

WE EMPOWER THE MARITIME INDUSTRY TO SEAMLESSLY NAVIGATE CARBON REGULATIONS.

CII, EU ETS and FuelEU Maritime

Athens

October 31, 2024

ZER044



WE ARE ZERO44

We empower the maritime industry to seamlessly navigate to carbon zero

- Ø Founded in 2022
- Ø Based in **Berlin, Hamburg** and **Singapore**
- Ø **22** employees
- Ø Complete **CII** and **EU ETS** solution including
 - Ø Emissions and ratings dashboards
 - Ø Voyage and period planning
 - Ø EUA and Cash settlements
 - Ø Union Registry monitoring and EUA matching
 - Ø Trading interface
- Ø Comprehensive **FuelEU Maritime** solution launched during SMM 2024

BACKED BY



FLAGSHIP
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STARHUB VENTURES

INNOPORT



+ Angel investors

CUSTOMERS



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UNIONBULK



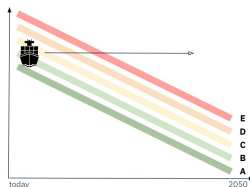
TRULSEN



REGULATORY PRESSURE IS INCREASING...

... with the ultimate goal of reaching carbon neutrality in global shipping

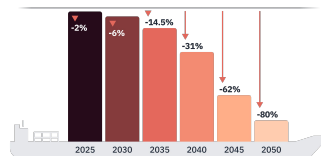
Carbon Intensity Indicator (CII)



EU Emission Trading System (EU ETS)



FuelEU Maritime (FuelEU)



- Ø UK ETS?
- Ø Japan ETS?
- Ø China carbon tax?
- Ø IMO Fuel incentives?
- Ø US carbon tax?
- Ø Global ETS?



January 2023

January 2024

Today

January 2025

2025-2030

2050

A CLEAR STRATEGY IS NEEDED...

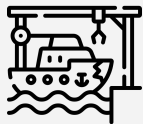
... to guide your business through decades of energy transformation



New fuels

What is my **optimal fuel mix** now, tomorrow and in the future?

Where do I need to invest or find partners to **secure the supply**?



New ship technology

Which **retrofits and operational measures** have a positive ROI now, tomorrow and in the future?

What should be my short-, medium- and long-term **fleet replacement strategy**?



Smart business decisions

Where do I **deploy my fleet**?

How do I need to adjust my **pricing strategy**?

What is my **willingness to pay** for penalties, taxes, fuels, retrofits?

In light of new costs and regulations, is my **business model still viable**?

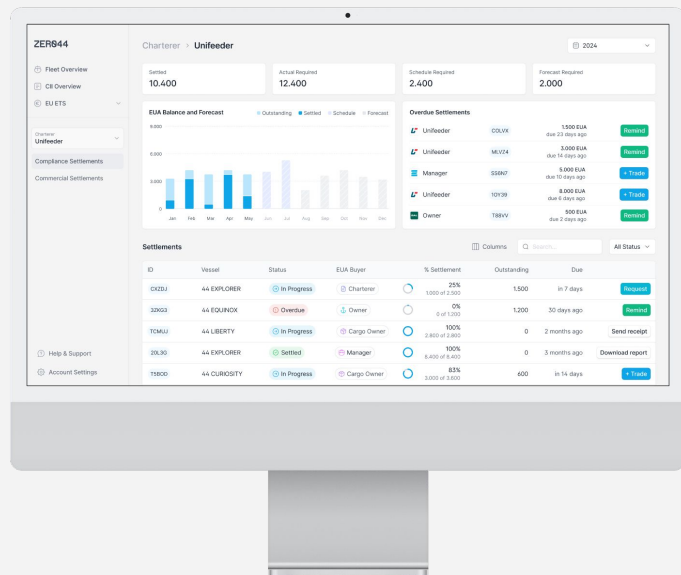
THE OPERATIONAL CHALLENGES DIFFER

A lot of complexity from three regulations in three years

	CII	EU ETS	FuelEU
Business impact	Asset value	Opex	Opex
Responsible entity	Owner	Owner or DOC	DOC
Affected entity	Owner	“Polluter” (i.e. charterer)	Owner and “polluter”
Main measures to improve	<ul style="list-style-type: none"> Technical efficiency Schedules (slow steaming, reduce port stays) (Fuel choice, wind, OPS) 	<ul style="list-style-type: none"> Technical efficiency Slow steaming (Fuel choice, wind, OPS) 	<ul style="list-style-type: none"> Fuel choice Wind, OPS Flexibility measures: banking, borrowing and pooling
Main challenges	Owner-charterer-alignment in time charters	EUA trading and accounting: passing on the cost down the value chain	Continuous decision making to find the best compliance option

