

MARINE ENVIRONMENT PROTECTION
COMMITTEE
72nd session
Agenda item 7

MEPC 72/7
3 November 2017
Original: ENGLISH

REDUCTION OF GHG EMISSIONS FROM SHIPS

Report of the second meeting of the Intersessional Working Group on Reduction of GHG emissions from ships (ISWG-GHG 2)

Note by the Secretariat

SUMMARY

<i>Executive summary:</i>	This report of the second meeting of the Intersessional Working Group on Reduction of GHG emissions from ships is submitted to MEPC 72 for approval
<i>Strategic direction:</i>	Number to be assigned after A.30
<i>High-level action:</i>	Number to be assigned after A.30
<i>Output:</i>	Number to be assigned after A.30
<i>Action to be taken:</i>	Paragraph 69
<i>Related documents:</i>	All documents submitted to ISWG-GHG 2

Introduction

1 The Intersessional Working Group on Reduction of GHG emissions from ships (ISWG-GHG 2) met for its second meeting from 23 to 27 October 2017 and was chaired by Mr. S. Oftedal (Norway).

2 The Group was attended by delegates from the following Member Governments:

ANGOLA
ANTIGUA AND BARBUDA
ARGENTINA
AUSTRALIA
BAHAMAS
BANGLADESH
BELGIUM
BRAZIL
CANADA
CHILE

CHINA
COOK ISLANDS
CYPRUS
DENMARK
ECUADOR
EL SALVADOR
EQUATORIAL GUINEA
ESTONIA
FINLAND
FRANCE

GERMANY	PANAMA
GHANA	PERU
GREECE	PHILIPPINES
INDIA	POLAND
INDONESIA	REPUBLIC OF KOREA
IRAN (ISLAMIC REPUBLIC OF)	RUSSIAN FEDERATION
ITALY	SAUDI ARABIA
JAPAN	SINGAPORE
KIRIBATI	SOLOMON ISLANDS
LIBERIA	SOUTH AFRICA
MALAYSIA	SPAIN
MALTA	SWEDEN
MARSHALL ISLANDS	TONGA
MEXICO	TURKEY
MOROCCO	TUVALU
NETHERLANDS	UNITED ARAB EMIRATES
NEW ZEALAND	UNITED KINGDOM
NIGERIA	UNITED STATES
NORWAY	VENEZUELA (BOLIVARIAN
PALAU	REPUBLIC OF)

by a representative from the following Associate Member of IMO:

HONG KONG, CHINA

by a representative from the following United Nations and Specialized Agency:

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE
(UNFCCC)

by observers from the following intergovernmental organizations:

ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD)
EUROPEAN COMMISSION (EC)

and by observers from the following non-governmental organizations in consultative status:

INTERNATIONAL CHAMBER OF SHIPPING (ICS)
INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS (IAPH)
BIMCO
OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)
COMMUNITY OF EUROPEAN SHIPYARDS' ASSOCIATIONS (CESA)
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS
(INTERTANKO)
SOCIETY OF INTERNATIONAL GAS TANKER AND TERMINAL OPERATORS
LIMITED (SIGTTO)
GREENPEACE INTERNATIONAL
CRUISE LINES INTERNATIONAL ASSOCIATION (CLIA)
INTERNATIONAL ASSOCIATION OF DRY CARGO SHIPOWNERS
(INTERCARGO)
WORLD WIDE FUND FOR NATURE (WWF)
THE INSTITUTE OF MARINE ENGINEERING, SCIENCE AND TECHNOLOGY
(IMAREST)
INTERNATIONAL SHIP MANAGERS' ASSOCIATION (INTERMANAGER)
INTERNATIONAL PARCEL TANKERS ASSOCIATION (IPTA)

INTERNATIONAL MARINE CONTRACTORS ASSOCIATION (IMCA)
THE ROYAL INSTITUTION OF NAVAL ARCHITECTS (RINA)
INTERNATIONAL BUNKER INDUSTRY ASSOCIATION (IBIA)
INTERNATIONAL TRANSPORT WORKERS' FEDERATION (ITF)
WORLD SHIPPING COUNCIL (WSC)
PACIFIC ENVIRONMENT
CLEAN SHIPPING COALITION (CSC)

Terms of reference

3 The terms of reference for ISWG-GHG 2, as agreed by MEPC 71 (MEPC 71/17, paragraph 7.26.1), were as follows:

"The Intersessional Working Group on Reduction of GHG emissions from ships is instructed, taking into account the comments and decisions made in plenary and the documents submitted (MEPC 69/6/6, MEPC 71/7, MEPC 71/7/1, MEPC 71/7/2, MEPC 71/7/3, MEPC 71/7/4, MEPC 71/7/5, MEPC 71/7/6, MEPC 71/7/7, MEPC 71/7/8, MEPC 71/7/9, MEPC 71/7/10, MEPC 71/7/11, MEPC 71/7/12, MEPC 71/7/13, MEPC 71/7/14, MEPC 71/INF.23, MEPC 71/INF.34, MEPC 71/INF.35, ISWG GHG 1/2/7) and on the basis of the work of ISWG-GHG 1 (MEPC 71/WP.5) and the Working Group at MEPC 71 (MEPC 71/WP.7), to:

- .1 further develop the structure and identify core elements of the draft initial IMO Strategy on reduction of GHG emissions from ships;
- .2 develop draft text for inclusion in the initial IMO GHG Strategy;
- .3 further consider how to progress the matter of reduction of GHG emissions from ships and advise the Committee as appropriate; and
- .4 submit a report to MEPC 72."

Opening of the meeting

4 The Chair welcomed the delegates and noted that, while the first meeting of the Intersessional Working Group (hereinafter the Group) established trust and the basis for discussion during MEPC 71, this meeting needed to establish convergence and develop draft text for inclusion in the draft initial IMO GHG Strategy, with a view to its finalization at ISWG-GHG 3.

5 The Secretary-General delivered an opening address and the Chair, in thanking him, stated that his suggestions would be given every consideration in the deliberations of the Group.

Adoption of the agenda

6 The Group adopted the agenda for the meeting (ISWG-GHG 2/1) and agreed to be guided in its work by document ISWG-GHG 2/1/1, containing annotations to the provisional agenda, the provisional list of documents submitted to this session and the provisional timetable.

7 The Group also noted that document ISWG-GHG 2/1/1 on proposed work arrangements in annex 1 identifying that to facilitate the development of draft text for inclusion in the initial IMO GHG Strategy, agenda item 2 (Further development of the structure and identification of core elements of the draft initial IMO Strategy on reduction of GHG emissions from ships) would focus on confirming the structure and core elements of the draft initial Strategy and that detailed consideration of proposed text would take place under agenda item 3 (Development of draft text for inclusion in the initial IMO GHG Strategy).

8 The Group, noting that there were no pending issues emanating from the documents referred to the Group in its terms of reference by MEPC 71, agreed to consider them as background material.

Further development of the structure and identification of core elements of the draft initial IMO Strategy on reduction of GHG emissions from ships

9 The Group recalled that MEPC 71 had welcomed the progress achieved at the first intersessional meeting and noted the draft outline of the structure of the initial IMO GHG Strategy prepared by the Working Group at MEPC 71 (MEPC 71/17, paragraph 7.25).

10 The Group considered the documents that specifically proposed further development of the structure of the draft initial IMO GHG Strategy, as follows:

- .1 ISWG-GHG 2/2 (Chair), proposing indicative suggestions to assist the Group in developing elements of a draft text for the initial IMO GHG Strategy, based on the draft outline of the structure of the initial Strategy noted by MEPC 71. This document provides further development of the structure and the Chair's views on the possible contents of the Strategy, without pre-empting the outcome of the discussions; to be used as the basis for the structure, including the addition of a sub-heading on "Objectives of the initial IMO GHG Strategy";
- .2 ISWG-GHG 2/2/5 (Argentina et al.), highlighting that the initial IMO GHG Strategy should be simple, durable and inspire immediate actions, and setting out the co-sponsors' view of the Strategy's possible elements in order for IMO to successfully adopt an initial Strategy in 2018. In particular, the co-sponsors propose that "Vision" and "Levels of ambition" be linked to the identification of "Impacts on States" and that this be a stand-alone headline. In the annex to the document, preliminary proposals on an initial IMO Strategy and work to be undertaken before 2023 are provided; and
- .3 ISWG-GHG 2/2/9 (Panama and Saudi Arabia) proposes a way to progress the Strategy further, taking into account the objectives of the Organization, the measures implemented, the measures under development and the concerns of Member States and industry. In particular, the co-sponsors propose the inclusion of two sub-headings "Guiding criteria of the Strategy" and "Guiding criteria of the measures" under heading 3 "Levels of ambition / Guiding principles", and provide a list of guiding criteria of both the Strategy and the measures.

11 In the ensuing discussion, the following comments were, inter alia, made:

- .1 there was a need to consider and identify at this early stage the format and presentation of the initial Strategy including whether it would be a public document that could be used by the Secretariat for communicating and whether the initial Strategy would be an MEPC resolution; and

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- .2 that document ISWG-GHG 2/2 should not be considered as the "base document" for drafting text.

12 Following discussion, the Group, noting that there may be several perceptions of the format and presentation of the initial Strategy and that this issue should be considered further, agreed to use document ISWG-GHG 2/2 as the basis for discussion and for the further development of the structure of the draft initial Strategy as follows:

- .1 Preamble/introduction/context/objectives including emission scenarios
- .2 Vision
- .3 Levels of ambition
Guiding principles
- .4 List of candidate short-, mid- and long-term 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

Development of draft text for inclusion in the initial IMO GHG Strategy

13 The Group agreed to follow the grouping of documents set out in the annotated agenda (ISWG-GHG 2/1/1).

14 Having recalled that during the first intersessional meeting the development of a vision statement for the reduction of GHG emissions from international shipping was an overarching goal, the Chair suggested that it would be more fruitful for the process to consider a vision, noting that it has been proposed to consider a vision along with levels of ambition and impacts on States.

