

Accelerating Maritime Fuel Supply and Demand

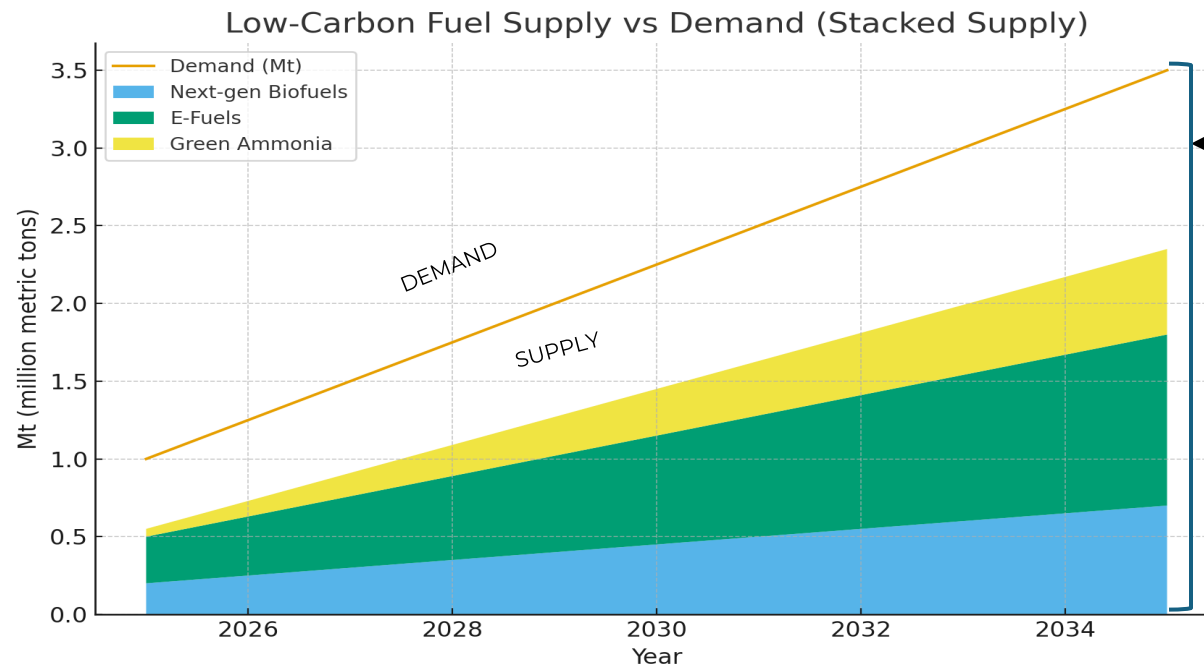


Peter Ellen – CEO H2C



By 2035 EU Compliance Creates:

- A 2.6 million Mt shortfall of Low Carbon Fuel
- A €3-5bn compliance risk in EU Maritime



