



## **GHG reduction for shipping: a vision or a realistic opportunity?**

**Sustainable Shipping Conference: Monaco, 12<sup>th</sup> October 2017**

## 2 The speaker and the Presentation

Francesco Bellusci

Managing Director of Scorpio Ship Management sam, Monaco: the technical arm of Scorpio Group

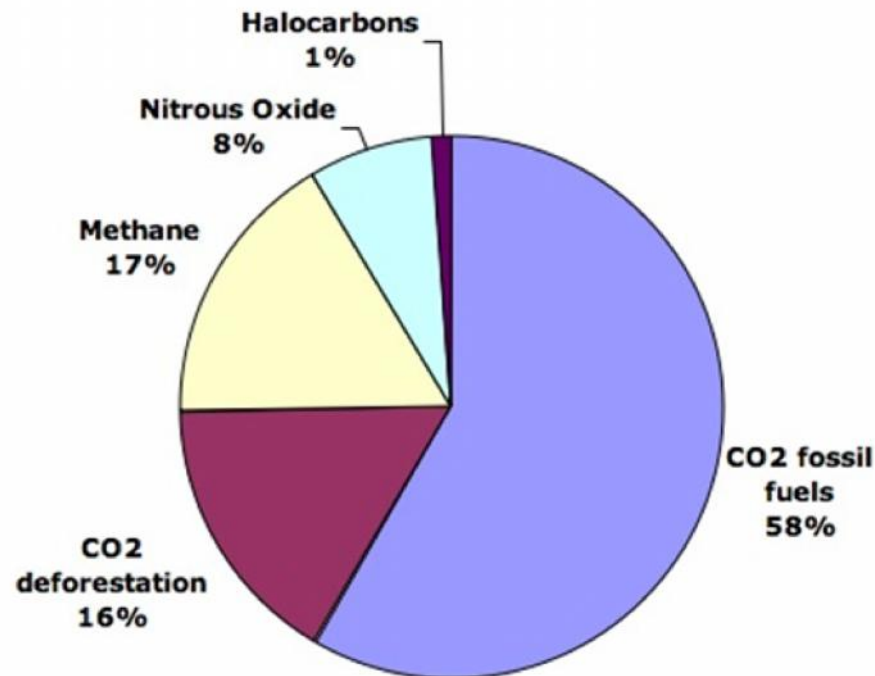
- What is Greenhouse Gas
- GHG Regulatory requirements
- GHG policy for shipping
- Technical and operational measures
- Proactive or reactive approach

### 3 Scorpio's Global Presence



## 4 What is Greenhouse gas?

- Any gaseous compound in the atmosphere capable of trapping and holding heat: natural (e.g. H<sub>2</sub>O, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, O<sub>3</sub>) and industrial (e.g. halocarbons)