15 In the ensuing discussion, the following comments were, inter alia, made:

- .1 there was a need for a clearer understanding of the candidate short-, mid- and long-term measures and thus candidate measures should be discussed prior to the items on vision, levels of ambition and guiding principles;
- .2 candidate measures should follow the vision and the levels of ambition and thus should be discussed as a last item; and
- .3 the Chair's proposal provides a useful compromise approach.

16 The Group agreed to develop text proposals for inclusion in the draft initial IMO GHG Strategy in the following order:

- .1 Vision;
- .2 Levels of ambition
Guiding principles;

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

Vision

17 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Vision", as follows:

- .1 ISWG-GHG 2/2 (Chair), providing indicative suggestions to assist the Group in developing elements of a draft text for the initial IMO GHG Strategy and providing specific text proposals under the headline "Vision", referring to a vision proposed by the Bahamas during ISWG-GHG 1 as follows: "The IMO is committed to the decarbonization of international shipping by the second half of the century";
- .2 ISWG-GHG 2/2/1 (ICS et al.), commenting on the draft outline for the structure of the initial IMO Strategy and suggesting the following draft vision for possible inclusion: "IMO is committed to the decarbonization of international shipping within the second half of the century";
- .3 ISWG-GHG 2/2/2 (Japan), providing comments and proposals on the comprehensive IMO GHG Strategy and proposing text for the initial IMO Strategy to be adopted at MEPC 72 in 2018, as set out in annexes 1 and 2;
- .4 ISWG-GHG 2/2/5 (Argentina et al.), highlighting that the initial IMO GHG Strategy should be simple, durable and inspire immediate actions, setting out the co-sponsors' view of the Strategy's possible elements in order for IMO to successfully adopt an initial Strategy in 2018; and support that a possible vision needs to be established in the initial Strategy, and its detail should be considered further;
- .5 ISWG-GHG 2/2/9 (Panama and Saudi Arabia), proposing a way to progress the Strategy further, taking into account the objectives of the Organization, the measures implemented, the measures under development and the concerns of Member States and industry; providing a list of guiding criteria of both the Strategy and the measures; and proposing the following vision: "IMO's vision is to reduce in the short term greenhouse gas emissions from ships to the lowest level possible by strengthening the implementation of the measures under development, and thereby contribute to reducing the vulnerability of climate change, serving the needs of the world through maritime transport with the usual effectiveness. Also, to achieve in the long term total reduction of greenhouse gas emissions of the maritime sector with the development of efficient technology and thus contribute to the construction of a clean and resilient future";

- .6 ISWG-GHG 2/2/10 (Angola et al.), proposing elements for the draft text of the initial IMO GHG Strategy, further developing proposals in documents MEPC 71/7/6 and ISWG GHG 1/2/8 providing, in particular, proposals for operationalizing CBDR-RC in developing the Strategy, and proposing the following vision: "IMO Member States are committed to a transition to a low-GHG-emission international shipping sector in the course of this century to support the purpose of the Paris Agreement, as stated in its Article 2, in the context of sustainable development, and in a manner that is consistent with the needs and capabilities of developing States";
- .7 ISWG-GHG 2/3 (Kiribati et al.), supporting that both the vision and the level of ambition contained within the initial IMO Strategy reflect the need for international shipping to fully decarbonize by 2050, in order to be consistent with the Paris Agreement goal of limiting average global temperature increase to no more than 1.5°C, and proposing the following vision: "The IMO is committed to the decarbonization of international shipping by the second half of the century"; and
- .8 ISWG-GHG 2/3/1 (Bahamas et al.), proposing a draft text for a vision to be included in the initial IMO GHG Strategy as follows: "The IMO is committed to the decarbonization of international shipping in the second half of the century".

18 In the ensuing discussion the following comments were, inter alia, made:

- .1 the vision should reach two goals of communicating a strong, clear and simple signal to the outside world and providing a direction for IMO's work;
- .2 the vision should be both ambitious and realistic, it should be aspirational and reflect what future should be like for international shipping;
- .3 the vision should incentivize the uptake of technology but remain technology neutral;
- .4 the vision developed for this initial Strategy should align with the Paris Agreement and a general reference to the relevant international instruments would enable avoiding selective quoting of these instruments;
- .5 the vision should not refer to precise timelines;
- .6 the vision should express the view that the ultimate goal of the Strategy is for the international shipping sector to target zero GHG emissions and should address the need for urgent action;
- .7 the definition of a vision should be addressed taking into account the Agenda 2030 Sustainable Development Goals, especially SDG 1 "End poverty in all its forms everywhere";
- .8 it should be agreed as to whether the vision stated in the initial Strategy should be that of the Organization or that of IMO Member States;
- .9 the word "decarbonization" is a new terminology for IMO and is not used in any other multilateral agreement including the Paris Agreement, thus the alternative expressions "low-GHG-emission sector", "carbon-neutrality",

- "lowest possible emissions", "zero-carbonization" and "zero-emissions" should also be considered for inclusion in the vision;
- .10 the word "decarbonization" raises several issues related to terminology, quantitative goals and timelines and the word "decarbonization" is ambiguous and needs to be defined;
- .11 in the context of IMO, "decarbonization" should refer to a process, a pathway to almost zero-emissions; and
- .12 the vision should recognize the Organization's previous efforts to address GHG emissions from ships.
- 19 Following discussion, the Group:
- .1 recalled that it was not instructed to develop a legally binding instrument and that the Strategy will be a platform for further IMO work on the reduction of GHG emissions from ships and that this further work could include legally binding instruments; and
- .2 noted that a vision to be included in the initial Strategy would not be able to capture everything, it needed to be short and precise, and that there was a clear linkage between vision, ambition and principles.
- 20 After a process of aiming at converging views, and with the understanding that further consideration of the vision will be needed, the Group noted two possible options for a vision, as follows:
- .1 "The IMO remains committed to reducing GHG emissions from international shipping and aims to phase them out as soon as possible in this century, in the context of sustainable development [and in line with the purposes and provisions of the UNFCCC and the Paris Agreement]"; and
- .2 "The IMO is committed to reducing GHG emissions from international shipping [to] [towards] zero [as soon as possible in the century] [by 2050]".

Levels of ambition Guiding principles

21 The Group noted that some delegations considered that the question of levels of ambition and guiding principles were intrinsically linked whereas other delegations considered they should be considered as standalone issues.

Levels of ambition

22 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Levels of ambition", as follows:

- .1 ISWG-GHG 2/2 (Chair), proposing indicative suggestions to assist the Group in developing elements of a draft text for the initial IMO GHG Strategy and providing specific text proposals that fall within the sub-headline "Levels of ambition" stating in particular that the goals/objectives of the Strategy should be consistent with the objective of the Paris Agreement;

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- .2 ISWG-GHG 2/2/1 (ICS et al.), suggesting draft text for possible inclusion, in particular under the sub-headline "Levels of ambition"; and recalling the necessity for the Strategy to match with the ambition of the Paris Agreement; calling for the definition of a baseline year for the early peaking of CO₂ emissions from international shipping; and providing aspirational objectives as a pathway to decarbonization;
 - .3 ISWG-GHG 2/2/2 (Japan), proposing short to mid-term goals to improve the energy efficiency of international shipping by 40% over 2008 by 2030, long-term goal to reduce net CO₂ emissions from international shipping by 50% over 2008 by 2060, subject to amendments depending on a review of its achievability to be conducted by IMO;
 - .4 ISWG-GHG 2/2/5 (Argentina et al.), linking the vision to the levels of ambition and proposing that the IMO Strategy should entail both short-term and long-term goals, whereby short-term goal should focus on enhancing operational energy efficiency of ships, while long-term goal should pursue uptakes of alternative or zero-carbon fuels, highlighting that any quantification of objectives should be defined following the three-step approach and stating that setting a global overall cap for shipping emissions would be ineffective;
 - .5 ISWG-GHG 2/2/9 (Panama and Saudi Arabia), stating that the level of ambition must be decisive and progressive in its increase, without defining points or degrees, but expected to reach a peak in GHG emissions and to follow a gradual decrease to zero GHG emissions from ships;
 - .6 ISWG-GHG 2/2/10 (Angola et al.), emphasizing the linkage between the agreed level of ambition and guiding principles for its achievement and proposing level of ambition is developed under "operational efficiency" and "design efficiency";
 - .7 ISWG-GHG 2/2/12 (Belgium et al.), stating that in order to contribute to the long-term temperature goal of the Paris Agreement, a global emissions pathway is needed for international shipping in which emissions start declining as soon as possible and reduce to zero. This document uses a number of methods to calculate a range of quantifications of IMO's level of ambition and proposes as the level of ambition the reduction of GHG emissions from international shipping by at least 70%; to pursue efforts to achieve 100% reduction by 2050, compared to 2008; states that to be consistent with the temperature goal of the Paris Agreement, international shipping's GHG emissions should reduce linearly; and presents in the annex draft text proposals for inclusion in the initial IMO GHG Strategy under the heading "levels of ambition";
 - .8 ISWG-GHG 2/2/14 (OECD), aiming to provide an improved understanding of the level of ambition necessary for the shipping sector to meet the targets set by the Paris Agreement, building on a recent report released by the International Energy Agency, framing the shipping results in the context of an assessment that looks at the changes needed across the whole energy sector and focusing on a 1.75°C target;
 - .9 ISWG-GHG 2/2/17 (Canada and New Zealand), supporting the inclusion of a sector-wide level of ambition as part of the initial comprehensive IMO GHG Strategy to be agreed in 2018; placing particular emphasis on the

development of a pathway for emission reductions to allow IMO to reach a level of ambition that will meet the goals of the Paris Agreement; and building on the work of ISWG-GHG 1 and MEPC 71 to explore options for a way forward to achieve agreement on an initial Strategy by 2018; and

- .10 ISWG-GHG 2/3 (Kiribati et al.), supporting the view that both the vision and the level of ambition contained within the initial IMO Strategy reflect the need for international shipping to fully decarbonize by 2035, in order to be consistent with the Paris Agreement goal of limiting average global temperature increase to no more than 1.5°C.

