Atlantic Bulk Carriers Management Ltd.

PANOS ZACHARIADIS
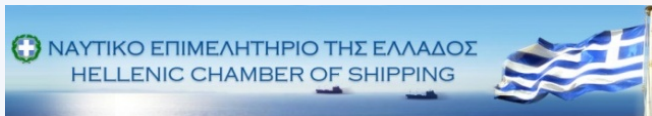### Technical Director, ABCML
Mechanical Engineer
Naval Architect and Marine Engineer (MSE)

BIMCO — *MARINE COMMITTEE*

ΝΑΥΤΙΚΟ ΕΠΙΜΕΛΗΤΗΡΙΟ ΤΗΣ ΕΛΛΑΔΟΣ / HELLENIC CHAMBER OF SHIPPING — ΕΕΕ — *TECHNICAL COMMITTEE*

ABS — Lloyd's Register — KR KOREAN REGISTER — *TECHNICAL COMMITTEE*

IMO INTERNATIONAL MARITIME ORGANIZATION — *DELEGATION OF GREECE*

MARTECMA — •HELMEPA• — *BOARD OF DIRECTORS*

Presentation

1st MARINE DAY

PART 1: Greek Shipping
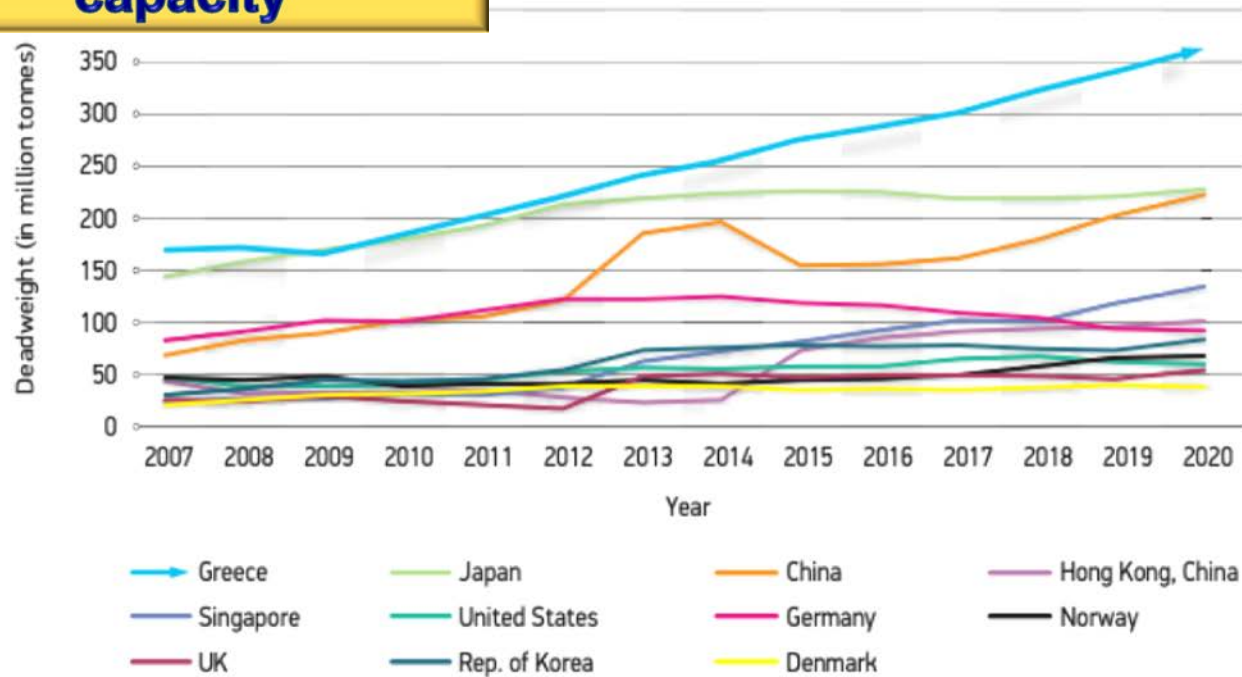
PART 2: International Regulatory Framework and IMO

