The Evolution of Reefer Operations

MCI Reefer Conference 2025

STAR COOL

Sustainability Leaps in Reefer Operations

The Evolution of Reefer Operations
MCI Reefer Conference 2025

Flensburg

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SPEAKER

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CHIEF TRADER, GREEN FUELS &
TEAM LEAD

Location: Middelfart
Education: cand.merc finance
3 years experience in Commodities
15 years experience in Fixed Income

USTC | UNITED SHIPPING TRADING COMPANY

USTC GROUP

The USTC Group is owned by Torben Østergaard, Nina Østergaard and Mia Østergaard, and is represented by 90+ own offices in 30+ countries.
Based in Middelfart, Denmark, United Shipping & Trading Company (USTC) is active in the following areas:

- Supply of fuel to the shipping market
- Energy Risk Management
- Door-to-door logistic solutions
- Tanker shipping
- IT
- Advertising

USTC ORGANISATIONAL CHART

GLOBAL RISK MANAGEMENT | WHO WE ARE

Global Risk Management is a leading provider of customised hedging solutions for the management of price risk on energy expenses.

Combining in-depth knowledge of the energy market, finance and transport, we work with clients to protect their margins from the risk posed by notoriously volatile energy prices.

The Global Risk Management Group consists of three companies of which one is licensed with the Danish FSA as an **investment firm**. This means that we are subject to the rules and regulations of MiFID II (Markets in Financial Instruments Directive) in the EU area. MiFID legislation regulates firms providing services to clients linked to "financial instruments" – like we do with energy price hedging.

GLOBAL RISK MANAGEMENT

TRADING PRODUCTS | OIL & NON-OIL

OIL

- Fuel Oil
- Middle distillates
- Light ends
- Brent
- Gasoil
- Varity of products

NON-OIL

- Long Term Power
- Carbon Certificates
  - EUA
  - UKA
- Biodiesel
  - RME
  - FAME
  - UCOME
  - HVO
- Coal

REGULATORY FRAMEWORK DRIVING THE GREEN TRANSITION

Implemented frameworks

EU ETS	Cap and trade of emission allowances
CII	Carbon intensity indicator rating
EEXI	Energy efficiency requirement for existing ship index
SEEMP III	Ship energy efficiency management plan
EEDI	Energy Efficiency Design Index

Fleet/vessel emissions

Implemented in 2025

FuelEU Maritime	Operational requirement on GHG intensity

Upcoming

IMO Net-Zero Framework	Combination of mandatory GHG intensity requirements and emissions pricing (Final adoption October 2025; entering into force March 2027)