23 In the ensuing discussion the following comments were, inter alia, made:

- .1 absolute emission cap could impede the development of shipping activity;
- .2 the Strategy should be energy efficiency-based;
- .3 the revised Strategy should include levels of ambition based on the results of data analysis in line with the Roadmap;
- .4 recent data showed that carbon intensity of international shipping has decreased by approximately 34% since 2008 and thus this should be taken into account in the definition of levels of ambition based on carbon intensity;
- .5 CO₂ is generally used as the proxy for GHG emissions from international shipping; and
- .6 that the levels of ambition should be realistic to avoid negative impacts on shipping and developing countries.

24 Following discussion, the Group noted that various possible approaches to set the levels of ambition could be presented as a package or individually. Four approaches to set ambition could be characterized as follows:

- .1 annual total GHG emissions from international shipping to be kept below a defined level;
- .2 GHG emissions from international shipping to peak and then decline;
- .3 carbon intensity of international shipping to decline; and
- .4 carbon intensity of the ship to decline.

25 Following review, the following comments were, inter alia, made:

- .1 the proposals made by several delegations consisted of a package of the approaches to achieve the ambition, and that the approach taken to identify proposals individually did not adequately reflect the initial proposal;
- .2 in the context of IMO, energy efficiency has previously been referred to as being equivalent to carbon intensity, as the indicators/indices used for energy efficiency combine fuel consumption, a carbon factor parameter for different fuels and a characterization of transport work;

- .3 retrofitting of ships should not be considered in terms of cost alone and should be kept open for possible candidate measure to reach the defined levels of ambition; and
- .4 it is critical that a peak year for emissions is identified and should be no later than 2020.

Guiding principles

26 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Guiding principles", as follows:

- .1 ISWG-GHG 2/2 (Chair), proposing indicative suggestions to assist the Group in developing elements of a draft text for the initial IMO GHG Strategy; providing specific text proposals that fall within the sub-headline "Guiding principles"; stating in particular that the Strategy should be cognizant of the principles enshrined in instruments already developed;
- .2 ISWG-GHG 2/2/1 (ICS et al.), suggesting draft text for possible inclusion, in particular under the sub-headline "Guiding principles" that levels of ambition and objectives for CO₂ emission reductions by international shipping do not imply any kind of commitment or intention to place a binding cap on either the sector's total CO₂ emissions or the emissions of individual ships; the need for the final Strategy to include an analysis of whether or not the proposed objectives are likely to be achievable with technical measures alone; and the need for the objectives in the final Strategy to be consistent with the three-step approach and to be subject to periodic review;
- .3 ISWG-GHG 2/2/2 (Japan), considering in particular that the nine principles adopted by MEPC 57 should be the fundamental principles;
- .4 ISWG-GHG 2/2/5 (Argentina et al.), proposing guiding principles inspired by resolution MEPC.229(65) on *Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships*;
- .5 ISWG-GHG 2/2/8 (Australia and New Zealand), outlining the co-sponsors' view that the nine principles agreed at MEPC 57 provide a sound basis for progressing discussions on the measures to be included in the Strategy and concerns about inclusion of the principle of CBDR-RC in the Strategy;
- .6 ISWG-GHG 2/2/9 (Panama and Saudi Arabia), distinguishing guiding principles, guiding criteria of the Strategy and guiding criteria of the measures;
- .7 ISWG-GHG 2/2/10 (Angola et al.), providing proposals for operationalizing CBDR-RC in developing the Strategy; and
- .8 ISWG-GHG 2/2/13 (Belgium et al.), providing considerations and draft text for inclusion in the initial IMO GHG Strategy focusing on preamble/introduction/context including emissions scenarios, guiding principles, follow-up actions towards the development of the revised Strategy and periodic review of the Strategy.

- 27 In the ensuing discussion the following comments were, inter alia, made:
- .1 the guiding principles are inherently linked to levels of ambition;
 - .2 a key principle should be that there is no absolute cap on GHG emissions from international shipping that could impede development of States and shipping;
 - .3 the nine principles developed by MEPC 57 have already been used by IMO in adopting EEDI and SEEMP, provide a pragmatic way forward and thus should also be endorsed in the initial IMO GHG Strategy, with the adding of a tenth principle addressing the impacts on SIDSs and LDCs;
 - .4 the principles developed by MEPC 57 did not receive a full support and progress have been made since, thus they should not be endorsed by IMO as guiding principles for its initial GHG Strategy;
 - .5 the principle of no-more favourable treatment applies to non-Party ships and seeks to ensure that those ships are not favoured if they don't comply with international mandatory instruments;
 - .6 in case CBDR-RC is imported into the IMO regulatory process, there is a risk to undermine technological development;
 - .7 operationalizing CBDR risks undermining the effectiveness and ambition of the Strategy; there is no consensus on exporting CBDR/RC out of the UNFCCC; remote geographical situation is not specific to developing States and thus should not be seen as a justification for differentiation under the principle of CBDR-RC and it is possible to arrive at a Strategy that is fair to all without reference to CBDR;
 - .8 there is a need to evaluate how CBDR-RC would apply and possible ways to differentiate measures without discrimination should be further investigated;
 - .9 the initial Strategy could not acknowledge long-term temperature goals of the Paris Agreement on the one hand and reject its guiding principles on the other hand;
 - .10 no more favourable treatment is a principle that reflects the very nature of shipping and made the IMO a successful international organization, it is the reason why shipping was not included in the Paris Agreement;
 - .11 the guiding principles would be better addressed when the Group discusses candidate measures;
 - .12 "No More Favourable Treatment" should be the fundamental principle for the Strategy;
 - .13 CBDR has no relevance to the work of IMO, and the initial IMO Strategy must respect IMO's non-discriminatory and non-differentiated approach to regulating the international shipping sector;
 - .14 the principle of CBDR-RC does not necessarily conflict with principle of no more favourable treatment; and

- .15 all principles enshrined in the UNFCCC, including CBDR-RC and article 3.5 of that Convention, apply to GHG emissions from the maritime sector. Those principles should be reconciled with those which are specific to the competence of the IMO.

28 Following discussion, the Group noted that various possible approaches could be used to identify the guiding principles for the Strategy. Four approaches could be characterized as follows:

- .1 reflecting principles of IMO and UNFCCC in the Strategy;
- .2 reflecting impacts on States, in particular LDCs and SIDS;
- .3 other guiding principles including those identified previously or in proposals made; and
- .4 operationalizing CBDR-RC in international shipping.

List of candidate short-, mid- and long-term measures with possible timelines and their impacts on States

29 The Group recalled that the initial IMO GHG Strategy should include, inter alia, a list of candidate short-, mid- and long-term further measures with possible timelines.

Timelines

30 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Timelines", as follows:

- .1 ISWG-GHG 2/2 (Chair), providing suggestions to identify and explain timelines as follows: short-term measures could be finalized and agreed by the MEPC between 2018 and 2023, mid-term measures between 2023 and 2030 and long-term measures beyond 2030;
- .2 ISWG-GHG 2/2/2 (Japan), providing suggestions to identify and explain timelines as follows: short-term measures could be finalized and agreed by the MEPC between 2018 and 2023, mid-term measures between 2023 and 2030, and long-term measures beyond 2030;
- .3 ISWG-GHG 2/2/4 (Norway), providing further input on candidate measures to be included in the initial GHG Strategy as referred to in the Roadmap agreed at MEPC 70; exploring a method to evaluate reduction mechanisms using updated marginal abatement cost curves (MACCs); evaluating relevant measures on cost-benefit, barriers to implementation, impact on States, and potential implication on emissions reduction from international shipping; and proposing a list of prioritized measures to be evaluated for inclusion in the Strategy and putting forward timelines for the proposed candidate measures; and
- .4 ISWG-GHG 2/2/11 (United Kingdom); supporting the structuring of work and prioritization of candidate measures in the initial IMO Strategy to be adopted in spring 2018; noting the need for GHG emissions from the sector to peak and decline, placing particular emphasis on when emissions reductions are likely to arise from candidate measures and the resulting need for urgent action; noting work on mid- and long-term measures will be required

between 2018 and 2023 in order to ensure emission reductions will occur in the requisite timeframe; building on the work of ISWG-GHG 1 and MEPC 71, proposing text elements for the initial Strategy, as well as steps to expedite the work of the Group to deliver emissions reductions in a timely fashion, supporting in particular the approach to define short-, mid- and long-term measures to be: short-term 2018 to 2023, mid-term 2023 to 2030, and long-term to be beyond 2030.

- 31 In the ensuing discussion the following comments were, inter alia, made:
- .1 measures should be developed in parallel with the three-step approach;
 - .2 measures could be categorized as those the effect of which is to directly reduce GHG emissions from ships and those which support action to reduce GHG emissions from ships;
 - .3 date of entry into force of the measures should be addressed at an early stage to provide confidence to the industry;
 - .4 measures should be categorized as short-, mid- and long-term based on both when they will achieve reductions in GHG emissions as well as the time required for implementation and development;
 - .5 there is a need to implement GHG reduction measures before 2023 to reach the 1.5 degrees Paris Agreement temperature goal; and
 - .6 early action is preferred but the timeframe for measures was already outlined in the Roadmap, which underlined the need to respect the three-step approach.
- 32 Following discussion, the Group:
- .1 agreed to consider that candidate measures for inclusion in the initial IMO GHG Strategy should be consistent with the following timelines:
 - .1 candidate short-term measures could be measures finalized and agreed by the MEPC 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;
 - .2 candidate mid-term measures could be measures finalized and agreed by the MEPC between 2023 and 2030. Dates of entry into force and when the measure can effectively start to reduce GHG emissions would be defined for each measure individually; and
 - .3 candidate long-term measures could be measures finalized and agreed by the MEPC beyond 2030. Dates of entry into force and when the measure can effectively start to reduce GHG emissions would be defined for each measure individually; and
 - .2 supported the need for early action.

