Alternative fuels for international shipping: regulatory drivers and challenges

Future challenges of IMO's agenda: how rules can be applied?

UK & Brazil: Partners in Energy 2021

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The role of international maritime transport in sustainable development

- Over 80% of global trade by volume and more than 70% of its value carried on board ships[1]
- World seaborne trade volumes expanded by 0.5% to reach 11.08 billion tons of cargo in 2019[2]
- In 2019 gas carriers experienced the fasted growth, followed by oil tankers, bulk carriers and container ships. The size of the largest container vessel in terms of capacity went up by 10.9 per cent. The largest container ships are now as big as the largest oil tankers and bigger than the largest dry bulk and cruise ships.[2]
- Global maritime trade will plunge by 4.1% in 2020 due to the unprecedented disruption caused by COVID-19[2]

[1] *Review of Maritime Transport 2018*, UNCTAD
[2] *Review of Maritime Transport 2020*, UNCTAD

International Maritime Organization (IMO)

- A specialized agency of the United Nations
- The IMO Convention adopted in 1948 and entered into force 1958
- 174 Member States, 3 Associate Members
- Consultative organizations e.g., ICS, IBIA, IPIECA, OCIMF
- Develop and maintain a comprehensive regulatory framework for international shipping on safety, environment, legal matters, technical co-operation, security and the efficiency of shipping
- Marine Environment Protection Committee (MEPC) – IMO body responsible for MARPOL, BWMC, etc.
- Maritime Safety Committee – IMO body responsible for SOLAS (safety, security, etc.)

Safe, secure and efficient shipping on cleaner oceans


MEPC 72/17/Add.1
Annex 11, page 1
ANNEX 11
RESOLUTION MEPC.304(72)
(adopted on 13 April 2018)
INITIAL IMO STRATEGY ON REDUCTION OF GHG EMISSIONS FROM SHIPS
THE MARINE ENVIRONMENT PROTECTION COMMITTEE
RECALLING Article 38(e) of the Convention on the International Maritime Organization (the Organization) concerning the functions of the Marine Environment Protection Committee (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution from ships,
ACKNOWLEDGING that work to address greenhouse gas (GHG) emissions from ships has been undertaken by the Organization continuously since 1997, in particular, through adopting global mandatory technical and operational energy efficiency measures for ships under MARPOL Annex VI,
ACKNOWLEDGING ALSO the decision of the thirtieth session of the Assembly in December 2017 that adopted for the Organization a strategic direction entitled "Respond to Climate Change",
RECALLING the United Nations 2030 Agenda for Sustainable Development,
1 ADOPTS the Initial IMO Strategy on Reduction of GHG Emissions from Ships (hereinafter the Initial Strategy) as set out in the annex to the present resolution;
2 INVITES the Secretary-General of the Organization to make adequate provisions in the Integrated Technical Cooperation Programme (ITCP) to support relevant follow-up actions of the Initial Strategy that may be further decided by the Committee and undertaken by developing countries, particularly least developed countries (LDCs) and small island developing States (SIDS);
3 AGREES to keep the Initial Strategy under review, with a view to adoption of a Revised IMO Strategy on reduction of GHG emissions from ships in 2023.
adopted
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Initial IMO Strategy on Reduction of GHG emissions from ships

2 VISION

IMO remains committed to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible in this century.