← The total gap is too large to fill in to fill

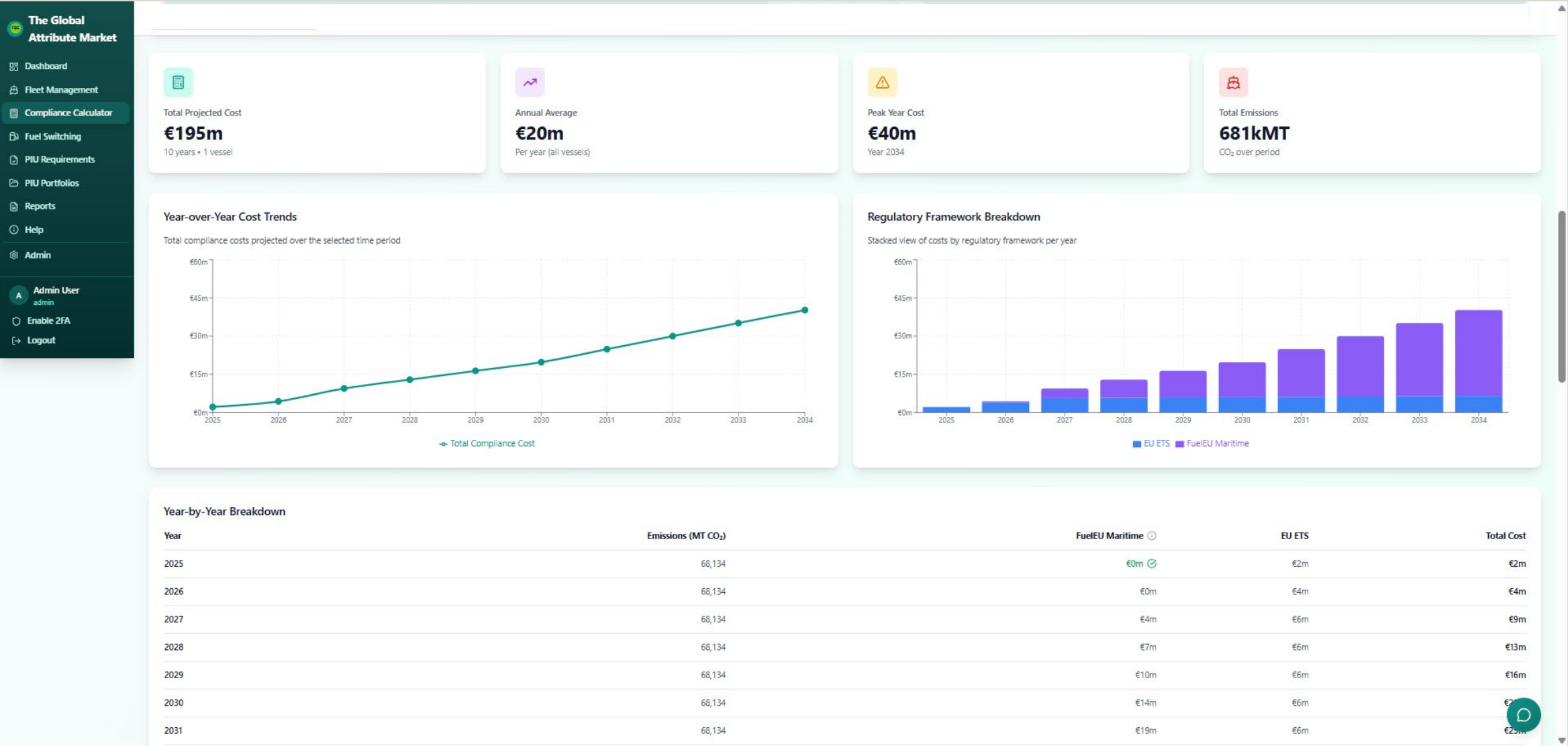
← >90% of Production Projects – Pre FID

← Largest deficit: E-fuels → ~1.6 Mt gap by 2035.

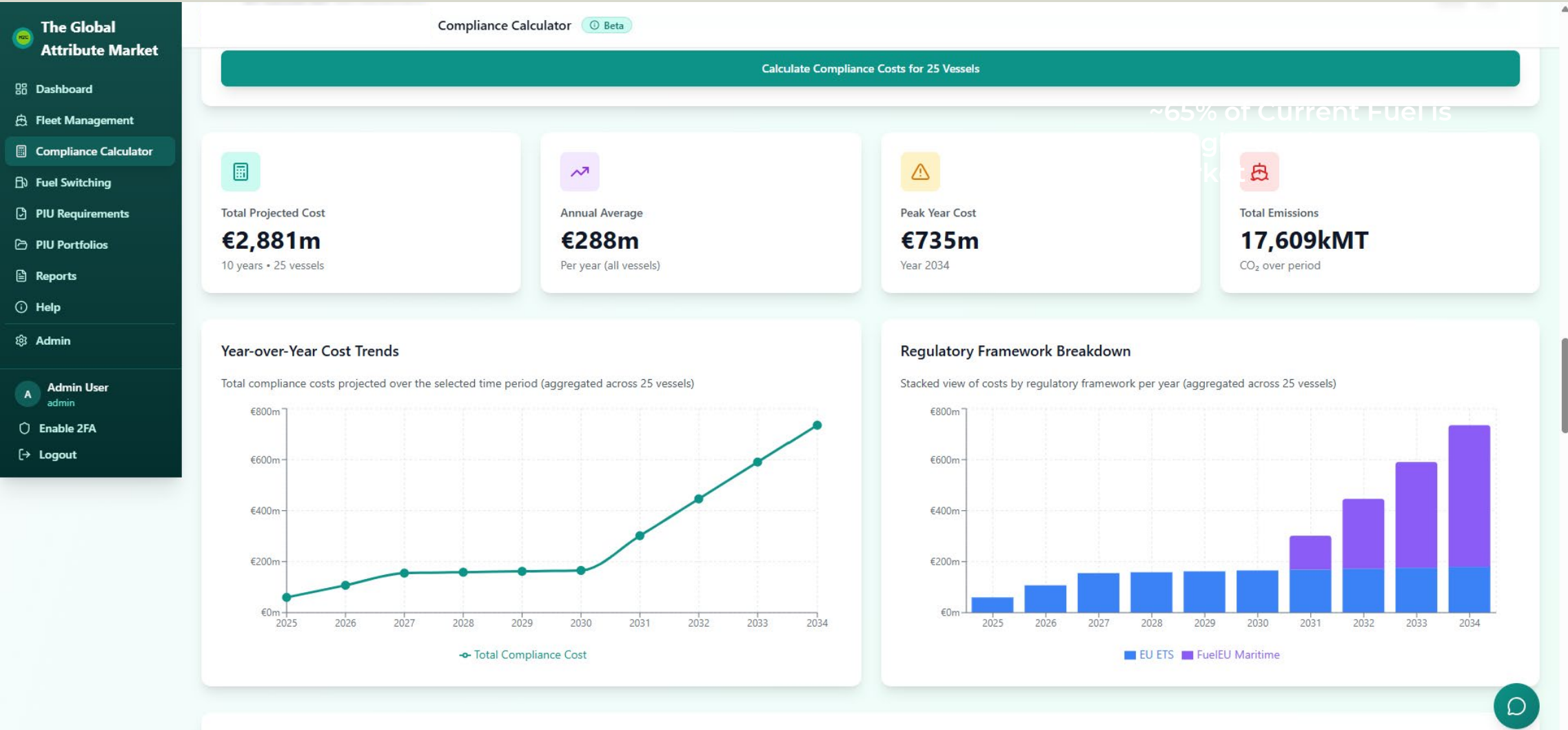
← Second largest: Biofuels → ~0.8 Mt gap.