Candidate short-, mid- and long-term measures and methodologies to assess them

33 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Candidate short-term measures", as follows:

- .1 ISWG-GHG 2/2 (Chair), providing a list of possible short-term measures as noted by ISWG-GHG 1 (MEPC 71/WP.5, paragraph 29);
- .2 ISWG-GHG 2/2/1 (ICS et al.), highlighting the need for the development of more energy efficient propulsion technologies and alternative marine fuels and stating that the revised Strategy should include an analysis of whether or not the level of ambition and objectives identified in the initial Strategy are likely to be achievable with technical and operational measures alone;
- .3 ISWG-GHG 2/2/2 (Japan), grouping short-term measures in three categories: ship design improvement, operational improvement, and study on alternative fuels, identifying Market-Based Measures under mid-term measures, of which substantial discussion should be launched promptly, and identifying only alternative fuels under long-term measures;
- .4 ISWG-GHG 2/2/3 (Singapore), proposing a methodology to assess the "Overall Readiness" of measures and outline areas where further action is needed to increase the respective measures' uptake whereby "Overall Readiness" depends on three broad factors: technology readiness level, time to implement and system readiness; and applying the methodology to alternative energy sources as an example;
- .5 ISWG-GHG 2/2/4 (Norway), identifying six priority short-term measures, three priority mid-term measures and providing further input on candidate measures to be included in the initial GHG Strategy as referred to in the Roadmap agreed at MEPC 70, exploring a method to evaluate reduction mechanisms using updated MACCs; and evaluating relevant measures on cost-benefit, barriers to implementation, impact on States and potential implication on emissions reduction from international shipping;
- .6 ISWG-GHG 2/2/5 (Argentina et al.), highlighting that the initial IMO GHG Strategy should be simple, durable and inspire immediate actions. Accordingly, it sets out the co-sponsors' view of the Strategy's possible elements in order for IMO to successfully adopt an initial Strategy in 2018. In the annex to this document, preliminary proposals on an initial IMO Strategy and work to be undertaken before 2023 are provided;
- .7 ISWG-GHG 2/2/6 (Argentina et al.), focusing on the development of national action plans by Member States to facilitate reduction of GHG emissions from international shipping;
- .8 ISWG-GHG 2/2/7 (Argentina et al.), providing the main findings of a statistical analysis carried out by the co-sponsors on the characteristics of operational energy efficiency of ships and the properties of regression lines of the potential operational energy efficiency performance indicator and proposing further in depth studies based on data through the already adopted IMO data collection system, with a view to facilitating more informed progress on reduction of GHG emissions from ships in the three-step approach;

- .9 ISWG-GHG 2/2/9 (Panama and Saudi Arabia), providing a list of guiding criteria of the measures;
- .10 ISWG-GHG 2/2/10 (Angola et al.), stating that short-term measures should focus on the implementation of the Roadmap, notably to strengthen existing regulations, that mid-term measures would consist in a preparation phase and that long-term measures would consist in a transition phase towards a low-carbon future for shipping;
- .11 ISWG-GHG 2/2/11 (United Kingdom), providing a structured analysis of candidate measures and identifying seven priority measures for development and implementation before 2023, three priority measures for development and implementation before 2030 and one long-term measure for development and implementation from 2030;
- .12 ISWG-GHG 2/2/14 (OECD), proposing several short-term measures for consideration to be included in the initial IMO GHG Strategy including a revision of the ambition of the current EEDI framework, the development of an operational efficiency standard, the development of a mechanism enabling the adoption of a CO₂ price for shipping fuel, the expansion of port-based incentives, the development of a policy framework aiming to reduce the overall carbon intensity of shipping fuels over time and the launch of a stakeholder consultation group to identify the most promising pathways for zero-carbon shipping and work towards the definition of policies; proposing several mid-term measures including the implementation of a revised EEDI, the implementation and strengthening of the operational efficiency standard, the implementation of policies aiming to reduce the overall carbon intensity of shipping fuels and full implementation of a GHG emission pricing mechanism; and several long-term measures including to scale up the ambition of mid-term measures and revise and update the Strategy as needed;
- .13 ISWG-GHG 2/2/15 (Chile), presenting elements to consider in the analysis of speed reduction from ships as a possible candidate short-term measure, highlighting in particular the importance to consider and analyse the impact of trade due to more time spent to arrive to markets and how this could affect competitiveness, effectiveness in terms of GHG emissions reduction and other pollutants, increase on transport costs, safety issues, distortion of the market or to trade and that speed reduction does not impact on shipping's capability to serve remote geographic areas as well as transport certain cargo;
- .14 ISWG-GHG 2/2/16 (CSC), stressing the importance of peaking and reducing emissions from international shipping as soon as possible and presenting information in support of the use of operational speed management to this end;
- .15 ISWG-GHG 2/2/18 (Australia et al.), identifying short-term measures that can be considered in the initial comprehensive IMO GHG Strategy to be agreed in 2018; placing particular emphasis on five short-term measures that could lead to early reductions in order to address the need for urgent action: EEDI review, operational efficiency monitoring, speed reductions, R&D council and port activity; and

- .16 ISWG-GHG 2/2/19 (IMarEST), proposing a way to systematically identify measures to address GHG emissions from ships, and discussing ways in which measures can be evaluated ex-ante.

34 In the ensuing discussion the following comments were, inter alia, made:

- .1 at this stage no candidate measure should be discarded;
- .2 the Strategy should provide advice to the Committee on how to prioritize among the candidate measures;
- .3 the Strategy should focus on those measures that provide the largest emissions reduction and those which can provide immediate effect;
- .4 speed reduction is problematic and may lead to market distortion and so focus should be on "speed optimization" which is already reflected in the SEEMP;
- .5 safety implications of any measures impacting speed of ships need to be taken into account;
- .6 speed reduction has safety implications and when considering both speed reduction and speed optimization for inclusion in the initial Strategy, the work of MEPC on the revision of the *2013 Interim guidelines for determining minimum propulsion power to maintain the manoeuvrability of ships in adverse conditions* should be taken into account;
- .7 market-based measures should be addressed as candidate mid-term measures since they are designed to provide an uptake of alternative fuels;
- .8 market based measures should be addressed as candidate mid-term measures in order to help incentivize uptake of alternative fuels. Potentially market based measures can be designed not to only remove funds from the sector but also to bring funds into the sector to support greater emission reductions;
- .9 the Organization's has already adopted under MARPOL Annex VI a measure that from 2020 that will require ships to use fuel oil with a sulphur content not exceeding 0.50% which is in itself a "market-based measure" as the cost of liquid fuels used by shipping globally is likely to increase significantly providing an incentive for ships to become more energy efficient and reduce GHG emissions further;
- .10 early movers should be incentivized but also it is important that they have confidence that they will not be penalized at a later date;
- .11 first movers have to be incentivized to encourage the development and take-up of innovative technologies and fuels;
- .12 the Organization could facilitate the coordination of bottom-up approach measures by adopting guidelines that are globally applicable;
- .13 funds raised through a market-mechanism should stay in the shipping sector and be limited to financing R&D for GHG emission reduction for international shipping;

- .14 MEPC 71 agreed to explore accelerating the application of the EEDI 2025 stringency levels to 2022, as well as the development of additional phases of reduction, which would send an early signal to encourage investment in the development and deployment of new, low-carbon technologies;
- .15 regulating and enforcing an operational element such as speed, is extremely challenging. Therefore, the matter must be analysed very carefully;
- .16 it is very important to make a distinction between binding measures developed at IMO and voluntary and/or supplementary actions, in relation to for instance national action plans;
- .17 national action plans regarding GHG emissions from the maritime sector are measures consistent with the Paris Agreement and they may be also a short-term measure; and
- .18 MEPC 63 had agreed that the impact assessment focus should be on possible impacts on consumers and industries in developing countries.

35 Following discussion, the Group:

- .1 agreed to keep the list of candidate measures open at this stage and not preclude any measures;
- .2 noted that candidate measures could be grouped in two categories as follows:
 - .1 measures the effect of which is to directly reduce GHG emissions from ships; and
 - .2 measures which support action to reduce GHG emissions from ships;
- .3 noted that following the adoption of the Strategy there is a need for the Committee to take specific action and as such an action plan should be developed;
- .4 noted that several methodologies to assess the candidate short-, mid- and long-term measures had been proposed and that these required further consideration; and
- .5 agreed that prior to adopting a measure, impact on States need to be considered.

Impacts on States

36 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Impacts on States", as follows:

- .1 ISWG-GHG 2/2/2 (Japan), proposing text for the initial Strategy, considering that the ambition and measures under the Strategy should be considered in relation to costs and benefits and impacts on States as well as trade and sustainable development, and that periodical updates of MACC analysis are necessary in this context;

- .2 ISWG-GHG 2/2/4 (Norway), providing further input on candidate measures to be included in the initial Strategy as referred to in the Roadmap agreed at MEPC 70; exploring a method to evaluate reduction mechanisms using updated MACCs; evaluating relevant measures on cost-benefit, barriers to implementation, impact on States, and potential implication on emissions reduction from international shipping; and proposing a list of prioritized measures to be evaluated for inclusion in the Strategy;
- .3 ISWG-GHG 2/2/5 (Argentina et al.), expressing that detailed evaluations need to be conducted to assess the potential impacts of the Strategy, including impacts on growth, costs and trade in all Member States, especially developing States, as a means to identify their technology transfer and financial needs, if any;
- .4 ISWG-GHG 2/2/10 (Angola et al.), proposing elements for the draft text for the initial IMO GHG Strategy, further developing proposals in documents MEPC 71/7/6 and ISWG GHG 1/2/8 and providing solutions to operationalize CBDR-RC in international shipping, addressing thus the issue of the impact on States of candidate measures;
- .5 ISWG-GHG 2/2/11 (United Kingdom), supporting the structuring of work and prioritization of candidate measures in the initial Strategy to be adopted in spring 2018;
- .6 ISWG-GHG 2/2/15 (Chile), presenting elements to consider in the analysis of speed reduction from ships as a possible candidate short-term measure and the importance to take into account the impact on States from an exporter point of view; and
- .7 ISWG-GHG 2/2/19 (IMarEST), proposing a way to systematically identify measures to address GHG emissions from ships and discussing ways in which measures can be evaluated ex-ante.

