

# Zero Emission Maritime Buyers Alliance (ZEMBA) Public Webinar

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21 November 2024



## Agenda for today



1. Welcome, Opening & Context Setting – *15 minutes*
2. ZEMBA Round 2 Design Summary – *20 minutes*
3. Round 2 Timeline and Next Steps – *10 minutes*
4. Questions – *15 minutes*

# Webinar Objectives

- Build understanding about **ZEMBA's mission** to support clean energy solutions in the maritime sector by bringing together leading customers working to create a market for long-term, economically viable solutions
- Dive deep into the **scope, parameters, and requirements** of ZEMBA's next e-fuel-focused tender
- Clarify timeline and next steps for **carriers and fuel providers to begin preparing for the tender launch** in late January 2025



# The maritime sector has unique challenges in transitioning to clean energy that we have specifically designed ZEMBA to tackle.



**90% of cargo** is shipped across the ocean. Maritime freight is essential to our economy but is an incredibly diverse sector that requires **targeted solutions**.



The shipping industry emits **1bn tons** of greenhouse gas (GHG) annually – could rise by 60% by 2050 under BAU.



99% of **current maritime fuels are fossil**. 1% is biodiesel.



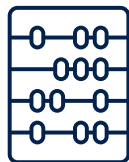
Sector requires significant **infrastructure development** to enable a zero-emission future.



Maritime is facing a **multi-fuel future** and a current **lack of clarity** on the most viable and long term sustainable pathway.



Most sustainable bio-based fuels **not sufficiently scalable**, projected to rise in price, so vastly scalable e-fuels are the **long-term scalable solution**.



Transport emissions **vary considerably** by ship size, route, speed, operation - need for a **nuanced, focused carbon accounting** approach.



Global maritime GHG regulations under debate – **closing window of opportunity** to influence.

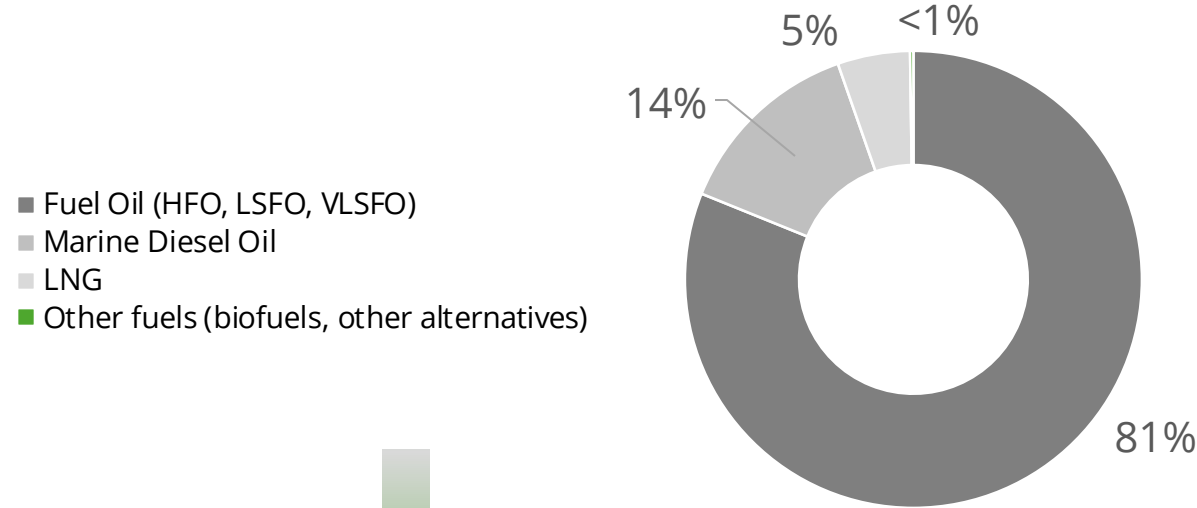


Real opportunity to achieve **credible emissions abatement** and greater transparency for corporate customers.

Maritime shipping must **accelerate the transition** to low/zero-emission (ZE) fuels to meet industry and customer GHG targets in 2030, 2040, 2050.

ZEMBA is building a market for the **most scalable, economically viable long term** solutions.