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FIGURE 1
Ownership of the World Fleet, 2007 - 2020
(in dwt, ships >1,000 gt)
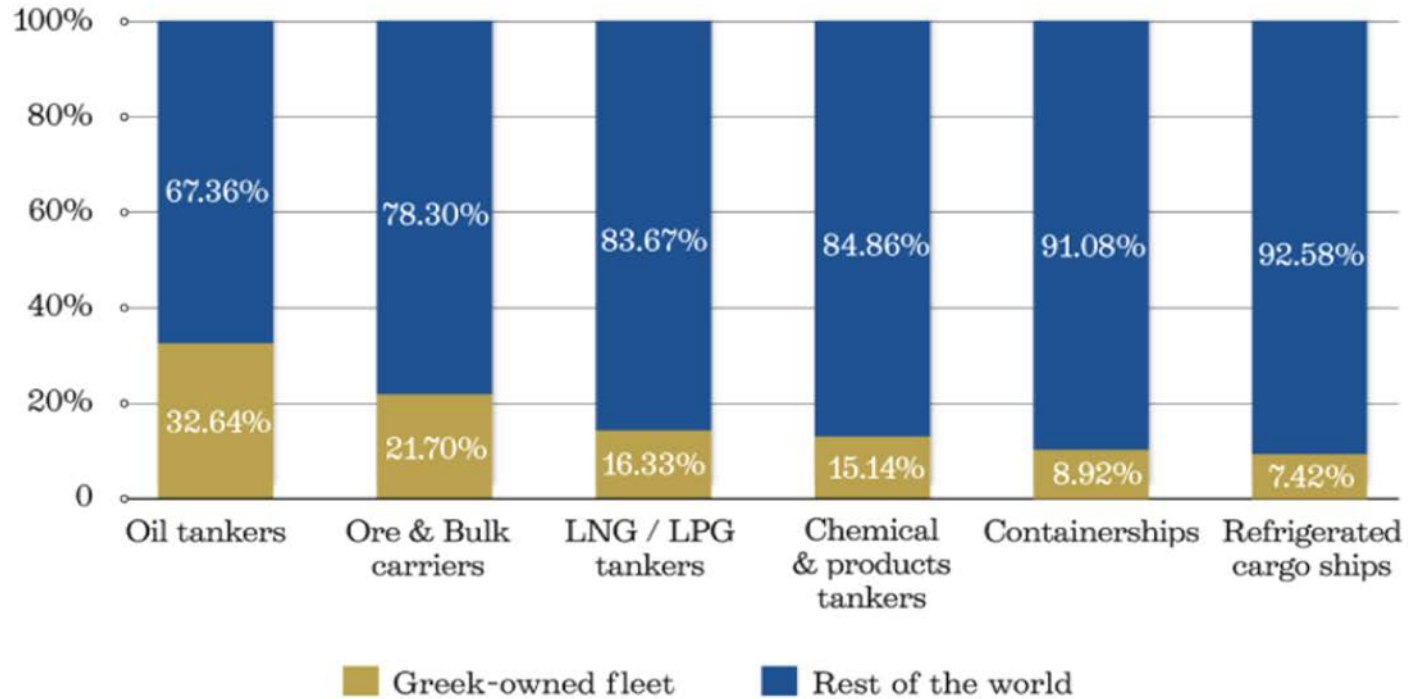
4,900 ships

20% of world transport capacity

Source: UNCTAD, Review of Maritime Transport, 2007-2020

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FIGURE 2
Ownership of the EU Merchant Fleet
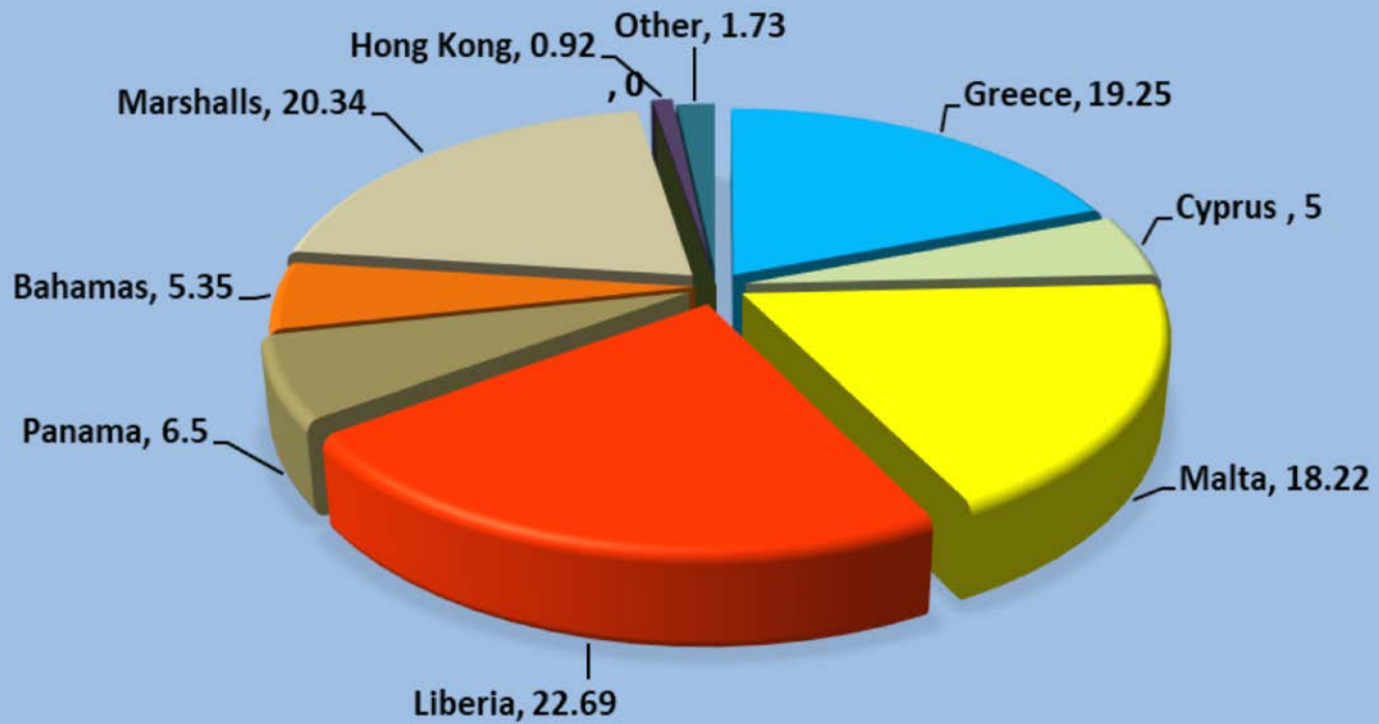(in dwt, ships >1,000 gt)