37 In the ensuing discussion the following comments were, inter alia, made:

- .1 the purpose of the Strategy is to achieve change and so there will be an impact that will have to be fair to all; impacts specific to a measure need to be considered and not in the abstract, including in terms of transport cost but also in terms of markets such as export costs, distance from markets, and to consider how to correct negative impacts;
- .2 impacts are required to be studied before adoption;
- .3 study by Norway is a good example of assessment of the impacts and updates of MACC should be encouraged, and that scope of impacts on developing States, including LDCs and SIDs, should be broadened;
- .4 studies on speed reduction should consider including the benefit of cost reduction due to reduced fuel oil consumption;
- .5 impacts need to be fair and proportionate;
- .6 the impact on the seafarer must be considered;

- .7 prior assessment is required including identification of measure specific economic impacts and mitigating action implemented before a measure is applied;
- .8 speed reduction, in particular, needs to consider the impact on perishable goods in terms of quality and price achieved at market;
- .9 whilst an assessment of impacts is important, it should not be used as an excuse to delay early action required to ensure a timely response to the ambition;
- .10 impacts on the three pillars of the SDGs: social, economic and environment, need to be considered, and as agreed in the first meeting both ambition and measures need to be considered in relation to costs and benefits and impacts on States and as such the process would be iterative; and
- .11 the impact on food security needs to be considered.

38 Following discussion, the Group agreed that the initial IMO GHG Strategy should identify that the impact of candidate measures on States should be considered before adoption of a measure.

Barriers and supportive measures; capacity building and technical cooperation; R&D

39 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Barriers and supportive measures; capacity building and technical cooperation; R&D", as follows:

- .1 ISWG-GHG 2/2 (Chair), providing text proposals under the headline in particular related to the special requirements of developing countries or to mechanisms for facilitating information sharing, technology transfer, capacity building and technical cooperation;
- .2 ISWG-GHG 2/2/1 (ICS et al.), commenting on the draft outline for the structure of the initial Strategy and suggesting draft text for possible inclusion, highlighting in particular the vital need for substantial and sustained international research and development efforts;
- .3 ISWG-GHG 2/2/2 (Japan), expressing in particular that capacity building and technical cooperation under the IMO's Integrated Technical Cooperation Programme (ITCP) and other initiatives such as the Global Maritime Energy Efficiency Partnerships Project (GloMEEP) and the Global Industry Alliance (GIA), in accordance with resolution MEPC.229(65), should be further enhanced;
- .4 ISWG-GHG 2/2/4 (Norway), exploring a method to evaluate reduction mechanisms using updated MACCs and evaluating relevant measures on cost-benefit, barriers to implementation, impact on States and potential implication on emissions reduction from international shipping;
- .5 ISWG-GHG 2/2/5 (Argentina et al.), highlighting that barriers to emissions reductions should be identified, the needs of developing States addressed, and that IMO should continue playing a pivotal role in providing assistance to its Member States;

- .6 ISWG-GHG 2/2/6 (Argentina et al.), focusing on the development of national action plans by Member States to facilitate reduction of GHG emissions from international shipping;
- .7 ISWG-GHG 2/2/10 (Angola et al.), highlighting the importance of resolution MEPC.229(65) and the recent experience of the Ad hoc Expert Working Group on Facilitation of Transfer of Technology for Ships, also acknowledging the role played by the ITCP and IMO GloMEEP and GMN projects; and
- .8 ISWG-GHG 2/2/11 (United Kingdom), proposing six types of supportive measures and that the identification of the role of IMO should be considered to consider whether regulatory action or not is required to implement some of the candidate measures.

40 In the ensuing discussion the following comments were, inter alia, made:

- .1 a key barrier is the need for the development of innovative technology and alternative fuels;
- .2 the matter is related to impact on States, as once those impacts of measures are identified then there is a need to identify how barriers can be addressed and supportive measures such as technical cooperation and capacity building, R&D, can be applied;
- .3 the use of "keel laying date" to determine when a new ship is constructed is a potential barrier to uptake of innovative technologies and so defining an alternative date of application for when new ships need to comply should be considered;
- .4 there is need to identify both barriers and also how those barriers can be overcome with support primarily focused on LDCs and SIDS;
- .5 actions such as the proposed National Action Plans (NAPs) should not lead to unilateral action for visiting ships and should be complementary to any international action;
- .6 there is a need to learn lessons from the approaches already taken to address the needs of developing countries;
- .7 seafarers play an important role in achieving effective GHG emissions reduction from ships and so their training needs particular attention; and
- .8 IMO's ITCP provides an essential contribution to capacity building and technical cooperation.

41 Following discussion, the Group agreed that the initial IMO GHG Strategy should address in a broad and generic way barriers and supportive measures; capacity building and technical cooperation; and R&D, and that the matter would be considered further.

Preamble/introduction/context/objectives including emission scenarios

42 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Preamble/introduction/context/objectives including emission scenarios", as follows:

- .1 ISWG-GHG 2/2 (Chair), providing specific text proposals under the headline;
 - .2 ISWG-GHG 2/2/1 (ICS et al.), commenting on the draft outline for the structure of the initial IMO Strategy and suggesting draft text for possible inclusion; and proposing that the initial Strategy applies a non-binding approach with respect to the level of ambition for international shipping and recognizes that all estimates of emissions from international shipping contain uncertainty;
 - .3 ISWG-GHG 2/2/5 (Argentina et al.), highlighting the critical importance of IMO in providing continuous leadership to international shipping in limiting or reducing its emissions that contribute to global climate change;
 - .4 ISWG-GHG 2/2/10 (Angola et al.), providing a proposal of terms of reference for the Fourth IMO GHG Study; and
 - .5 ISWG-GHG 2/2/13 (Belgium et al.), noting the link between IMO's work and global climate policies; in order to show that IMO does not act in isolation; stating that the emissions estimates have improved considerably over time in the three IMO GHG Studies, thus the data are robust and form a good basis for policy making; and considering it useful to clearly state the objectives of the initial Strategy insofar as they differ from the objectives of the comprehensive Strategy.
- 43 In the ensuing discussion the following comments were, inter alia, made:
- .1 the approach of the Paris Agreement with respect to ambition should be applied to international shipping;
 - .2 the preamble should make reference to the Paris Agreement;
 - .3 selective quoting from Paris Agreement is problematic and should not be included in the preamble as there is a risk of misinterpretation or lack of complete balance in what is presented;
 - .4 the Paris Agreement is a legal binding treaty, and Parties to UNFCCC have not agreed to global peaking but rather have agreed to aim for global peaking of emissions and recognizes that peaking will take longer for developing countries;
 - .5 the preamble could refer to ICAO resolution A38-18, which makes reference to "special circumstances and respective capabilities of States, in particular developing countries";
 - .6 context should not indicate that IMO is higher body than UNFCCC;
 - .7 reference to other agreements in the preamble is not supported;
 - .8 IMO mission statement should be included in the preamble;
 - .9 the preamble should acknowledge the work of the MEPC and that recent trends in GHG emissions and cost impacts need to be considered as part of the context, along with data and cost benefit analyses;

- .10 the agreement by MEPC 57 of nine principles that were used for the development of subsequent measures, including energy efficiency, should be reflected in the introduction;
- .11 the preamble should be kept short and should be finalized at the end;
- .12 the intention is not to copy the Paris Agreement which applies to parties but in acknowledging that it is a key driver for the Strategy it should be also recognized that this Strategy seeks the reduction of GHG emissions from ships;
- .13 there is no benefit in the insertion of a sub-heading on the objectives of the Strategy and its inclusion is not supported;
- .14 the inclusion of a reference to CBDR-RC in the preamble is welcome, but that would not suffice to operationalize the concept in the Strategy; and
- .15 the lead role of the Organization in addressing GHG emissions from ships should be acknowledged.

44 Following discussion, the Group noted that further consideration was needed.

45 The Chair provided the Group with information that the Organization had adopted in September 1997, during the 1997 Air Pollution Conference, Resolution 8 on *CO₂ emissions from ships*.

Follow-up actions towards the development of the revised Strategy

46 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Follow-up actions towards the development of the revised Strategy", as follows:

- .1 ISWG-GHG 2/2 (Chair), providing a timeline recalling the key stages for the adoption of a revised Strategy in 2023;
- .2 ISWG-GHG 2/2/1 (ICS et al.), highlighting the need for the Organization to prepare a plan for preliminary work on initial measures to be finalized and agreed by 2023;
- .3 ISWG-GHG 2/2/2 (Japan), recalling in particular the Roadmap adopted by MEPC 70;
- .4 ISWG-GHG 2/2/4 (Norway), providing a timeline to show the dependencies of the proposed measures and the relation to the three-step approach running from 2018 to 2030, and that there is a need to undertake additional GHG emissions studies and consider other studies to inform policy decisions, and to regularly evaluate measures addressing marine propulsion; alternative low-carbon and zero-carbon fuels; and other innovative technologies; making and updating MAC curves and establish a common framework to enable comparison;
- .5 ISWG-GHG 2/2/5 (Argentina et al.), proposing five main follow-up actions to be established in the initial IMO GHG Strategy, based on data analysis, further studies and impact assessment of the Strategy; and inviting the submission of national action plans and dissemination of best practices;

- .6 ISWG-GHG 2/2/10 (Angola et al.), highlighting the need to update resolution A.963(23) and the importance of assessing the impact of other regulations such as the global SO_x limit; and
 - .7 ISWG-GHG 2/2/13 (Belgium), highlighting the need to evaluate candidate measures during the process.
- 47 In the ensuing discussion the following comments were, inter alia, made:
- .1 currently all measures are candidate measures and so it is not possible to be specific about follow up action on individual measures;
 - .2 there is a need for any follow up actions to be consistent with the roadmap and that those actions would be dependent on the final initial Strategy; and
 - .3 there is a need to take into account the impact of other IMO measures on GHG emissions, such as the 2020 limit on the sulphur content of fuel oil.
- 48 Following discussion, the Group noted that further consideration was needed.

