

INTERSESSIONAL MEETING OF THE
WORKING GROUP ON REDUCTION OF
GHG EMISSIONS FROM SHIPS
20th session
Agenda item 6

ISWG-GHG 20/WP.1/Rev.1
29 October 2025
ENGLISH ONLY

DISCLAIMER

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CONSIDERATION OF THE REPORT TO MEPC 84¹

**Draft report of the twentieth meeting of the Intersessional Working Group on
Reduction of GHG Emissions from Ships (ISWG-GHG 20)**

Introduction

1 The twentieth meeting of the Intersessional Working Group on Reduction of GHG Emissions from Ships (ISWG-GHG 20) was held from 20 to 24 October 2025 and 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
BARBADOS
BELGIUM
BELIZE
BRAZIL
CAMBODIA
CANADA
CHILE
CHINA
COLOMBIA
COOK ISLANDS
CUBA

CYPRUS
DEMOCRATIC REPUBLIC OF
THE CONGO
DENMARK
DOMINICA
ECUADOR
EGYPT
EL SALVADOR
ESTONIA
FIJI
FINLAND
FRANCE
GERMANY
GHANA
GREECE
GUINEA BISSAU
GUATEMALA

¹ Delegations wishing to comment on this draft report should submit their comments to ghg@imo.org, no later than Wednesday, 5 November 2025, 23.59 (UTC). Comments should only address editorial corrections and improvements, including finalizing individual statements, and should not reopen discussion on decisions taken during the session. Comments should also state the specific paragraphs of the draft report to which they relate and, where possible, proposed alternative wording should be provided. If a delegation has no comments on the draft report (ISWG-GHG 20/WP.1/Rev.1), for reasons of economy, there is no need to provide a response. After review, the Chair will provide a summary of how comments received, if any, have been addressed.

HONDURAS	PORTUGAL
INDIA	QATAR
INDONESIA	REPUBLIC OF KOREA
IRAN (ISLAMIC REPUBLIC OF)	RUSSIAN FEDERATION
IRAQ	SAINT KITTS AND NEVIS
IRELAND	SAINT VINCENT AND THE
ITALY	GRENADINES
JAMAICA	
JAPAN	SAUDI ARABIA
KENYA	SENEGAL
KIRIBATI	SEYCHELLES
KUWAIT	SINGAPORE
LATVIA	SIERRA LEONE
LIBERIA	SOLOMON ISLANDS
LUXEMBOURG	SOMALIA
MADAGASCAR	SOUTH AFRICA
MALAWI	SPAIN
MALAYSIA	SURINAME
MALTA	SWEDEN
MARSHALL ISLANDS	SWITZERLAND
MAURITIUS	THAILAND
MEXICO	TOGO
MONGOLIA	TONGA
MOROCCO	TRINIDAD AND TOBAGO
MOZAMBIQUE	TÜRKİYE
NAMIBIA	TUVALU
NAURU	UGANDA
NEPAL	UKRAINE
NETHERLANDS (KINGDOM OF THE)	UNITED ARAB EMIRATES
NEW ZEALAND	UNITED KINGDOM
NIGERIA	UNITED REPUBLIC OF
NORWAY	TANZANIA
PALAU	UNITED STATES
PANAMA	URUGUAY
PAPUA NEW GUINEA	VANUATU
PARAGUAY	VENEZUELA (BOLIVARIAN
PERU	REPUBLIC OF)
PHILIPPINES	VIET NAM
POLAND	

by representatives from the following Associate Member of IMO:

HONG KONG, CHINA

by representatives from the following United Nations and Specialized Agency:

WORLD BANK GROUP (WB)

by observers from the following intergovernmental organizations:

EUROPEAN COMMISSION (EC)
 ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT(OECD)
 MARITIME ORGANIZATION FOR EASTERN, SOUTHERN, AND NORTHERN
 AFRICA (MOESNA)

MARITIME ORGANISATION FOR WEST AND CENTRAL AFRICA (MOWCA)
 PACIFIC REGIONAL ENVIRONMENT PROGRAMME (SPREP)
 PACIFIC COMMUNITY (SPC)

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
 INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
 OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)
 INTERNATIONAL MARITIME PILOTS' ASSOCIATION (IMPA)
 CESA
 INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS
 (INTERTANKO)
 ADVISORY COMMITTEE ON PROTECTION OF THE SEA (ACOPS)
 SOCIETY OF INTERNATIONAL GAS TANKER AND TERMINAL OPERATORS
 LIMITED (SIGTTO)
 CRUISE LINES INTERNATIONAL ASSOCIATION (CLIA)
 WORLD WIDE FUND FOR NATURE (WWF)
 EUROPEAN ASSOCIATION OF INTERNAL COMBUSTION ENGINE AND
 ALTERNATIVE POWERTRAIN MANUFACTURERS (EUROMOT)
 IPIECA
 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)
 INTERFERRY
 INTERNATIONAL BUNKER INDUSTRY ASSOCIATION (IBIA)
 INTERNATIONAL TRANSPORT WORKERS' FEDERATION (ITF)
 WORLD SHIPPING COUNCIL (WSC)
 ASSOCIATION FOR MATERIALS PROTECTION AND PERFORMANCE, INC.
 (AMPP)
 SUPERYACHT BUILDERS ASSOCIATION (SYBAss)
 PACIFIC ENVIRONMENT
 CLEAN SHIPPING COALITION (CSC)
 ACTIVE SHIPBUILDING EXPERTS' FEDERATION (ASEF)
 SOCIETY FOR GAS AS A MARINE FUEL LIMITED (SGMF)
 INTERNATIONAL WINDSHIP ASSOCIATION (IWSA)
 ENVIRONMENTAL DEFENSE FUND (EDF)
 ZERO EMISSIONS SHIP TECHNOLOGY ASSOCIATION (ZESTAs)
 CIMAC E.V. (CIMAC)*
 METHANOL INSTITUTE (MI)*
 CLIMATE ETHANOL ALLIANCE (CEA)*
 NUCLEAR ENERGY MARITIME ORGANIZATION LTD (NEMO)*

