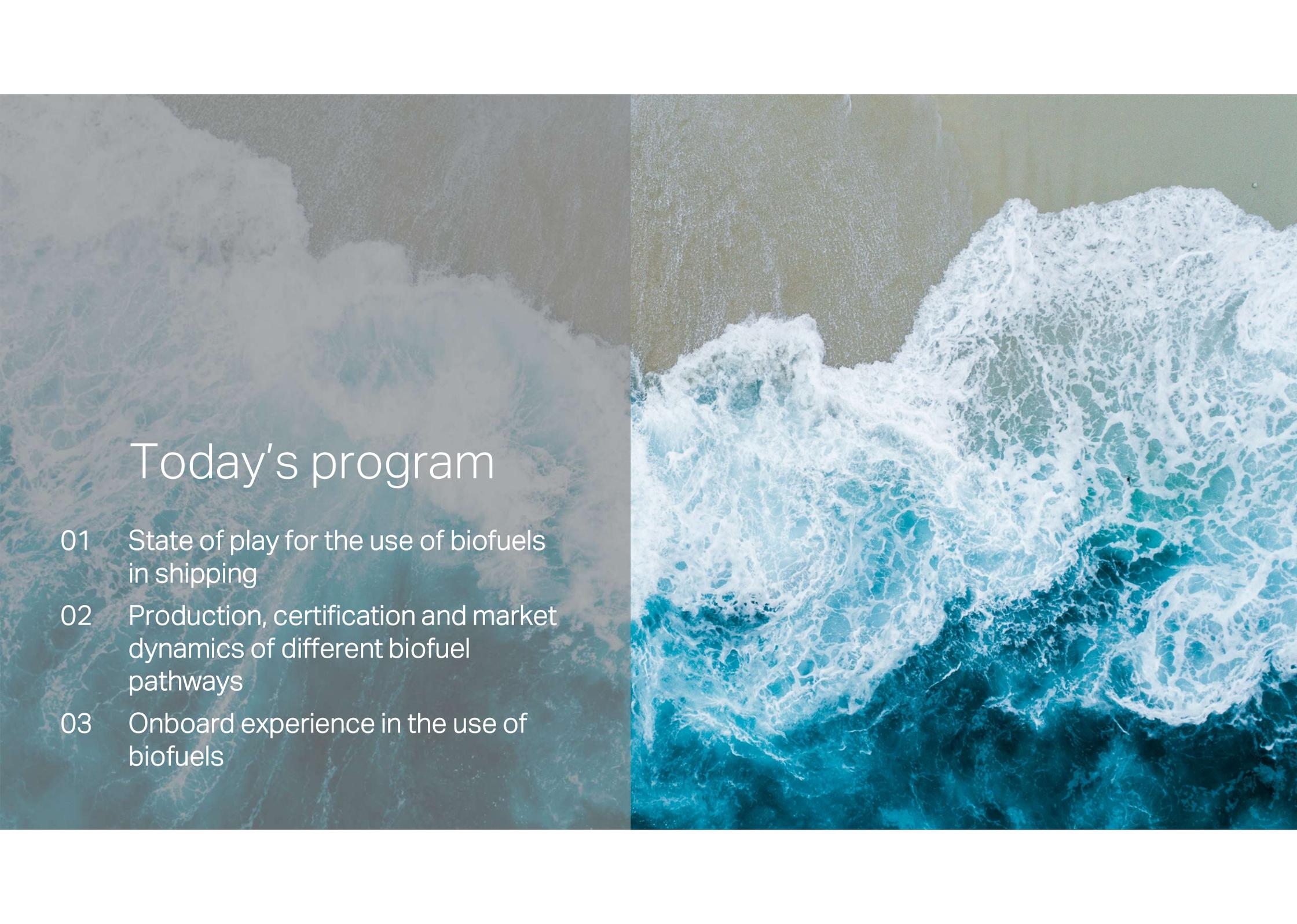
Feasibility of untapped resources



Various platforms to share and establish knowledge

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



An aerial photograph of ocean waves crashing onto a sandy beach. The water is a deep blue-green, and the foam is white and frothy. The sand is a light tan color. The image is split vertically, with the left side being a darker, more muted version of the same scene.

# 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!