ZERO44 HELPS TO MASTER THE TRANSITION

We base our users' decarbonisation strategy on smart data and digital workflows



Data control

- ☒ Daily overview and forecasting
- ☒ Integrations with the existing IT landscape

Automation and workflow control

- ☒ Automated payables, receivables, trading and transactions
- ☒ One platform and process for all

Cost control

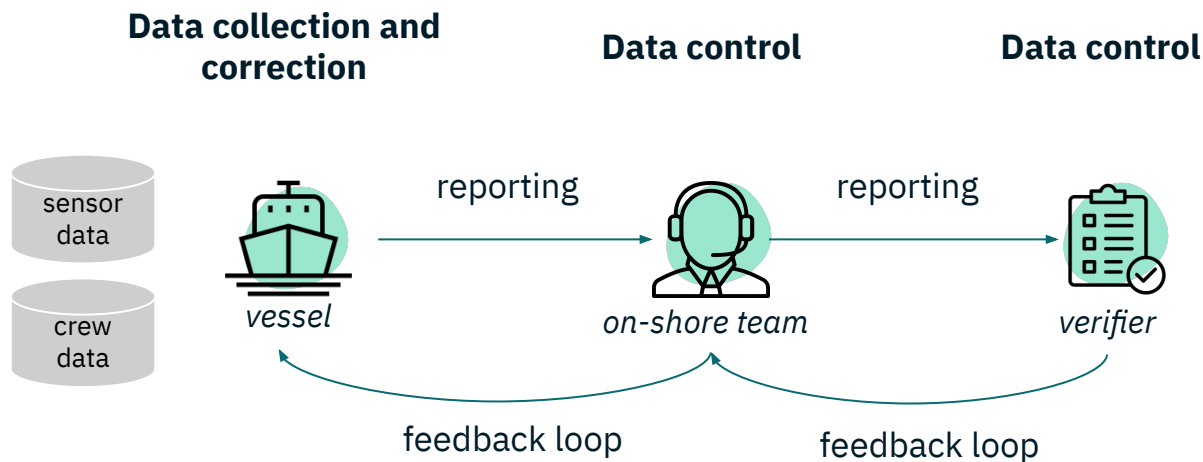
- ☒ Continuous view on uncovered financial risk, error and claims rates and compliance options

Strategic decision making

- ☒ Base your strategy on reliable data insights specific to your business model
- ☒ Benefit from scenario modelling based on vessel-specific data

DATA QUALITY IS KEY

Without reliable data none of the regulations can be managed



The ideal set-up

- Ø One single data truth
- Ø Continuous learning between crew and on-shore team
- Ø Continuous improvement in data quality and speed of data processing

Challenge for charterers:
Their own systems are not part of this process!

BUT EVEN WITH PERFECT VESSEL DATA...

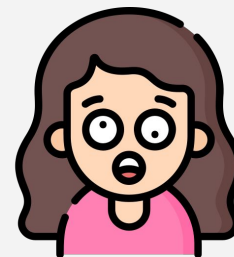
... do on-shore teams need more than Excel to make smart decisions