Terms of reference

* Pending A 34 approval

3 The terms of reference for the Working Group, as approved by MEPC 83 (MEPC 83/17, paragraph 7.48), are as follows:

" The Group is instructed, taking into account documents submitted, including relevant documents submitted to previous sessions, and in accordance with the Work plan to prepare for the entry into force of the IMO Net-Zero Framework, approved by MEPC/ES.2, to:

- .1 develop new and/or revise existing guidelines, provisions, guidance and other documents, as appropriate, for supporting the uniform and effective implementation of the IMO net-zero framework;
- .2 further consider the development of the IMO Life Cycle GHG Assessment (LCA) framework;
- .3 finalize the draft terms of reference for the Fifth IMO GHG Study, using document MEPC 83/7/2 as the basis and taking into account documents MEPC 83/7/14, MEPC 83/7/24 and MEPC 83/7/42; and
- .4 submit a written report on the outcome of ISWG-GHG 20 and 21 to MEPC 84."

Update on the Voluntary Multi-Donor Trust Fund

4 The Group noted an update provided by the Secretariat concerning the use of Voluntary Multi-Donor Trust Fund to facilitate the participation of developing countries, especially SIDS and LDCs, to attend MEPC and ISWG-GHG meetings, in particular that, for this session, the Trust Fund financed the participation of 36 delegates from Angola, Bangladesh, Cambodia, Cook Islands, Cuba, Democratic Republic of Congo, Dominica, Egypt, El Salvador, Fiji, Honduras, Jamaica, Kenya, Madagascar, Malawi, Mauritius, Mexico, Mongolia, Mozambique, Namibia, Nauru, Nepal, Pakistan, Papua New Guinea, Samoa, Senegal, Seychelles, Solomon Islands, Somalia, Suriname, Togo, Tonga, Trinidad and Tobago, Uganda, Vanuatu and Viet Nam.

5 In this context, the Group also noted with appreciation the pledges made to the Trust Fund from Denmark, France, Germany, United Arab Emirates and United Kingdom, and invited Member States and international organizations to consider making financial contributions to the Trust Fund to allow for future participation at IMO's GHG meetings.

Adoption of the agenda

6 Following an exchange of views on the draft agenda, the Group adopted the agenda for the meeting, as set out in document ISWG-GHG 20/1.

7 In adopting the agenda, several delegations, in recalling that MEPC/ES.2 had been adjourned for a year without taking a decision on the adoption of the draft amendments to MARPOL Annex VI on the IMO Net-Zero Framework, were of the view that initiating work on the development of guidelines supporting the implementation of the IMO Net-Zero Framework would be premature and would prejudice any future decision of the Committee on adoption of amendments on the IMO Net-Zero Framework and the timelines contained therein. Accordingly, these delegations suggested that the Group should focus its attention primarily on agenda items 3 and 4, since it would be difficult to advance the development of guidelines in the absence of a decision by the Committee on the Net-Zero Framework.

8 Several other delegations were of the view that despite the adjournment of MEPC/ES.2 the Group could progress its consideration of draft guidelines supporting the implementation of the IMO Net-Zero Framework in order to provide more certainty and clarity about the functioning of the Framework to industry and Member States also enabling better mutual understanding and a more informed decision making once the Committee would resume MEPC/ES.2.

9 One delegation, supported by several others, suggested to start with agenda item 5 on “Any other business” and under that agenda item, listing any issue that stands in the way of a decision on adoption of the amendments on the IMO Net-Zero Framework to MARPOL Annex VI and assisting the Committee by suggesting how these issues could be addressed during the 12 month adjournment of MEPC ES.2.

10 Following consideration, the Group agreed to be guided in its work by document ISWG-GHG 20/1/1 (Secretariat), containing annotations to the agenda, the provisional list of documents submitted to this session and the provisional timetable.

Development of new and/or revision of existing guidelines, provisions, guidance and other documents, as appropriate, for supporting the uniform and effective implementation of the IMO Net-Zero Framework

11 The Group recalled that it had been instructed by MEPC 83 to develop new and/or revise existing guidelines, provisions, guidance and other documents, as appropriate, for supporting the uniform and effective implementation of the IMO Net-Zero Framework.

12 The Group recalled also that MEPC/ES.2 had considered and approved the work plan to prepare for the entry into force of the IMO Net-Zero Framework, subject to adoption of the Revised MARPOL Annex VI 2025. The Group noted that the work plan included 14 GHG work streams covering GHG-related activities and that the timelines contained therein would depend on the adoption of the IMO Net-Zero Framework.

