



# From pilots to routine ethanol bunkering

## ONE ROUNDTABLE, THREE SIGNALS

- 👥 **The roundtable:** voices, takeaways, polls
- 1 Methanol and ethanol blend readily
  - 2 Mass-balanced molecules reach Singapore
  - 3 88-day retrofits, and most will be alcohol

Then: a preview of the roadmap we are now building →

## TWO DAYS LATER · 15 OCT

### Maersk Halifax bunkers ~5,000 t of ethanol in Singapore

Denatured with **5% methanol**, on Singapore Customs' approved denaturant list.

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**Singapore's first ethanol bunker was already a blend.**

13 OCTOBER · TWO PANELS, ONE QUESTION

# “The entire framework is there. What’s stopping us?”

Caroline Yang, Hong Lam Marine



**Panel 1:** from trial to routine bunkering

*“You need thousands of hours of experience to have that kind of a guarantee.”*

Sanjay Verma, Wärtsilä Singapore

*“In reality, there’s not an ethanol bunkering licence.”*

Alexander Prokopakis, IBIA



**Panel 2:** from fuel availability to bankable demand

*“Shipping is economics.”*

Capt. Jagadeesan Natarajan, Orient Marine

# The infrastructure is ready. The rules and economics are next.

- |          |                               |                                                                                         |
|----------|-------------------------------|-----------------------------------------------------------------------------------------|
| <b>1</b> | <b>Technology</b>             | Close to methanol. OEMs need thousands of running hours before giving warranties.       |
| <b>2</b> | <b>Safety</b>                 | Less toxic than methanol. Tankers, crews and TR 129 procedures already exist.           |
| <b>3</b> | <b>Denaturants and excise</b> | The cross-cutting issue: customs, OEM and class, carbon intensity, logistics and price. |
| <b>4</b> | <b>Licensing</b>              | No ethanol bunkering licence yet. Each stem needs a one-time exception.                 |
| <b>5</b> | <b>Bankable demand</b>        | Supply exists. Owners need competitive prices, price discovery and contracts.           |

# The room: policy support first, denaturants most urgent

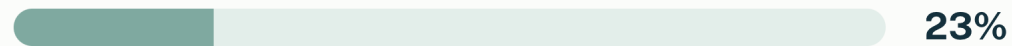
## PANEL 1 · 35 RESPONDENTS

### What should the industry prioritise first?

#### Incentives and policy support



#### Long-term fuel supply agreements



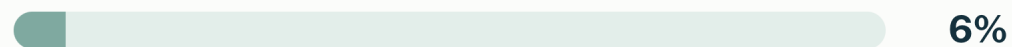
#### Fuel-quality specifications



#### Demonstration projects



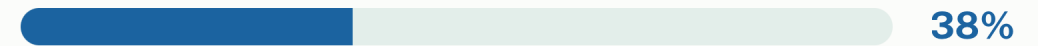
#### OEM and class approvals



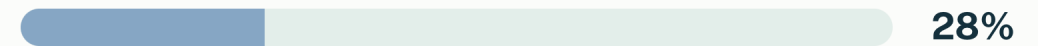
## PANEL 2 · 32 RESPONDENTS

### Which issue needs the most urgent attention?

#### Denaturants and excise treatment



#### Market pricing benchmarks



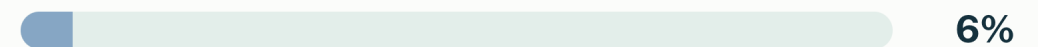
#### Long-term contracts



#### Carbon-intensity certification



#### OEM and class acceptance



SIGNAL 1 · 15 OCTOBER 2026 · SINGAPORE



# Methanol assets, now running on ethanol



**Maersk Halifax** · methanol dual-fuel since 2024



**Golden Antares** · Golden Island's methanol bunker tanker

Golden Island supplied Maersk Halifax with ~5,000 t of ethanol, denatured with 5% methanol, at PSA Pasir Panjang during cargo operations. Next: adapting TR 129 for ethanol.

*“A bunkering of this scale shows ethanol is ready to move beyond pilots.”* **Clarence Woo, GCGF**

File photos, not from the 15 Oct operation · Photos: Maersk Halifax, ShipSpotting; Golden Antares, Golden Island · MPA announcement, 14 Oct; TradeWinds · 5 / 9 →

## SIGNAL 1 · BLENDING

# Methanol and ethanol blend readily, in either direction

### Singapore · Maersk Halifax

95% ethanol · 5% methanol, an accepted denaturant



### Rotterdam · X-Press Feeders

Ethanol and methanol from one barge (E10)



### Next · any ratio

Set by availability, price and where it can be safely bunkered



## ~200 Mt

Methanol (~100 Mt) and ethanol (~96 Mt) produced each year, across many specs and sustainability pathways

### Blend to the target

Set the renewable share for EU or IMO compliance, net-zero thresholds, or beyond.

# Mass-balanced biomethane reached Singapore the same week

**~500 t**

## ISCC EU, mass-balanced US biomethane

- 🔗 Mass-balanced through the US gas grid to liquefaction
- 📄 Imported by Shell, stored at SLNG's terminal
- ⚡ This parcel goes to power generation, not bunkers
- ▶ Same week: CMA CGM, SLNG and MPA agree to explore biomethane bunkering

## WHAT IT SIGNALS

**Mass balance is what the market needs, for every molecule**

Methanol

Ethanol

Ammonia

Biomethane

Certified, mass-balanced molecules delivered as bunkers, as already accepted under RED III, CORSIA and the IMO draft SFCS guidelines.

## SIGNAL 3 · RETROFITS

# 88 days to convert a 15,000-teu ship to methanol

### 2017–19

Built as Maersk Honam; after a 2018 fire, a new forward section. Back as Maersk Halifax.

### 2024 · 88 days

Zhoushan Xinya: lengthened 15 m, methanol tanks, fuel preparation room, fuel supply system and engine conversion.

### Oct 2026

Bunkers ~5,000 t of ethanol in Singapore.

## 1,385

Methanol-ready ships: the first retrofit candidates

## 10–16%

of a newbuild's price for a methanol retrofit (ammonia: 19–24%)

## 19

Announced: COSCO 4 and Hapag-Lloyd 5 (2026), Maersk 10 (~2027)

## 5,300

Ships eligible for dual-fuel conversion



**Most retrofits will be alcohol:** methanol, ethanol or both. To the ship, it is one fuel family.

COMING NEXT



# The Roadmap: how to move from pilots to routine ethanol bunkering

- 1 Fuel specification and denaturants
- 2 OEM, class and flag acceptance
- 3 Customs, excise and bonded storage
- 4 Supply, terminals and licensed bunkerers
- 5 Carbon intensity and chain of custody
- 6 Price discovery and contracts

The question is no longer whether ethanol can work in shipping, but what each of us can do to make it work at scale. **Get in touch to contribute.**



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