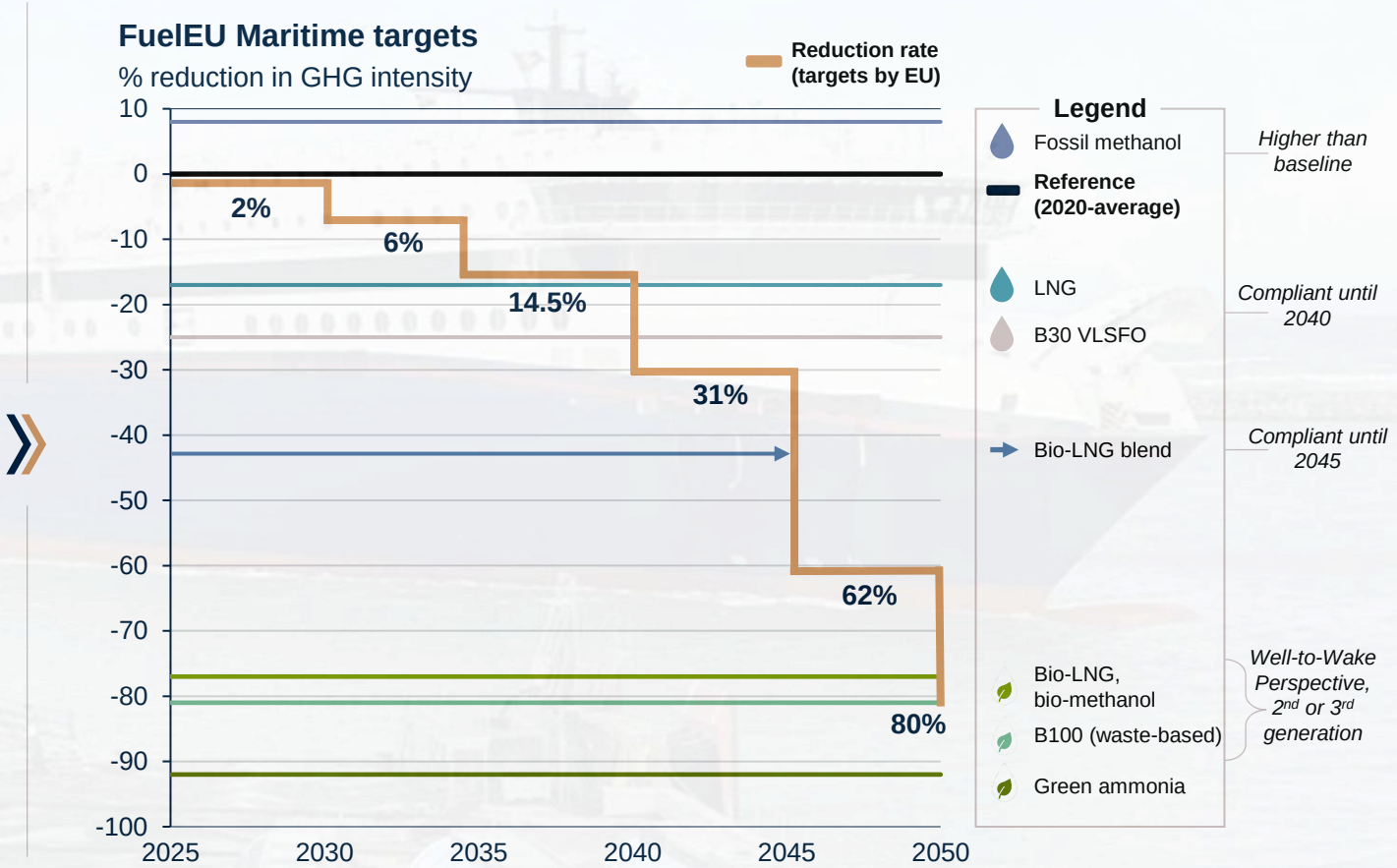
COMPLIANCE WITH FUELEU MARITIME

FEUM GOAL: TO INCREASE THE USE OF RENEWABLE AND LOW-CARBON FUELS AND REDUCE GHG EMISSIONS FROM THE MARITIME SECTOR

Requirement to the yearly average Well-to-Wake GHG intensity of energy used on-board:

- All ships above 5,000 GT transporting passengers or cargo (equals to 55% of all ships and 90% of all emissions from the maritime sector)
- 50% of energy use into or out of EEA, 100% of energy use between and within EEA ports.
- Compliance can be banked, borrowed and pooled.
- Potential mandatory 2% RFNBO* use from 2034.
- Penalty of 2.400 EUR x non-compliant emissions in tonnes VLSFO-equivalent.

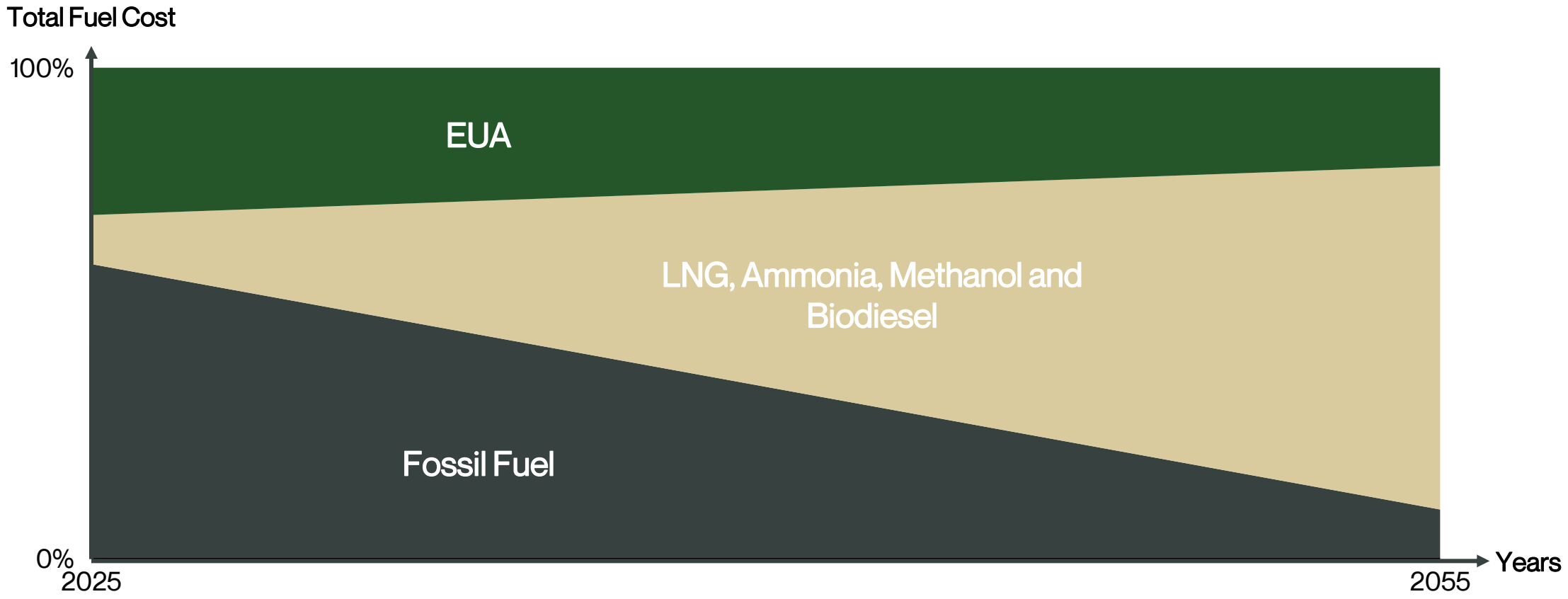
Consideration of EU ETS & FuelEU Maritime



*RFNBO: Renewable liquid and gaseous fuels of non-biological origin.