13 The Group had for its consideration 34 documents submitted under this agenda item, namely:

- .1 ISWG-GHG 20/2 (India), emphasizing the need to operationalize the IMO Net-Zero Framework in a manner that is inclusive, equitable, and consistent with the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC); highlighting relevant challenges faced by developing countries in the context of the IMO Net-Zero Framework; and presenting proposals to support CBDR-RC in the context of the IMO Net-Zero Fund, addressing in particular trade-exposure-calibrated contribution calculations, need-based allocation of resources, balanced representation from both developing and developed countries, and for a defined portion of remedial unit revenue to be redistributed to developing countries.
- .2 ISWG-GHG 20/2/1 (India), presenting and providing a series of draft amendments and additions to the *2024 Guidelines for the development of a Ship Energy Efficiency Management Plan* (SEEMP), aiming to reflect the draft amendments to MARPOL Annex VI on the IMO Net-Zero Framework.
- .3 ISWG-GHG 20/2/2 (Austria et al.), outlining key considerations for the development of the governance structure of the IMO Net-Zero Fund, particularly in relation to its Governing Board; highlighting the need to carry out a comparative analysis of existing practices of similar funds; recognizing

the importance of transparency, safeguarding against corruption and effective decision-making; recommending adoption of governing provisions at MEPC 85 to allow time for the establishment of the Governing Board prior to regulations coming into force; suggesting areas for consideration regarding the appointment and term-limits of the Governing Board members; further suggesting areas for consideration to ensure gender and geographically balanced composition of the Governing Board; and inviting the Secretariat to prepare the analysis suggested under document MEPC/ES.2/3 prior to ISWG-GHG 21.

- .4 ISWG-GHG 20/2/3 (Austria et al.), recalling that the reward element of the IMO Net-Zero Framework should be effective in its role of incentivizing the uptake of ZNZs; suggesting areas to consider when designing the reward; further suggesting areas to consider in terms of boundaries and scope; proposing consideration of differentiated awards, taking into consideration verified GHG emission reduction of each ZNZ, capital expenditure (CAPEX) and operational expenditure (OPEX); proposing that ZNZs with potential to achieve long-term reduction targets should be incentivized by the IMO Net-Zero Framework; comparing different ways to set the rewards, i.e. set by the Committee or the IMO Net-Zero Fund vs. a competitive bidding process; and presenting concepts, advantages and challenges of those reward models.
- .5 ISWG-GHG 20/2/4 (WSC), proposing the inclusion of negative WtW GHG emission values in LCA guidelines; highlighting the importance of reducing the effective difference in price between ZNZs and other marine fuels; welcoming stringent ZNZ GFI thresholds to limit availability of rewards; proposing the use of marginal abatement cost (MAC) methodology to link ZNZ rewards to observable prices and GFI values for ZNZs; highlighting the need for dynamic reward pricing to avoid over- or under-rewarding ZNZs due to market fluctuation; interpreting draft regulation 39.3 as requiring the Committee to define pricing methodology on a five-yearly basis; and proposing the introduction of a multiplier (Z-factor greater than 1) into GFI calculations for ships using ZNZs to further incentivise their use.
- .6 ISWG-GHG 20/2/5 (CESA), highlighting the need for additional certainty and clarity with regard to various elements in the IMO Net-Zero Framework; proposing that the IMO Net-Zero Framework supports a broad range of energy-efficiency and emission-abatement technologies; suggesting a science-based approach to rewarding avoided GHG emissions; stressing that technology and energy neutrality should be maintained; suggesting different parameters to determine ZNZ rewards; and emphasizing that fund allocations should promote a broad ZNZ energy/technology mix.
- .7 ISWG-GHG 20/2/6 (Norway), discussing key principles and elements to be included in the guidelines for the calculation of the attained GFI; highlighting the lack of adjustments or correction factors in proposed GFI calculations, further proposing that ZNZ incentives should remain linked to GFI performance; proposing an approach to measuring GHG emission reductions from zero-emission energy sources and shore power; highlighting the need for further methodological development of direct CO₂ emissions measurement;; and proposing a specific definition of "zero-emissions energy sources"; and suggesting differentiated calculation of GFI from different zero-emissions energy sources; and providing an annex setting out draft GFI calculation guidelines.

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- .8 ISWG-GHG 20/2/7 (Norway), discussing key principles and elements for guidelines on ZNZs, and ZNZ rewards; proposing that fuel oils and electricity (shore power) below the GFI threshold should be considered as ZNZs; highlighting the current uncertainties surrounding the status of onboard carbon capture and storage (OCCS) systems; advocating per unit of “GHG emission avoided” as the way forward for ZNZ rewards; suggesting the baseline reference for reward calculation to be the GFI threshold rather than the 2008 baseline; highlighting the risk of ZNZ rewards exceeding funds available in the IMO Net-Zero Fund, and presenting two possible approaches for managing the payment of funds to avoid this scenario; and presenting a draft outline for guidelines on the definition of ZNZs and reward methodology.
- .9 ISWG-GHG 20/2/8 (Mexico), stressing that it is essential to ensure sufficient revenue available to the Fund to incentivize the uptake of long-term ZNZs; highlighting the importance of an appropriate design of the reward to promote swift deployment of ZNZs in developing countries and avoid negative impacts; highlighting the risk of developing countries being left behind in deployment of ZNZs due to higher capital expenditure (CAPEX); and suggesting the need for the Fund to support deployment of ZNZs in markets with high capital costs, beyond the most competitive.
- .10 ISWG-GHG 20/2/9 (Marshall Islands and Mexico), highlighting the need to support a just and equitable transition and contribute to the attainment of SDG's via the IMO Net-Zero Framework, inclusive of the industries and fleets of Member States; stressing concerns around aging fleet in developing countries and the risk that surplus unit demand may be concentrated in certain regions due to local regulations and incentives; raising concerns around the use of carbon credit-type or cap-and-trade systems; describing some aspects of the governance and operation of the Paris Agreement Article 6.4 mechanism; and proposing amendments to draft GFI compliance approaches guidelines provided in annex 2 to document ISWG-GHG 17/2/8 (Angola et al.) to consider capping the number of assigned surplus units, eliminating compliance pooling, restricting the transfer of surplus units within a pool/company and collecting information on small/medium-sized fleets and fleets serving routes crucial for food security in developing countries.
- .11 ISWG-GHG 20/2/10 (Guatemala et al.), emphasizing the importance of establishing in the IMO Net-Zero Fund governing provisions categories of disbursement of revenue targeted developing countries, as rewards and surplus units will primarily benefit existing initiatives in developed countries; highlighting that a just and equitable transition must address impacts on States and also ensure that every Member State benefit from the transition; raising awareness on the need to retrofit/replace ships in developing countries; stressing the need to financially support development of ZNZ production/infrastructure, grid decarbonization and climate resilience support for developing countries; recalling the need for training in relation to alternative fuels and technologies; and proposing a percentage share of revenue disbursement to developing countries, particularly LDCs and SIDS, to be explicitly outlined in the Governing Provisions.
- .12 ISWG-GHG 20/2/11 (RINA), sharing lessons learned from maritime book and claim registry “Katalist” to advance the development of the IMO GFI Registry; stressing the importance of initial planning, proper documentation at all stages of the product life cycle and early stakeholder engagement;
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suggesting early adoption of a structured mechanism for capturing user feedback; and highlighting tight deadlines for operationalization of the IMO GFI registry.