Sources: IEA Renewables 2025; IEA NZE Scenario; Lloyd's Register "Future of Maritime Fuels" (2023); Ammonia Energy Association (2023); Transport & Environment E-Fuels Observatory; Rystad Energy (Biofuels Outlook); eNG Coalition (2024 e-methane pipeline)

A FAME Bio Diesel Vessel - €20m pa risk over 10 Years



A 25 Vessel LNG Fleet €288m pa

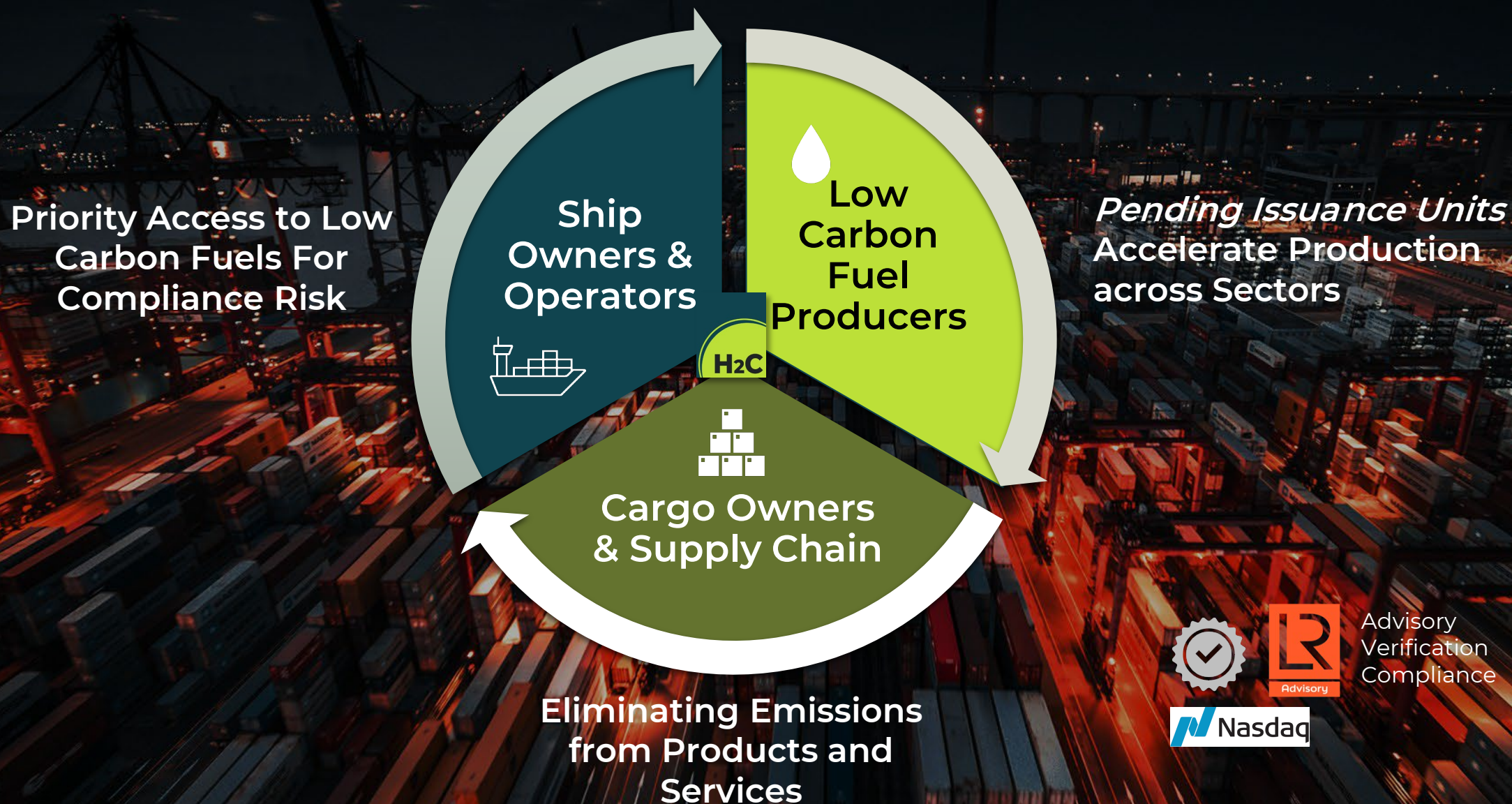


Some certainties

- There will be **no mid-term spot market** for low carbon fuels in martime
- Some Shipping Companies will **fail to secure supply**, and face existential compliance costs
- Fuel Producers have a **compliance driven opportunity** with large orders
- Acceleration needs **forward demand and supply** mechanisms
- Value added prices typically need **value added price structures**

