



MARITIME DECARBONIZATION

A SHIPPING COMPANY'S
PERSPECTIVE

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EUGENIDES FOUNDATION



IMO's Net Zero Framework - NZF

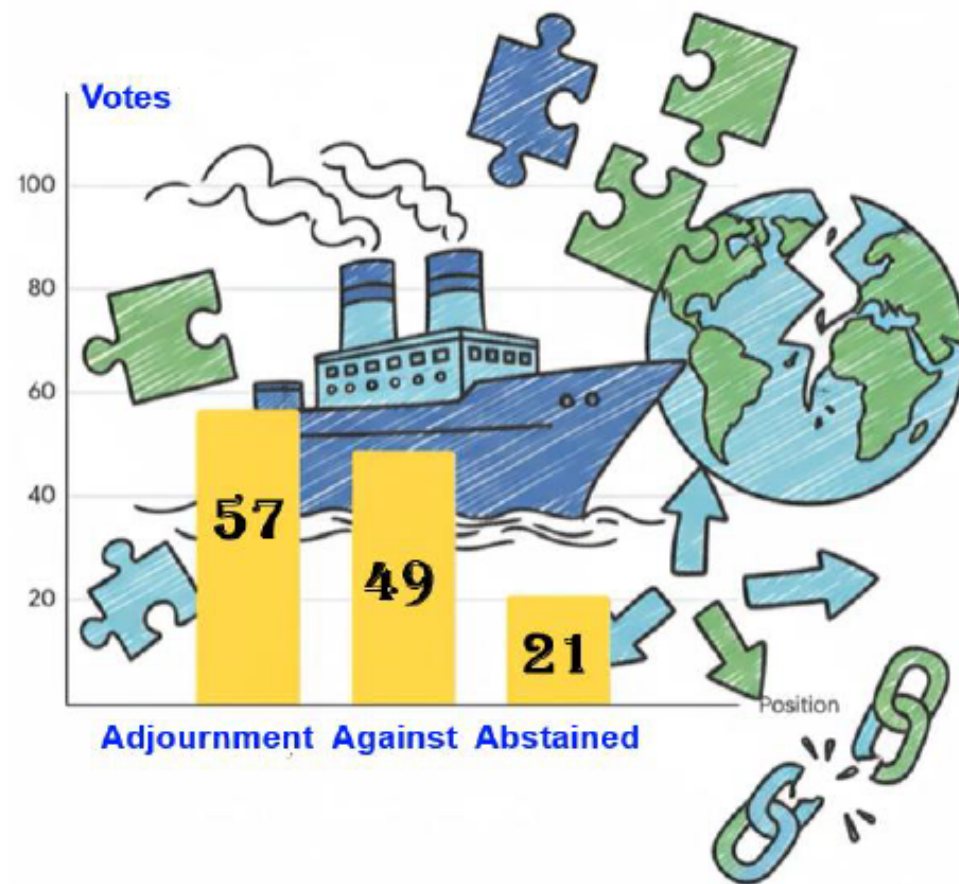


Deal DELAYED?

OR



Deal DERAILED?





IMO's NZF – A Shipping Perspective

14 Oct 2025 – was it an existential moment for the IMO?



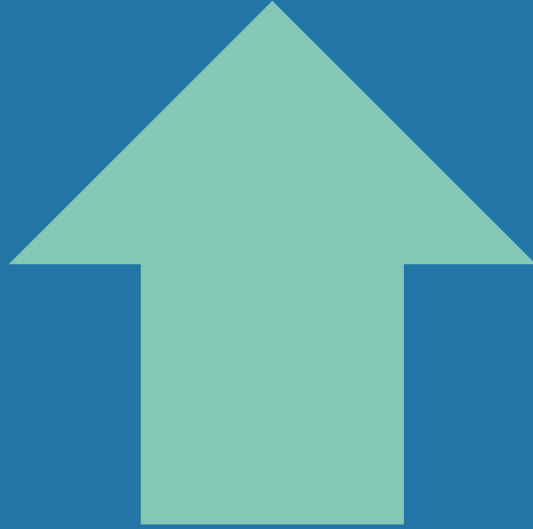
Path forward that is best for BOTH

- Environment AND
- Shipping

GLOBAL Regulation is paramount for a Global Industry like SHIPPING!