4.29%
2.44%
4.54%
1.76%
6.98%
7.34%
58.07%
14.58%

Greece
Germany
Italy
Denmark
Rest of EU
Belgium
France
Netherlands
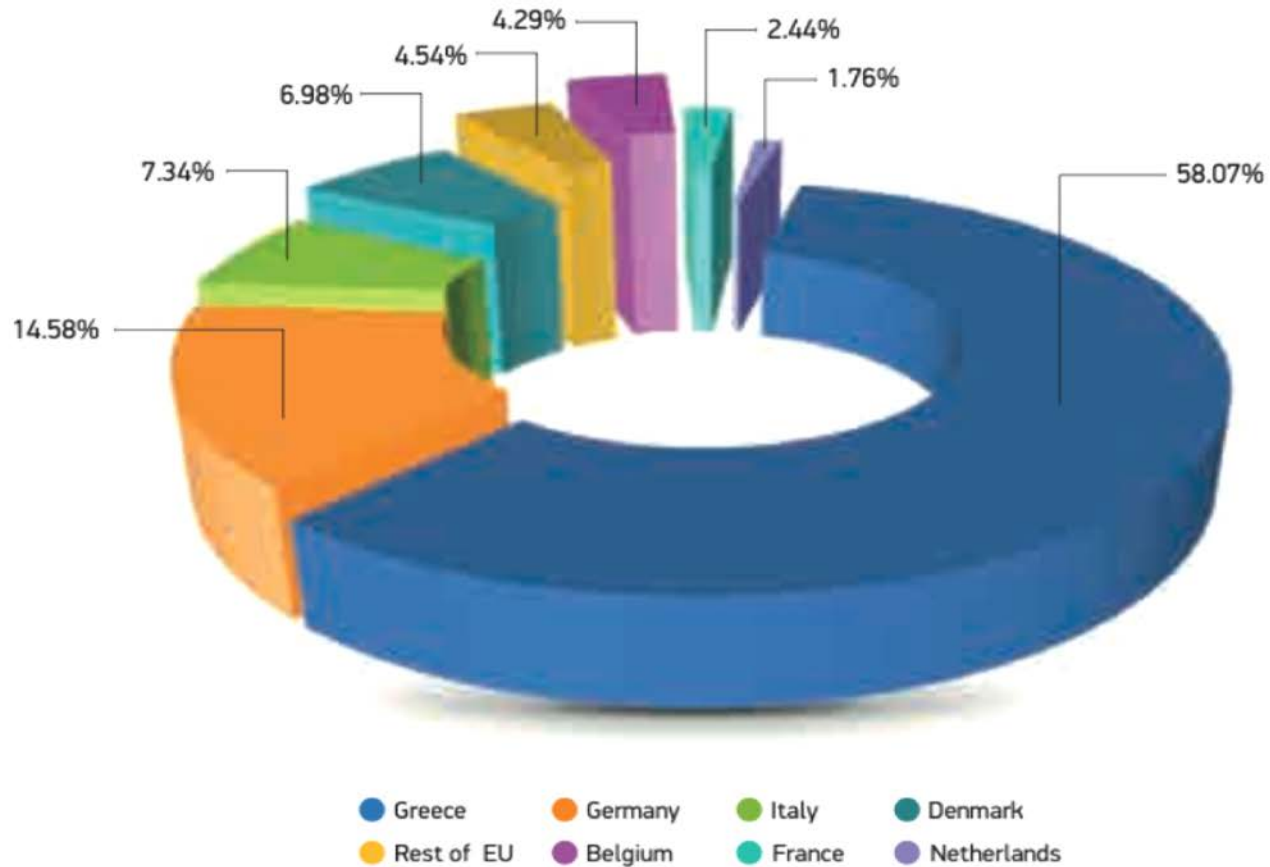
Source: European Commission, EU Transport in Figures, Statistical Pocketbook 2020