- .13 ISWG-GHG 20/2/12 (Fiji et al.), proposing a specific composition for the Governing Board of the IMO Net-Zero Fund; providing examples of board composition in existing climate funds and other expertise/contribution-focussed board designs; suggesting an overall board composition to numerically favour developing countries, LDCs and SIDS; stressing the need to reflect the disproportionate vulnerabilities of SIDS and LDCs in the governance structures of the fund and involvement of developing countries in decision-making processes; proposing observer roles for NGOs and indigenous groups; and suggesting annual partial renewal of Governing Board members by appointment of MEPC.
- .14 ISWG-GHG 20/2/13 (Fiji et al.), proposing a timeline for the establishment of the IMO Net-Zero Fund, arrangements to bridge the period prior to revenue inflow, core provisions for the IMO Net-Zero Fund's governing instrument; highlighting the risk of delays to operationalization if adoption of the governing provisions of the Fund does not take place prior to MEPC 87; and providing draft text for the IMO Net-Zero Fund governing provisions.
- .15 ISWG-GHG 20/2/14 (Fiji et al.), providing views and proposals on the definition of ZNZs and the associated reward mechanism; emphasizing the need for a clear and precise ZNZ definition to send strong signals to industry and to ensure funding of scalable net-zero-aligned solutions; proposing the exclusion of biomass feedstock due to supply constraints and competing sectoral demands; identifying shortcomings of a flat-fee reward system that could create unlimited liability and investor uncertainty; suggesting alternative mechanisms such as auctions or contracts for difference to enhance cost-effectiveness, project certainty, and fiscal responsibility; stressing the importance of ensuring reward mechanisms are accessible to low-income countries and their shipping stakeholders; and underscoring the need for a just and equitable transition.
- .16 ISWG-GHG 20/2/15 (ICS and IBIA), proposing draft guidelines on ZNZ rewards and a methodology for determining such rewards using an energy-based approach; stressing the urgency to provide clarity and confidence for immediate investment by energy producers and shipowners to meet the 5 to 10% ZNZ energy uptake target for 2030; proposing a simple reward mechanism whereby a fixed rate per tonne of CO₂eq avoided is applied to ships using qualifying ZNZs from 2028 to 2032; and providing draft ZNZ reward guidelines and calling for the adoption of these guidelines MEPC 84.
- .17 ISWG-GHG 20/2/16 (ICS), providing draft guidelines on the determination of the annual IMO GFI Registry administration fee (draft regulation 38.3); outlining draft provisions on the ship registration and fee payment; stressing the fee should remain minimal, not serve as additional revenue and suggesting a US\$ 500 per ship fee cap; and recommending the option to set the fee at zero from 2030 given expected IMO Net-Zero Fund revenues.
- .18 ISWG-GHG 20/2/17 (IWSA), clarifying key elements of the IMO Net-Zero Framework as they relate to direct wind propulsion energy to align with technology and energy pathway neutrality; emphasizing the need to account for energy pathway losses in the attained GFI calculations to avoid

overvaluing fuel-based energy and undervaluing wind; referencing an approach outlined in document MEPC 82/7/9 (ISWA); and raising level-playing field issues for fair reward allocation and balanced treatment of all energy sources based on their decarbonization impact and co-benefits.

- .19 ISWG-GHG 20/2/18 (Republic of Korea), highlighting the value of establishing subsidiary bodies to support the Governing Board in handling technical and detailed matters, ensuring transparent and expert-informed decision-making; emphasizing the need for clear legal provisions defining their functions and authority; and drawing on the model of the IOPC Funds and Green Climate Fund to ensure gender and regional balance, particularly for SIDS and LDCs.
- .20 ISWG-GHG 20/2/19 (Republic of Korea), outlining the need to clearly define the purpose and scope of the administrative fee to align with the IMO GFI Registry objectives; highlighting challenges in cost predictability and proposing an annual fixed fee structure to enhance financial planning; suggesting instalment options and early-payment discounts to ease administrative and financial burdens; and emphasizing fairness in fee application across different account opening timelines.
- .21 ISWG-GHG 20/2/20 (Norway and Republic of Korea), proposing incentives for voluntary surplus unit (SU) cancellations to enhance GHG reduction and recommending to explicitly include this in the draft Guidelines on annual GFI compliance approaches and method of calculating surplus units and compliance deficits for ships
- .22 ISWG-GHG 20/2/21 (EDF), providing recommendations for the IMO GFI Registry; emphasizing its role as the sole legal record of surplus and remedial unit ownership and transactions; proposing establishing a two-tier administrative structure with national Administrations and the Secretariat; suggesting developing the GFI Registry as a data management and verification tool with fuel-level reporting and enabling it to serve as a reporting and public information tool; underlining the need for robust IT security, detailed operational procedures and governance overseen by the Registry Management Committee of the IMO and national Administrators; and developing integrated compliance functions to flag non-compliance, restrict account and adjust for late submissions.
- .23 ISWG-GHG 20/2/22 (Republic of Korea), outlining key elements for the development of the ZNZ guidelines; emphasizing the need for policy consistency by aligning ZNZ rewards with remedial unit (RU) pricing and incorporating marginal abatement costs (MAC) to complement the economics of ZNZ fuels; highlighting the importance of establishing clear reward principles for blended fuels, ensuring that components meeting the ZNZ threshold receive partial rewards with transparent criteria; and stressing the need to maintain the sustainability and financial integrity of the IMO Net-Zero Fund through accurate monitoring of ZNZ uptake and its associated abatement effects.
- .24 ISWG-GHG 20/2/23 (Republic of Korea), emphasizing limited sustainable fuel supply and its impact on GHG reductions; presenting book-and-claim as a practical tool to enable flexible, traceable use and calling for clear regulatory guidance; outlining book-and-claim implementations in