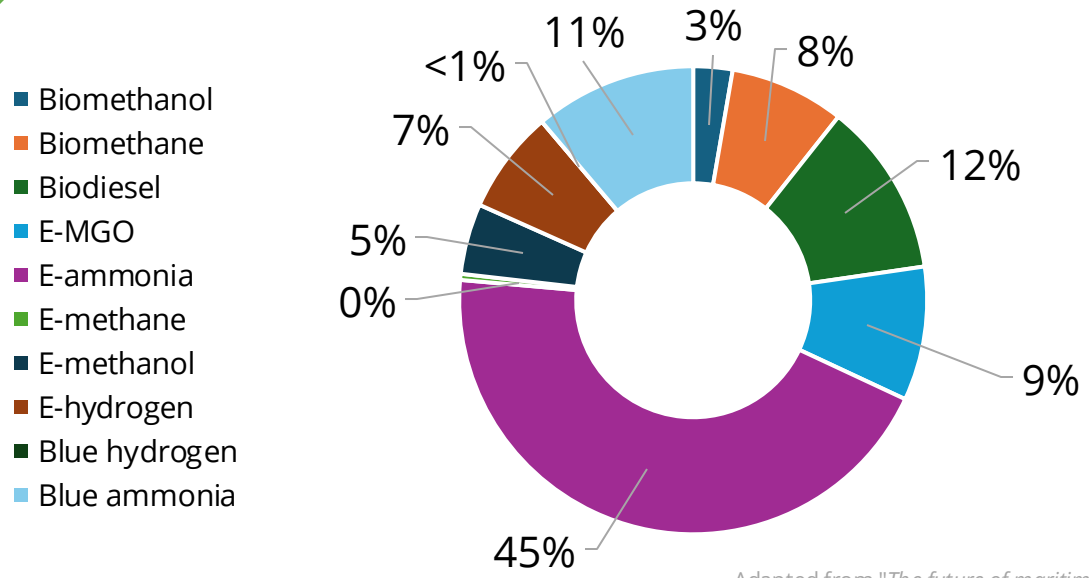
### Approximate maritime fuel mix in 2022



Adapted from 2022 IMO Fuel Consumption and Carbon Intensity Reporting to the DCS, for ships over 5000 GT.



### Projected maritime fuel mix in 2050 (avg of studies)



Adapted from "The future of maritime fuels. What you need to know." Lloyd's Register Maritime Decarbonisation Hub, 2023



## ZERO EMISSION MARITIME BUYERS ALLIANCE

ZEMBA is a first-of-its-kind buyers group within the maritime sector.

Our mission is to:

- **Accelerate deployment** of clean energy shipping solutions and create access to **high integrity environmental attributes** (emissions reduction).
- **Enable economies of scale** for freight buyers and suppliers, especially for fuels and technologies with **potential to scale and decrease in cost** over time.
- **Maximize emissions reduction** beyond what any one freight buyer could accomplish alone.
- Facilitate **credible, transparent, traceable in-sector** investments in scalable maritime solutions that enable freight buyers to meet their Scope 3 targets.

40+ cargo owner and freight forwarder members & counting...

Cofounders:



Members:



Facilitated by:



With technical support and expert advice from:





In April 2024, completion of ZEMBA's inaugural tender marked the **first-ever collective multi-year offtake commitment for near-zero GHG shipping**.  
ZEMBA demonstrated that our model *works*.

17

Cargo owner and freight buyer members signed bilateral contracts with Tender 1 winner, Hapag-Lloyd

>90%

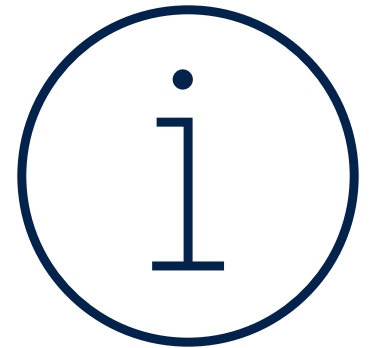
Emission reduction over fossil fuels on a lifecycle basis

82k+

mt CO<sub>2</sub>e avoided



# **ZEMBA Round 2 Design Summary:** What prospective bidders need to know





Last week, ZEMBA announced our intention to focus exclusively on catalyzing **commercial deployment of maritime e-fuels** through our second tender.