→ Leading Shipping Companies and Producers
are joining the **H2C Global Attribute Market**

The Global Attribute Market for Low Carbon Fuels



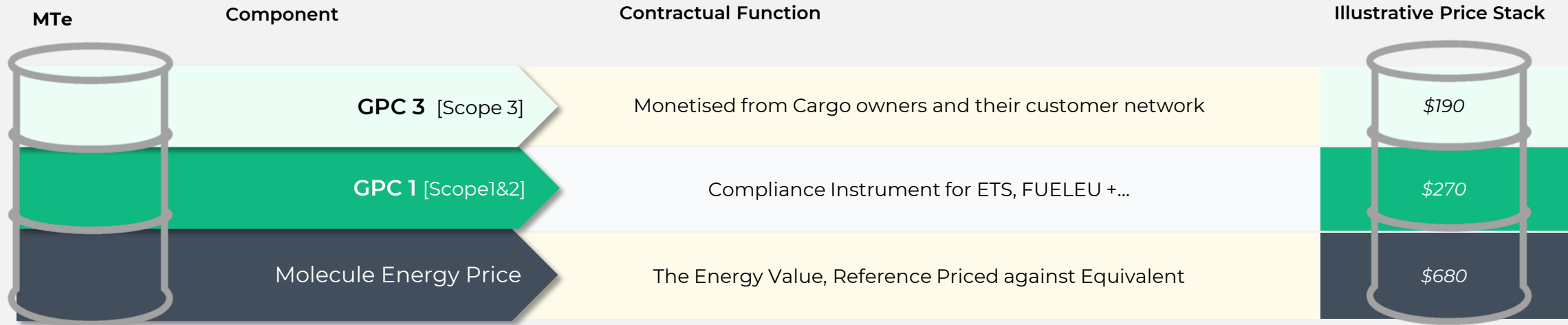
Advisory
Verification
Compliance



Green Premium Certificates™

Enabling a viable Contract Structure for Low Carbon Fuels

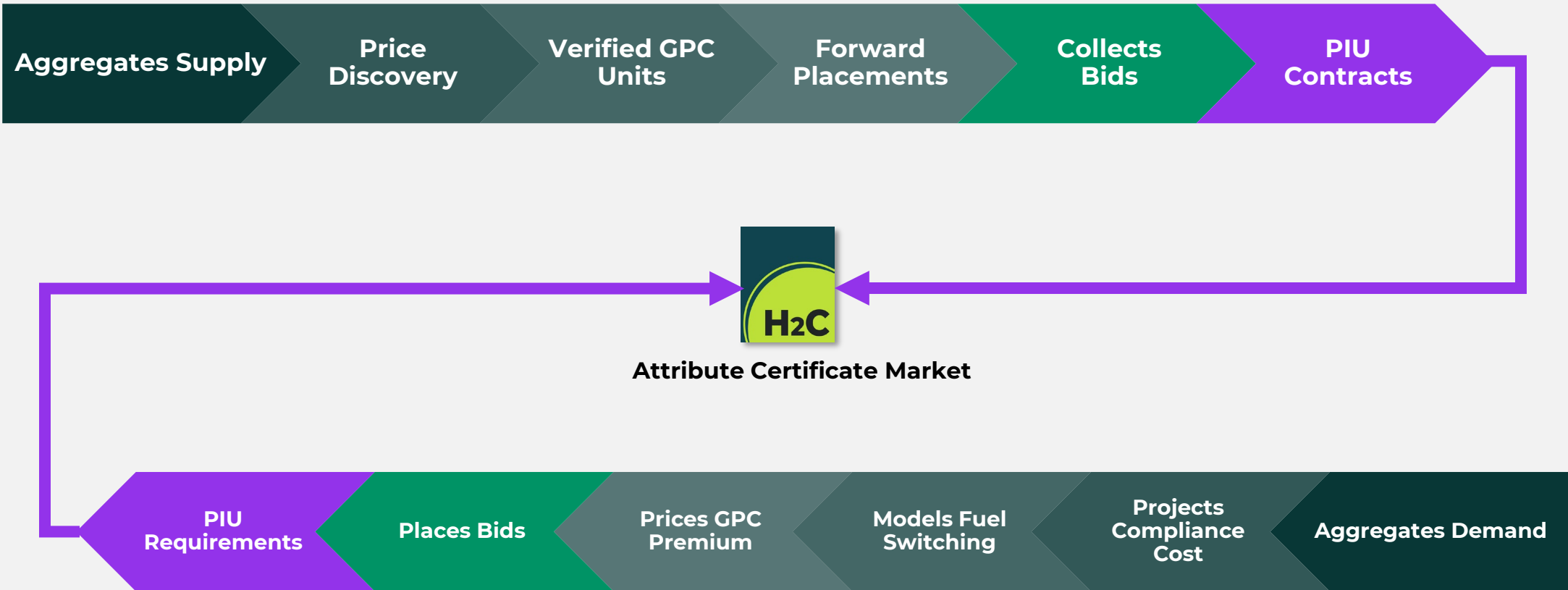
Powered by an Attribute Certificate Market



Securing Forward Contracts

Accelerating Revenue and Supporting FID

Supply: Low Carbon Fuel Producers Secure Pre Production /FID Revenue



Demand: Maritime Buyers Secure Access to Fuels and Mitigate Compliance Cost Risk



Connecting Maritime Fleets with Fuel Producers

The first marketplace for maritime decarbonization. Shipping companies can assess compliance costs, model fuel switching scenarios, and discover sustainable fuel options. Producers can showcase their renewable fuels and connect with buyers to develop incremental revenues.

