HMM's response to the challenges in shipping industry

2024.10

Contents

Alliance

Less Players - Oligopolistic Market

- In 2010, 20 Carriers competed in East-West Trade
- Merger / Acquisition / Bankruptcy

  → Only 10 Carriers survived in 2024

Increased Scale – Mega Carrier

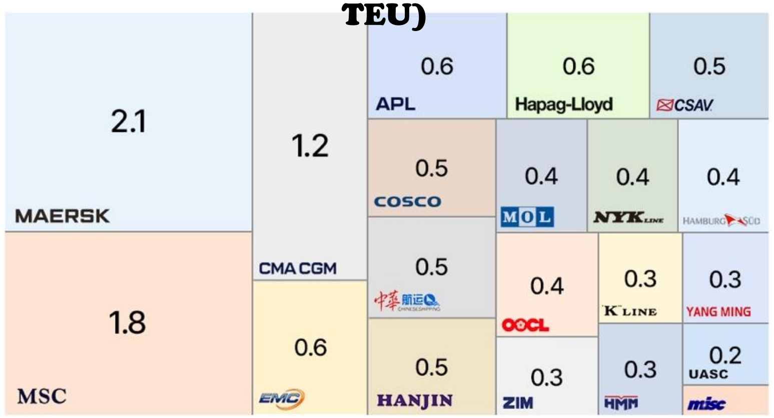
- Largest carrier :

  2.1 mil. TEU in 2010 → 6.1 mil. TEU in 2024

- Market Share of Top 10 Carrier :