Initial IMO Strategy on Reduction of GHG emissions from ships

Levels of ambition in the Initial IMO GHG Strategy

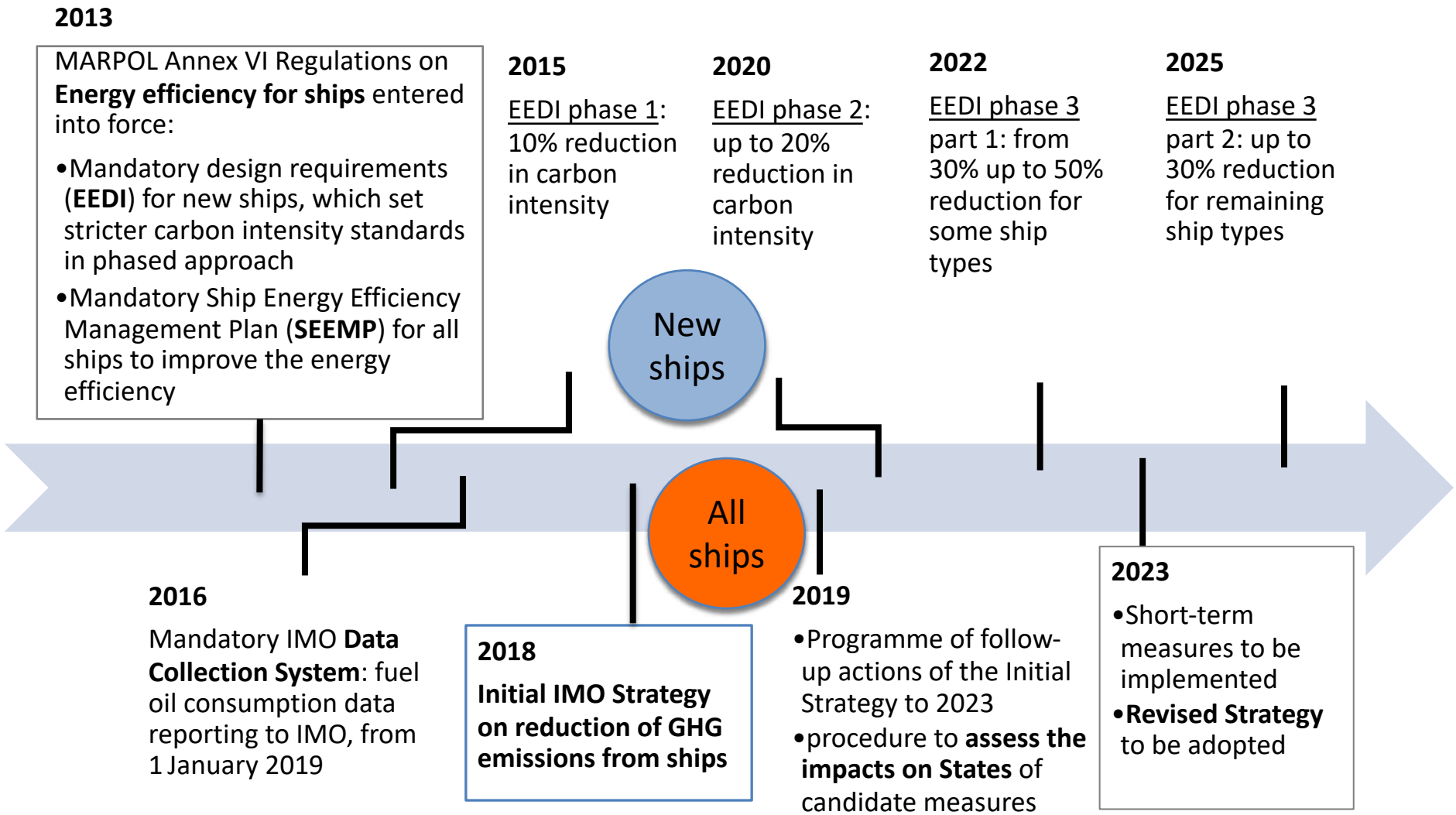
……..the Initial Strategy identifies levels of ambition for the international shipping sector noting that technological innovation and the global introduction of alternative fuels and/or energy sources for international shipping will be integral to achieve the overall ambition……..

.1 carbon intensity of the ship to decline through implementation of further phases of the energy efficiency design index (EEDI) for new ships
to review with the aim to strengthen the energy efficiency design requirements for ships with the percentage improvement for each phase to be determined for each ship type, as appropriate;

.2 carbon intensity of international shipping to decline
to reduce CO_2 emissions per transport work, as an average across international shipping, by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008; and

.3 GHG emissions from international shipping to peak and decline
to peak GHG emissions from international shipping as soon as possible and to reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008 whilst pursuing efforts towards phasing them out as called for in the Vision as a point on a pathway of CO_2 emissions reduction consistent with the Paris Agreement temperature goals.