IMO's NZF – A Shipping Perspective cont'd 2



SHIPPING is:

- Owning
- Managing
- Operating



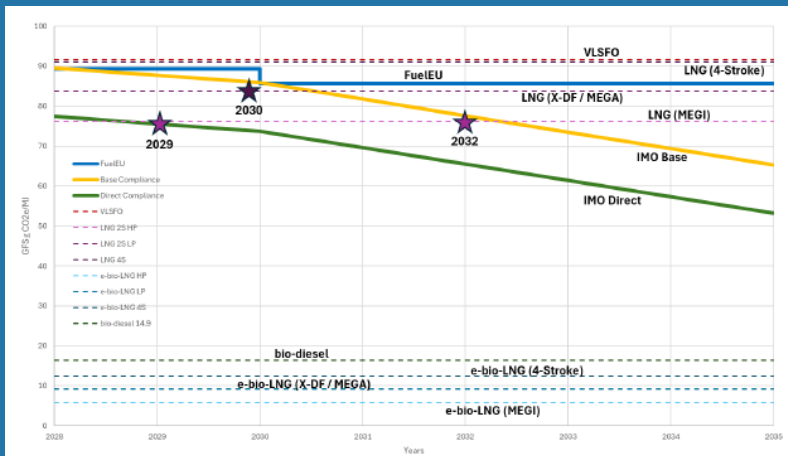
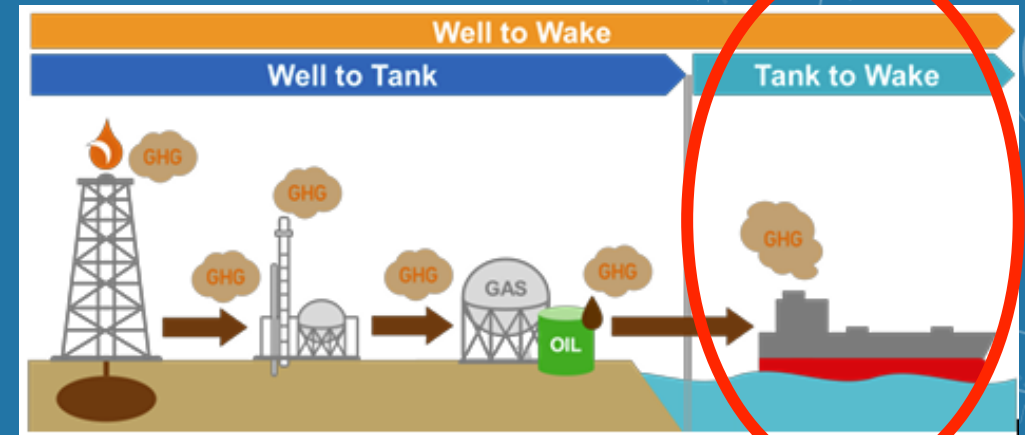
CANNOT & SHOULD NOT be
contingent on production and/
or trading of fuels





IMO's NZF – A Shipping Perspective cont'd 3

W2W is not fair for shipping.
T2W emissions should be the only measure
on shipping.