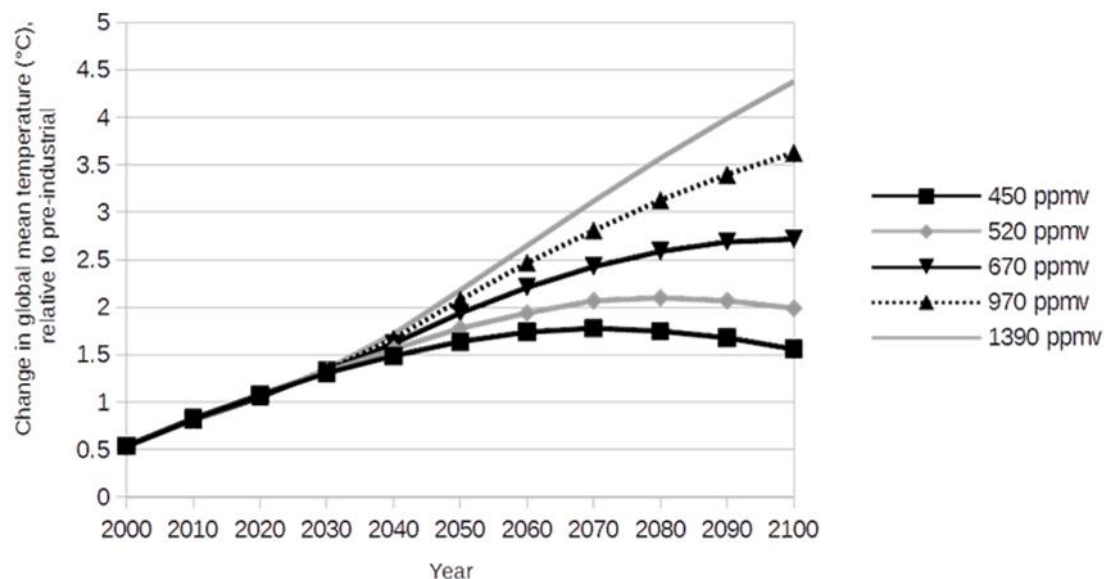
Anthropogenic GHG emission 2007

Amongst natural let distinguish between anthropogenic and non

Amongst anthropogenic CO<sub>2</sub> from fossil fuel represents 58%

## 5 Regulatory requirements: UN

- UN Framework Convention on Climate Change UNFCCC formed in 1994 following Rio Earth Summit in 1992 together with Biological Diversity and Combat Desertification Conventions.
- Kyoto Protocol adopted in 1997 and entered in force in 2005 commits Parties by setting binding emission reduction targets.



Paris Agreement COP21 Oct 2016/Marrakech COP22 Nov 2016 aimed at setting global response to cap temperature increase from pre-industrial to 2 deg (max 500 ppm) and further effort to maintain it at 1,5 deg only (max 450 ppm). Present CO2 value 400 ppm.

## 6 Regulatory requirements for shipping: IMO

Shipping is responsible for 90% of trading and 2,2% of man made CO<sub>2</sub>.

MEPC 70 (Oct 2016) following Paris Agreement agreed to set up a roadmap for reducing GHG emission for shipping and is expecting to adopt a policy by 2018 at MEPC 72 (Apr 2018); working group intersessional meetings are going on as to collect industry view.

Content of IMO Initial Strategy (under development)

1. Preamble/introduction/context including emission scenarios
2. Vision
3. Levels of ambition & Guiding principles
4. List of candidate short-, mid-, and long-term further measures with possible timelines and their impacts on States
5. Barriers and supportive measures; capacity building and technical cooperation; R&D
6. Follow-up actions towards the development of the revised Strategy
7. Periodic review of the Strategy



## 7 Regulatory requirements for shipping: IMO

- New chapter VI of Marpol Annex VI
- EEDI compulsory for new ships, further revision already envisaged
- SEEMP for existing ship requiring through ISM code a plan to monitor/reduce CO2 emissions by operational and technical measures
- EU MRV/IMO data collection aimed at building up a reference line for any further GHG regulatory requirements (or for setting MBI)
- Minimum power: a wrong way to tackle a serious issue

## 8 GHG policy for shipping

INTERTANKO, BIMCO, Intercargo and ICS have made a joint proposal to IMO concerning ambitious CO<sub>2</sub> reductions by the international shipping sector following COP21/22 requirements for adoption of Aspirational Objectives as per point 2 of IMO GHG policy:

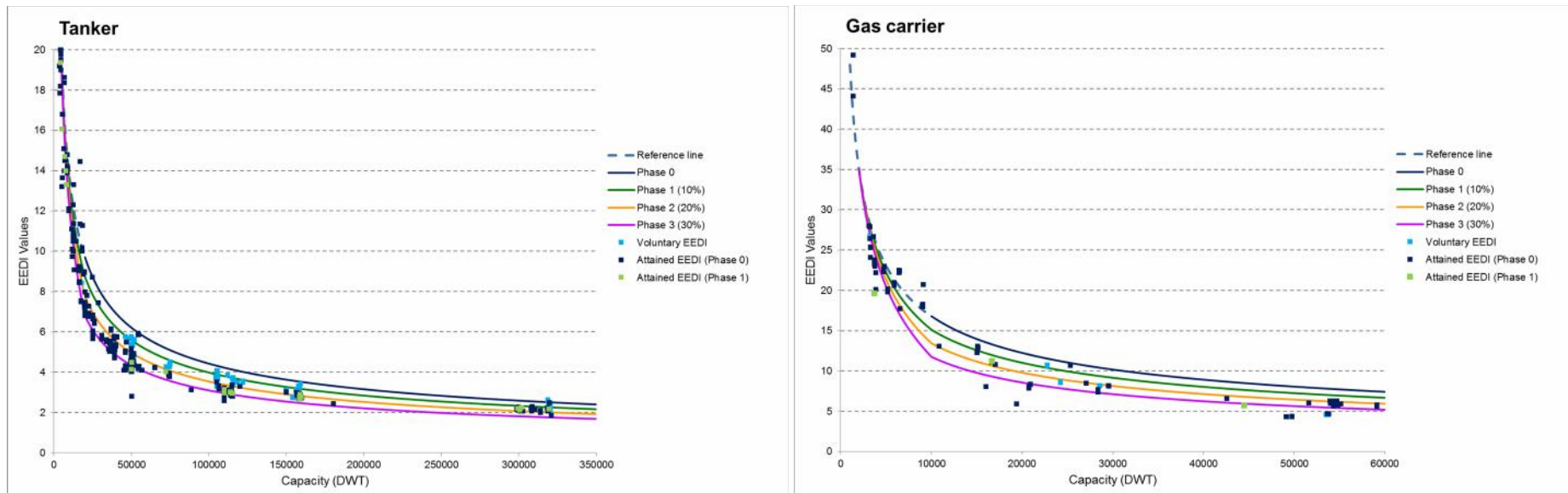
1. To maintain international shipping's annual total CO<sub>2</sub> emissions below 2008 levels; and
2. To reduce CO<sub>2</sub> emissions per tonne of cargo transported one kilometre, as an average across international shipping, by at least 50% by 2050, compared to 2008.

In addition, the Associations have suggested that IMO should give consideration to another possible objective of reducing international shipping's total annual CO<sub>2</sub> emissions, by an agreed percentage by 2050 compared to 2008, as a point on a continuing trajectory of further CO<sub>2</sub> emissions reduction.



## 9 Technical and Operational measures

- Alternative fuels: limited solution if coming from fossil fuel, but carbon free or carbon neutral fuel are under investigation
- Revision of EEDI: promising, vessel build in 2012 already fulfil 2025 limit



- Speed reduction: extremely easy and effective due to cubic relation with consumption
- Operational efficiency indicators: big confusion and lack of recognized approach (EIV, EEOI, EETI, EEJI, EEUSI), very risky without urgent clarification of best algorithm to identify “CO2 emission/transport work” operational KPI.

## 10 Technical and Operational measures

- Port logistics and on-shore power: Ports are candidates for application of IMO strategy and it is expected they will behave as a driver for application of sustainable solutions
- Technical innovation: big expectation for smaller vessels (battery, fuel cell), less impact for bigger where internal combustion engine, possibly with hybrid solutions, will continue to provide necessary power for propulsion
- Operational measure: virtual time of arrival, weather routing, speed optimization, hull/propeller roughness and maintenance of same
- Market based measures: unfortunately welcome as a business driver
- Sustainability: will become a business driver

## 11 Proactive approach

- Level of CO<sub>2</sub> emissions reduction should be related to the international shipping sector's total CO<sub>2</sub> emissions.
- 2008 base line should be kept (lot of inefficient vessels trading at high speed)
- The objectives adopted as part of INITIAL Strategy are provisional and might be adjusted by IMO after 2018
- Following their agreement as part of the FINAL IMO Strategy to be adopted by 2023, any objectives should be subject to continuous review by IMO.
- These objectives should be subject to a comprehensive review ten years after their final adoption (i.e. in 2033).

Bigger size vessels, more emphasis on efficiency (engine, propeller, hull form), slower steamers, hybrid propulsion solutions, alternative source of power including cold ironing, carbon neutral and carbon free fuel.

**Let be proactive and demonstrate how shipping, although linked with economic growth, can set up and achieve unbeatable targets**