Ad hoc calculations



Large number of
internal experts and
administrators



Lose track and risk high
costs and business
failure

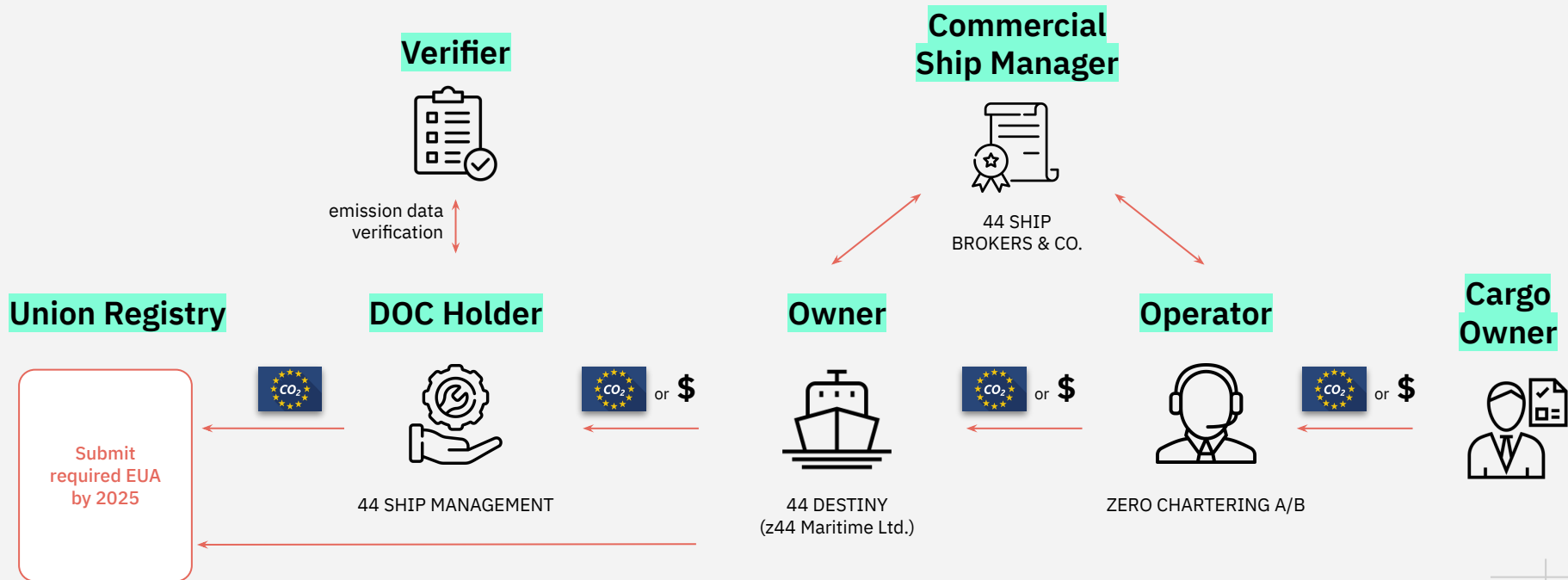
THE ZERO44 EU ETS SOLUTION

ZERO44



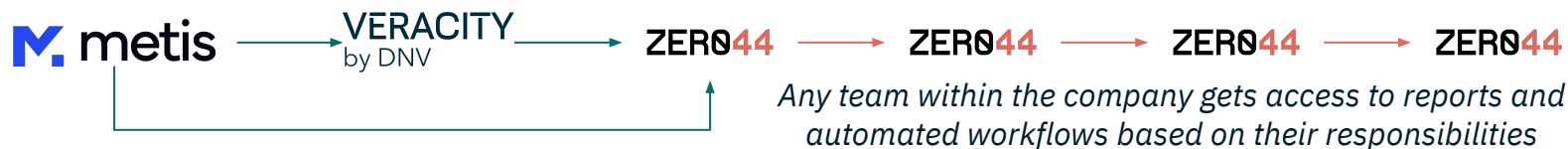
EU ETS IS ABOUT COST FORWARDING

Stakeholders need to align on who is doing what and when



ZERO44 PROVIDES END-TO-END SUPPORT

Automated workflows based on single source of data truth







✓ Integrated reporting and KPI tracking

✓ All necessary data available to support strategic decision making (e.g. board meetings, committees, etc.)

ZERO44 SUPPORTS MANY BUSINESS CASES

Current use cases for the zero44 EU ETS solution

Owner case examples	Case description	Users	Main value add zero44
 	<ul style="list-style-type: none"> Publicly listed 	<ul style="list-style-type: none"> Commercial 	<ul style="list-style-type: none"> Clean paper trail
	<ul style="list-style-type: none"> Owner on T/C out 	<ul style="list-style-type: none"> Operations 	<ul style="list-style-type: none"> Off-hire management
	<ul style="list-style-type: none"> BIMCO clause or cash settlement for EU ETS 	<ul style="list-style-type: none"> CFO 	<ul style="list-style-type: none"> Correction tracking Occasional trading
Operator case examples			
 	<ul style="list-style-type: none"> Operators T/C in, V/C out, plus parcelling 	<ul style="list-style-type: none"> Operations Finance 	<ul style="list-style-type: none"> Flexible matching of EUA to vessels, cargos, voyages and head owners
	<ul style="list-style-type: none"> Cash settlements, regular trading, payments 	<ul style="list-style-type: none"> Bunker procurement 	<ul style="list-style-type: none"> Fully supported trading flows

THE ZERO44 FUEL EU MARITIME SOLUTION

ZERØ44



DECISION-MAKING FOR FUEL EU IS COMPLEX

Compliance can be achieved in many ways:

- ∅ Changing the vessel's fuel mix...
- ∅ ...with an additional incentive for using Renewable Fuels of Non-Biological Origin
- ∅ Using on-shore power supply
- ∅ Using wind propulsion
- ∅ Using one of the flexibility mechanisms (i.e. banking, borrowing or pooling)
- ∅ Paying the FuelEU penalty
- ∅ **Or any combination of the above**