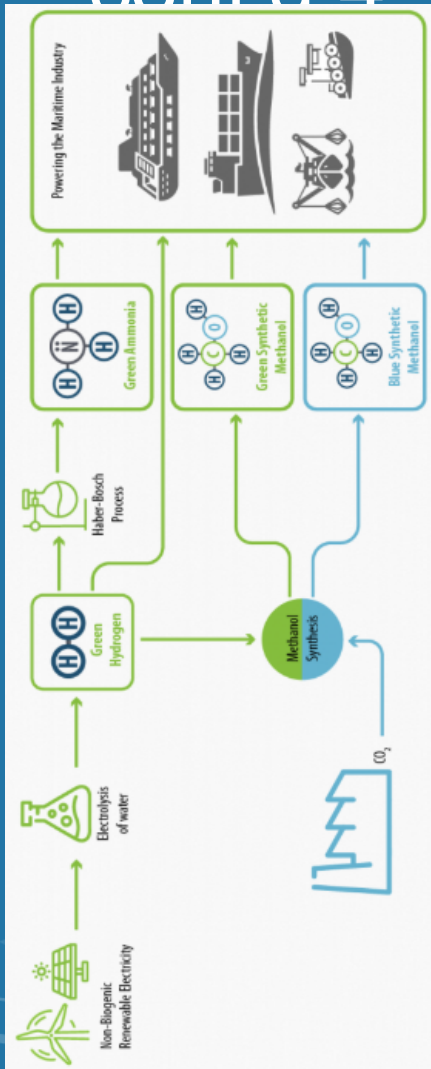


Proposed GFI trajectories are unrealistic.

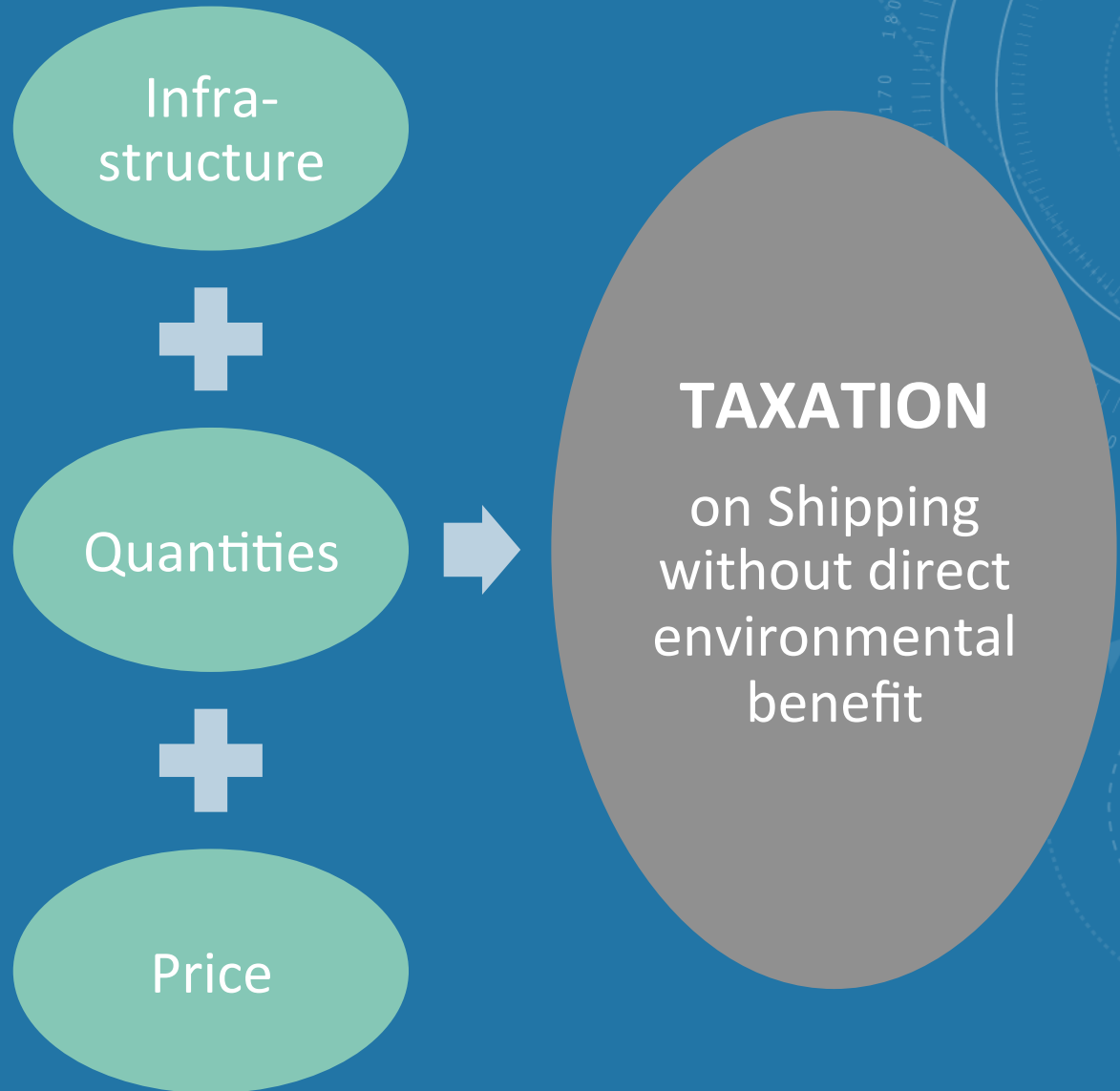
Implementation is highly bureaucratic & costly – burden heaviest on SMEs.