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FIGURE 3

Share of Greek-Owned Fleet in World Fleet by Main Ship Type
(in dwt, ships>1,000 gt)

Ship Type	Greek-owned fleet	Rest of the world
Oil tankers	32.64%	67.36%
Ore & Bulk carriers	21.70%	78.30%
LNG / LPG tankers	16.33%	83.67%
Chemical & products tankers	15.14%	84.86%
Containerships	8.92%	91.08%
Refrigerated cargo ships	7.42%	92.58%

Source: IHS Global Limited, January 2020

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GREEK SHIPPING - FLAG % OF DWT (MARCH 2020)

- Other, 1.73
- Hong Kong, 0.92
- , 0
- Marshalls, 20.34
- Bahamas, 5.35
- Panama, 6.5
- Liberia, 22.69
- Greece, 19.25
- Cyprus , 5
- Malta, 18.22

Source: IHS Markit - March 2020

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SHAREHOLDERS

HOLDING COMPANY

MANAGEMENT COMPANY
(Ship management agreement)

SPC/SPV 1

SPC/SPV 2

SPC/SPV 3
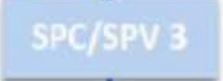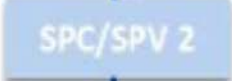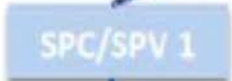
Source: Eurostat

Family of the Major Shareholder(s) – 'Founder(s)'

3ᴿᴰ HOLDING COMPANY
Major Shareholder

SHAREHOLDERS

30%

70%

2ᴺᴰ HOLDING COMPANY
Publicly listed

Who to Regulate ?

1ˢᵀ HOLDING COMPANY

MANAGEMENT COMPANY
(Ship management agreement)

100%

SPC/SPV 1   SPC/SPV 2   SPC/SPV 3   SPC/SPV 4   SPC/SPV 5   SPC/SPV …

Source: Eurostat

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REGULATIONS AIMED AT SHIPS (Ship-level) :

OPERATIONAL & STRUCTURAL (Construction)

IMO
Mostly operational but some IMPORTANT Structural

CLASSIFICATION SOCIETY (IACS)
Mostly structural in detail for shipbuilding.

FLAG
Mostly Operational

REGIONAL
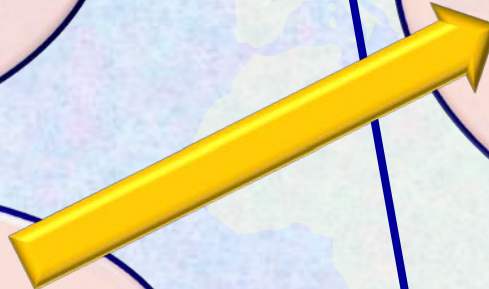**Mostly Operational**

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Enforcement of REGULATIONS AIMED AT SHIPS :

OPERATIONAL & STRUCTURAL (Construction)

IMO
Mostly operational but some **IMPORTANT Structural**

CLASSIFICATION SOCIETIES
Act as Recognized Organizations On Behalf of Flags

FLAG
Responsible to enforce IMO Regs

REGIONAL
Enforcement by Local Coast Guards

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REGULATIONS AIMED AT Management Companies

OPERATIONAL   (Required Safety policies, etc.)

IN
Almost exclusively
Until Recently...

International Maritime Organization

UNITED NATIONS BODY RESPONSIBLE FOR REGULATING INTERNATIONAL SHIPPING:

REGULATIONS FOR
- **Ship Operation (MARPOL, SOLAS)**
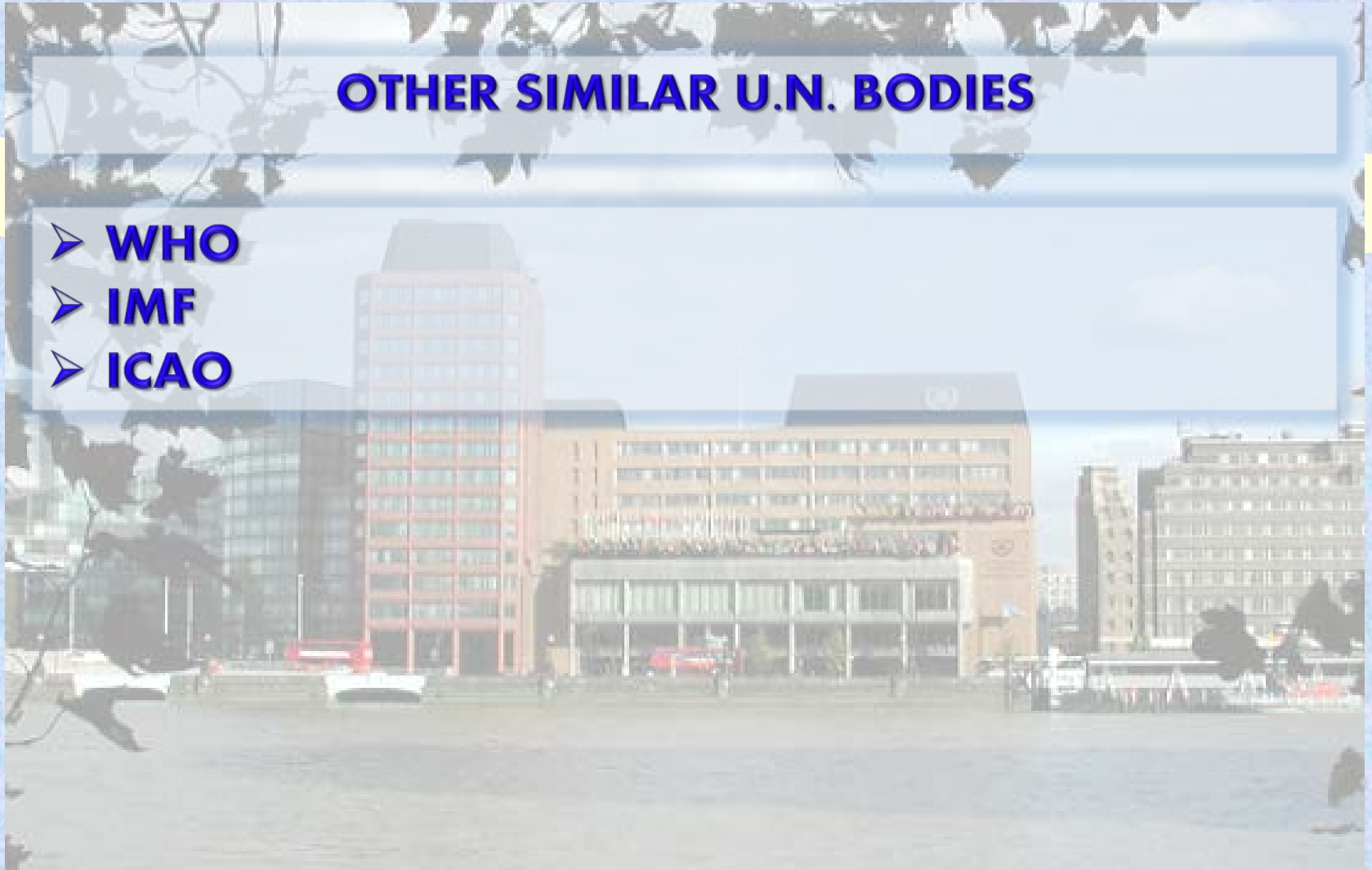 - **Ship Construction (SOLAS, GBS)**
    - **Shipping Companies (ISM, DCS)**

175 Countries, Many NGO's and Observers.

Political / Diplomatic / Technical Body

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International Maritime Organization

OTHER SIMILAR U.N. BODIES

- ➢ WHO
- ➢ IMF
- ➢ ICAO

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International Maritime Organization

Council and Main Committees:
- ➤ **MSC (Maritime Safety Committee)**
- ➤ **MEPC (Marine Environment Protection Committee)**

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IMO

BIRTH OF A REGULATION

1. **Someone has an idea (not always innocent); Makes an official submission; Submits supportive studies; Enlists supporters.**

➢ **Most times it is sent to a Working Group to form the exact requirements and wording. It may continue inter-sessionally by emails (Committees meet once or twice per year).**

➢ **It usually takes years to agree to details and years after that for the regulation to come into effect.**