FUEL COST COMPOSITION | EU MARITIME

FUEL COST COMPOSITION GOING FORWARD



Platts global bunker fuel cost calculator

Monthly average cost, March 2025

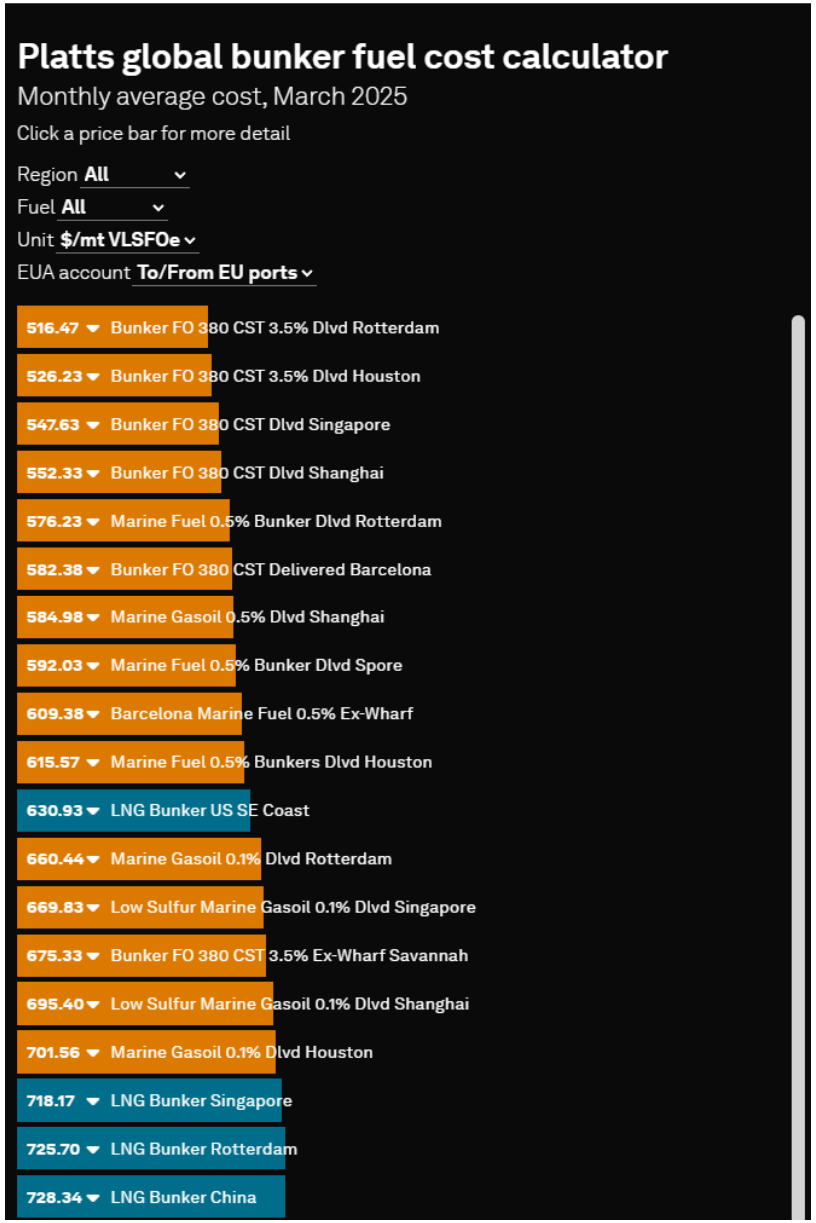
Click a price bar for more detail

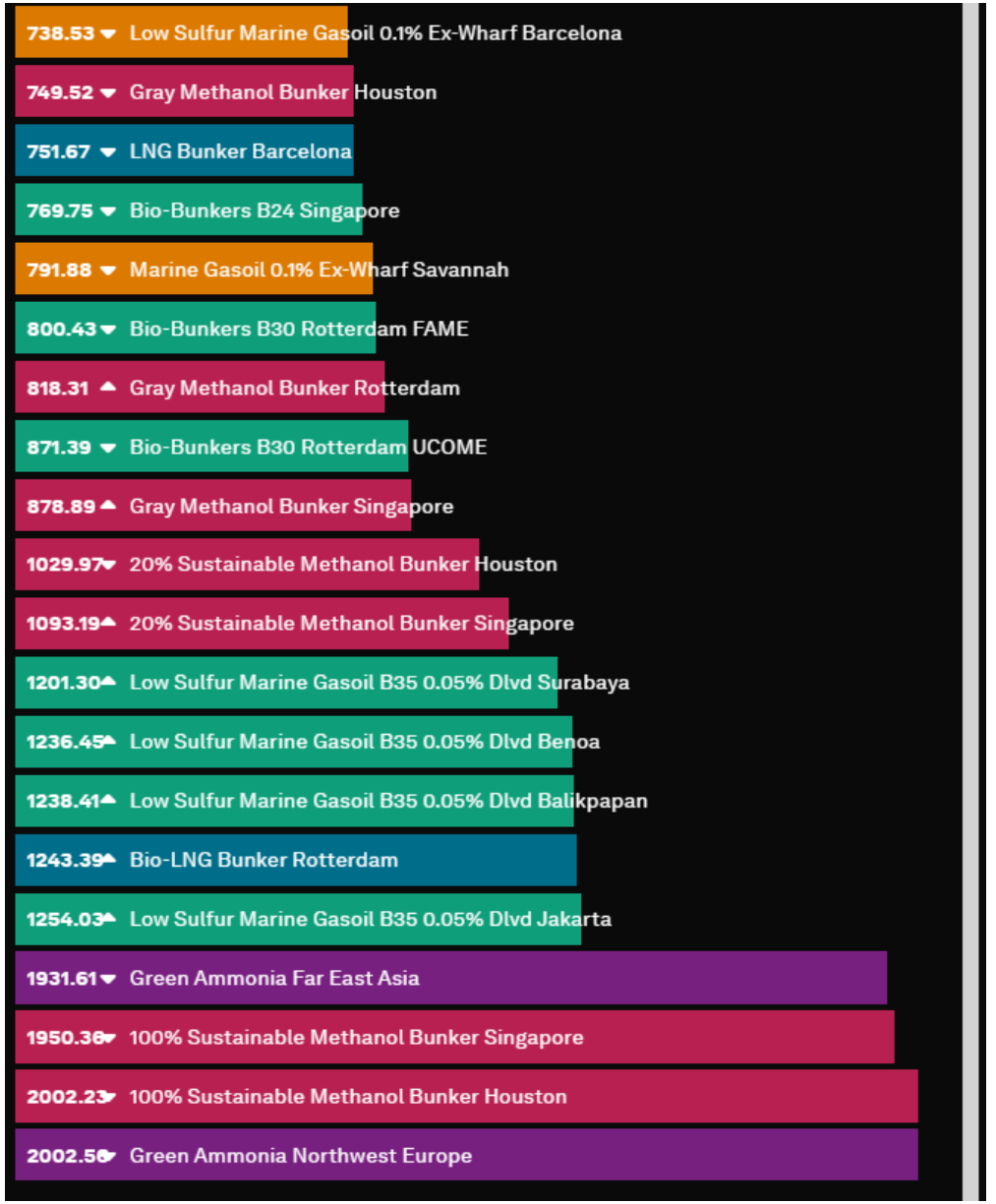
Region **All**

Fuel **All**

Unit **$/mt VLSFOe**

EUA account **To/From EU ports**





RELEVANT FEEDSTOCKS AND BIOFUELS FOR THE MARINE SECTOR

Feedstocks

1st generation:
Edible biomass, food crops, e.g. soybean oil, rapeseed oil, palm oil