Where we are today



Short term measures for existing ships

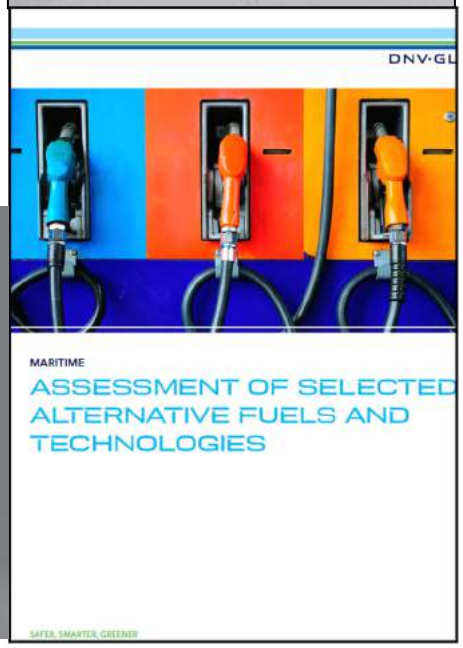
- Draft amendments to Chapter 4 of MARPOL Annex VI approved by MEPC 75 held in November 2020, if adopted at MEPC 76 scheduled for June 2021 then would enter into force in 2023
- Sets goal-based technical and operational requirements for existing ships on energy efficiency/carbon intensity reduction in terms of transport work
  - Energy Efficiency Existing Ship Index (EEXI) – existing ships required to achieve, as a minimum, phase 2 EEDI reduction value, as amended, for required EEDI – one-off EEXI certificate issued
  - Between 2023 and 2030 an expected linear reduction of operational carbon intensity being annually verified using data collection system (reg.22A) and a Carbon Intensity Indicator (CII) based on attained carbon intensity used to rate (A to E) the ship
  - Enhanced Ship Energy Efficiency Management Plan (SEEMP)

Mid- to long-term measures to reduce GHG emissions?

- To achieve the 2050 goal of absolute GHG emission reduction of 'at least 50%' compared to 2008, i.e., reduce to approx. 400mT of CO_2 per year, mid- to long-term measures are needed
- "…technological innovation and the global introduction of alternative fuels and/or energy sources will be integral to achieve the overall ambition"
  - IMRB – fund to support R&D has been proposed
  - lifecycle considerations – tank-to-wake or well-to-wake?
  - sustainability – feedstock and energy to produce both need to be sustainable
  - scale – need availability globally and in sufficient quantities (ref: IMO 2020 considerations)
- How? Market-based Measures (MBMs) or new/innovative emission reduction mechanisms
  - Need to make low-/zero-carbon fuels and innovative propulsion technology competitive with hydrocarbon fuels
  - What is the best approach to price carbon?
    - ETS, Carbon tax, levy, contribution on fuel

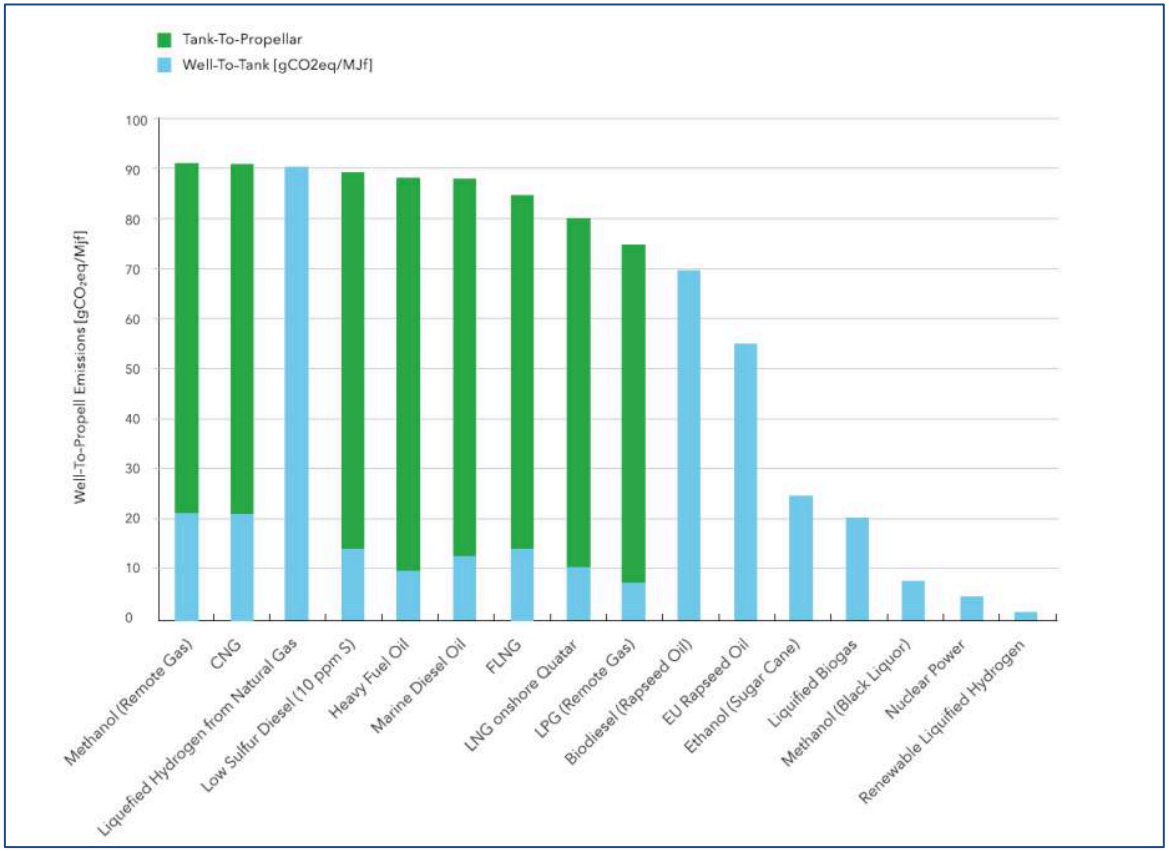
The "4th propulsion revolution"?