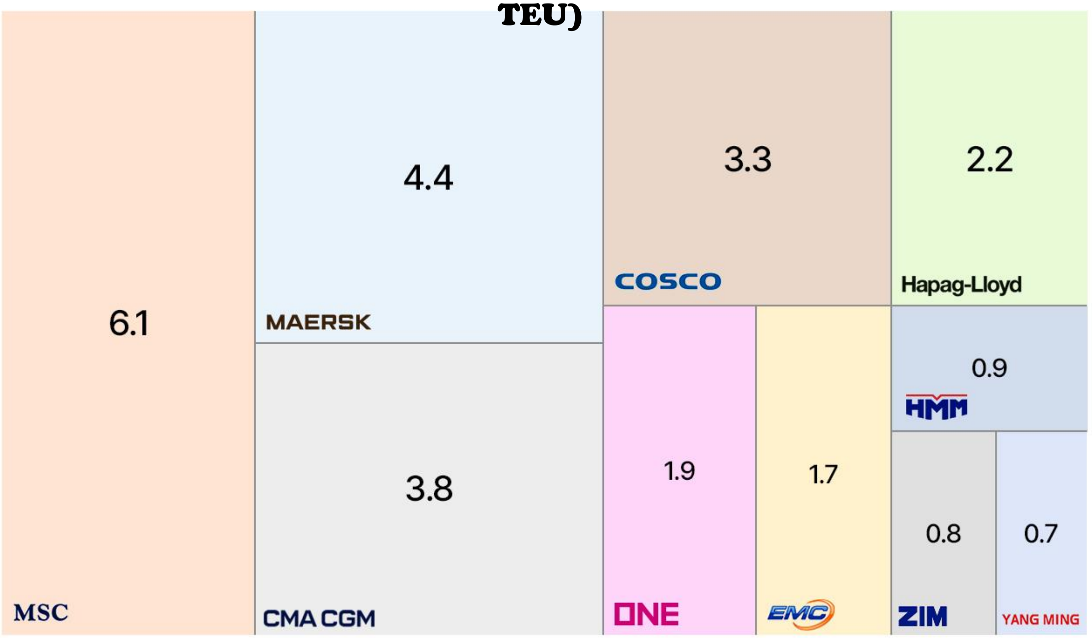
  61% in 2010 → 84% in 2024

2010 Top 20 Carriers (12.0 mil. TEU)



* Total Capacity : 14.6mil. TEU

2024 Top 10 Carriers (25.8 mil. TEU)



* Total Capacity : 30.6mil. TEU

Alliance

Shift of Alliance Structure

- **[1996 - 2010]**

  Alliance among Mid-tier Carriers

  + Independent Carriers

- **[Mid 2010]**

  Mega Alliance up to 5~6 members in a group

- **[2025 -]**

  Mega Carrier (MSC) vs. Mega Alliance among

  2~3 members in a group

2010

TNWA (3)
HMM
APL
MOL

GRAND Alliance (4)
Hapag-Lloyd
NYK LINE
OOCL
misc

CKYH (4)
COSCO
"K" LINE
YANG MING
HANJIN

Independent Carrier (9)
MAERSK
MSC
CMA CGM
EVERGREEN
中華航运 CHINESESHIPPING
UASC
ZIM
HAMBURG SÜD
CSAV

2015

G6 (6)
HMM
MOL
APL
NYK LINE
Hapag-Lloyd
OOCL

CKYHE (5)
COSCO
"K" LINE
YANG MING
HANJIN
EVERGREEN

2M (2)
MAERSK
MSC

O3 Alliance (3)
CMA CGM
UASC
中華航运 CHINESESHIPPING

Independent Carrier (2)
ZIM
HAMBURG SÜD

2025

Premier Alliance (3)
HMM
ONE
YANG MING

Ocean Alliance (3)
CMA CGM
COSCO
EVERGREEN

Gemini (2)
MAERSK
Hapag-Lloyd

Independent Carrier (2)
MSC
ZIM

Implications for Future Market Trend

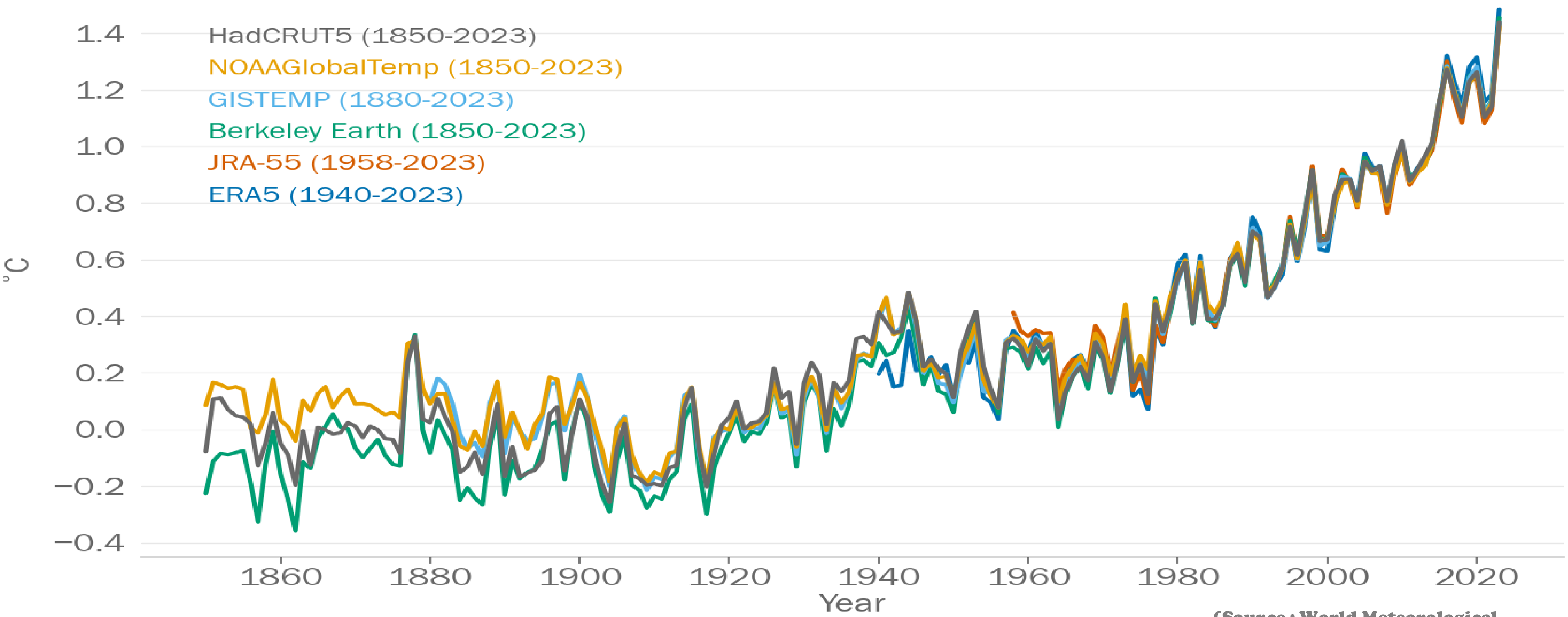
The strong gets stronger, the market won`t allow new player easily