- Through the next procurement, our intention is to aggregate **at least 80 billion tonne-miles** of demand for e-fuel powered shipping over **3-5 years**, seeking deployment in **2027**.
- That's equivalent to:
  - **1.4 million twenty-foot containers** moving from SH-LA (as an example route)
  - **470,000 metric tonnes** of GHG emissions abated
- Volume nominations from members are **still being collected** – a final tender volume will be available when the RFP launches in late January
- Nominations thus far show a **ramp-up in demand** over the 5-year period

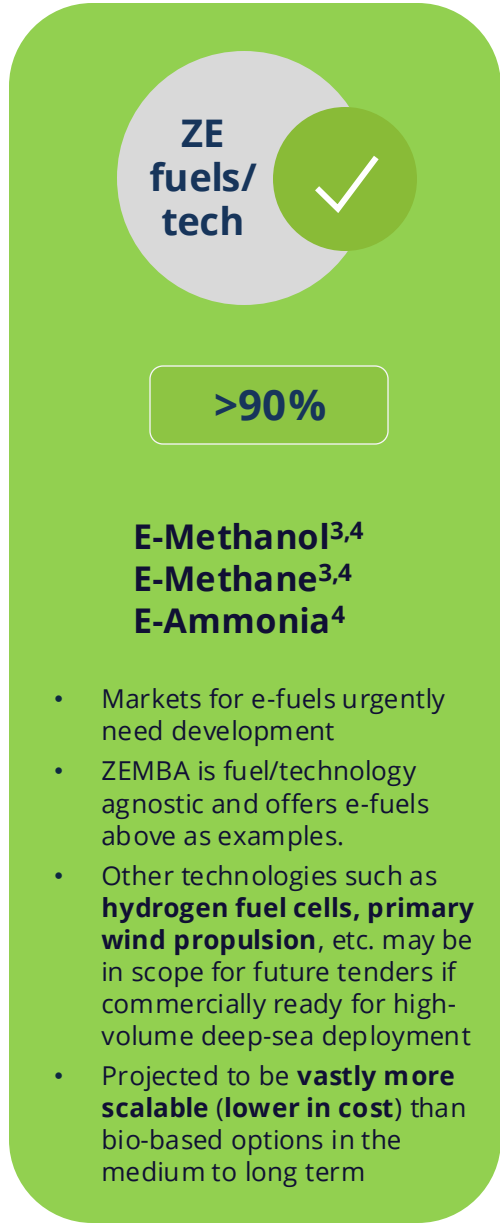
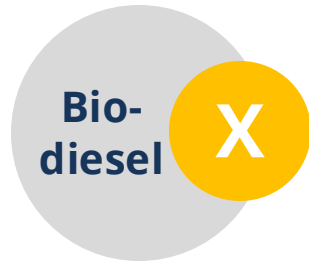
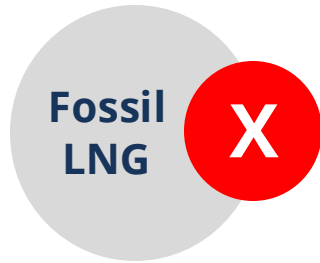
# Why is ZEMBA focusing on e-fuels?

ZEMBA is focused on driving adoption of the most scalable, sustainable, and economically viable fuel and technologies that can decarbonize the maritime sector.

- While advanced biofuels can play a role in meeting industry-wide decarbonization goals, it is widely understood that **sustainable waste-based biogenic feedstocks are limited, which means biofuel alone cannot enable Paris-aligned maritime decarbonization.**
- Most analyses of maritime decarbonization pathways show that scalable **e-hydrogen-derived zero and near-zero e-fuels will dominate the fuel mix** in 2050.
- By de-risking e-fuel offtake commitments and accelerating maritime e-fuel production, ZEMBA can help **kickstart the market for this long-term solution set**, providing certainty to carriers and fuel providers to invest in these solutions today, and **enabling costs to come down sooner with economies of scale.**



# In and Out of Scope Fuels for RFP 2



Emissions reduction over LSFO

0 – 20%<sup>1</sup>

40 – 80%

>90%

## Fossil Liquefied Natural Gas

- Insufficient GHG reduction on a lifecycle basis due in part to issues with methane slip
- Contributes toward continued sector reliance on conventional fossil fuels