international shipping and aviation; outlining the benefits of flexible chain of custody (CoC) approaches in enabling efficient production, reducing logistics emissions, and supporting diverse suppliers, while emphasizing challenges; and stressing the need for IMO to conduct a preliminary policy study on book-and-claim approaches.

- .25 ISWG-GHG 20/2/24 (IPIECA et al.) discussing the urgent need to clarify the chain of custody models for fuel certification to support the implementation of the IMO Net-Zero Framework; presenting the three main chain of custody models—Physical Segregation, Mass Balance, and Book-and-Claim, emphasizing the importance of aligning these models with international standards; underlining mass balance as essential for bio-LNG and renewable natural gas, enabling cross-border delivery without segregation; and emphasizing the need for clear, harmonized guidelines within fuel certification frameworks.
- .26 ISWG-GHG 20/2/25 (Pacific Environment), highlighting California’s Low Carbon Fuel Standard (LCFS) programme as a key tool for decarbonizing the transportation sector and driving investment in alternative fuels; outlining lessons learned regarding long-term viability, market stability, and the complexities of programme revisions; emphasizing the risks of using credit multipliers due to unpredictability and potential distortions in short-term investment certainty; recommending exploring alternative measures such as credit price minimum and robust verification to ensure accurate emissions reductions; and cautioning against over-incentivizing early-stage fuels that may not deliver long-term emission reductions across the full lifecycle.
- .27 ISWG-GHG 20/2/26 (IPIECA), highlighting the importance of acknowledging interdependence between marine fuel and other sector certification schemes to avoid siloed approaches and administrative inefficiencies;; presenting an interim solution supporting verifications and certifications from existing schemes aligned with the 2024 LCA Guidelines until IMO Sustainable Fuels Certification Schemes (SFCS) recognition is achievable; outlining requirements for alignment in criteria, energy system boundaries, and documentation to enable FLL completion; and proposing permitting multiple claims along the supply chain with appropriate guardrails to prevent double-counting while maintaining regulatory compliance.
- .28 ISWG-GHG 20/2/27 (IMarEST), discussing evidence relevant to developing guidelines for ZNZs definition and reward mechanisms, drawing on the comprehensive impact assessment of the basket of candidate GHG reduction mid-term measures, fuel price data, and wider IMO Net-Zero Framework analysis; emphasizing that clear ZNZ definitions and effective reward mechanisms are critical to advancing the 2023 IMO GHG Strategy; recommending that a definition of rewarded ZNZs should be given to specific feedstocks and production pathways, as linked to the 2024 IMO LCA Guidelines; and presenting auction mechanisms as a more cost-effective alternative to flat rate rewards, offering price discovery and limiting the IMO Net-Zero Fund’s reward liability.
- .29 ISWG-GHG 20/2/28 (CLIA), highlights the critical role of Mass Balance and Book and Claim chain of custody models in realizing, verifying and crediting the environmental benefits of zero and near-zero GHG fuels; outlining how both models are already used across global sectors and supported by certification schemes and standards; presenting Mass Balance as a physical

model that leverages existing infrastructure to accelerate decarbonization, and Book and Claim as a flexible model enabling global GHG reductions despite physical constraints; and recommending the inclusion of Mass Balance and Book and Claim in the IMO's SFCS guidelines for adoption at MEPC 84.