Carrier	Total Fleet (,000 TEU, a)	Orderbook (,000 TEU, b)	Aged Vessel Over 20 years (,000 TEU, c)	% of aged vessel from total fleet (c/a)	% of aged vessel from orderbook(c/b)
MSC	6,077	1,996	1,000	16.5%	50.1%
Maersk	4,359	425	419	9.6%	98.6%
CMA CGM	3,829	1,060	145	3.8%	13.7%
COSCO	3,268	770	192	5.9%	24.9%
Hapag Lloyd	2,227	176	126	5.7%	71.5%
ONE	1,928	596	12	0.6%	2.0%
Evergreen	1,697	661	116	6.8%	17.5%
HMM	899	125	0	0.0%	0.0%
ZIM	753	78	20	2.7%	25.6%
Yang Ming	695	44	61	8.8%	138.6%

Environmental Regulations

Despite Paris Agreement, global temperature has risen 1.4 degrees Celsius already

Global Mean Temperature Difference (°C) compared to 1850-1900 average



(Source : World Meteorological Organization)

Environmental Regulations

Global(IMO) and Local(EU) policy help in back and forth way

2013

EEDI(Energy Efficiency Design Index) :

- Technical measure for new ship

2023

(Eff. From Jan. 1, 2023)

EEXI (Energy Efficiency Existing Ship Index)

- Technical measure for existing ship

CII (Carbon Intensity Indicator)

2024

EU-ETS (Emission Trading System)

Shipping sector to be included in existing ETS since Jan 1, 2024

Council of the European Union

2025

FuelEU MARITIME

Increase low carbon / renewable fuel usage

Council of the European Union

2030

CO_2 Intensity : -40%

GHG : -20% ~ -30%

GHG :

-55% by 2030, compared to 1990 (Fit for 55)

Council of the European Union

2040

GHG : -70%~ -80%

2050

GHG : Net Zero

Carbon neutral by 2050

Council of the European Union

Environmental Regulations

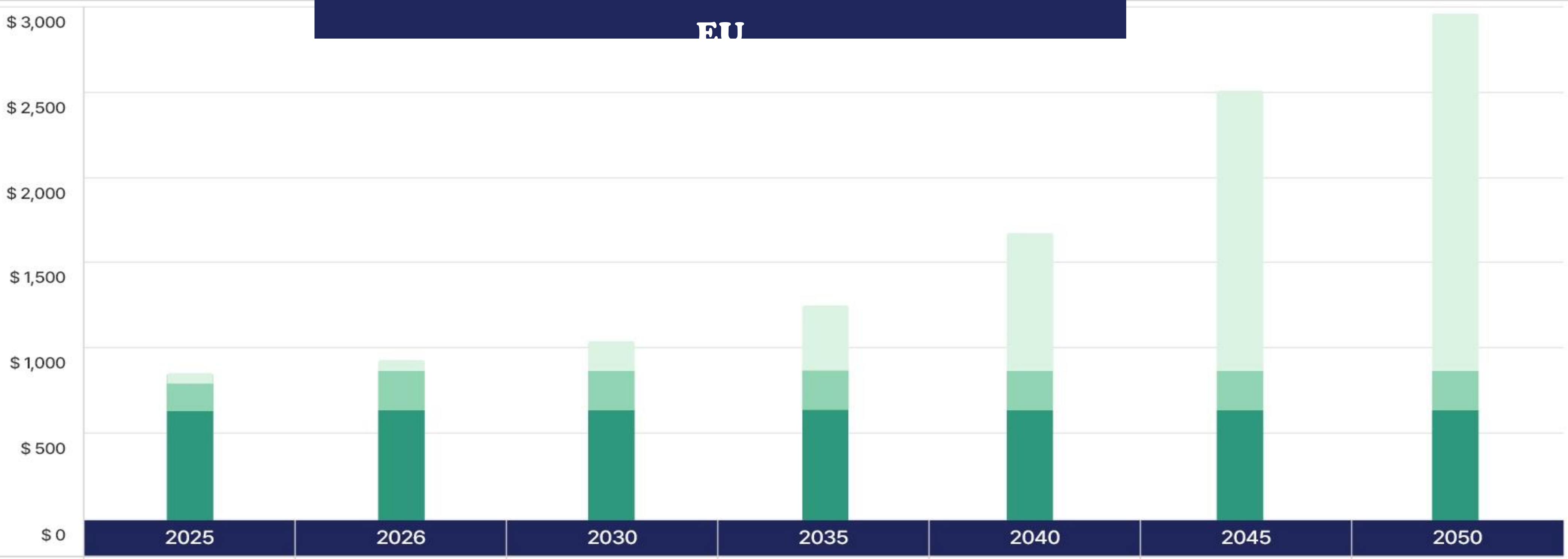
EU FIT FOR 55 policy requires at least 2 GHG emission reduction measure for shipping