## Bio-diesel<sup>2</sup>

- Insufficiently scalable due to reliance on bio-oils that are severely limited in supply and OEM blending limitations for FAME
- Can not meet ZEMBA RFP 1 or 2 eligible fuels definition
- Market exists today, so ZEMBA intervention not needed
- Useful as temporary bridge fuel

## Waste-based biomethane and biomethanol

### Biomethane (tender 1 fuel)

- ISCC EU certified waste-based
- EU RED II compliant use of mass balance
- More scalable than biodiesel, but reliant on waste and therefore still constrained.
- Utilizes existing gas infrastructure so no new LNG buildout required + fuel transport emissions can be minimized

### Biomethanol

- Made from biomethane
- Long-term biogenic waste gas scalability concerns as above, limiting long term economic viability

## ZE fuels/tech

### E-Methanol<sup>3,4</sup> E-Methane<sup>3,4</sup> E-Ammonia<sup>4</sup>

- Markets for e-fuels urgently need development
- ZEMBA is fuel/technology agnostic and offers e-fuels above as examples.
- Other technologies such as **hydrogen fuel cells, primary wind propulsion**, etc. may be in scope for future tenders if commercially ready for high-volume deep-sea deployment
- Projected to be **vastly more scalable (lower in cost)** than bio-based options in the medium to long term

1. 0% on a well-to-tank basis, 20% on a tank-to-wake basis.  
 2. Bio-diesel options: FAME: Fatty Acid Methyl Ester; HVO: Hydrotreated Vegetable Oil.  
 3. E-Methanol and E-Methane CO2 feedstock options: Point source biogenic CO2, Direct Air Capture.  
 4. Depending on production process and emission intensity.



# How did we reach this decision?

ZEMBA conducted a comprehensive RFP 2 design process with several primary goals:

- Address **key questions raised throughout RFP 1 process** from ZEMBA members, suppliers, and other stakeholders
- Apply **market insights from a Request for Information (RFI)** conducted in summer 2024 to evaluate near-term market readiness of maritime e-fuels
- **Ratchet up ambition** while attracting a broad range of qualifying bids



ZEMBA's second tender represents an evolution toward an **e-fuels focus because this solution set is critical for long-term success and currently under-invested.**

We have **updated the core elements of ZEMBA's Sustainability Framework** and published them 2 months before the bid period to provide prospective bidders and fuel providers clear guidance to facilitate early bid preparation.

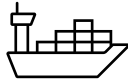
We have also revisited our **threshold requirements for bid submission** and our bid evaluation framework.

# ZEMBA's RFP 2 Key Parameters



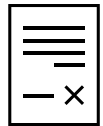
## Deployment Details

- Bids for services starting in **2027** for **3-5 years** (bids starting 2026 or 2028 welcome)
- Maintaining **geographic neutrality** with focus on cross-value chain engagement
- Physical freight movement **decoupled from green premium, i.e., ZEMBA members are buying the emissions reduction** (environmental attributes)
- Winning bidder(s) must use **book & claim** registry of ZEMBA's choice



## Bidder Eligibility

- Restricted to **ocean carriers** in the **containership** segment (at least for this tender)
- Open to **individual** carriers, **consortia**, or proposals with subs that have **one primary bidder**
- Open to potential for **multiple winners**



## Contracting

- ZEMBA members will **contract bilaterally** with winning carriers leveraging **pre-negotiated template contract** (bidders will receive and agree to key provisions)
- Members will pay the **cost difference (premium)** associated with operation of ZEMBA-compliant service
- Proposed tender/contract unit is **price per tonne-nautical mile** – aligns with cargo owner facing guidance from SBTi, GHGP, GLEC, and ISO.