- .30 ISWG-GHG 20/2/29 (Norway et al.), proposing the operationalization of the Fuel Life Cycle Label (FLL) within the IMO Net-Zero Framework and its integration into the GFI Registry; outlining measures to streamline certification and reporting for marine fuels, ensuring traceability and accuracy in GHG emissions data; specifying the division of responsibilities between well-to-tank (WtT) and tank-to-wake (TtW) emissions; highlighting the need to amend the LCA Guidelines and develop a standardized FLL template; and addressing the treatment of last-mile emissions and assurance processes for non-fuel energy sources.
- .31 ISWG-GHG 20/2/30 (Brazil et al.), providing a draft proposal for guidelines on requirements and procedures for the recognition of Sustainable Fuel Certification Schemes (SFCS) and reporting of certification activities; outlining the consolidation of three initially separate guidelines into one covering system description, core principles, recognition requirements, application and review procedures, and reporting obligations; detailing the step-by-step process for SFCS application, assessment, and recognition through a dedicated SFCS Assessment Group; emphasizing the need for robust, transparent, and LCA-aligned frameworks to ensure credibility; and highlighting pending work on audit and certification detail, stakeholder input, Assessment Group set-up, data reporting requirements, and linkages with forthcoming IMO Net-Zero Framework guidelines.
- .32 ISWG-GHG 20/2/31 (CSC), stressing the need for incentivizing the uptake of e-fuels to meet the targets of the 2023 IMO GHG Strategy; emphasizing the need for an integrated policy package combining strong energy efficiency measures and an effective pricing mechanism to drive a just and equitable transition; presenting an e-fuels multiplier as a pragmatic tool to accelerate investment, uptake, and innovation; and encouraging IMO to integrate this multiplier into the IMO Net-Zero Framework implementing guidelines to efficiently support the uptake and production of e-fuels.
- .33 ISWG-GHG 20/INF.2 (Antigua and Barbuda et al.), presenting information on the fundamentals of safe navigation in ice conditions; presenting finding on how the ice-going capability of the fleet in the northern Baltic Sea has changed from 2010 to 2023 and forecasts on how ice conditions are expected to change in the future; describing how ice conditions and ice-classed ships have been taken into account in existing IMO regulation; and inviting the Working Group to take into consideration the relevance of safe navigation in ice conditions when developing the IMO Net-Zero Framework implementing guidelines.
- .34 ISWG-GHG 20/INF.5 (Fiji et al.), presenting information on the latest climate science literature, and developments in international law, in particular, the ITLOS and ICJ Advisory Opinions; stressing the record-breaking warming of 1.54 °C in 2024 and projecting the 1.5 °C threshold to be crossed in the late 2020s; emphasizing the growing risks of breaching planetary boundaries and triggering tipping points even within the Paris Agreement range; outlining that

current IMO measures are not yet aligned with updated climate science; and highlighting legal developments affirming States' obligations to base action on the best available science and stressing the need for the IMO Net-Zero Framework to fully reflect these requirements.

Conduct of the discussion on this agenda item

14 The Group agreed to group the documents submitted for its consideration and structure the discussion as follows:

- .1 Part 1: Fuel certification;
- .2 Part 2: Guidelines related to zero or near-zero GHG emission technologies, fuels and/or energy sources (ZNZs);
- .3 Part 3: IMO Net-Zero Fund;
- .4 Part 4: Guidelines related to the GHG Fuel Intensity (GFI) and GFI compliance approaches; and
- .5 Part 5: IMO GFI Registry.

15 The Group noted that this structure was without prejudging the order of importance or priority of issues, nor timelines for their adoption.

16 The Group noted documents ISWG-GHG 20/INF.2 (Antigua and Barbuda et al.) and ISWG-GHG 20/INF.5 (Fiji et al.), respectively providing general information on the fundamentals of safe navigation in ice conditions and on the latest climate science literature, and developments in international law.

Fuel certification

17 The Group recalled that draft regulation 34 of MARPOL Annex VI contains provisions on Sustainable Fuels Certification Schemes (SFCS) and the Fuel Life Cycle Label (FLL), and that the Secretary-General shall publish a list of recognized SFCSs no later than 1 March 2027.

18 The Group noted that this timeframe would require several elements to be put in place in the near future to make sure that fuels can be certified at the time of effective implementation of the draft IMO Net-Zero Framework, and agreed on the need to advance the work on these issues without delay.

19 In this regard, the Group recalled that the draft IMO Net-Zero Framework envisaged the development of two sets of guidelines, namely guidelines on requirements and procedures for recognition of certification schemes and reporting of certification activities to the Organization, supporting the implementation of draft regulations 34.4 and 34.6 of MARPOL Annex VI; and guidelines on certification and circulation of information in the Fuel Lifecycle Label (FLL), supporting the implementation of draft regulations 34.2 and 34.3 of MARPOL Annex VI; and also requires amendments to the LCA Guidelines.

20 At this session, the Group had for its consideration six documents containing proposals regarding fuel certification, namely documents ISWG-GHG 20/2/23 (Republic of Korea), ISWG-GHG 20/2/24 (IPIECA et al.), ISWG-GHG 20/2/26 (IPIECA), ISWG-GHG 20/2/28 (CLIA), ISWG-GHG 20/2/29 (Norway et al.), ISWG-GHG 20/2/30 (Brazil et al.) and ISWG-GHG 20/3/7 (CSC).

Guidelines on requirements and procedures for recognition of fuel certification schemes

21 Regarding the development of guidelines on requirements and procedures for recognition of certification schemes, the Group considered the draft guidelines set out in document ISWG-GHG 20/2/30.

22 In the ensuing discussion, several delegations supported using annex 1 to document ISWG-GHG 20/2/20 as a basis for further work. Several delegations highlighted the need to address in further work issues such as traceability, data confidentiality, capacity-building needs of national schemes, technical cooperation, risk of fraud, etc.

23 With regard to the entities involved in the application process, several delegations who spoke on the matter expressed a preference for scheme owners to directly apply for recognition by IMO. Several delegations also mentioned the possibility for scheme owners to apply for recognition with a supporting letter from a Member State, or indicated flexibility on this point. Several delegations expressed the view that it was premature to decide on this point at this stage. The delegation of China expressed the view that it was essential to carefully consider options for entities involved in the SFCS application process, and stressed that Member States should play a central role in this process, for instance through a supporting letter of a Member State or submitting the application through a Member States, to ensure the credibility of the system. The Group invited the co-sponsors of document ISWG-GHG 20/2/30 to look into this matter in their further work, and further explore the different options or possible other options.

24 Following consideration, the Group noted the broad support to using annex 1 to document ISWG-GHG 20/2/30 as a basis for further work and invited the co-sponsors to engage with interested delegations and submit a revised version of the draft guidelines to the next session, taking into account the discussion and comments raised at this session.