IMO

BIRTH OF A REGULATION
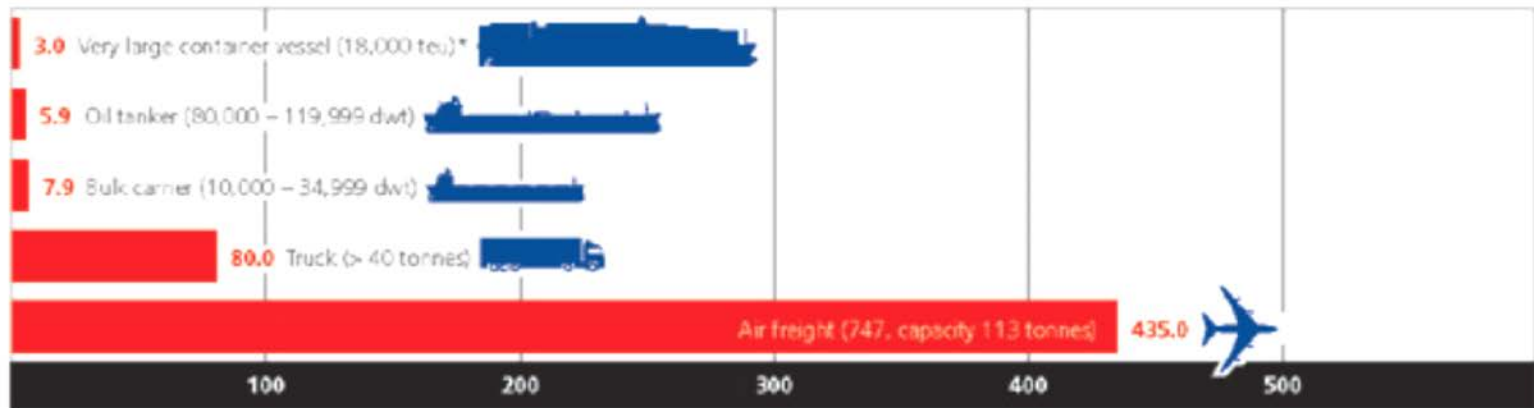
2. After an Accident.

IMO

BIRTH OF A REGULATION

3. Due to Public Pressure (e.g. Environmental)

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COMPARISON OF TYPICAL CO$_2$ EMISSIONS BETWEEN MODES OF TRANSPORT

Grams per tonne-km

3.0 Very large container vessel (18,000 teu)*

5.9 Oil tanker (80,000 – 119,999 dwt)

7.9 Bulk carrier (10,000 – 34,999 dwt)

80.0 Truck (> 40 tonnes)

Air freight (747, capacity 113 tonnes) **435.0**

100   200   300   400   500

Source: IMO GHG Study, 2009 (*AP Møller-Maersk, 2014)

90% of goods transportation - 2.6% of CO$_2$

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IMO NEW ENVIRONMENTAL REGULATIONS FOR SHIPPING

HUMAN HEALTH:

SOx   NOx

PLANET HEALTH:

BWT - GLOBAL WARMING

CO_2

Light fuel
or
Scrubber

Other types of fuel / measures

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IMO TARGETS

The foundation for the outlook is the IMO GHG strategy

Units: GHG emissions

- 2008 as base year
- Peak as soon as possible
- Intensity: 40% reduction
- Total: 50% reduction Intensity: 70%
- Zero emissions as soon as possible within this century

Legend:
- Emission pathway in line with IMO's GHG strategy
- Business-as-usual emmissions[a]
- Emission gap

X-axis: 2008, 2020, 2030, 2040, 2050, within 2100
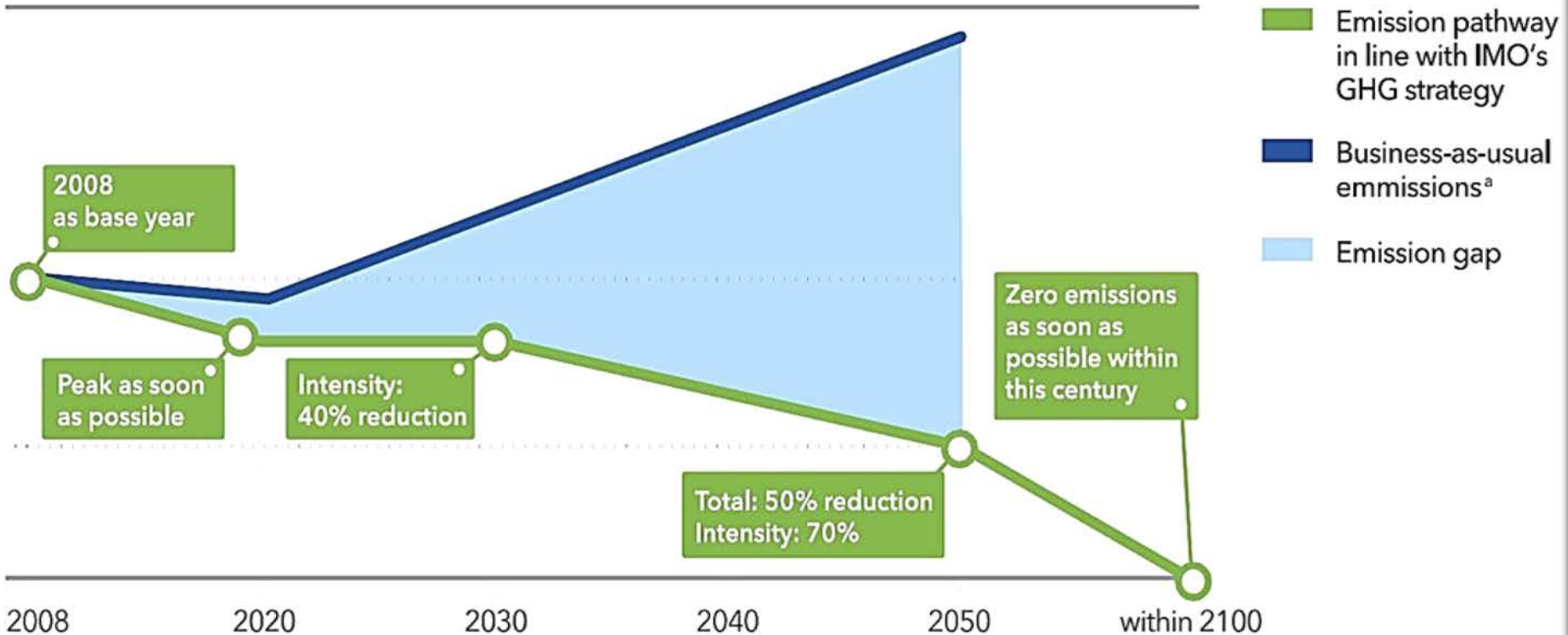
➢ **Reduce transport carbon intensity by 40% by 2030**