Item	EU ETS	FuelEU Maritime
Target	Reducing total GHG emissions	Reducing carbon intensity within fuel
Implementation date	January 1, 2024	January 1, 2025
How to implement	Increasing the share of surrender EUA (2024 : 40%, 2025 : 70%, 2026 : 100%)	Strengthen criteria every 5 years
GHG	2024~2025 : CO2 2026 : CO2, CH4, N2O	CO2, CH4, N2O
Kind of emission factor	Tank to Wake	Well to Wake
What kind of cost	Purchasing cost of EUA	Purchasing alternative fuel
Management	Surrender EUA for each vessel	Compliance Pooling, Borrowing, Banking
Penalty	€100/CO2 if there is no surrender of EUA	Penalty for non-compliance
Additional Requirement	-	Shore power from 2030

Environmental Regulations

Additional cost shall be included in your bill while using fuel

Total cost while using 1ton VLSFO within Intra EU



	2025	2026	2030	2035	2040	2045	2050
Fuel EU Maritime	$ 59	$ 59	$ 165	$ 389	$ 823	$ 1,639	$ 2,113
EU ETS	$ 158	$ 229	$ 229	$ 229	$ 229	$ 229	$ 229
Fuel Cost	$ 630	$ 630	$ 630	$ 630	$ 630	$ 630	$ 630

Fuel EU Maritime   EU ETS   Fuel Cost

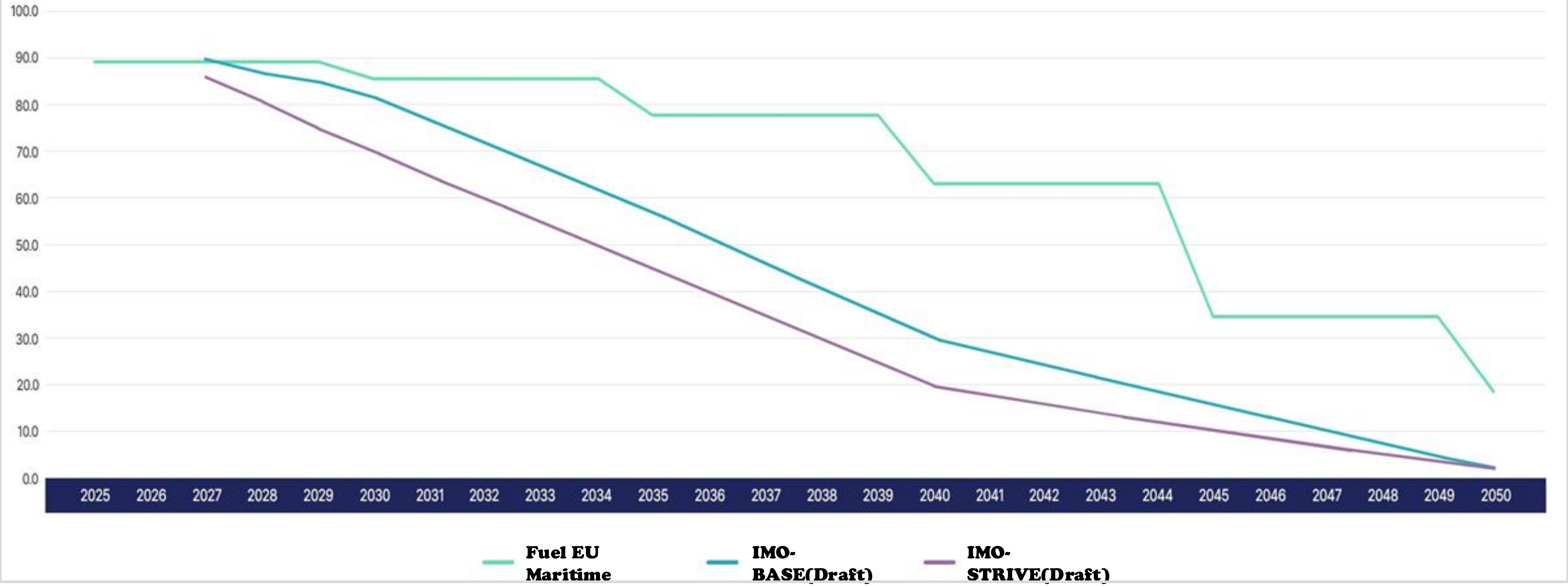
* VLSFO $630/Ton, EUA : €65/T CO2, FuelEU Maritime Penalty : €2400/non-compliance unit, EURO→USD : 1.1