IMO's NZF – A Shipping Perspective cont'd 4



NON-EXISTENT
For
Green Fuels





IMO's NZF – A Shipping Perspective cont'd 5

UNFAIR

disadvantages for proven, safe & readily available
transitional fuels – e.g. LNG!

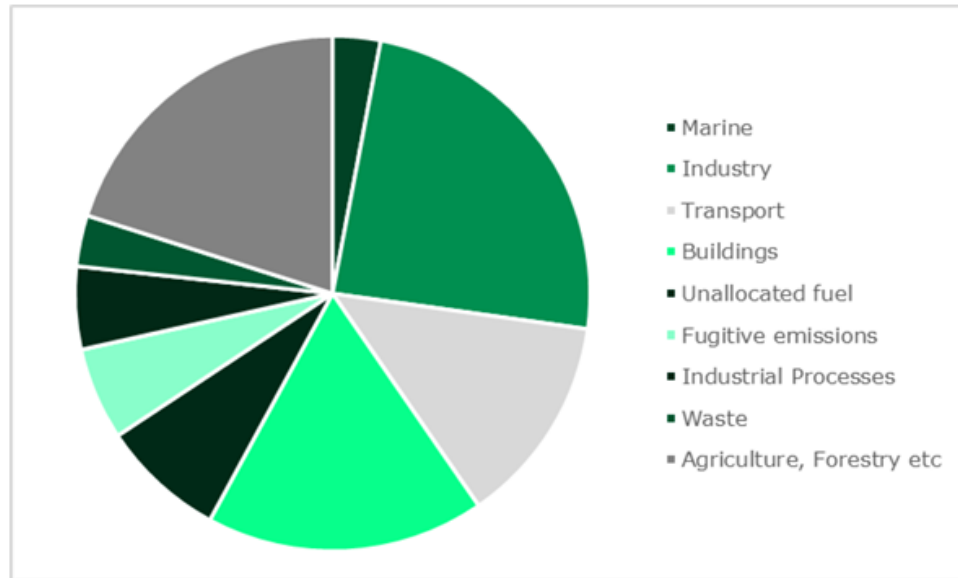
No assurances re.
simultaneous
withdrawal of
regional regulations.