Request a Demo →



For Shipping Companies

Calculate compliance costs
and discover sustainable fuel



For Fuel Producers

List your renewable fuels and
connect with maritime buyers



Market Intelligence

Real-time pricing and
availability of sustainable fuels



Cost Optimization

Model scenarios and minimize
regulatory compliance costs



⚙️ Producer Profile

🏭 Producer PIUs

📈 Market Intelligence

📄 Help



Fuel Producer
producer



Enable 2FA



Logout



Kvasir Technologies • Producer Profile

🕒 Beta



Producer Account

Manage your company profile, projects, and production certificates



Company Info

✎ Edit

COMPANY NAME

Kvasir Technologies

ROLE

Producer

EMAIL

producer@first-
carbon.com



Company Logo

CURRENT LOGO



Active Logo

Displayed in application header

UPLOAD NEW LOGO



Production Projects

Organize your PIU offerings into projects

+ New Project

Aabenraa Bio Oil Plant

40,000 mt pa next generation Bio Fuel, drop in replacement for HFO

Country

DK

Fuel Type

HTL Biofuels

Peak Capacity

40,000 MT/yr

Carbon Intensity

35.00 gCO₂e/MJ

LINKED PIUS

9

CERTIFICATES

415,000

Created 21/10/2025

View details →





Producer Profile

Producer PIUs

Market Intelligence

Help

F Fuel Producer
producer

Enable 2FA

Logout



Kvasir Technologies • Producer Profile

Beta



Project Details

Aabenraa Bio Oil Plant

Edit Project



30,000 MT

40,000 MT

40,000 MT

40,000 MT

40,000 MT

Year 2033

40,000 MT

Year 2034

40,000 MT

Year 2035

40,000 MT

Additionality Index (Viable Price per MT)

Monetary value representing the viable gross price per metric ton needed to achieve viable production for each year.

Year 2026

€1300.00
per MT

Year 2027

€1300.00
per MT

Year 2028

€1300.00
per MT

Year 2029

€1300.00
per MT

Year 2030

€1300.00
per MT

Year 2031

€1300.00
per MT

Year 2032

€1300.00
per MT

Year 2033

€1300.00
per MT

Year 2034

€1300.00
per MT

Year 2035

€1300.00
per MT

Carbon & Energy Metrics

Carbon Intensity

35.00 gCO₂e/MJ

Energy Intensity (HHV)

45.50 MJ/kg

Energy Intensity (LHV)

43.00 MJ/kg

Measurement Standard

ISO 14067, ISO 14044, RED III Annex VI, IMO
MEPC.391(81)

+ New Project



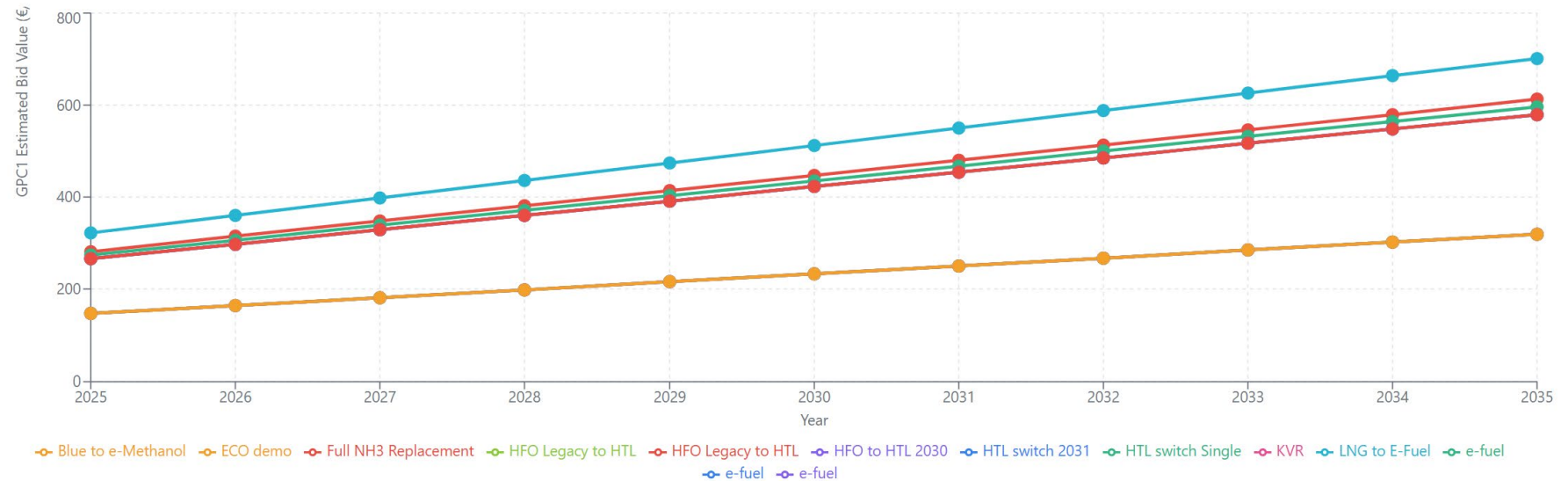
CERTIFICATES
415,000

View details →



GPC1 Estimated Bid Value Trends

Each line represents a fuel switching scenario's GPC1 price indicator derived from compliance cost savings