2nd generation:
Non-food crops and waste biomass, e.g. used cooking oil, tallow, POME, damaged crops, cover crops, residual oils

3rd generation:
Algal biomass

Most relevant feedstocks for Marine[1]

Processing technology and End-product

BIODIESEL (FAME)
Through transesterification glycerine is separated from the feedstock, which creates fatty acid methyl esters (FAME).

HVO (RENEWABLE DIESEL)
Produced by hydrogenation and hydrocracking of feedstocks using hydrogen and catalysts.

CO-PROCESSED MARINE GASOIL
Refining through co-processing of feedstocks together with fossil oil in a fossil fuel refinery.

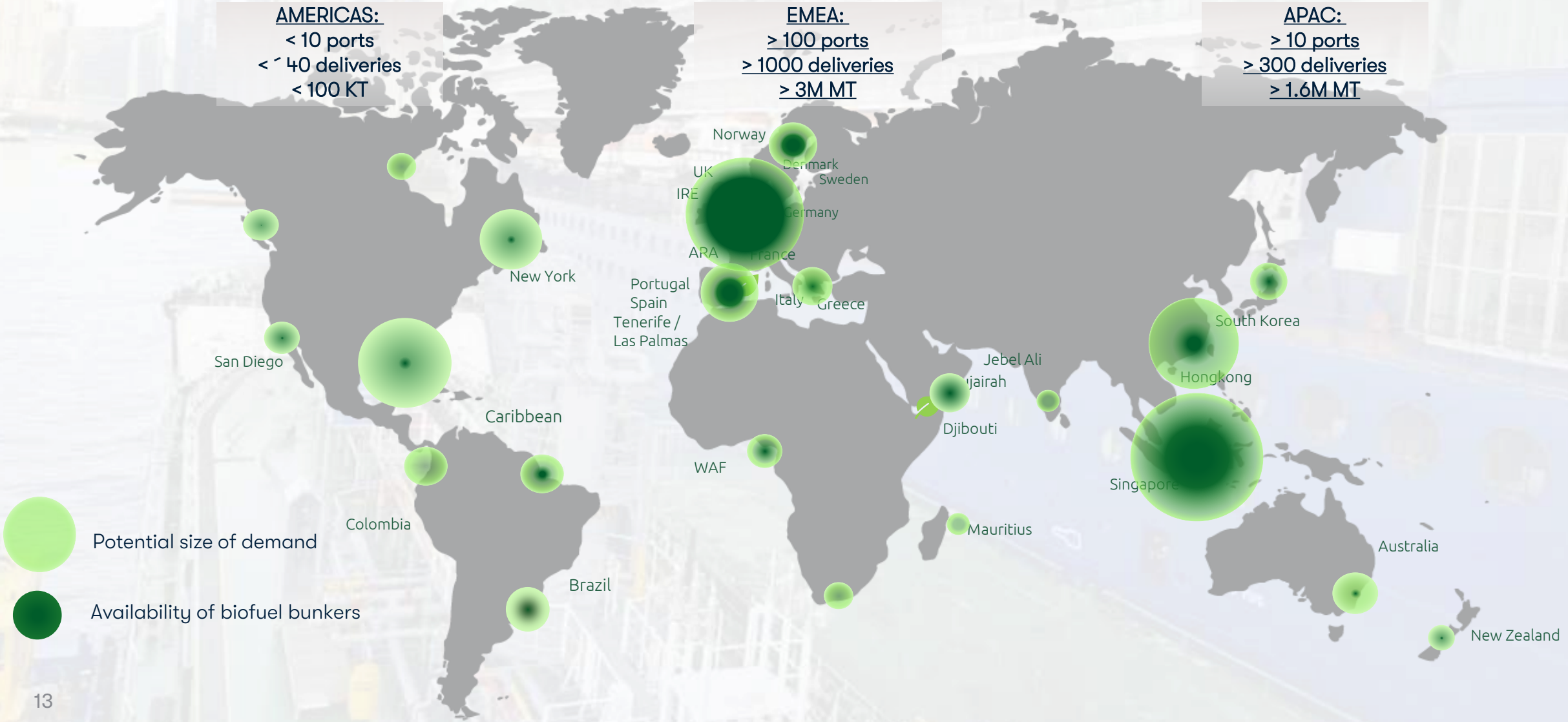
BLENDED PRODUCTS (Biofuels + Gasoil/Fuel Oil)
Meeting ISO 8217 specs, except the FAME content.

