IMO Strategy on Reduction of GHG Emissions from Ships

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Introduction

- **Adopted at MEPC 72, on 13 April 2018 as IMO Resolution MEPC.304(72)**
- **Addressing:**
  - UNCLOS, UNFCCC / Paris Agreement and its goal
  - UN Agenda 2030 for Sustainable Development and SDG 13: **"Take urgent action to combat climate change and its impacts"**
  - IMO Strategic Plan (2018-2023) SD 3: **"Respond to Climate Change"**
- **Based on IMO 3rd GHG Study 2014**

Outline of Initial Strategy

- **Vision**
- **Levels of Ambition**
- **Guiding principles**
- **List of candidate measures with timelines**
  - Short-term measures (2018 ~ 2023)
  - Mid-term measures (2023 ~ 2030)
  - Long-term measures (2030 ~)
- **Barriers and supportive measures**
- **Follow-up actions towards the development of the revised Strategy**
- **Periodic Review of the Strategy**

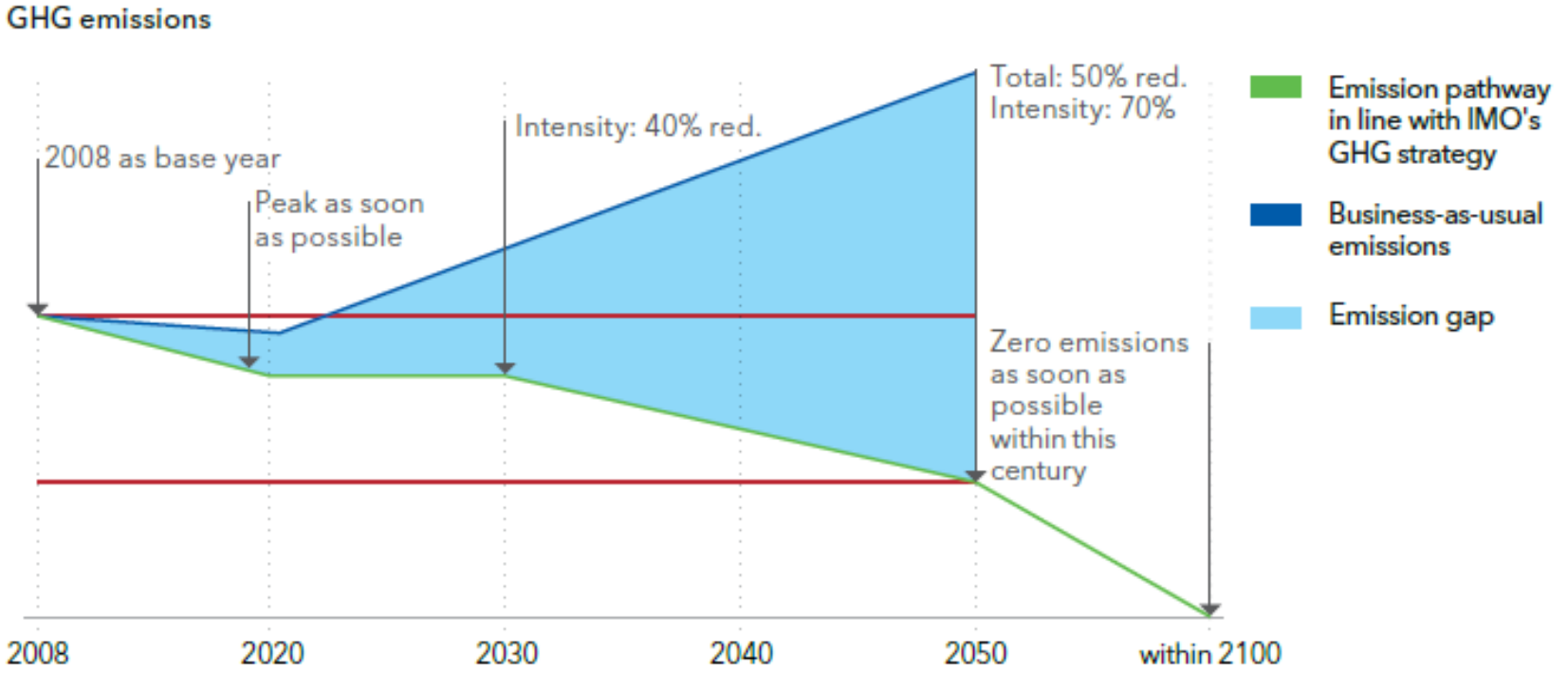
Vision

"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."