**LNG → e-Methane
e-fuel**

Latest GPC1 Price

€702

/MT

Trend
+117.6%

1 vessel • 88% reduction

**LNG → e-Methane
e-fuel**

Latest GPC1 Price

€702

/MT

Trend
+117.6%

10 vessels • 88% reduction

**Methanol → e-Methanol
ECO demo**

Latest GPC1 Price

€319

/MT

Trend
+117.6%

2 vessels • 89% reduction

**Methanol → e-Methanol
e-fuel**

Latest GPC1 Price

€319

/MT

Trend
+117.6%

3 vessels • 89% reduction

**Understanding GPC1 Price Indicators**

The GPC1 Estimated Bid Value represents the value per metric ton of baseline fuel equivalent, calculated from the compliance cost savings achieved through fuel switching. Higher values indicate greater economic benefit from switching to low-carbon fuels, driven by avoided EU ETS and FuelEU Maritime penalties.



240,000

3 PIUs

120,000 MT

Emissions reduction

2.00

SBTI-based multiplier

0

In preparation

0

Fuel combusted

 **GPC3 Conversion Process & SBTI Emissions Factor**

GPC3 certificates are calculated using an **assumed SBTI emissions factor**, which represents the tons of CO₂e eliminated through the fuel switching process. For example, if 1 ton of HTL Bio-fuel replaces 1 ton of HFO and eliminates 2 tons of CO₂e, the emissions factor is 2.

Certificate Count = CO₂e Quantity (MT) × Emissions Factor

When the end user **combusts the fuel**, the GPC3 certificates convert into tradeable batches. The emissions factor will be verified by the claimant later to ensure accurate CO₂e reduction claims.

 Filters

Sort by: Date Created



☐ All PIU Offerings (9)

+ Create New PIU



HTL Biofuels

GPC3

PRE VERIFIED

Pre-Verified

 DK  2032  Project: Aabenraa Bio Oil Plant

80,000

Certificates

€300.00 per cert

 Carbon Intensity

35.00 gCO₂e/MJ


 Energy (LHV)

43.00 MJ/kg

 CO₂e Eliminated

40,000 MT

Factor: 2.00x

 Reserve

2,000 MT

(5.0% of production)



Producer PIU Offerings

Manage your Pending Issuance Units for green fuel production

Company: Kvasir Technologies



Production Capacity & PIU Issuance Dashboard

Track your PIU offerings against production capacity to identify opportunities



Total Capacity

280,000

MT across all years



Allocated

749,983

267.9% of capacity



Remaining

10,001

MT available for PIUs



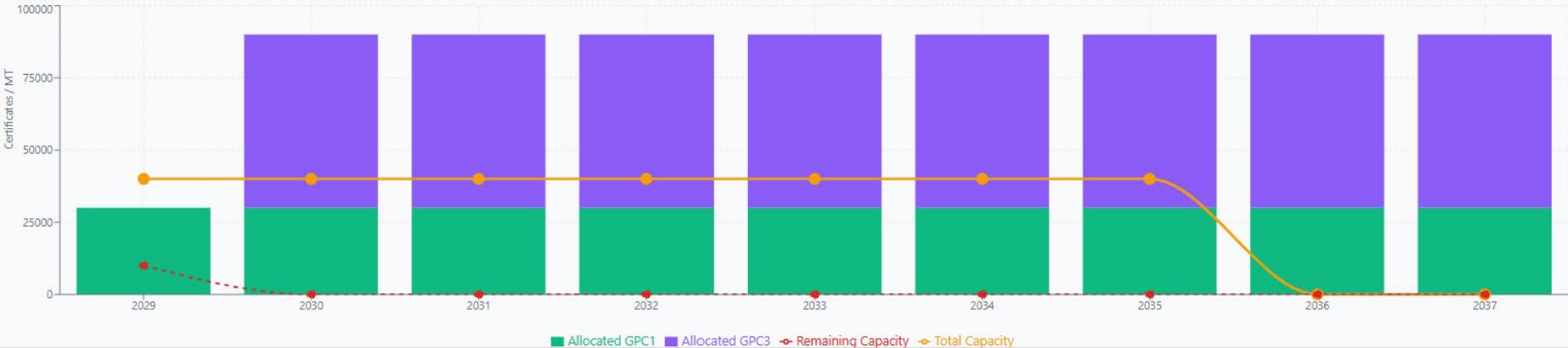
Opportunity

1

years with available capacity

Production Capacity vs PIU Allocations Over Time

This chart shows your total production capacity (orange line) compared to allocated PIU certificates (stacked bars). The dashed red line shows remaining capacity.