FAME = Fatty Acid **M**ethyl **E**ster = Biodiesel

Feedstocks	Type of Biofuel	End-product	
UCO: Used cooking oil	FAME (Biodiesel)	UCO**ME**	Biodiesel from used cooking oil
Tallow: Animal fat	FAME (Biodiesel)	T**ME**	Biodiesel from animal fats
POME – Palm oil mill effluent	FAME (Biodiesel)	POME**ME**	Biodiesel from POME

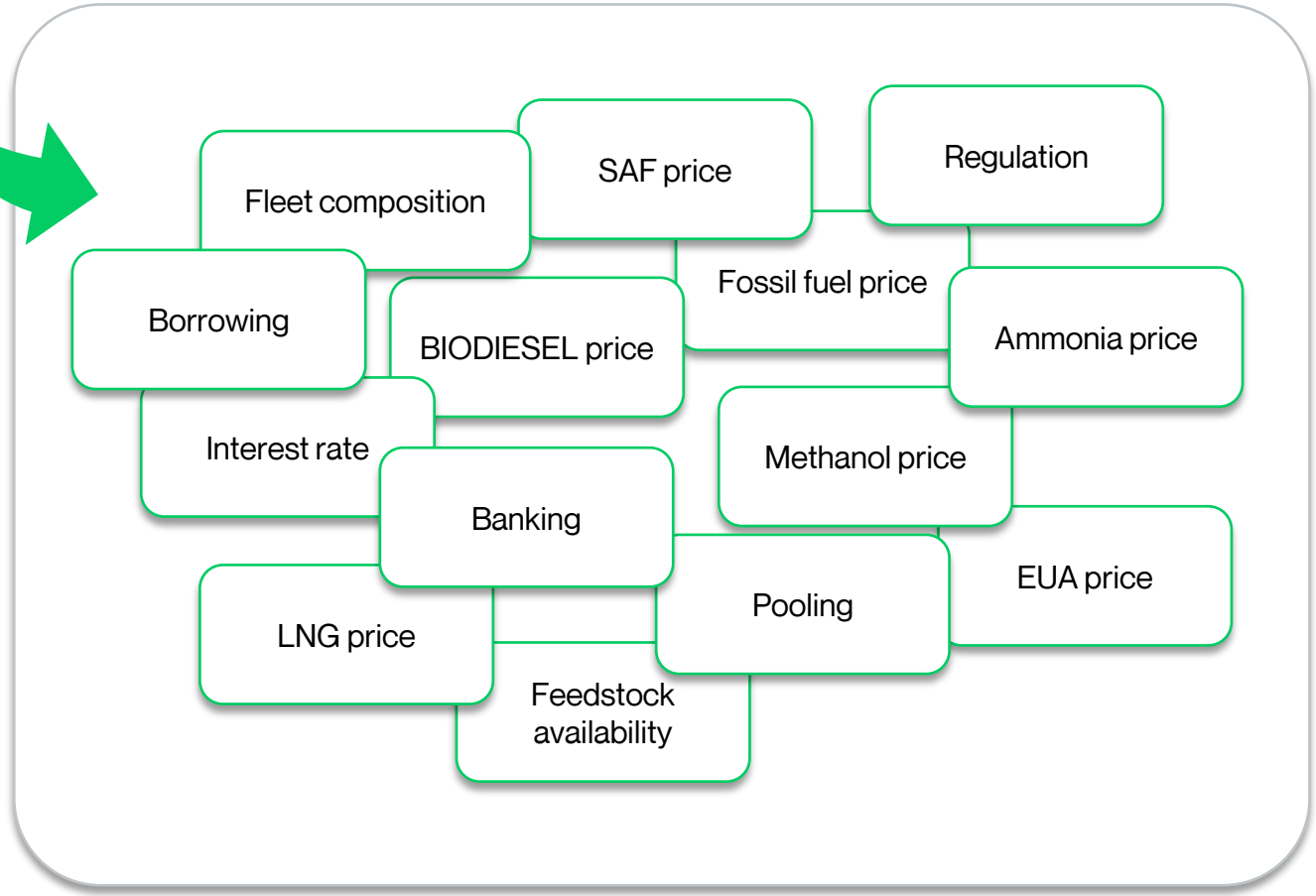
1: Fuel EU Maritime excludes 1st generation feedstocks. IMO requires min. 65% GHG savings of biofuel.