Picking the optimal strategy requires:

Careful analysis of all different options

Alignment with external parties and data sources

Understanding implications of decisions across multiple regulations

... AND NEEDS UPDATES CONTINUOUSLY

Nothing is stable in shipping

Daily chartering decisions	Regular stakeholder alignment	Medium- to long-term fuel availability	Retrofits/ newbuilds
<ul style="list-style-type: none"> Is the ship going to Europe? What are EU ETS and FuelEU costs? What fuel types are available along the way and what do they cost? What are my other compliance options? ... 	<ul style="list-style-type: none"> How do owners and ship managers share responsibility? How do owners and charterers agree? What do customers under voyage charter or CoA want? ... 	<ul style="list-style-type: none"> How much sustainable fuel is available of which type where at which cost? Does it make sense for you to invest in fuel availability by e.g. partnering with others? If yes, which is the most promising fuel type for your specific business? ... 	<ul style="list-style-type: none"> How efficient is my current fleet? Which fuel types can I use? Does it make sense for my specific business to invest in retrofits or new builds to accommodate new fuels? ...



ZERO44

Support daily workflows

ZERO44

Provide reports and analysis to support strategic decision-making

ZERO44 SUPPORTS YOU FULL CIRCLE

Four steps to repeat as often as needed



PREDICT

Use historical voyage data combined with zero44's **advanced algorithms** to predict emissions, GHG intensity and energy use.

DEVELOP STRATEGY

Compare compliance options in **multi-year** planning and pick the **optimal strategy across regulations**.

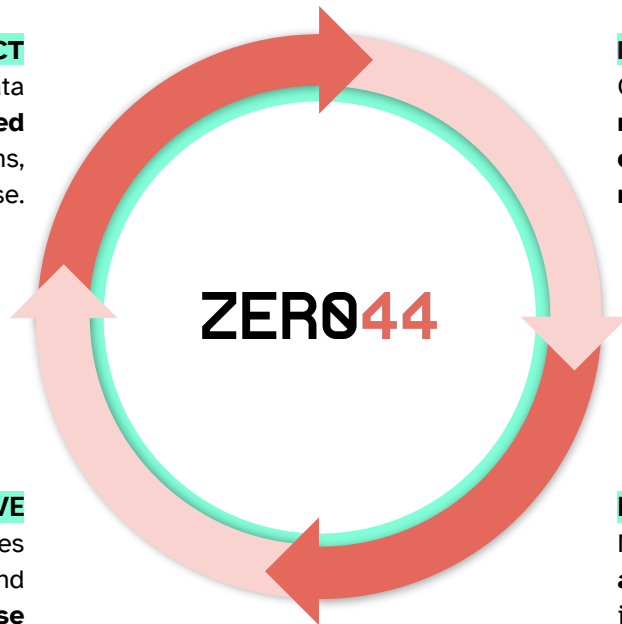


IMPROVE

Use actuals and updated schedules to **enrich** predictions and **dynamically optimise** compliance.

EXECUTE AND MONITOR

Meet obligations, **monitor agreements**, emissions, GHG intensities, costs and pool performance.



TO GET STARTED: ESTIMATE YOUR COST RISK WITH OUR FREE FUEL EU CALCULATOR

Fuel consumption

Please enter the annual consumption of your vessel in tonnes. Every fuel has its own well-to-wake emission factor. The fuel mix used on-board a vessel determines its overall GHG intensity, which is the amount of GHG emissions per MJ.

HFO

LFO

MDO/MGO

LNG

Biodiesel

Total annual consumption

5,550 tonnes/year

GHG intensity

GHG intensity refers to the amount of greenhouse gases emitted per MJ energy used onboard the ship.

91.6 gr CO2eq/MJ

FuelEU penalty

FuelEU Maritime sets targets for the GHG intensity. When the actual GHG intensity exceeds the target, a penalty needs to be paid. FuelEU's 2025 target GHG intensity target is 89.3 CO2eq/MJ. The resulting penalty for 2025 is

€ 162,636

Receive your report by e-mail

FuelEU targets get more strict every five years. Therefore, when continuing business as usual, penalties will increase over time. Your report will include a summary of your inputs, the calculated GHG intensity and the estimated penalties until 2050.

<https://www.zero44.eu/fueleu-maritime>



**WE'RE VERY MUCH LOOKING FORWARD TO
WORKING WITH YOU!**

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