Periodic review of the Strategy

- 49 The Group considered the relevant parts of the documents related to draft text proposals under the headline "Periodic review of the Strategy", as follows:
- .1 ISWG-GHG 2/2 (Chair), providing suggestions on the definition of modalities for monitoring and review to assess the effectiveness of the measures;
 - .2 ISWG-GHG 2/2/1 (ICS et al.), suggesting draft text for possible inclusion, focusing in particular on the need for a comprehensive review of the Strategy in 2033;
 - .3 ISWG-GHG 2/2/2 (Japan), noting that the Strategy should be reviewed and adjusted even after 2023, taking into account factors such as up-to-date data on GHG emissions from international shipping, impact of the GHG emissions reduction measures on maritime trade, and the availability and potential of technological and development of low carbon fuels, propulsion technology and other relevant technology;
 - .4 ISWG-GHG 2/2/5 (Argentina), stating that the periodic review shall be based on the data collected and experience gained in the development and implementation of national action plans;
 - .5 ISWG-GHG 2/2/10 (Angola et al.), stating that the review should entail two tracks: a periodic stocktake of its implementation and a comprehensive review exercise; and
 - .6 ISWG-GHG 2/2/13 (Belgium et al.), proposing a review period of five years in order to be consistent with the COP periodic review of the Paris Agreement.

- 50 In the ensuing discussion the following comments were, inter alia, made:
- .1 the review is necessary so that the IMO can assure itself that it is doing what it needs for the world, and as such the periodic review could make reference to a need to refer to "international developments on climate science and action to address climate change";
 - .2 a five year review period should be established, consistent with the global stocktake being undertaken under the Paris Agreement;
 - .3 the review should have a synergy with the Paris Agreement and should make use of data from the three step approach to refine the objectives of the Strategy;
 - .4 reference to the Paris Agreement's global stocktake should be avoided;
 - .5 the period between reviews should be established by the IMO to meet the needs of international shipping;
 - .6 the review period needs to be such to permit a change in strategy to reflect a change in ambition;
 - .7 proposed National Action Plans should not be the basis for reviewing the Strategy;
 - .8 the review period should be 10 years to reflect the time it will take for measures to be developed and implemented to effect emissions reduction from international shipping;
 - .9 the review period should be flexible but the initial review should not be too late, otherwise it would become less relevant;
 - .10 the five year period is consistent with the roadmap and that action is now being taken by the IMO because of the Paris Agreement;
 - .11 what is the purpose of the review? To review progress against the Strategy or reviewing the Strategy with a view to updating it?;
 - .12 the Kyoto Protocol identifies that international shipping and aviation were recognized as sectors that IMO and ICAO should address respectively; is the desired alignment with the Paris Agreement global stocktake therefore not pre-judging the agreed three step approach;
 - .13 when the revised Strategy is adopted in 2023, the elements that the five year review should contain should be considered by MEPC;
 - .14 revised Strategy should identify future review period, and not all elements need to be considered in the review as, for example, it is unlikely principles will be amended whereas GHG inventories are likely to be examined every five years;
 - .15 the use of a standalone technical expert group to undertake the review is supported but would require MEPC to establish terms of reference and consider how it will operate and funding;

- .16 the use of a standalone technical expert group to undertake the review is not supported at this stage and the work should remain under direction of MEPC;
- .17 a standalone technical expert group should be geographically balanced, equitably representing developing and developed countries;
- .18 scope of review should include measures and other elements and should measures be shown to be detrimental there may be a need to review earlier than five years; and
- .19 five-year review cycle may be ambitious considering time to develop and adopt IMO instruments.

51 Following discussion, the Group agreed that the initial IMO GHG Strategy could address the periodic review of the Strategy, as follows:

- .1 the periodic review could be every five years or 10 years and would be dependent on the content of the Strategy which may indicate the need for a partial review in five years and a comprehensive review after 10 years; and
- .2 the review should be undertaken by the Committee which would also determine the scope of the review required including terms of reference.

Draft initial IMO Strategy on reduction of GHG emissions from ships

Possible format of the initial IMO Strategy for approval/adoption by the Committee

52 The Group considered several formats for approval/adoption of the initial Strategy by the Committee including:

- .1 MEPC resolution with an annex;
- .2 MEPC resolution without an annex; and
- .3 approval by MEPC and inclusion as an annex to the Committee's report.

53 Following consideration, the Group agreed that the initial Strategy should be adopted by MEPC resolution with an annex providing the text of initial IMO Strategy.

Status of development of draft text for inclusion in the initial IMO GHG Strategy

54 Noting that nothing is agreed until everything is agreed, the Group had an initial consideration of a progress document which is set out in the annex.

55 In the ensuing discussion the following comments were, inter alia, made:

- .1 it is unclear what the status of the text is and so it should be made clearer that all the text is draft and nothing is agreed;
- .2 the draft resolution had been presented but had not been considered owing to time constraints;
- .3 the document reflects areas of compromise and where there needs to be compromise;

- .4 the document is a good compilation and provides a basis for more constructive discussion including that the vision needs to be more ambitious, is good that the impacts on States are included, and that paragraph 5 refers to capacity building, technology transfer and technical cooperation;
- .5 the document incorporates some proposals and not others and it is not clear why some proposals are included and not others;
- .6 the document is not agreed by the Group and so any comments should be included in the report;
- .7 there is a need to have different principles for different core elements of the Strategy for example, aspirational/non-binding measures having one set of principles and technical measures following no more favourable treatment;
- .8 measures developed between 2018 and 2023 are what count and therefore there should be a focus on consideration of those measures and making decisions before 2023 and this expectation should be made clear;
- .9 the IMarEST proposal (ISWG-GHG 2/2/19) on how to evaluate measures should be included along with elements of the Norwegian proposal (ISWG-GHG 2/2/4);
- .10 the list of measures as drafted does not reflect the Group's view that it should remain open;
- .11 the text in italics in the annex that has been included as explanatory notes has not been agreed and is to be deleted;

Preamble/introduction

- .12 in paragraph 1.3 of the annex reference to the other IMO instruments to address emissions from ships should be made including adoption of MARPOL Annex VI in 1997 and its revision in 2008;
- .13 reference to other legal instruments, such as the UNFCCC, should be made;
- .14 in paragraph 1.3 of the annex an infographic could provide a useful addition to illustrate the related work of the Organization undertaken to date;
- .15 the decision of MEPC 57 on nine principles used for the development of subsequent measures, including energy efficiency, should be reflected;

Emission scenarios

- .16 draft paragraph 1.3 of the annex did not reflect that ISWG-GHG 1 had noted that new estimates for global seaborne trade have been developed that identify a reduction in business as usual (BAU) emission estimates for the period 2012 to 2050 in comparison to the Third IMO GHG Study 2014;
- .17 recent emission estimates contained some uncertainty;

Objectives of the initial IMO GHG Strategy

- .18 draft paragraph 1.7 of the annex identifies only the initial IMO Strategy "supporting" the efforts to address GHG emissions from international shipping whereas the IMO will be taking the lead in those efforts;

Vision

- .19 the vision has to be consistent with the levels of ambition and the options need to be streamlined if going towards zero/phasing out of GHG emissions in the first half or second half of the century;

Guiding principles

- .20 the approach on reflecting principles of IMO and UNFCCC in the Strategy should be further sub-divided into "reflecting principles of IMO" and "reflecting principles of the UNFCCC";
- .21 the proposal under "Operationalizing CBDR-RC in international shipping" should be moved to paragraph 4.7 as the proposed principles can be considered under impacts on States;
- .22 concerns were expressed about the status of the text in italics, and its eventual deletion, in particular with regard to guiding principles;

Impacts on States

- .23 the impacts on States considered should, in particular, be those on LDCs and SIDS; and

Periodic review of the Strategy

- .24 the date of the periodic review should be identified rather than the period, that is, "2028" and "2033".

Levels of Ambition

56 The Group noted a proposal presented by Germany representing a compromise combining the proposals made in documents ISWG-GHG 2/2/1 (ICS et al.), ISWG-GHG 2/2/2 (Japan) and ISWG-GHG 2/2/12 (Belgium et al.), as follows:

"A package option

[Objective 1 – to maintain international shipping's annual total CO₂ emissions below 2008 levels.]

Objective 2 – to reduce CO₂ emissions per tonne-km, as an average across international shipping, by at least [40% by 2030] [50% by 2050] [90% by 2050], compared to 2008.

Objective 3 – to reduce international shipping's total annual CO₂ emissions by at least [X% by 2050] [70%, pursuing efforts for 100% reduction, by 2050] [50% by 2060] compared to 2008 [, as a point on a continuing linear trajectory of CO₂ emissions reduction]."

57 The Group also noted that this proposal came very late in the meeting and so could not be considered and discussed.

Timelines

58 Several delegations expressed the view that early action under the Strategy should effectively reduce GHG emissions from ships before 2023.

59 In the ensuing discussion, the two following text proposals were considered:

- .1 the delegation of the Cook Islands proposed the following text for paragraph 4.3: "In aiming for early action, the timeline for short-term measures should prioritize potential early measures that the Organization could develop, while recognizing those already adopted, with a view to achieve further reduction of GHG emissions from international shipping before 2023"; and
- .2 the delegation of the United Kingdom proposed the following text for paragraph 4.3: "In aiming for early action, measures should be prioritized with a view to achieve reduction of GHG emissions from international shipping before 2023", and the inclusion of a paragraph 4.3bis: "Certain mid- and long-term measures will require work to commence prior to 2023".

60 The Group noted that these text proposals could be considered for inclusion in the draft initial IMO GHG Strategy.

61 The proposal made by the United Kingdom was discussed and supported by several delegations. Owing to a shortage of time, delegations were not able to provide further input or comments on other/alternative proposals.

62 The Group agreed to include, for information, the progress document as set out in the annex to this report, for further consideration at ISWG-GHG 3.

63 The Group noted that owing to time constraints the progress document, including the draft resolution, had not been considered line by line.