GLOBAL MARINE BIOFUELS SUPPLY MAP

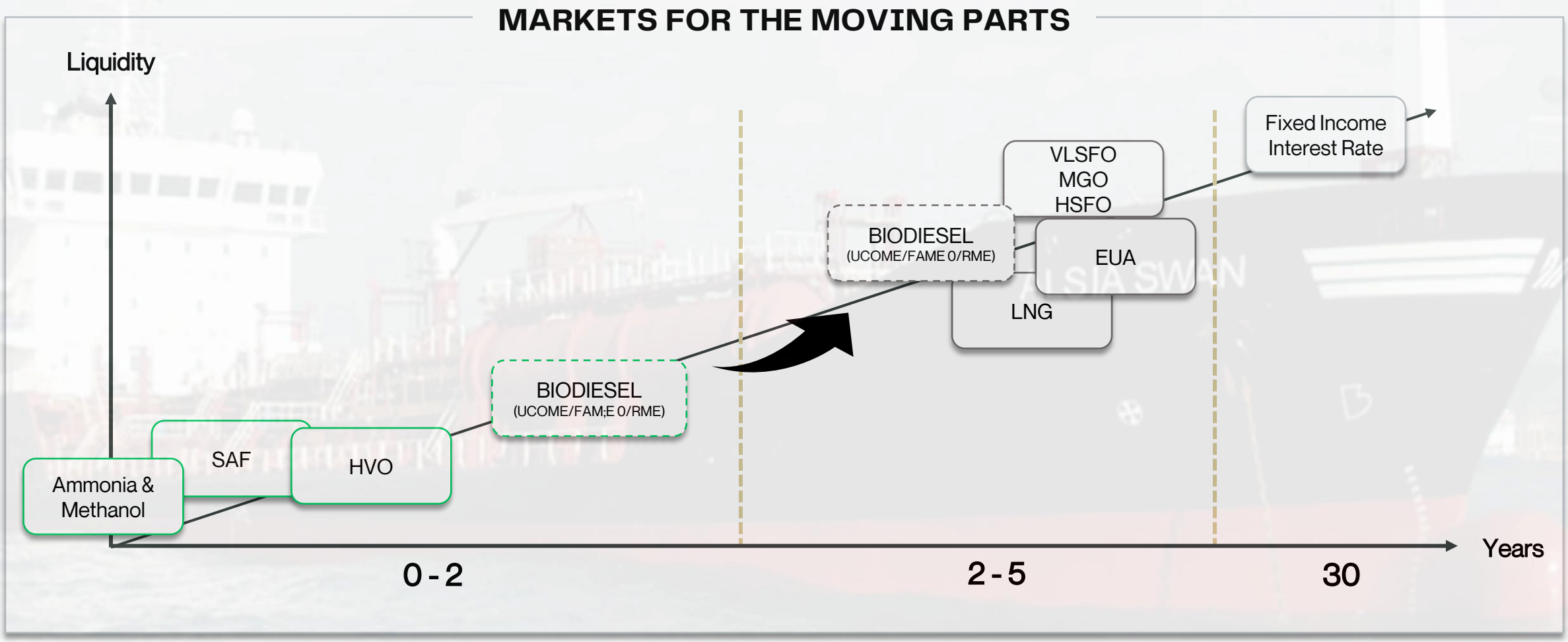


RISK MANAGEMENT | FUEL EU MARITIME

- Complex task to optimize fuelmix – lots of moving parts
- Pointing 30 years out in time (80% GHG reduction)
- Short-, medium- and long-term optimization
- Approach: run cost scenarios given time-horizon, your fleet composition + forward curves
- Additionally, consider regulation, pooling, banking, and borrowing.
- Apply hedging strategy to lock in price risk you do not like



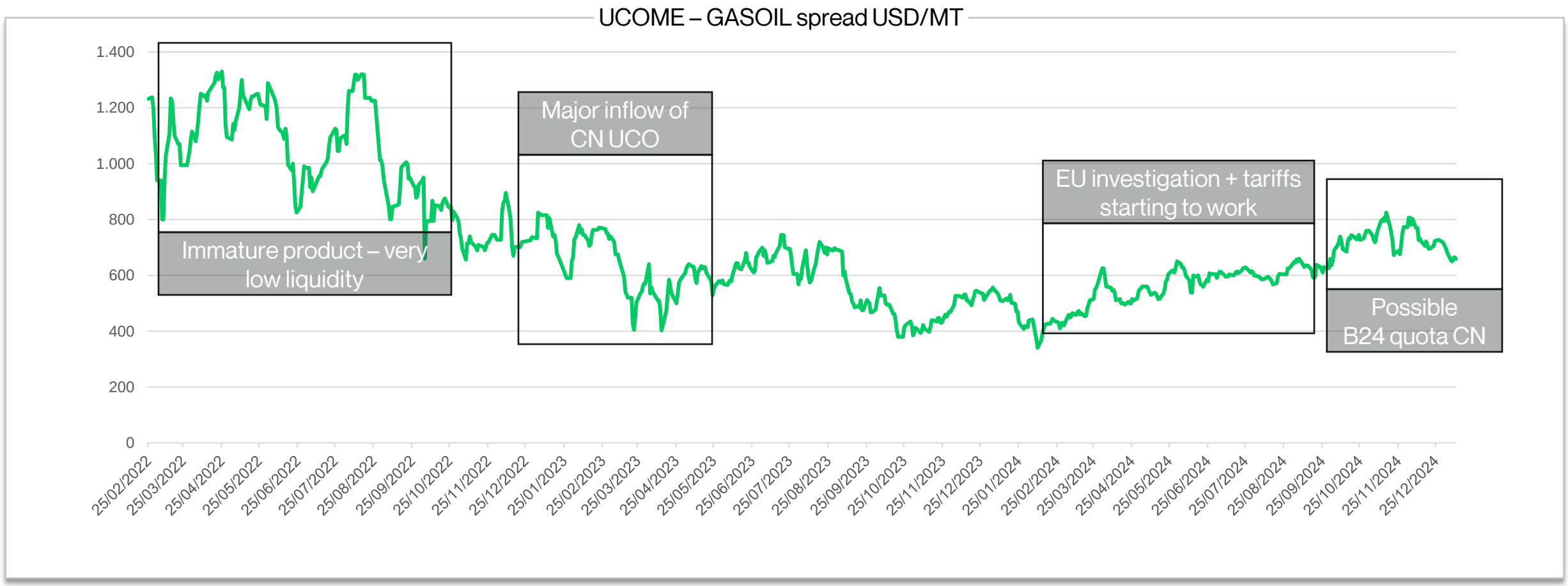
FORWARD MARKETS | TENOR & LIQUIDITY



BIOFUELS MARKETS | OVERVIEW

	Main Feedstocks	Fixing Provider	Liquidity, mt (Tradeable)	Tenor ICE GRM capabilities	Open Interest Monthly contract size 100t (ICE)
RME – Rapeseed Oil Methyl Ester	Rapeseed	Argus (Platts)	1k – 10/15k	Up to 18m GRM 36-60m	10.500 approx. 1m MT
FAME 0 – Fatty Acid Methyl Ester 0°C	Soybean, Veggie oil, Animal fat and tallow	Argus (Platts)	1k – 10/15k	Up to 18m GRM 36-60m	11.000
UCOME – Used Cooking Oil Methyl Ester	Used Cooking Oil (UCO)	Argus	1k – 10/15k	Up to 18m GRM 36-60m	11.300
HVO – Hydrotreated Vegetable Oil	UCO, RME, Vegetabel oil, Animal fats, Waste	Argus	500mt – 2k	Up to 9-12m GRM 12-18m	945 contracts
SAF – Sustainable Aviation Fuel	UCO, RME, Vegetable oil, Animal fats, Waste	Argus	500mt-1kt	1 – 3 months	-
E-methanol	Green Hydrogen	Weekly price assessment by Argus	-	-	-

PRICE DRIVERS | UCOME



BENEFITS OF BIOFUELS FOR MARINE

Drop-in fuel that can be used in existing ship engines without modifications to the engine