Levels of Ambition

- **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;
- **Carbon intensity of international shipping to decline**
  to reduce CO2 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
- **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 CO2 emissions reduction consistent with the Paris Agreement temperature goals.

※ IMO GHG Strategy



(DNV-GL, 2018)

List of Candidates Measures

- **Timelines:**
  - possible **short-term measures** could be measures finalized and agreed by the Committee between 2018 and 2023. Dates of entry into force and when the measure can effectively start to reduce GHG emissions would be defined for each measure individually;
  - possible **mid-term measures** could be measures finalized and agreed by the Committee between 2023 and 2030. Dates of entry into force... ; and
  - possible **long-term measures** could be measures finalized and agreed by the Committee beyond 2030. Dates of entry into force....

Candidate Short-term Measures

- **further improvement of the existing energy efficiency framework with a focus on EEDI and SEEMP, taking into account the outcome of the review of EEDI regulations;**
- **develop technical and operational energy efficiency measures for both new and existing ships, including consideration of indicators in line with the three-step approach that can be utilized to indicate and enhance the energy efficiency performance of shipping, e.g. Annual Efficiency Ratio (AER), Energy Efficiency per Service Hour (EESH), Individual Ship Performance Indicator (ISPI) and Fuel Oil Reduction Strategy (FORS);**
- **establishment of an Existing Fleet Improvement Programme;**
- **consider and analyse the use of speed optimization and speed reduction as a measure, taking into account safety issues, distance travelled, distortion of the market or trade and that such measure does not impact on shipping's capability to serve remote geographic areas;**
- **consider and analyse measures to address emissions of methane and further enhance measures to address emissions of Volatile Organic Compounds;**
- **encourage the development and update of national action plans to develop policies and strategies to address GHG emissions from international shipping in accordance with guidelines to be developed by the Organization, taking into account the need to avoid regional or unilateral measures;**
- **continue and enhance technical cooperation and capacity-building activities under the ITCP;**

- consider and analyse measures to encourage port developments and activities globally to facilitate reduction of GHG emissions from shipping, including provision of ship and shoreside/onshore power supply from renewable sources, infrastructure to support supply of alternative low-carbon and zero-carbon fuels, and to further optimize the logistic chain and its planning, including ports;
- initiate research and development activities addressing marine propulsion, alternative low-carbon and zero-carbon fuels, and innovative technologies to further enhance the energy efficiency of ships and establish an International Maritime Research Board to coordinate and oversee these R&D efforts;
- incentives for first movers to develop and take up new technologies;
- develop robust lifecycle GHG/carbon intensity guidelines for all types of fuels, in order to prepare for an implementation programme for effective uptake of alternative low-carbon and zero-carbon fuels;
- actively promote the work of the Organization to the international community, in particular, to highlight that the Organization, since the 1990s, has developed and adopted technical and operational measures that have consistently provided a reduction of air emissions from ships, and that measures could support the Sustainable Development Goals, including SDG 13 on Climate Change; and
- undertake additional GHG emission studies and consider other studies to inform policy decisions, including the updating of Marginal Abatement Cost Curves and alternative low-carbon and zero-carbon fuels.

Candidate Mid-term Measures

- implementation programme for the effective uptake of alternative low-carbon and zero-carbon fuels, including update of national actions plans to specifically consider such fuels;
- operational energy efficiency measures for both new and existing ships including indicators in line with three-step approach that can be utilized to indicate and enhance the energy efficiency performance of ships;
- new/innovative emission reduction mechanism(s), possibly including Market-based Measures (MBMs), to incentivize GHG emission reduction;
- further continue and enhance technical cooperation and capacity-building activities such as under the ITCP; and
- development of a feedback mechanism to enable lessons learned on implementation of measures to be collated and shared through a possible information exchange on best practice.

Candidate Long-term Measures

- **pursue the development and provision of zero-carbon or fossil-free fuels to enable the shipping sector to assess and consider decarbonisation in the second half of the century; and**
- **Encourage and facilitate the general adoption of other possible new / innovative emission reduction mechanism(s).**

Impacts on States

- **The impacts on States of a measure should be assessed and taken into account as appropriate before adoption of the measure. Particular attention should be paid to the needs of developing countries, especially small island developing States (SIDS) and least developed countries (LDCs).**
- **When assessing impacts on States the impact of a measure should be considered, as appropriate, inter alia, in the following terms:**
  - geographic remoteness of and connectivity to main markets;
  - cargo value and type;
  - transport dependency;
  - transport costs;
  - food security;
  - disaster response;
  - cost-effectiveness; and
  - socio-economic progress and development.
- **The specification for and agreement on the procedure for assessing and taking into account the impacts of measures related to international shipping on States should be undertaken as a matter of urgency as part of the follow-up actions.**
- **Disproportionately negative impacts should be assessed and addressed, as appropriate.**