Environmental Regulations

IMO will adopt mid term measure(basket) by 2025

GFS(GHG Fuel Standard) + Carbon Levy will be imposed from 2027?

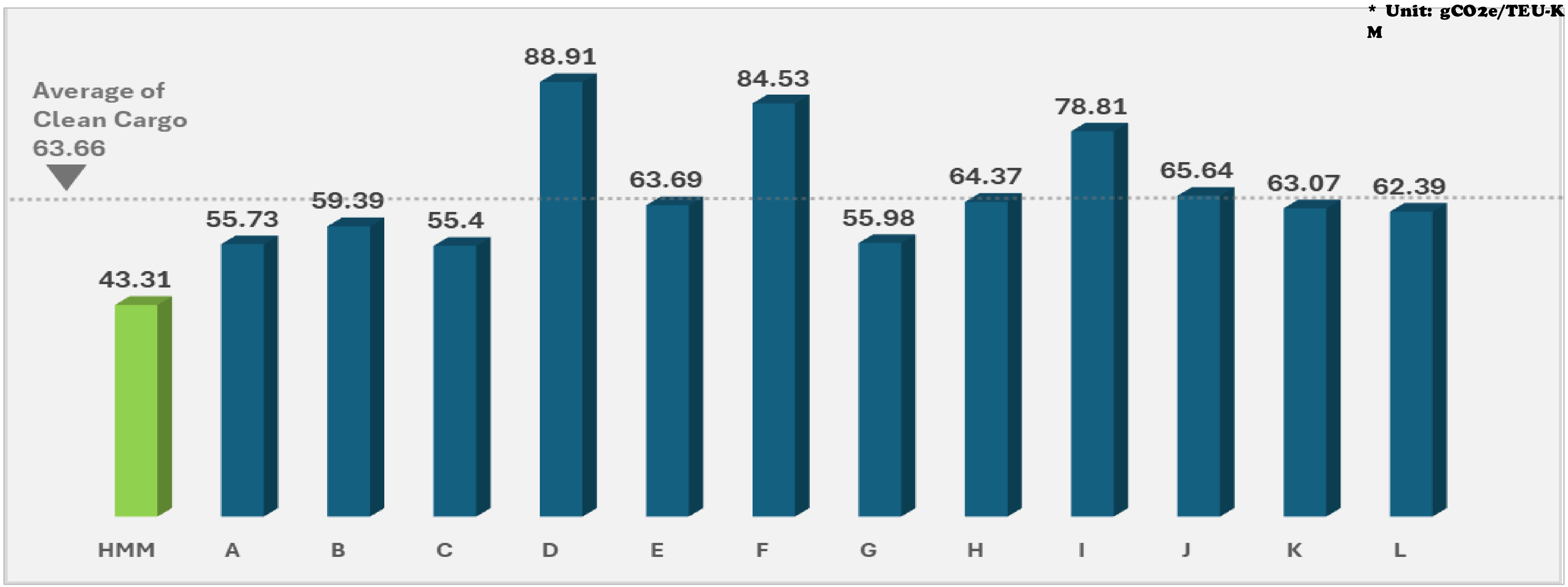
Carbon Intensity Target (g CO2eq/MJ)