Fleet Management

Manage your vessels and organize them into fleets

Bulk Edit Factors

Upload Data

Create Fleet

Add Vessel



Step 1: Create Your Fleet Data

Start by adding vessels to your fleet. You can add them individually using the 'Add Vessel' button, organize them into fleets with 'Create Fleet', or bulk upload vessel data using 'Upload Data'. This is the foundation for all compliance calculations and fuel switching scenarios.

Search vessels by name or IMO...

All Fleets



EU Container Feeders

MT Neptune 1744

IMO IMO9985962

Type	DWT
Feeder	20,559
Fuel Type	Engine
LNG	Dual-Fuel LNG

10 calculations

View Details

Metrics

Upload AIS



EU Container Feeders

SS Europa 1692

IMO IMO9917812

Type	DWT
Feeder	13,485
Fuel Type	Engine
LNG	Dual-Fuel LNG

10 calculations

View Details

Metrics

Upload AIS



EU Container Feeders

MT Liberty 1006

IMO IMO9988021

Type	DWT
Feeder	10,623
Fuel Type	Engine
LNG	Dual-Fuel LNG

10 calculations

View Details

Metrics

Upload AIS



EU Container Feeders

MV Neptune 1845

IMO IMO9962681

Type	DWT
Feeder	17,859
Fuel Type	Engine
LNG	Dual-Fuel LNG



EU Container Feeders

CS Valiant 1477

IMO IMO9995759

Type	DWT
Feeder	11,102
Fuel Type	Engine
LNG	Dual-Fuel LNG



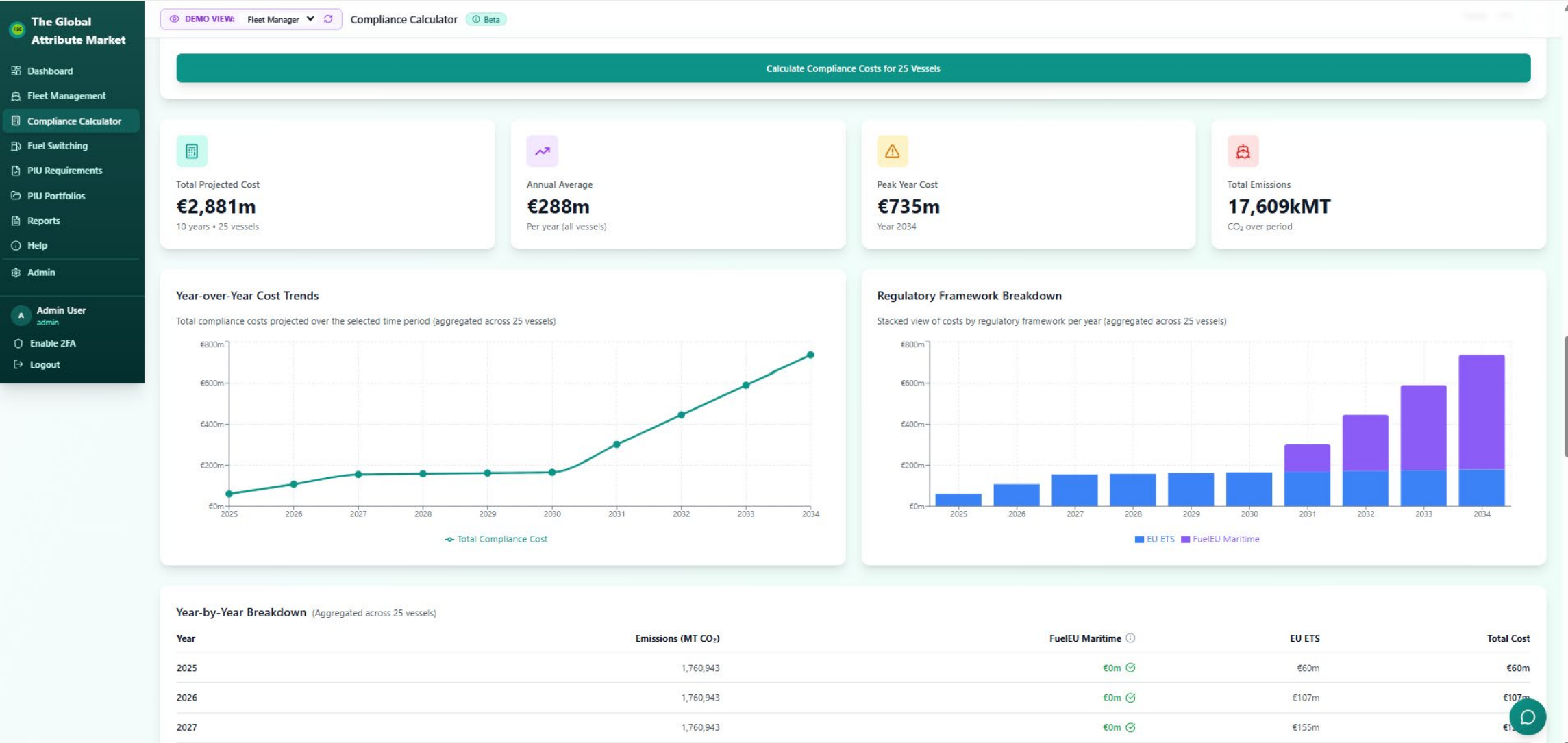
EU Container Feeders

CS Horizon 1601

IMO IMO9964940

Type	DWT
Feeder	16,154
Fuel Type	Engine
LNG	Dual-Fuel LNG





The Global Attribute Market

Dashboard

Fleet Management

Compliance Calculator

Fuel Switching

PIU Requirements

PIU Portfolios

Reports

Help

Admin

A

Admin User
admin

Enable 2FA

Logout

DEMO VIEW: Fleet Manager

PIU Requirements

Beta

Delivery Year

2030

HTL Biofuels

GPC1

Linked

29,999

Certificates

30,000 MT fuel

DRAFT

PIU ID: cmhw1hjzn0003lg0k6x7oda3p

Vessel: Unknown

Delivery Window

Full Year 2030

Port

Rotterdam, Antwerp, Hamburg

Region

EU

View Details

Edit

Delivery Year

2029

HTL Biofuels

GPC1

29,999

Certificates

30,000 MT fuel

DRAFT

PIU ID: cmhw1fhp20001lg0kx9mpq1fw

Vessel: Unknown

Delivery Window

Full Year 2029

Port

Rotterdam, Antwerp, Hamburg

Region

EU

View Details

Edit

Delivery Year

2035

e-Methane

GPC1

Linked

19,473

Certificates



DEMO VIEW

Fleet Manager

Fuel Switching

Beta

LNG to E-Fuel Single Vessel

Drop-in Compatible

SS Europa 1692 (IMO IMO9917812)

Switch to e-Methane

Time Period: 2031

Emissions Reduction

88%

Cost Savings

97%

New Emissions

8,880 MT

Annual Savings

€7,093k

Fuel Required

19,473 MT

Estimated GPC1 Bid Value Timeline

Price discovery guidance for PIU requirements - values increase over time due to rising carbon prices

Total Value (€k)

10000

7500

5000

2500

0

2031

2032

2033

2034

2035

2036