Further consideration of how to progress the matter of reduction of GHG emissions from ships and advise the Committee as appropriate

64 The Group considered the following documents:

- .1 ISWG-GHG 2/2/11 (United Kingdom), supporting the structuring of work and prioritization of candidate measures in the initial IMO Strategy to be adopted in spring 2018, noting the need for GHG emissions from the sector to peak and decline, placing particular emphasis on when emissions reductions are likely to arise from candidate measures and the resulting need for urgent action, building on the work of ISWG-GHG 1 and MEPC 71; and proposing text elements for the initial Strategy, as well as steps to expedite the work of the Group to deliver emissions reductions in a timely fashion;
- .2 ISWG-GHG 2/4 (IMarEST); stating that in order to contribute to the temperature goals of the Paris Agreement, a global emissions pathway is needed for international shipping in which emissions start declining as soon as possible; discussing the methods for estimating the costs associated with GHG reduction generally, recent evidence on the costs for GHG reduction

in the global economy, and emerging evidence on the costs of GHG reduction in international shipping; and also discussing the potential for cost reduction and evidence of how costs are already reducing for low carbon technologies; and

- .3 ISWG-GHG 2/4/1 (WWF et al.), summarizing the key findings of a new International Council on Clean Transportation report titled *Greenhouse Gas Emissions from Global Shipping, 2013-2015*, i.e. fuel consumption is increasing; shipping GHG emissions are increasing despite improvements in operational efficiency for many ship classes; black carbon is a major contributor to shipping's climate impacts; increases in efficiency have not reduced absolute CO₂ emissions from ships; the biggest ships are speeding up and emitting more; and finally that absolute reductions in ship emissions will require concerted action to improve the energy efficiency of shipping and to develop and deploy alternative fuel and propulsion concepts.

65 In the ensuing discussion the following comments were, inter alia, made:

- .1 MACC curves need to be updated for innovative technology and alternative fuels, that the whole ship/system could now be modelled unlike in previous studies, and it was important to note that costs flatten out in an S-shaped curve and do not increase after 50% GHG reduction implying that the ambition of 100% GHG reduction should be considered in more favourable cost terms;
- .2 many measure need further development and analysis, that other related technical work could be undertaken in parallel such as on alternative fuels;
- .3 it is a priority that the Organization has to establish a body to oversee R&D of technical innovation and alternative fuels as this was a precursor to establishing ambition; and
- .4 it is important to analyse the cost of GHG reductions measures and that studies such as the one by ICCT presented in document ISWG-GHG 2/4/1 are a good example of that analysis.

66 Following discussion, the Group noted that all views would be collated as they linked to the further development of the Strategy and to provide recommendations to the Committee including identification of what will be required as a follow up such as relevant studies, technical work related to reduction of GHG emissions from ships, work on R&D, as these relate to how the Organization responds and applies the Strategy.

Any other business

Submission of documents to ISWG-GHG 3

67 The Group recalled that MEPC 71 considered the issue of submission of documents to ISWG-GHG 3 and MEPC 72, which are scheduled to be held back-to-back. The Committee noted that documents submitted to MEPC 72 could be considered by ISWG-GHG 3 along with those documents submitted directly to the intersessional meeting, without the need of having duplicate submissions to both meetings, and that ISWG-GHG 3 could consider which documents submitted to the ISWG should be further considered by MEPC 72 (MEPC 71/17, paragraph 7.20).

68 The Group noted that the document submission deadline for ISWG-GHG 3 is 16 February 2018 (six week deadline).

Action requested of the Committee

69 The Committee is invited to approve the report in general and, in particular, to:

- .1 note the progress made by the Group in the development of the structure and identification of core elements of the draft initial IMO GHG Strategy including agreement to include objectives under preamble/introduction/context including emission scenarios; and
- .2 note the progress made by the Group towards development of draft text for inclusion in the initial IMO GHG Strategy.

ANNEX

**PROGRESS DOCUMENT ON DEVELOPMENT OF DRAFT TEXT FOR INCLUSION
IN THE INITIAL IMO GHG STRATEGY**

[RESOLUTION MEPC.XXX(XX)]

Adopted on [XX April 2018]

INITIAL IMO STRATEGY ON REDUCTION OF GHG EMISSIONS FROM SHIPS

THE MARINE ENVIRONMENT PROTECTION COMMITTEE

RECALLING THAT article 38(a) 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,

1 ADOPTS the initial IMO Strategy on reduction of GHG emissions from ships as set out in the annex to the present resolution;

2 REQUESTS.....]

[ANNEX

INITIAL IMO STRATEGY ON REDUCTION OF GHG EMISSIONS FROM SHIPS

Contents

- 1 PREAMBLE/INTRODUCTION/CONTEXT/OBJECTIVES 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]

1 Preamble/introduction/context/objectives including emission scenarios

Preamble/introduction

[1.1 The International Maritime Organization (IMO) is the United Nations specialized agency responsible for safe, secure and efficient shipping and the prevention of pollution from ships.

1.2 Assembly resolution A.963(23) on *IMO policies and practices related to the reduction of greenhouse gas emissions from ships*, adopted on 5 December 2003, urged the Marine Environment Protection Committee (MEPC) to identify and develop the mechanisms needed to achieve the limitation or reduction of GHG emissions from international shipping.

1.3 In response work to address GHG emissions from ships has been undertaken, including inter alia:

- .1 In 2011, MEPC 62 adopted resolution MEPC.203(62) on *Inclusion of regulations on energy efficiency for ships in MARPOL Annex VI* introducing mandatory technical (EEDI) and operational (SEEMP) measures for the energy efficiency of ships. To date more than 2,500 new ships have been certified to the energy efficiency design requirement;
- .2 MEPC 65 (May 2013) adopted resolution MEPC.229(65) on *Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships*, which, among other things, requests the IMO, through its various programmes (ITCP¹, GloMEEP project², GMN project³, etc.), to provide technical assistance to Member States to enable cooperation in the transfer of energy efficient technologies, in particular to developing countries; and
- .3 MEPC 70 (October 2016) adopted resolution MEPC.278(70) on *Data collection system for fuel oil consumption of ships* introducing mandatory requirements for ships to record and report their fuel oil consumption. Ships of 5,000 gross tonnage and above (representing approximately 85% of the total CO₂ emissions from international shipping) will be required to collect consumption data for each type of fuel oil they use, as well as other, additional, specified data including proxies for "transport work".

1.4 This initial Strategy is a first stage of the *Roadmap for developing a comprehensive IMO Strategy on reduction of GHG emissions from ships* approved at MEPC 70.

Context

[1.5 The adoption of the initial IMO GHG Strategy falls within a broader context including:

- .1 the leading role of the Organization for the development, adoption and assistance in implementation of environmental regulations applicable to international shipping; and

¹ Integrated Technical Cooperation Programme.

² <http://glomeep.imo.org/>

³ <http://gmn.imo.org/>

- .2 other existing relevant legal instruments and frameworks including the 1982 United Nation Convention on the Law of the Sea, the 1997 Montreal Protocol on Substances that Deplete the Ozone Layer, the 1992 United Nations Framework Convention on Climate Change, its 1997 Kyoto Protocol and the 2015 Paris Agreement, and relevant global, regional and sectorial bodies.]

Emissions and emission scenarios

1.6 The third IMO GHG Study 2014 has estimated that GHG emissions from international shipping could grow by between 50% and 250% by 2050. However, emission estimates and scenarios contain uncertainty so there will be a need for future IMO GHG Studies.

Objectives of the initial IMO GHG Strategy

1.7 The initial IMO GHG Strategy is aimed at:

- .1 supporting the efforts to address GHG emissions from international shipping, which in 2012 accounted for some 2.2% of anthropogenic CO₂ emissions. Current international efforts include the 2015 Paris Agreement and for United Nations Agenda 2030, in particular SDG 13: "*Take urgent action to combat climate change and its impacts*";
- .2 identifying and implementing, as required, of appropriate actions by the international shipping sector, whilst allowing continued development of trade and maritime transport services; and
- .3 identifying of appropriate mechanisms to help achieve the stated objectives, including incentives for research and development.

2 Vision

["The IMO remains committed to reducing GHG emissions from international shipping and aims to phase them out as soon as possible in this century, in the context of sustainable development [and in line with the purposes and provisions of the UNFCCC and the Paris Agreement]."]

["The IMO is committed to reducing GHG emissions from international shipping [to] [towards] zero [as soon as possible in this century] [by 2050]."]

3 Levels of ambition Guiding principles

Levels of ambition

[The levels of ambition regarding reduction of GHG emissions from international shipping is agreed...]

Possible approaches⁴ to set the levels of ambition could be presented as a package or individually and have been identified as follows⁵:

Annual total GHG emissions from international shipping to be kept below a defined level

Proposals

[to maintain international shipping's annual total CO₂ emissions below 2008 levels]

[reduce international shipping's total annual CO₂ emissions by an agreed percentage by 2050, compared to 2008, as a point on a continuing trajectory of CO₂ emissions reduction]

[to reduce international shipping's total annual CO₂ emissions by at least 70%, pursuing efforts for 100% reduction, by 2050 compared to 2008, as a point on a continuing linear trajectory of CO₂ emissions reduction]

[reduce net CO₂ emissions from international shipping by 50% over 2008 (base year) by 2060, subject to amendments depending on a review of its achievability to be conducted by IMO in, for instance, 2033]

GHG emissions from international shipping to peak and then decline

Proposals

- .1 imminent peaking of GHG emissions at 2008 levels;
- .2 rapid decline in GHG emissions starting as soon as possible, but no later than 2025; and
- .3 full decarbonization (to zero GHG emissions) by 2035]

[the level of ambition must be decisive and progressive in its increase, without defining points or degrees, but committing itself with a forceful peak and with the gradual decrease to zero (0) emissions of greenhouse gases from ships, which will be progressively adjusted through a periodic review of five (5) years]

Carbon intensity of international shipping to decline

Proposals

[to reduce CO₂ emissions per tonne-km, as an average across international shipping, by at least [50%] [90%] by 2050, compared to 2008]

[improve the energy efficiency of international shipping (CO₂ emissions per transport work (tonne-miles)) by 40% over 2008 (base year) by 2030]

⁴ *These approaches were not submitted to the meeting but prepared by the Chair to assist further consideration of the proposals submitted to the meeting.*

⁵ *Language in non-bold italic are explanatory notes only and not substantive text suggested to be included in the initial Strategy.*

[Operational efficiency

To improve the energy efficiency of international shipping (EE), as an average across international shipping, by X% over (A =base year) by (B = end year).