➢ **Reduce total shipping GHG emissions by 50% by 2050**

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IMO MEASURES to achieve the TARGETS

Short term measures:
Those agreed within

2018 - 2023

Mid - term measures:
Those agreed within

2023 - 2030

- EEDI (Design Efficiency Index)
- EEXI (Reduction of Engine Operating Power)
- CII (Carbon Intensity Indicator) → **Refrigerator** Rating for Ships (A,B,C,D,E)

- Uptake of Alternative fuels
- MBMs

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$$\text{CII (AER)} = \frac{\text{FUEL CONSUMPTION}}{\text{DWT x DISTANCE travelled}}$$

> ➤ **Very Random.**
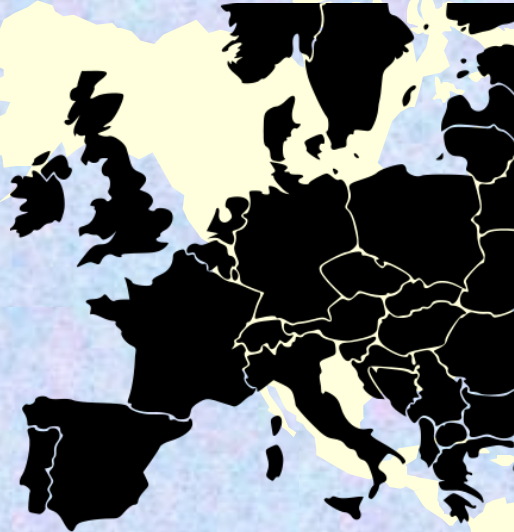> ➤ **Counterintuitive.**
> ➤ **Line C will drop every year.**
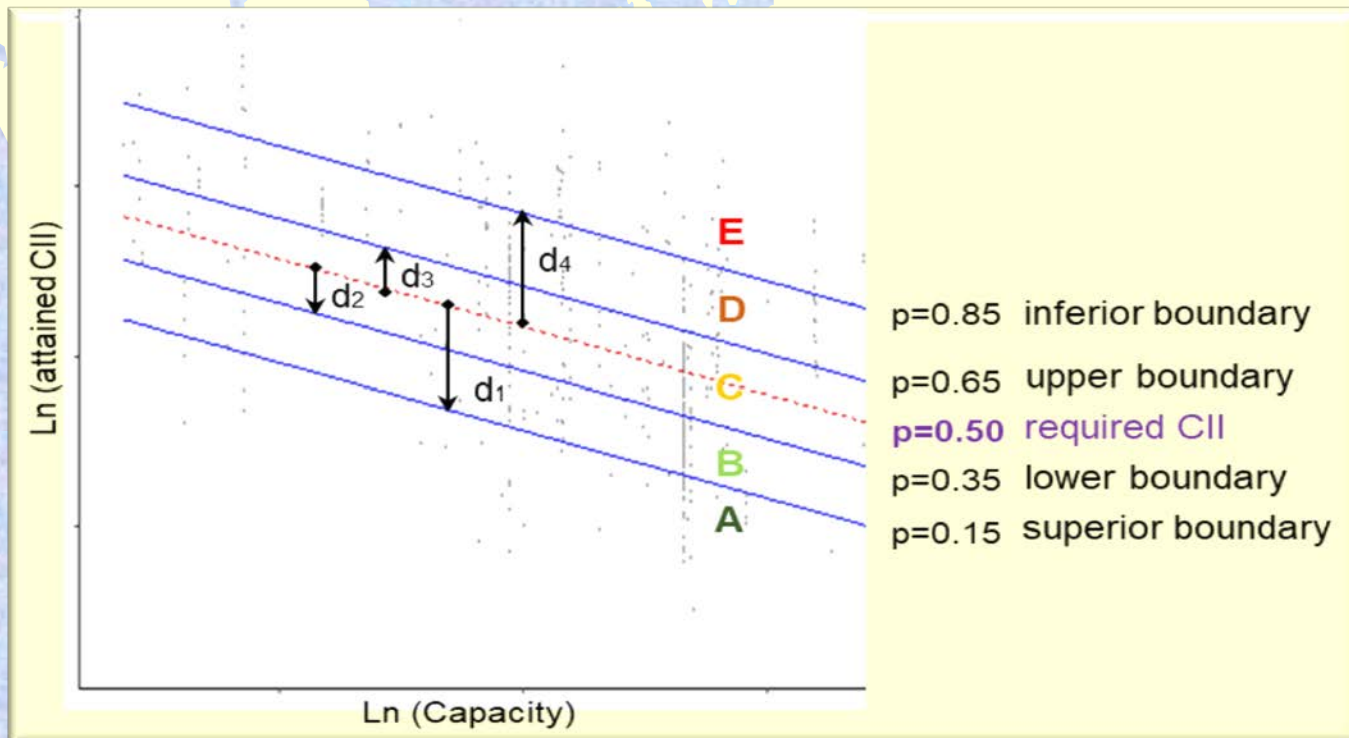
Ln (attained CII) vs Ln (Capacity)