Globally tested by laboratories, shipping companies and bunker suppliers

Approved by most OEM & accepted by IMO in blends up to B100

ISCC certification ensures compliance with sustainability criteria throughout the entire supply chain

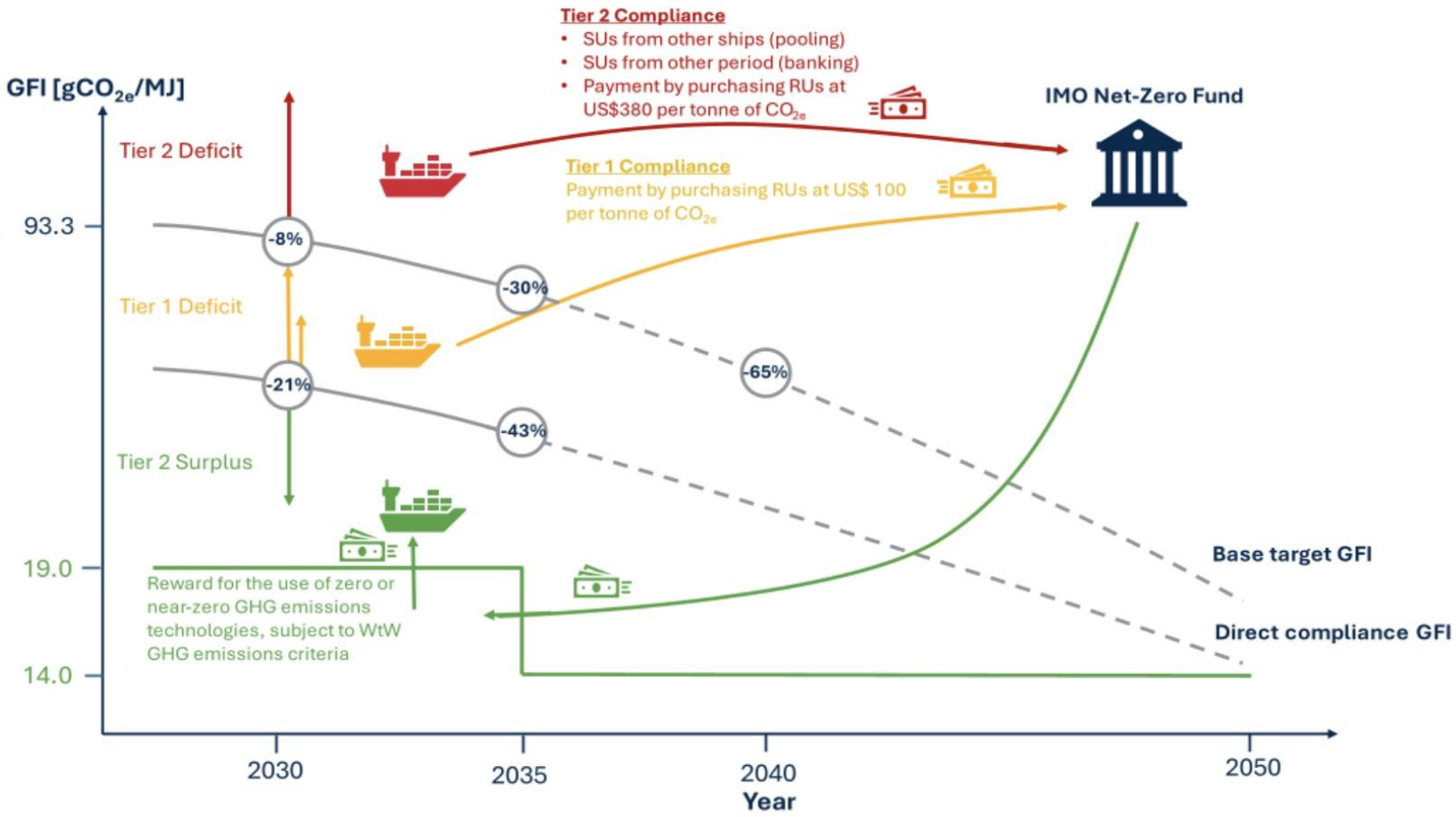
Excellent fuel characteristics

- ✓ Better ignition and combustion properties
- ✓ Improved lubricity and good cold flow properties
- ✓ Reduction in Particulate Matters and Black Carbon
- ✓ Reduction in GHG emission

Proven pathway to IMO and FuelEU Maritime compliance

Helps fulfil customers ESG targets and sustainability linked loans

IMO SHUFFLES ALL? CANCEL FUEL EU MARITIME??
IMO NET-ZERO GFI



IMO NET-ZERO FRAMEWORK (EXAMPLE)

Fuel	VLSFO	MGO	HSFO	LNG DF SS	Bio LNG DF SS	B30 VLSFO	B100	LC Methanol	LC Ammonia
WtW GHG Intensity	95.48	93.93	92.78	76.09	1.40	74.47	16.37	19.00	19.00

2028	Fuel Cost ($/MT)	500	650	420	620	2050	620	1500	950	900
	RU2 Cost ($)	90	71	49	0	0	0	0	0	0
	RU1 Cost ($)	49	52	49	0	0	0	0	0	0
	SU ($)	0	0	0	-19	-1095	-35	-678	-349	-326
	ZNZ reward ($)	0	0	0	0	-1460	0	-904	-465	-435
	Total Cost ($)	639	773	518	601	-505	585	-82	136	139
	Total Cost ($) VLSFOeq	**639**	**751**	**533**	**519**	**-437**	**618**	**-92**	**284**	**310**
2030	Fuel Cost ($/MT)	525	680	440	650	2600	950	1900	1000	1000
	RU2 Cost ($)	147	131	106	0	0	0	0	0	0
	RU1 Cost ($)	49	52	49	11	0	3	0	0	0
	SU ($)	0	0	0	0	-1041	0	-636	-327	-305
	ZNZ reward ($)	0	0	0	0	-1388	0	-849	-435	-407
	Total Cost ($)	721	863	595	661	170	953	415	238	288
	Total Cost ($) VLSFOeq	**721**	**839**	**612**	**572**	**147**	**1006**	**465**	**496**	**642**