EE = AER or other indicator

A = from 2008 to 2019 for estimates, 2020 for real data or other

B = 2030 or other to be defined

X% = to be defined, could be a range for example from 0 to X%

In the first phase, the efficiency of existing ships would be addressed to induce a more rational use of its capacity. Considering the wide recognition that operational indicators may vary significantly for similar ships performing similar trades, for reasons beyond control of operators, we propose a global operational efficiency indicator as an average across the fleet.]

Carbon intensity of the ship to decline

Proposal

[Design Efficiency

To improve the energy efficiency design index (EEDI) of new ships by further phases (or by X%) over (A =base year) by (B = end year).

EE = EEDI (energy efficiency design index) or other index

A = 2030 or other (currently EEDI phase 3 will start on 2025)

B = 2050 or other to be defined

X% = to be defined, could be a range for example from 0 to X%

In a second phase, the effective reduction of shipping emissions can only be achieved through the development of more efficient new ships. Further design indexes may be considered for application to individual ships, giving a clear market signal for technology and alternative fuels developers. We underline that the idea that ships can be constantly retrofitted along their life is misleading, as it does not take into consideration that retrofitting is often very costly and unsafe.]

Guiding principles

[Guiding principles for the initial Strategy are ...]

Possible approaches⁶ to identify the guiding principles have been identified as follows⁷:

Reflecting principles of IMO and UNFCCC in the Strategy

Proposals:

⁶ *These approaches were not submitted to the meeting but prepared by the Chair to assist further consideration of the proposals submitted to the meeting.*

⁷ *Language in non-bold italic are explanatory notes only and not substantive text suggested to be included in the initial Strategy.*

[BEING COGNIZANT⁸ of the principles enshrined in the Convention on the Organization, including the principle of non-discrimination, as well as the principle of no more favourable treatment enshrined in MARPOL and other IMO Conventions,

BEING COGNIZANT ALSO of the principles enshrined in the UNFCCC and its Paris Agreement including the principle of common but differentiated responsibilities and respective capabilities.]

[acknowledging the principle of non-discrimination and the principle of no more favourable treatment of ships irrespective of their flags enshrined in MARPOL and other IMO conventions.]

Reflecting impacts on States, in particular LDCs and SIDS

Proposals:

[acknowledging that the impacts of measures on States, in particular on LDCs and SIDS, and their specific needs, need to be studied in advance as recognized in the Organization's High-level Action Plan (resolution A.1098(29)) as noted by MEPC 68 and that disproportionate impacts on specific States should be addressed.]

[Financing of technical cooperation, transfer of technology and impact assessment. All measures need to be evaluated and confronted with possible implications for States, including transport costs, cost of new measures, distance from countries, etc.]

Other guiding principles

Proposals:

Nine principles identified by MEPC 57:

- .1 effective in contributing to the reduction of total global greenhouse gas emissions;
- .2 binding and equally applicable to all flag States in order to avoid evasion;
- .3 cost-effective;
- .4 able to limit, or at least, effectively minimize competitive distortion;
- .5 based on sustainable environmental development without penalizing global trade and growth;
- .6 based on a goal-based approach and not prescribe specific methods;
- .7 supportive of promoting and facilitating technical innovation and R&D in the entire shipping sector;

⁸ Consequential grammar improvement may be needed.

- .8 accommodating to leading technologies in the field of energy efficiency; and
- .9 practical, transparent, fraud free and easy to administer.]

Guiding principles identified in document MEPC 71/7/6:

- [.1 Coherence with the multilateral climate change regime
- .2 No absolute cap
- .3 Evidence-based decision-making
- .4 Implementation of the Sustainable Development Goals (SDGs)
- .5 Recognition of specific characteristics of maritime transport
- .6 Providing the right incentives
- .7 No trade barrier or protectionist measure
- .8 Environmental integrity
- .9 Financing, technical cooperation, technology transfer and impact assessment
- .10 Adaptation]

Guiding principles identified in document ISWG-GHG 1/2/7:

- [.1 Ambitious and evidence-based
- .2 Ensure the sustainable growth of the international shipping sector
- .3 Avoid regional or unilateral measures
- .4 Inclusive in addressing Member States' concerns
- .5 Flexible in accommodating sectorial developments
- .6 Supportive of innovation and research and development
- .7 Cost-effective, practical and easy to administer
- .8 Recognition of early actions]

[The development of strategy should be evidence-based, with the final decision utilizing data from the IMO fuel consumption data collection system.

Ensure the sustainable growth of the international shipping sector (/based on sustainable environmental development without penalizing global trade and growth).

The Strategy should be "in sector" and ensure that international shipping would not be targeted as a potential revenue source for the climate finance to the other sectors not related to the maritime industry, taking into account circumstances that are relevant to international shipping.

The Strategy should be cost-effective, practical and easy to administer.

The Strategy should recognize and motivate early actions.]

Operationalizing CBDR-RC in international shipping.

Proposal:

[Developed countries take the lead
Geography
Low value cargo

Transport costs
Route-based, phased approach
Readiness]

4 List of candidate short-, mid- and long-term further measures with possible timelines and their impacts on States

Timelines

4.1 Candidate measures for inclusion in the initial IMO GHG Strategy should be consistent with the following timelines:

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

4.2 When the measures could effectively start to reduce GHG emissions should be identified and prioritized accordingly.

4.3 In aiming for early action, the timeline for the short-term measures should not preclude potential early measures that the Organization could develop with a view to achieve reduction of GHG emissions from international shipping before 2023.

Candidate short-term measures

4.4 The following candidate measures⁹, inter alia, represent possible short-term further action of the Organization on matters related to the reduction of GHG emissions from ships:

[Measures the effect of which is to directly reduce GHG emissions from ships:]

- .1 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;
- .2 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. AER, EESH, ISPI, FORS);

⁹ The Initial IMO Strategy is subject to revision based on fuel oil consumption data collected during 2019-2021 and does not prejudice any specific further measures that may be implemented in phase 3 of the three-step approach.

- .3 establish an Existing Fleet Improvement Programme;
- .4 consider and analyse the use of speed reduction as a measure, taking into account safety issues, distance travelled, distortion of the market or to trade and that such measure does not impact on shipping's capability to serve remote geographic areas; and
- .5 consider and analyse measures to address emissions of methane and further enhance measures to address emissions of Volatile Organic Compounds.

[Measures which support action to reduce GHG emissions from ships:]

- .6 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;
- .7 continue and enhance technical cooperation and capacity-building activities under the ITCP;
- .8 consider and analyse measures to encourage port developments and activities globally to facilitate reduction of GHG emissions from shipping, including provision of ship and shore-side/on-shore 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;
- .9 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;
- .10 incentives for first movers to develop and take up new technologies;
- .11 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;
- .12 actively promote the work of the Organization to the international community, in particular, to highlight that the Organization, since the 1990's, 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
- .13 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

4.5 The following candidate measures, inter alia, represent possible mid-term further action of the Organization on matters related to the reduction of GHG emissions from ships:

[Measures the effect of which is to directly reduce GHG emissions from ships:]

- .1 implementation programme for effective uptake of alternative low-carbon and zero-carbon fuels, including update of national actions plans to specifically consider such fuels;
- .2 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; and
- .3 new/innovative emission reduction mechanism(s), possibly including Market-based Measures (MBMs), to incentivize GHG emission reduction.

[Measures which support action to reduce GHG emissions from ships:]

- .4 further continue and enhance technical cooperation and capacity-building activities such as under the ITCP; and
- .5 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

4.6 The following candidate measures, inter alia, represent possible long-term further action of the Organization on matters related to the reduction of GHG emissions from ships:

[Measures the effect of which is to directly reduce GHG emissions from ships or support action to reduce GHG emissions from ships:]

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

Impacts on States

4.7 The impacts on States of each measure should be assessed before adoption of the measure.

5 Barriers and supportive measures; capacity building and technical cooperation; R&D

[5.1 The Organization recognizes that developing countries, in particular the LDCs and SIDSs, have special requirements with regard to capacity building and technical cooperation.

5.2 The Organization acknowledges that the development and availability of new energy sources is a specific barrier to the implementation of various measures.

5.3 The Organization could assist the efforts to promote low-carbon technologies by facilitating public-private partnerships and information exchange.

5.4 The Organization should provide mechanisms for facilitating information sharing, technology transfer, capacity building and technical cooperation. These mechanisms could leverage off initiatives such as the Global Maritime Energy Efficiency Partnership (GloMEEP) Project and the Global Maritime Network (GMN) Project, in accordance with 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 also encourages initiatives such as the IMO-DNV GL Energy Efficiency Appraisal Tool designed to facilitate the assessment of various energy efficiency technologies and measures.]

6 Follow-up actions towards the development of the revised Strategy

6.1 A programme of follow-up actions of the initial Strategy should be developed.

6.2 The key stages for the adoption of a revised Strategy in 2023 as set out in the Roadmap, are as follows:

April 2018	Adoption of initial IMO Strategy (MEPC 72)
January 2019	Start of step 1: data collection
Spring 2019	Initiation of fourth IMO GHG Study (MEPC 74)
Summer 2020	2019 fuel oil consumption data reported to IMO
Autumn 2020	Start of step 2: data analysis Fourth IMO GHG Study completed for consideration by MEPC 76
Spring 2021	Secretariat reports on 2019 data (MEPC 77) Initiation of work on adjustments to initial IMO Strategy
Summer 2021	2020 fuel oil consumption data reported to IMO
Spring 2022	Step 3: decision making Secretariat reports on 2020 data (MEPC 78)
Summer 2022	2021 fuel oil consumption data reported to IMO
Spring 2023	Secretariat reports on 2021 data (MEPC 80) Adoption of revised Strategy (MEPC 80)

6.3 The Marginal Abatement Cost Curve (MACC) for each measure should be ascertained and updated, and then evaluated on a regular basis.

7 Periodic review of the Strategy

[7.1 The revised Strategy will be subject to a review [five] [10] years after its final adoption.

7.2 The Organization shall undertake the review including defining the scope of the review and its terms of reference.]]