2037

2038

2039

2040

Estimated Bid Value (€/MT)

600

450

300

150

0

Est. Bid Value (€/MT)

Total Value (€k)

Understanding GPC1 Values

The estimated bid value represents the compliance cost savings per metric ton of baseline fuel replaced. Values increase over time as carbon prices rise and FuelEU Maritime penalties become stricter. This timeline helps you identify optimal years for PIU generation and fuel switching implementation.

Detailed Yearly Breakdown

Year	Est. Bid Value	Compliance Savings	Baseline Fuel
2031	€364/MT	€7,093,391	19,473 MT
2032	€372/MT	€7,241,170	19,473 MT
2033	€379/MT	€7,388,949	19,473 MT



Filters

Sort:

Showing 53 PIU requirements

Delivery Year
2030

e-M

GPC

POSTED

Consolidated PIU for

Fleet of 25 vessels: MT Hor
MT Vanguard 1086, CS PhoDelivery Window
Full Year 2030

View Details

Sort:

Delivery Year
2029

e-M

GPC

POSTED

Consolidated PIU for Multiple Vessels

Fleet of 25 vessels: MT Horizon 525, MT Valiant 510, MT Valiant 997, MV Nordic 765, CS Odyssey 417, CS Navigator 946, MV Neptune 593, MT Atlantis 123, CS Liberty 574, MT Mercury 925, MT Liberty 1474, MT Phoenix 1778, MT Phoenix 1482, MT Liberty 1094, MT

Matching Producer Offerings

For: e-Methane • GPC3 • 2030

1 Suggested Alternative Found

Sorted by match quality (highest first)

HTL Biofuels

GPC1

Different Fuel

Different Cert Type

Pre-Verification

30% • Possible Match

29,999
Certificates

Pre-Verification Offering

This offering is currently in pre-verification status. The producer has submitted preliminary data but full verification by an Accredited Verification Agent (AVA) has not yet been completed. **No bids can be placed at this time.**

You can express a note of interest to signal demand, which helps the producer justify the cost of verification and prioritize this offering for full AVA verification.

Note Interest in This Offering

Delivery Year
2029Origin
DKDestination
EUCarbon Intensity
3.50 gCO₂e/MJ

Producer

Kvasir Technologies • DK

Asking Price

€230.00 per certificate

Total: €6,899,770

View Full Details

Note Interest

Close



Authorised
Verification
Agent

- Providing Price Discovery Advice and support to buyers and sellers
- Gate keeping Issuance status by Verifying Claims of Provenance
- Managing Registry Changes
- Integrating with Compliance Submissions Services [FuelEU, EU ETS, IMO...]



Request a Demo

- Upload your production data
- Automate Price Discovery
- Create Pending Issuance Units
- Supported Verification
- Complete Full Placement and Match to Multiple Buyers
- Close forward contracts at optimal prices

Thank you

Peter Ellen
CEO H2C

peter@first-carbon.com
+44 7921 520405

info@h2c.org

www.h2c.org