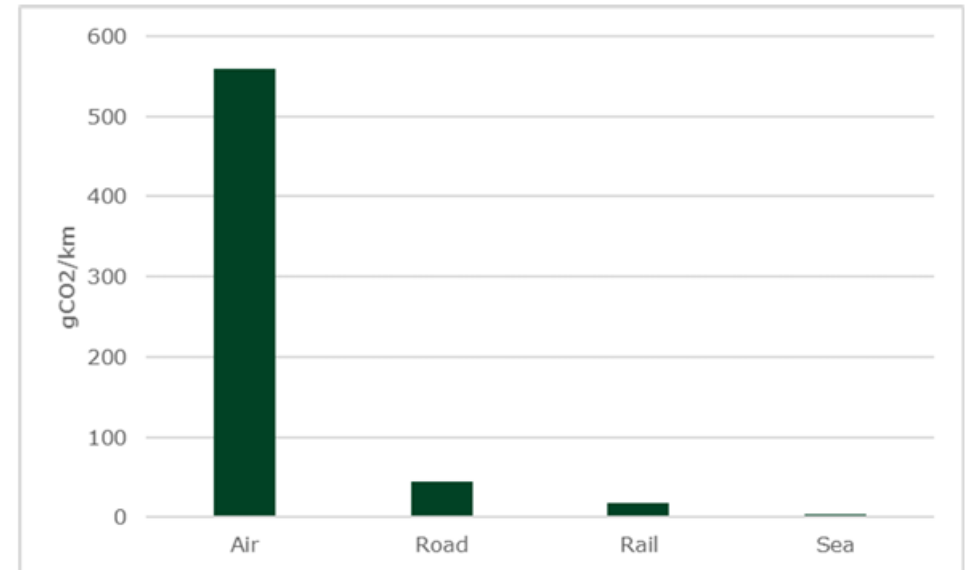
Marine Emissions Perspective

Marine Emissions vs Global Total Emissions



Source: Climate Watch, the World Resources Institute, IMO

CO2 emissions per km



Source: CMS



TSAKOS Decarbonisation Strategy



- Fleet renewal;
- Reduce existing fleet's carbon intensity through technical & operational measures;
- Establish decarbonisation pathway by using transitional alternative fuels;
- R&D towards net-zero or carbon neutral technologies.



Strategic Decarbonisation Outlook: Fleet Renewal

Divestments

- **17 vessels Sold**
 - 1 x LNG Carrier
 - 2 x Suezmax
 - 2 x Aframax
 - 6 x MR Product
 - 5 x Handy Product
 - 1 x Capesize Bulker

Average Age: **19.5 years**
Total DWT: **1.3 million**

Growth

- **40 vessels (Contracted/Acquired/LOI)**
 - 10 x NB DP2 Shuttle
 - 3 x NB VLCCs
 - 5 x NB LR1 Panamax
 - 2 x NB MR Product

- 4 x NB DF LR2*
- 2 x DF LR2*
- 2x NB DP2 Shuttle*
- 3 x Suezmax*
- 2 x Aframax* (1A Ice-Class)
- 6 x Containers* 2800 teu
- 1 x Capesize bulker

* Delivered Vessels

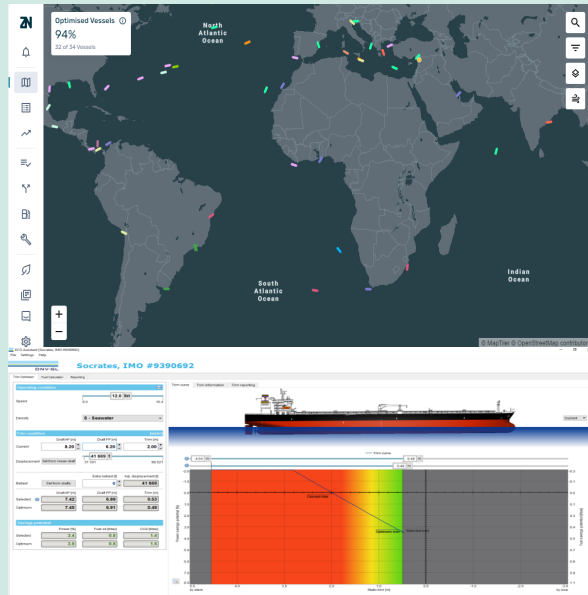
Average Age: **Newbuildings**
Total DWT: **4.9 million**