25 The delegation of Saudi Arabia expressed concerns with regards to discussing highly technical matters on fuel certification at this juncture, stressing the lack of sufficient time to consider in depth the implications of proposals set out in document ISWG-GHG 20/2/30.

26 The Group also considered the proposal in document ISWG-GHG 20/2/26 that verifications and certifications achieved under existing schemes other than a recognized IMO SFCS could be supported by the Committee to demonstrate compliance with the IMO certification requirements, under certain criteria, until IMO SFCS recognition and certification is achievable.

27 In the ensuing discussion, whilst several delegations which spoke on the matter did not see a need to foresee any interim provisions, several other delegations saw merit in potentially considering a safety net if IMO was not in a position to recognize SFCS at the time of implementation of the IMO Net-Zero Framework. Some other delegations were of the view that such interim solution should be carefully considered in view of ensuring the environmental integrity of the system.

28 Following consideration, the Group at this stage expressed a preference for developing the guidelines, instead of working already now on interim solutions.

Fuel lifecycle label guidelines and chain of custody models

29 In relation to the development of guidelines on the FLL, the Group considered document ISWG-GHG 20/2/29 providing a proposed FLL well-to-tank (WtT) template. The Group supported, in general, the development of separate guidelines on the FLL, using the

template set out in document ISWG-GHG 20/2/29 and limiting the scope of FLL to WtT, noting that this would also require amendments to the LCA Guidelines.

30 Several delegations expressed interest in exploring expanding the IMO DCS framework to report all tank-to-wake (TtW) emissions, while looking into matters around commercial sensitivity of data and to limit administrative burden, including by avoiding overlap in reporting, and possible alignment with SEEMP reporting and the GFI Registry.

31 The Group noted that additional work was needed on a number of aspects of the draft FLL guidelines, including the unique numbering system, last mile emissions, non-fuel based energy sources, and defining the different responsibilities for verification between certification schemes and Administration and Recognized Organizations.

32 With regard to chain of custody models (e.g. segregated, mass balance, book and claim), there was an interest in general in further exploring how these aspects may facilitate the effective implementation of the draft IMO Net-Zero Framework, however several delegations expressed a preference for keeping options open with regard to models; concerns were also raised including on the data traceability, transparency, environmental credibility, avoiding double-counting, and how the just and equitable transition would be ensured in the case of using chain of custody models. Some delegations expressed their concern that the use of chain of custody models would create inequities in the transition, and therefore did not support the need for chain of custody models.

33 Following consideration, the Group invited interested delegations to continue working intersessionally in developing draft guidelines on the FLL and to submit further information on chain of custody models and how these could potentially be integrated into the framework.

Guidelines related to zero or near-zero GHG emission technologies, fuels and/or energy sources (ZNZs) and the reward

34 The Group recalled that draft regulation 39.1 of MARPOL Annex VI states that ZNZs should include technologies, fuels and energy sources, taking into account guidelines developed by the Organization, and that draft regulation 39.1 further states that the GFI threshold for ZNZs should be set at not greater than 19.0 gCO₂eq/MJ for an initial period until 31 December 2034, while from 1 January 2035 the threshold should be set at not greater than 14.0 gCO₂eq/MJ, taking into account guidelines developed, namely the LCA Guidelines, and to be developed by the Organization. The Group also noted that the Committee may approve additional ZNZs, taking into account guidelines developed by the Organization.

35 The Group also recalled that draft regulation 39.2 of MARPOL Annex VI states that ships may receive rewards from the IMO Net-Zero Fund for the ZNZ used, taking into account guidelines developed by the Organization, while draft regulation 39.3 states that no later than 1 March 2027 and every five years thereafter the Committee should define the reward as well as the methodology to determine such reward, taking into account guidelines developed by the Organization.

36 The Group noted 11 documents submitted to this session putting forward comments and proposals regarding ZNZs and/or rewards, namely documents ISWG-GHG 20/2/3 (Austria et al.), ISWG-GHG 20/2/4 (WSC), ISWG-GHG 20/2/5 (CESA), ISWG-GHG 20/2/7 (Norway), ISWG-GHG 20/2/8 (Mexico), ISWG-GHG 20/2/14 (Fiji et al.), ISWG-GHG 20/2/15 (ICS and IBIA), ISWG-GHG 20/2/22 (Republic of Korea), ISWG-GHG 20/2/25 (Pacific Environment), ISWG-GHG 20/2/27 (IMarEST), and ISWG-GHG 20/2/31 (CSC).

37 Several delegations stressed the importance of expediting the development of this set of guidelines with a view to rapidly providing certainty to the industry with regard to how to define ZNZs eligible for reward.

38 The delegation of the United States, supported by some other delegations, expressed the view that whilst the terms of reference for the ISWG-GHG 20 had been approved by MEPC 83, the lack of consensus on the draft IMO Net-Zero Framework which led to the adjournment of MEPC/ES.2 demonstrated that the membership was still contemplating on how to advance and whether or not to ultimately adopt the amendments to MARPOL Annex VI on the IMO Net-Zero Framework. The delegation of the United States further stated that with regard to the adoption of the IMO Net-Zero Framework its position remained unchanged in that it could not accept the IMO Net-Zero Framework in its current form, and that the government of the United States would not support any form of global carbon tax. All of the Group's considerations and discussions on guidelines and other implementing provisions of the IMO Net-Zero Framework would be without prejudice to any future decision by the Committee on adoption of the amendments.

Relevant criteria to be used to define ZNZs eligible for reward

39 With regard to determining ZNZs eligible for reward, several delegations emphasized the importance of fuel and technology-neutrality to maintain a goal-based approach.