Barriers and Supportive Measures

- **The Committee recognizes that developing countries, in particular LDCs and SIDS, have special needs with regard to capacity-building and technical cooperation.**
- **The Committee acknowledges that development and making globally available new energy sources that are safe for ships could be a specific barrier to the implementation of possible measures.**
- **The Committee could assist the efforts to promote low-carbon technologies by facilitating public-private partnerships and information exchange.**
- **The Committee should continue to provide mechanisms for facilitating information sharing, technology transfer, capacity-building and technical cooperation, taking into account resolution MEPC.229(65) on Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships.**
- **The Organization is requested to assess periodically the provision of financial and technological resources and capacity-building to implement the Strategy through the ITCP and other initiatives including the GloMEEP project and the MTCC network.**

Key Stages / Roadmap

Spring 2018 (MEPC 72)	Adoption of the Initial Strategy including, inter alia, a list of candidate short-, mid- and long-term further measures with possible timelines, to be revised as appropriate as additional information becomes available
January 2019	**Start of Phase 1: Data collection (Ships to collect data)**
Spring 2019 (MEPC 74)	Initiation of Fourth IMO GHG Study using data from 2012-2018
Summer 2020	Data from 2019 to be reported to IMO
Autumn 2020 (MEPC 76)	**Start of Phase 2: data analysis (no later than autumn 2020)** Publication of Fourth IMO GHG Study for consideration by MEPC 76
Spring 2021 (MEPC 77)	Secretariat report summarizing the 2019 data pursuant to regulation 22A.10 Initiation of work on adjustments on Initial IMO Strategy, based on Data Collection System (DCS) data
Summer 2021	Data for 2020 to be reported to IMO
Spring 2022 (MEPC 78)	**Phase 3: Decision step** Secretariat report summarizing the 2020 data pursuant to regulation 22A.10
Summer 2022	Data for 2021 to be reported to IMO
Spring 2023 (MEPC 80)	Secretariat report summarizing the 2021 data pursuant to regulation 22A.10 Adoption of Revised IMO Strategy, including short-, mid- and long-term further measure(s), as required, with implementation schedules

ISWG-GHG 4 (15-19 Oct. 2018)