CARBON PRICE?



Energy for shipping – key issues and options?

- **Scale** – volumes required and availability to support deep-sea shipping trading globally
- **Sustainability** – energy to produce & 'feedstock'
- **Lifecycle considerations** – tank-to-wake or well-to-wake?

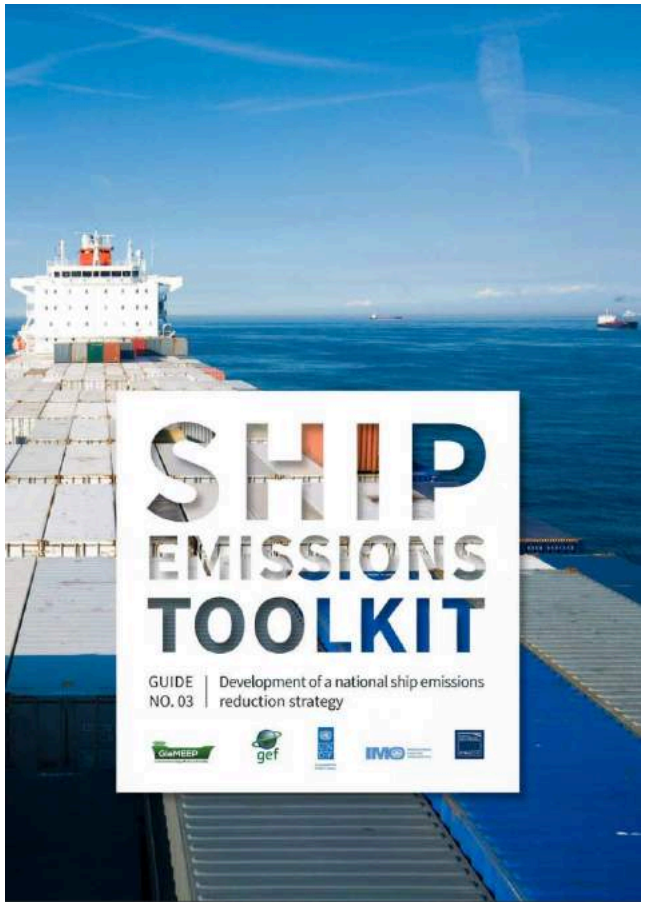


Source: Alternative Fuels for Marine and Inland Waterways – An exploratory study, European Commission, 2016, Report EUR 27770 EN

Voluntary National Action Plan - resolution MEPC.327(75)

Could include but not limited to:

- improving domestic institutional and legislative arrangements for the effective implementation of existing IMO instruments;
- developing activities to further enhance the energy efficiency of ships
  - raise awareness; training, demonstration projects
- initiating research and advancing the uptake of alternative low-carbon and zero-carbon fuels;
- accelerating port emission reduction activities, consistent with resolution MEPC.323(74);
- fostering capacity-building, awareness-raising and regional cooperation; and
- facilitating the development of infrastructure for green shipping.



Examples on IMO website include Japan, Norway and UK

Thank you for your attention

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