HMM's Response to the Challanges

HMM Recognitions : 'No.1' in GHG Emission Intensities (Average of Trade Lanes)

GHG Emission Intensities (Average of Trade Lanes)



(Source : Clean Cargo 2023)

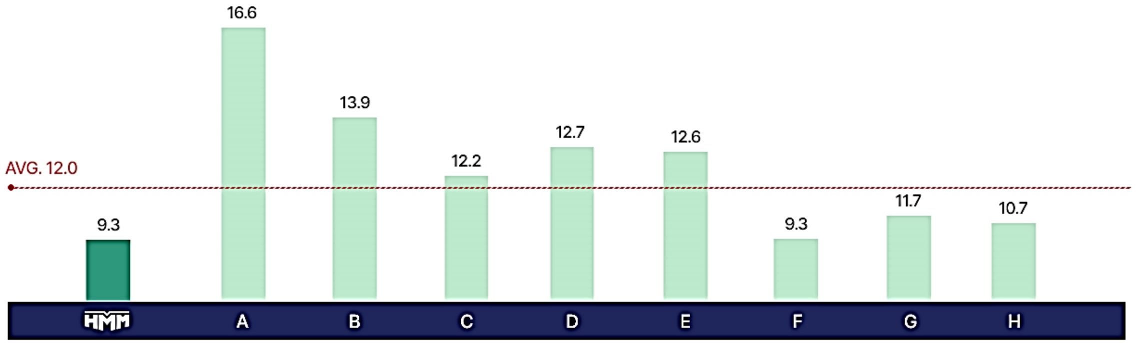
HMM's Response to the Challanges

HMM fleets are the youngest among the carriers, meaning more energy efficiency

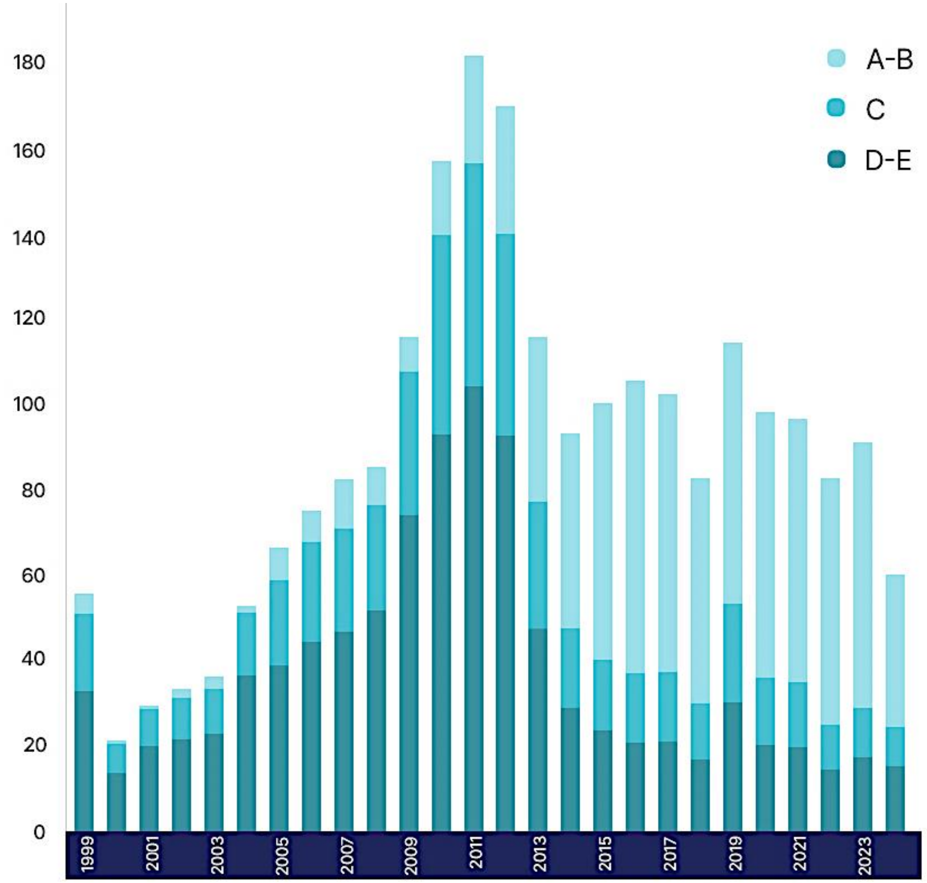
Fleet Age between HMM vs. Other Carriers