SU ($/CO2eq)	300
ZNZ reward ($/CO2eq)	400

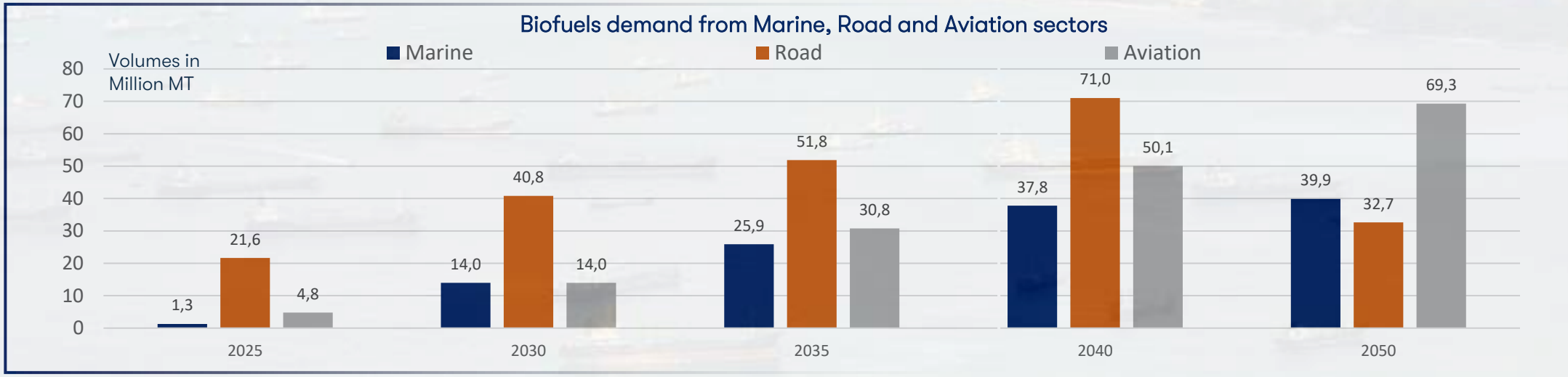
Fuel type	VLSFOeq factor
VLSFO	1
HSFO	1.029
MGO	0.972
LNG	0.865
B30 VLSFO	1.056
B100	1.122
Methanol	2.085
Ammonia	2.231

Indicative values

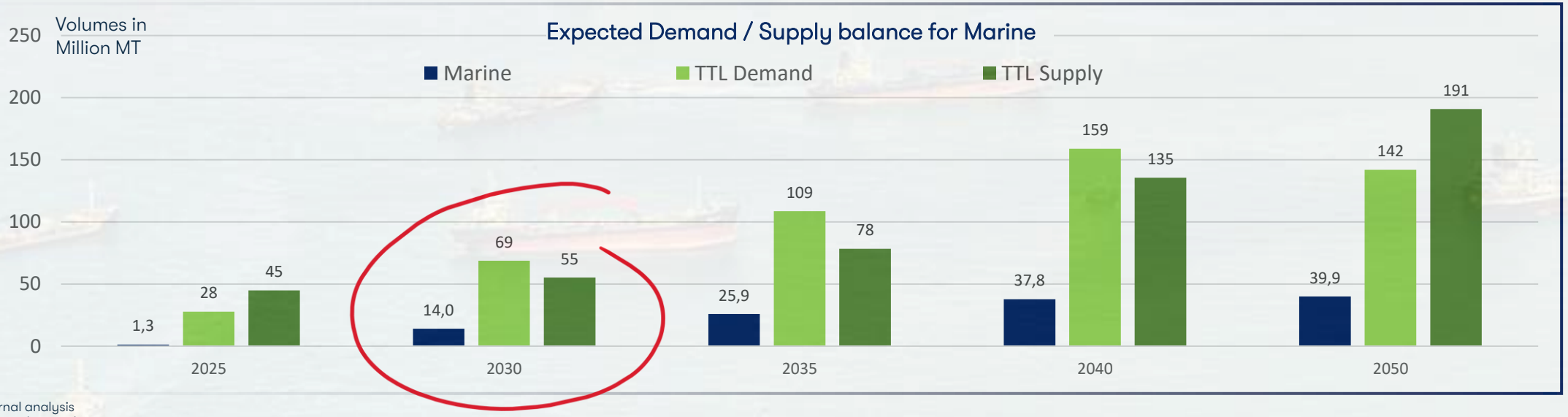
VLSFO, MGO and HSFO – Default factors based on MEPC 391(81)
LNG WtT – 17.4 gCO2eq/MJ (not confimed and not in MEPC 391(81)
Bio-LNG – 0 gCO2eq/MJ on PoS and using same WtW formula as FEUM
Biofuel (FAME) – 84% GHG savings on PoS and using same WtW formula as FEUM
Methanol – LCV from FEUM

MARINE BIOFUELS* DEMAND/SUPPLY BALANCE

WITH INCREASING DEMAND FROM COMPETING SECTORS, CONVENTIONAL BIOFUELS ARE EXPECTED TO BE SHORT AS OF 2030, IF NOT EARLIER



Accessing and processing of alternative feedstocks is crucial to close the supply gap



Source: BHG Internal analysis
* Considering only 2nd and 3rd generation feedstocks (RED II Annex IX A and B)
**not factoring in LNG dual fuel vessels
*** Fuel EU Maritime excludes 1st generation feedstocks. IMO requires min. 65% GHG savings of biofuel.

THANK YOU ALL FOR YOUR TIME

We wish you a pleasant day!

But before you go...

any quest?ons

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