Since 01/01/2023

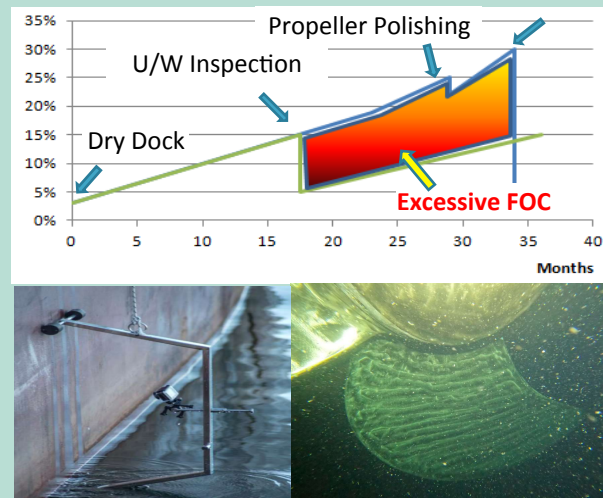


Energy Efficiency Measures - Operational

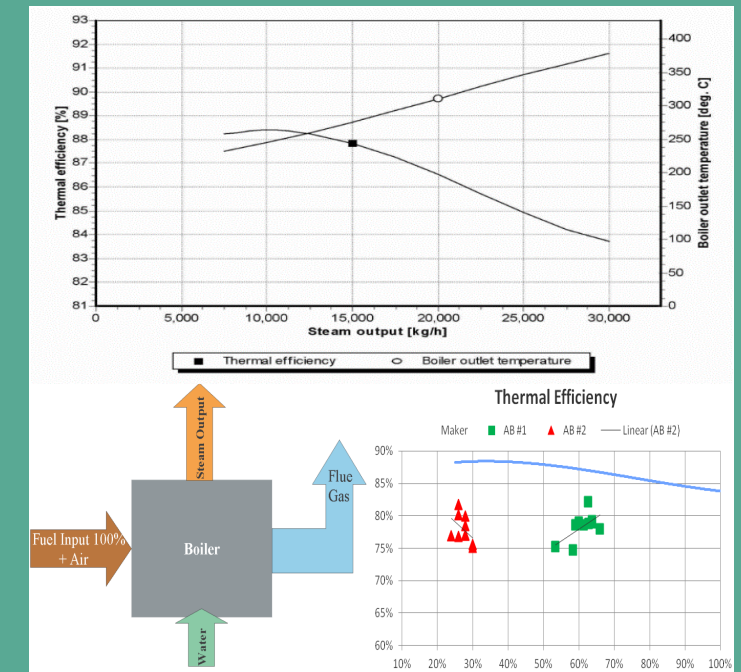
- ❑ Just-In-Time arrival; optimum speed selection.
- ❑ Weather routing & voyage optimisation.
- ❑ Trim optimisation.
- ❑ Optimised cargo heating management (tankers).



- ❑ Underwater maintenance:
 - ❑ Hull condition monitoring & assessment (telemetry, speed performance tests, remote inspection, divers' inspection)
 - ❑ Propeller polishing
 - ❑ Hull cleaning



- ❑ Main engine performance evaluation.
- ❑ Auxiliary engine load management.
- ❑ Auxiliary boilers thermal efficiency.





Energy Efficiency Measures - Technical

- ❑ Installation of Shaft Power Limitation (SHaPoLi) systems, where required in the context of the EEXI regulation.
- ❑ Installation of Energy Saving Devices on several ships, depending on their design and trading profile, such as Becker Mewis duct, Schneekluth duct, rudder bulb, rudder fins, EBC.
- ❑ Use of ultra-low frictional resistance (SPC) antifouling coatings on various ships, depending on the ships' trading profile.
- ❑ Installation of Variable Frequency Drives on specific pumps and Engine Room fans.
- ❑ LED lighting in accommodation spaces.
- ❑ Program for replacement of volumetric flow meters with mass flow meters at various ships.