# ZEMBA's RFP 2 Key Parameters



## Fuel Requirements

- E-fuels that can **achieve at least 90% Well-to-Wake emission reduction required for primary propulsion** (i.e., main engine excluding pilot fuel)
  - Low-emission fuels encouraged for **auxiliary power and pilot fuels**, and pilot fuel use at sea capped at 20% (ammonia)/10% (other e-fuels)
- E-fuels must be produced with **hydrogen made through electrolysis using additional renewable energy + waste carbon** (for fuels where carbon required)
  - Biogenic waste feedstocks must **comply with CORSIA classification**
  - Qualifying electricity must meet hydrogen safeguards (**non-fossil, low carbon source** and prove **time matching, market boundary, and incrementality**)
- Fuel suppliers must be **certified by an independent certification body** to a relevant sustainability standard holder recognized by the European Commission (e.g., RSB, ISCC)
- E-methane bids must provide pricing and emissions associated with both **segregation and transportation for direct bunkering** and **pipeline mass balance** delivery
- Emissions reduction must be **additional to regulatory compliance obligations and consistent with ZEMBA's Additionality Statement**



# ZEMBA's RFP 2 Threshold Requirements

To be eligible for consideration, bids must meet the following minimum requirements:

## **Carrier requirements:**

- *Business practices:* Demonstrate financial stability for > 5 years, comply with generally accepted accounting principles, agree to ZEMBA's business practices, disclosure of litigation or environmental breach.
- *Social requirements:* Demonstrate alignment with UN Global Compact and UN Guiding Principles Reporting Framework across entire value chain.

## **Fuel supplier requirements:**

- *Access to named fuel suppliers:* Primary fuel supplier(s) named and up-front permission for ZEMBA team to communicate directly with fuel suppliers through bid evaluation.
- *Business practices:* Same as for carriers.
- *Capacity:* Proof of overall production capacity and available volume for ZEMBA demand.

## **Technical requirements:**

- *Fuel compliance:* Demonstrate compliance with ZEMBA Eligible Fuel Requirements including fuel certification standards, 90% lifecycle emissions reduction threshold for primary propulsion (i.e., main engine excluding pilot fuel), additionality, deployment verification, and book and claim requirements.

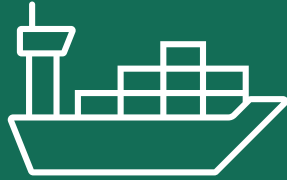
## **Commercial requirement:**

- *Contracting:* Agree to contract structure (subject to tender-specific negotiation).
- *Supply:* Contingency plan in place for fuel supplier; proof of vessel availability by deployment deadline.



## **Threshold Requirements for Eligibility**

# Clarifying Roles and Responsibilities



## Carriers

- Must be **ocean carriers operating in container segment** (regional feeders are eligible)
- Must **operate e-fuel capable vessels**
- Responsible for **assembling and submitting bid**
- Primary **point of communication** with ZEMBA team throughout bid review
- Encouraged to **consult other value chain actors** in bid development process to build confidence in delivery
- Encouraged to **actively reach out to e-fuel producers now**
- **Bilateral contracting part(ies)** with ZEMBA members



## E-Fuel Producers

- Will not submit bids to ZEMBA directly, will **supply fuel to bidding carrier(s)**
- **Not considered part of “consortium”** per ZEMBA’s definition
- Encouraged to **review ZEMBA requirements** and reach out to carriers now regarding availability and pricing of ZEMBA-eligible fuels for offtake
- ZEMBA team will also **communicate directly with proposed fuel producers during bid review process** for sole purpose of evaluating compliance with technical specifications

# ZEMBA RFP 2 Bidder Resources

To support bid creation, ZEMBA developed a comprehensive **Sustainability Framework** including:



## ZEMBA Eligible Fuel Requirements

To support the creation of bids, ZEMBA developed an updated Eligible Fuel Requirements document for the second tender. Among other requirements, ZEMBA Eligible fuels are defined as e-fuels with the potential to achieve at least 90% GHG emissions reduction compared to low sulfur fuel oil.



## ZEMBA Emission Intensity Calculation Requirements

To ensure bidders follow GHG emissions calculation, reporting, and verification best practices, ZEMBA developed updated Emission Intensity Calculation Requirements to track fuel emissions factors, transport activity associated with those fuels, and ensure independent certification and verification.



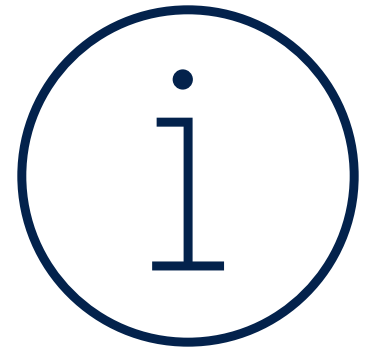
## ZEMBA Additionality Statement

ZEMBA adopted the application of the Atmospheric Benefit Principle (ABP) in the evaluation of regulatory programs and policies to ZEMBA bids with respect to additionality.