Rank	Carrier	Average age (Years)
1	F	9.3
2	HMM	9.3
3	H	10.7
4	G	11.7
5	C	12.2
6	E	12.6
7	D	12.7
8	B	13.9
9	A	16.6

* Raw data : Alphaliner (2024. 06.)



Fleet Age Profile By CII Rating, m dwt



* Source : Clarksons Fuelling Transition Oct.2024

HMM's Response to the Challanges

HMM has achieved both Economy of Scale and Lower CO2 emissions

Share of Larger Vessels(over 15K,18K) capacity(TEU) by carriers

*Raw data : Alphaliner(2024.06)

HMM's Response to the Challanges

Alternative Fuel vessels in Order

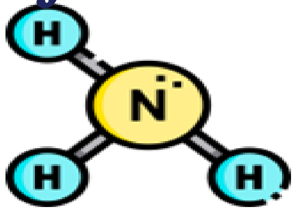
Methanol

LNG

Nine Methanol Fueled vessels 9,000 TEU x 9 , 2025 - 2026 Delivery

Two LNG Dual Fueled vessels 7,700 TEU x 2 , 2025 Delivery

On-Going Alternative Fuel Study



Ammonia

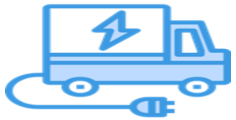
Formed Consortium for Green Ammonia Transport.

-HMM, Lotte Fine Chemical, Lotte Global Logistics, POSCO, Korea Shipbuilding & Offshore Engineering, Korean Register of Shipping

Studying alternative fueled ships with shipyard – Ammonia Engine development

MOU to cooperate on the development ships powered with Small Modular Reactors (SMRs)

All-Electric based trucking service in USA



Plan to set a JV company with logistics service provider in California to create an eco-friendly inland logistics network using all electric trucks

*California Air Resources Board(CARB) aims for 100% zero-emission in transportation by 2035

HMM

HMM will reach to Net Zero by 2045, 5 years ahead of global target

HMM Net Zero Map

HMM NetZero

2021
- Secured highly-efficient, very large container ships

2022
- Launched ESG Management Commi ttee
- Formed Alternative Fuels Task Force Team

2023
- Upgraded our carbon calculator for the supply chain
- Started a service that utilizes biofuel, an d est-ablished a biofuel supply chain th rough MOU
- Launched HMM Green Sailing Service

2024
- Acquired global ESG evaluation ratin gs
  - Leadership level(A-) in CDP
  - Platinum Medal in EcoVadis
- Established GHG Inventory System
- Conduct a proof of concept of the On board Carbon Capture System(OCCS) for vessels
- Expand Biofuel usage and Green Sailing Se rvice

2025
- Delivery of LNG DF & Met hanol DF vessels

2030
- Reduce absolute GHG emissi ons compared to 2021
  - Maritime Operations: 7% reduct ion
  - Container Fleets: 26% reductio
- Secure low-carbon vesse ls
  - 40% of the total fleets

2045

HMM's Response to the Challanges

- **HMM to expand container fleet to 1,550,000TEU by 2030**
- **HMM will reach to economy of scale and be ready for environmental compliance with massive investment (KRW 11 Trillion)**

Year	Fleet	TEUs	over 10K Containerships	Dual Fuel Containerships
2024	82	905K	55%	-
2030	130	1,550K	↑70%	↑40%


HMM ALGECIRAS
HMM