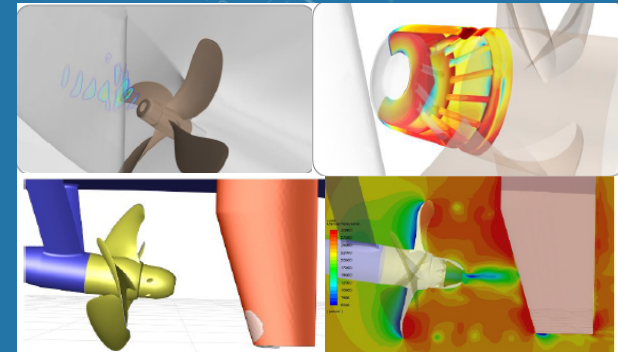
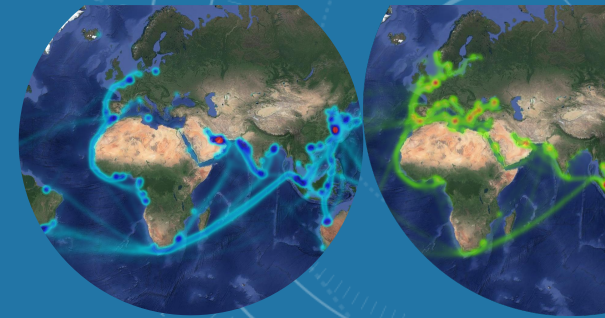
Use of LNG and Biofuels





TSAKOS R&D Program

- ❑ T-PerMOS - development of an in-house weather routing & vessel performance optimization platform utilizing high frequency telemetry data together with first principles and machine-learning algorithms to optimize the energy efficiency of the fleet (in progress).
- ❑ Pilot testing of a novel ECO Propeller Boss Cap (EBC), which is custom designed for a vessel, utilises enhanced hydrodynamics to optimise the flow through pressure relief holes, thus improves performance, and reduces fuel consumption and emissions.
- ❑ Partners in the EU Horizon Orcele Project on wind propulsion. Working with NTUA on the development of a feasible wind assistance plan for one of our Kamsarmax bulk carriers.





Pioneering Work?

Today's Energy Industry participants need to operate like early explorers

Clear Goal: DECARBONIZE THE WORLD

- Moving forward without a detailed map
- Only a high-level idea of the energy system we are building

SHIPPING has been on a race towards ZERO:

ZERO emissions...

But Regulators must ensure that this does NOT mean ZERO margins!

Clear
Universal
Goal



Flexible
Diverse
Pathways



Historic
Opportunities
for Energy
Sector
Organizations



Thank You!

We know
the **WHY**

Now, we
must get
the **HOW**
right!

We've been set
the **WHAT**
(maybe?)



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Biofuels Consumption Q1-Q3 2025

BIOFUELS CONSUMED WITHIN Q1-Q3 2025 & EFFECT ON CII		
Vessel	BIOFUELS (MT)	Results
PENTATHLON until CoO on 26/03/2025	495 (B30)	CII Rating consuming Biofuel: B → 4.4% reduction
		CII Rating without consuming Biofuel: C
SPYROS K	1000.7 (B24) + 973.4 (B24)	CII Rating consuming Biofuel: C (closer to B) → 3.8% reduction
		CII Rating without consuming Biofuel: C (closer to D)
DIMITRIS P	977 (B24)	CII Rating consuming Biofuel: C (closer to B) → 2.0% reduction
		CII Rating without consuming Biofuel: C (closer to D)
EURO	515.1 (B30) + 1170.1 (B24) + 518.3 (B24)	CII Rating consuming Biofuel: D (closer to C) → 5.7% reduction
		CII Rating without consuming Biofuel: D (closer to E)