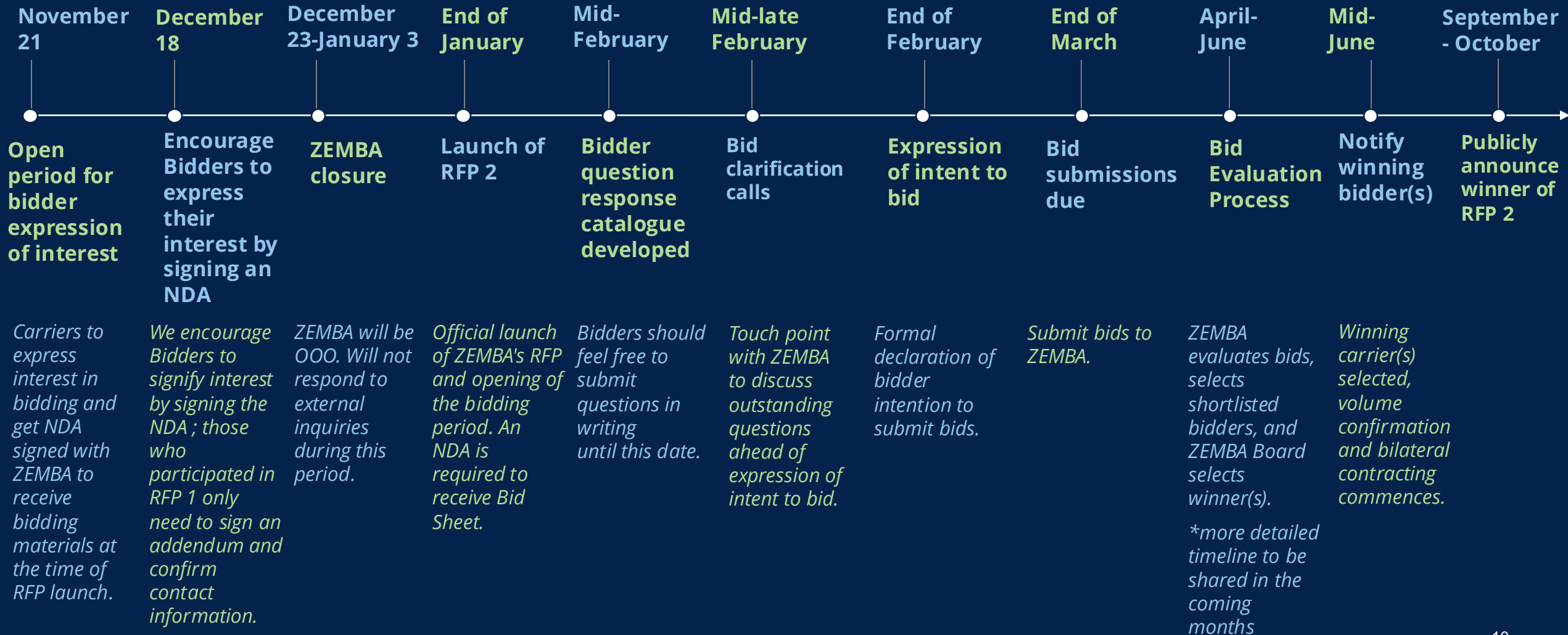
Other resources including a detailed **Round 2 Design Summary**, explanatory **one-pagers**, and **timelines** are available for download and review at <https://www.shipzemba.org/how-we-work/rfp-2/>.