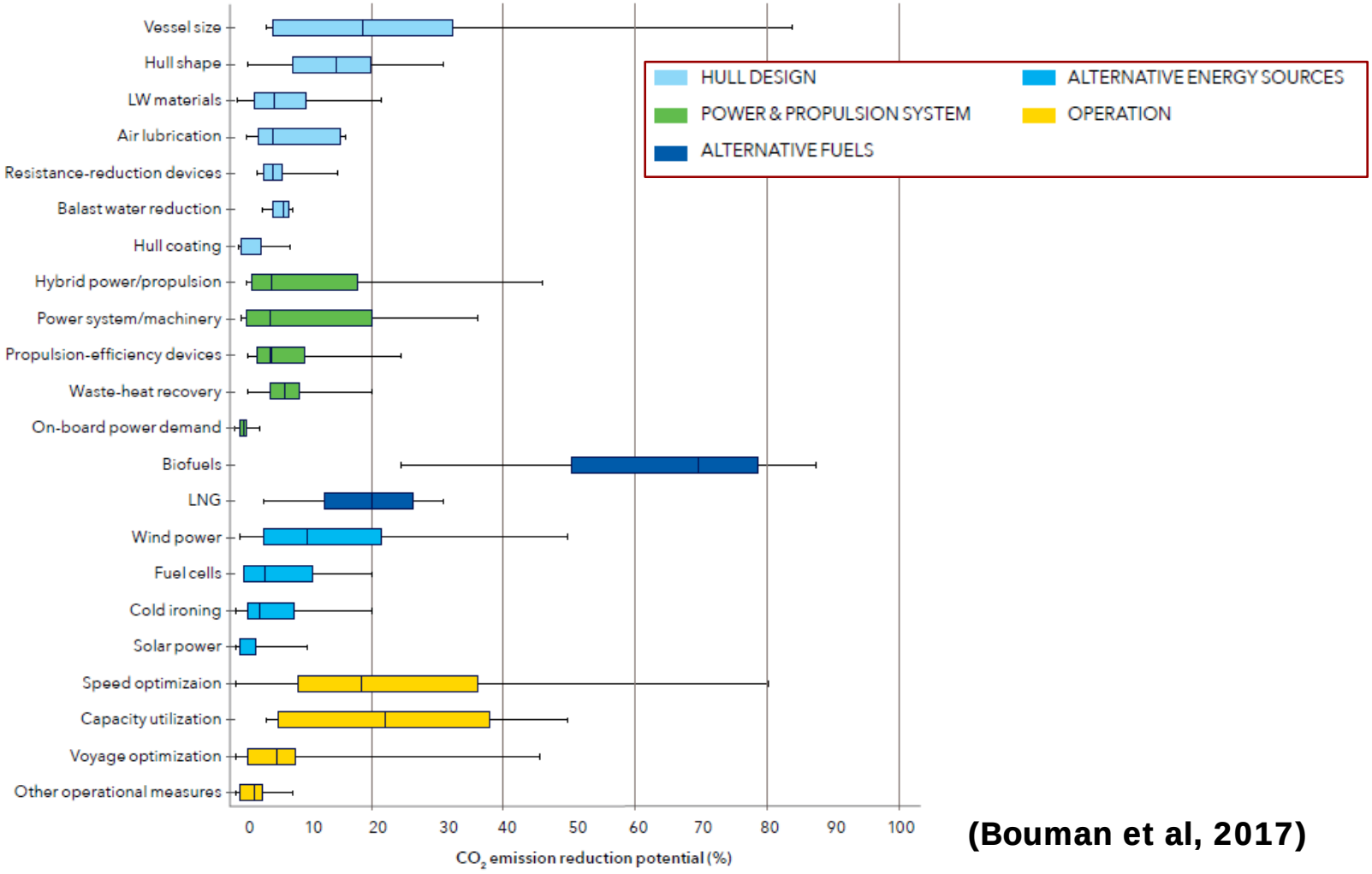
- **Terms of Reference**
  - Develop a programme of follow-up actions of the Initial strategy
  - Further consider how to progress the matter of reduction of GHG emissions from ships
- **Streams of activity:**
  - **Candidate short-term measures**;
    (Group A) that can be considered and addressed under existing IMO instruments
    (Group B) that are not work in progress and are subject to data analysis
    (Group C) that are not work in progress and are not subject to data analysis
  - **Candidate mid-/long-term measures** and action to address the identified barriers;
  - Impacts on States;
  - Forth IMO GHG Study;
  - Capacity building, technical cooperation, R&D; and
  - Follow-up actions towards the development of the revised Strategy.

☞ *Concrete proposals are invited at MEPC 73, and considered at **MEPC 74** (refer to MEPC 73/wp.5)*

Tripartite 2018 (11-12 Oct. 2018)

- **General optimism that the industry can meet the target for 2030 by:**
  - Strengthening the existing energy efficiency framework
  - LNG fueled propulsion beyond EEDI phase II
- **Achieving 50% GHG net emissions reduction would require zero CO2 emission ships**
- **Med-/long-term targets require better design but, the optimism depends on collaboration**
- **Need for holistic approach, including understanding of GHG intensity of alternative fuels**
- **Need of "good data" to fully understand the challenges and find the solutions to achieve 2050 target**

※ CO2 Emission Reduction Potential



(Bouman et al, 2017)

Summary

- **A ground breaking agreement – ‘a Paris Agreement for shipping’ – that sets a very high level of ambition for the future reduction of CO2 emissions from ships**
- **Controversial, but to be achieved as soon as possible**
- **Very challenging for shipbuilding industry to successfully deliver**
- **Position of ASEF?**

References

- IMO Resolution MEPC.304(72), Initial IMO Strategy on Reduction of GHG Emissions from Ships, 2018
- IMO MEPC 72/7/4, Towards zero CO2 emissions through innovative technology (CESA), 2018
- IMO ISWG-GHG 3/INF.2 - Information as developed in EU funded research project JOULES and fuel table containing comprehensive LCA-information on marine fuels (CESA), 2017
- IMO MEPC 67-INF.3 - Third IMO GHG Study 2014 - Final Report
- E. A. Bouman et al, State-of-the-art technologies, measures, and potential for reducing GHG emissions from shipping – A review, Transportation Research Part D, 2017
- Maritime Forecast to 2050 – Energy transaction outlook 2018, DNV·GL
- Reducing CO2 Emissions to Zero: The 'Paris Agreement for Shipping', ICS, 2018