- E
- D
- C
- B
- A

p=0.85	inferior boundary
p=0.65	upper boundary
p=0.50	required CII
p=0.35	lower boundary
p=0.15	superior boundary

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Future Issue at IMO:
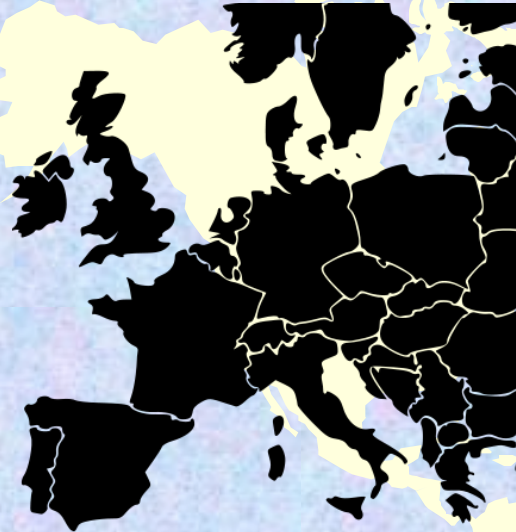## MBM: Levy on fuel (tax) or ETS ?

EU will apply ETS to International Shipping starting 2023!
(under its Fit for 55 package)

50% of incoming or outgoing to/from EU ports, 100% Intra-EU.

No free allowances – first 3 years phase-in.

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Future Issue at IMO:
MBM: Levy on fuel (tax) or ETS ?

- ➢ Regional Regulation
- ➢ Huge Cost
- ➢ Complicated
- ➢ Administrative Burden esp. for small companies
- ➢ Undermines IMO…

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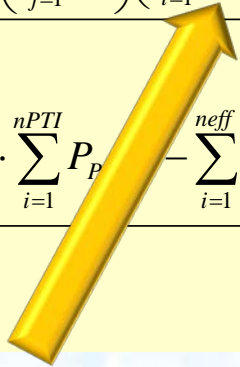
Ευχαριστώ

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TWO REGULATIONS: <u>EEXI</u> AND <u>CII</u>

<u>EEXI</u> = Simple cut-off of Max Power

$$EEDI = \frac{\left(\prod_{j=1}^{M} f_j\right)\left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)}\right) + \left(P_{AE} \cdot C_{FAE} \cdot SFC_{AE}\right)}{f_i \cdot Capacity \cdot V_{ref} \cdot f_w} +$$

$$\frac{\left\{\left(\prod_{j=1}^{M} f_j \cdot \sum_{i=1}^{nPTI} P_{P}\right) - \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{AEeff(i)}\right) C_{FAE} \cdot SFC_{AE}\right\} - \left(\sum_{i=1}^{neff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME}\right)}{f_i \cdot Capacity \cdot V_{ref} \cdot f_w}$$

EEDI 75%MCR

EEXI 83%MCR (this means 0.5 knots lower than the 75% setting)

Figure 1: EEDI concept

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