# Round 2 Timeline and Next Steps: Upcoming key dates and milestones

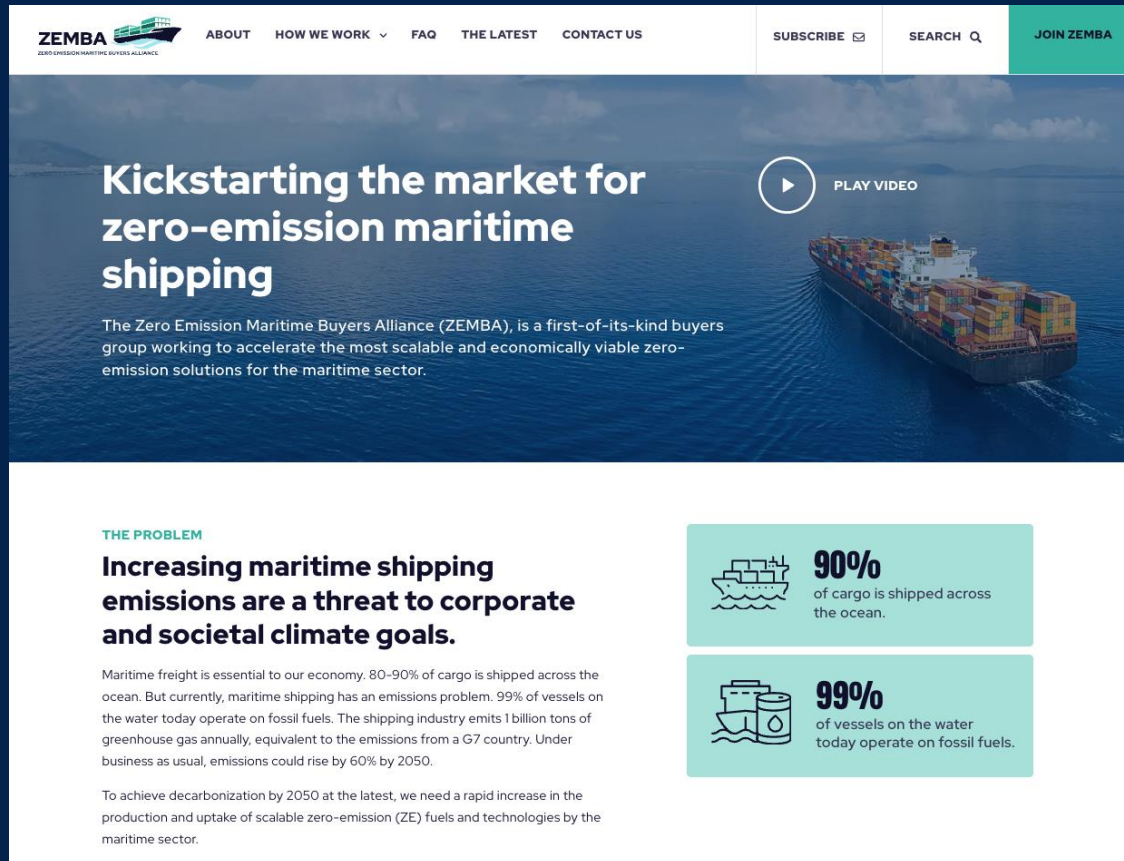


# Timeline and Key Dates for Prospective Bidders – 2024-2025



# All this information – and more – is available on the new ZEMBA website

[www.shipzemba.org](http://www.shipzemba.org)



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## Kickstarting the market for zero-emission maritime shipping

The Zero Emission Maritime Buyers Alliance (ZEMBA), is a first-of-its-kind buyers group working to accelerate the most scalable and economically viable zero-emission solutions for the maritime sector.

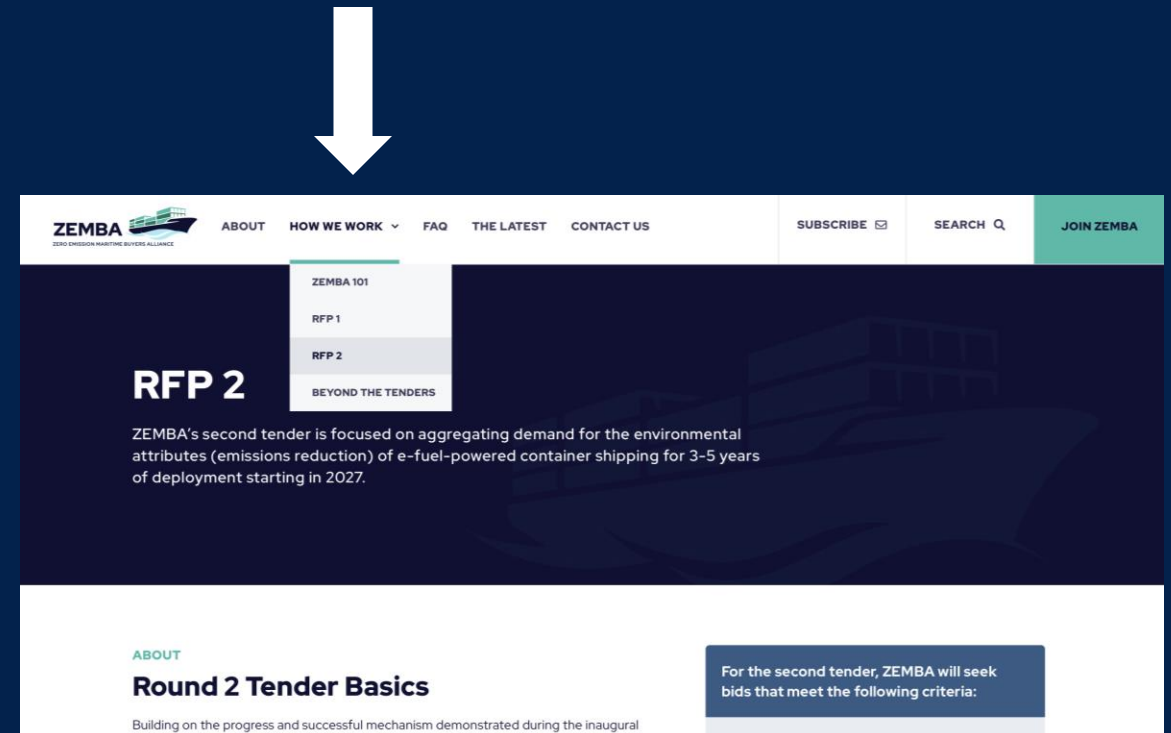
**THE PROBLEM**

### Increasing maritime shipping emissions are a threat to corporate and societal climate goals.

Maritime freight is essential to our economy. 80-90% of cargo is shipped across the ocean. But currently, maritime shipping has an emissions problem. 99% of vessels on the water today operate on fossil fuels. The shipping industry emits 1 billion tons of greenhouse gas annually, equivalent to the emissions from a G7 country. Under business as usual, emissions could rise by 60% by 2050.

To achieve decarbonization by 2050 at the latest, we need a rapid increase in the production and uptake of scalable zero-emission (ZE) fuels and technologies by the maritime sector.

- 90%** of cargo is shipped across the ocean.
- 99%** of vessels on the water today operate on fossil fuels.



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## RFP 2

ZEMBA's second tender is focused on aggregating demand for the environmental attributes (emissions reduction) of e-fuel-powered container shipping for 3-5 years of deployment starting in 2027.

**ABOUT**

### Round 2 Tender Basics

Building on the progress and successful mechanism demonstrated during the inaugural

For the second tender, ZEMBA will seek bids that meet the following criteria:



# Next Steps

**All interested parties:** please submit any clarifying questions to support bid preparation to [rfp@shipzemba.org](mailto:rfp@shipzemba.org).

## **Prospective bidders (Ocean Carriers)**

- Review ZEMBA Sustainability Framework in detail, including key requirements.
- Reach out to the ZEMBA at [rfp@shipzemba.org](mailto:rfp@shipzemba.org) to express interest in participating and initiate the joint NDA process to streamline receiving bid materials in late January 2025
  - *If NDA already in place, you'll need to sign a simple addendum and confirm authorized representative and contact information for RFP 2.*
- Reach out to fuel suppliers to identify ZEMBA Eligible fuels available for offtake to include in bid submissions.

## **E-fuel providers**

- Review ZEMBA RFP 2 Eligible Fuel Requirements and ZEMBA RFP 2 Emissions Intensity Calculation Requirement to ensure your proposed fuel meets ZEMBA's Round 2 standards.
- Engage with potential bidders to identify ways to work together on a competitive ZEMBA bid.

## **Cargo owners and freight buyers**

- There's still time to join ZEMBA ahead of the e-fuel-focused tender!
- Email [info@shipzemba.org](mailto:info@shipzemba.org) to sign up for an upcoming Prospective Member briefing.



# Questions?



## **ZEMBA**

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BUYERS ALLIANCE**



[www.shipzemba.org](http://www.shipzemba.org)