40 Several delegations expressed a preference that ZNZ which would be eligible for reward should include all fuels, technologies, feedstocks and pathways, abatement measures, and other energy sources able to reduce GHG emissions (emissions avoided) compared to the GFI reference value assessed on a well-to-wake basis, thus also including biofuel/biomass-blends, wind, solar and onshore power, and OCCS technology to promote the early deployment of market-ready and innovative solutions available today.

41 Some of these delegations expressed the view that solely promoting the uptake of e-fuels or synthetic fuels and excluding certain feedstocks, notably sustainably sourced biofuels, could exclude certain countries, notably developing States, from being part of the energy transition as this could exclude certain fuels, in particular biofuels, and technologies available today.

42 Several delegations expressed a preference for rewarding ZNZs to effectively promote the energy transition up to 2050, thus focusing primarily on a sub-set of fuels and technology solutions which were not widespread available today and needed to be scaled up to achieve the long-term GHG reduction goals. Some of these delegations expressed the view that only ZNZs below GFI threshold could be considered as ZNZs and that technologies based on the use of conventional fuels, such as OCCS, should not be considered as ZNZs and not be eligible to receive rewards.

43 Several delegations mentioned the importance of all ZNZs having to meet the sustainability criteria set out in the LCA Guidelines, avoid indirect land-use change (ILUC), be globally deployed and available and ensure inclusive production and supply.

Main design elements and parameters to be used for determining the rewards

44 With regard to the methodology used for determining the rewards, several delegations stressed the importance of providing rapid certainty and predictability in order to accelerate and de-risk invest decisions and to close the cost-gap between conventional fuels and ZNZs.

45 Several delegations, expressed a preference for a flat reward based on their actual performance in avoiding CO₂eq emissions; the need for rapid certainty on the value of the reward; fixing the reward for at least 5 years; and for the reward mechanism to be simple; also calling for administrative simplicity; and not using future scalability as the main basis for the reward, but allowing all ZNZs to become competitive.

46 Some delegations mentioned that future scalable solutions with a significant GHG reduction potential currently had a high cost-gap, albeit with different price gaps for different fuel categories, and that the reward should be primarily aimed at closing that cost-gap instead of over-rewarding ZNZs which are already available today but did not have the potential to significantly reduce emissions in the longer-term and whose use would already be supported by the surplus and remedial unit pricing.

47 Several delegations stressed that the design of the reward was not that straightforward, might have to be differentiated, and that various elements and design options would have to be further considered, and saw merit in further considering the proposals for reward options using mechanisms, such as, contracts of difference, auctioning, multipliers as more cost-efficient means to use the available revenue, to attract private funds, and to promote the production and availability of scalable ZNZs with the potential to reduce GHG emissions to net-zero.

48 Several delegations noted that mechanisms such as auctions or contracts for difference, whilst having been successfully used nationally, could be challenging to manage at a global level, not provide the needed predictability for the industry, and could pose difficulties for developing States and smaller shipping companies, in particular those not controlling the fuel used, to participate in, thereby potentially also widening the gap between developed and developing countries in the energy transition of shipping.

49 Some of these delegations expressed the view that elements such as fleet diversity, regional differences, access to finance and specific support to smaller ship owners in developing States, necessity to decarbonize land grids for the production of e-fuels, should also be taken into account.

50 Some delegations saw merit in using the marginal abatement cost (MAC) price between the GFI reference value and the ZNZ GFI threshold as a possible, transparent parameter to be used for determining the reward, and to further explore that approach.

51 Some delegations mentioned the difficulty in obtaining accurate and up-to-date market information on price references of ZNZs, notably those not yet widely available, and potential hidden costs not reflected in marginal abatement costs, thus advocating a reward approach primarily based on GHG emissions avoided which could also include the use of ZNZs above the award threshold of 19 gCO₂eq/MJ.

52 Several delegations mentioned the need to avoid a situation whereby the Fund would become liable for not having sufficient revenue to disburse rewards. Some of these delegations therefore, proposed using an application procedure or auctioning to allocate rewards to the most promising ZNZs.

53 Several delegations suggested using a fixed reward approach in the early years of implementation as time was limited to develop a more complex approach before entry into force, whilst continuing the development of more complex reward approaches, such as auctioning, for use in the longer term.

54 One delegation mentioned that differentiation in different approaches between new build ships and for existing ships (retrofits) might have to be considered; voluntary participation of ships below 5,000 gross tonnage.

How to best advance the discussions on ZNZs and rewards

55 Several delegations expressed appreciation to those Member States and international organizations having submitted draft guidelines to this session, namely those set out in the annexes to documents ISWG-GHG 20/2/7 (Norway), ISWG-GHG 20/2/14 (Fiji et al.), and ISWG-GHG 20/2/15 (ICS and IBIA), noting also previously submitted documents containing relevant information, such as document ISWG-GHG 18/2/12 (China et al.), and saw merit in using these drafts to guide the further discussions.

56 Several delegations saw merit in further assessing the various pros and cons of different reward design elements and parameters before advancing the development of guidelines, and that it was premature at this stage to identify any draft guidelines to be used as a basis for further work.

57 Several delegations expressed a preference for the guidelines to be simple, pragmatic, energy based and avoiding complexity.

58 Some delegations suggested requesting the Secretariat to organize a GHG Expert Workshop ahead of the next session to facilitate the further consideration of the various reward options.

Way forward

59 Following consideration and noting the general reservation of some delegations to discuss implementing provisions of the IMO Net-Zero Framework ahead of its adoption, the Group expressed its appreciation to the submitters of documents relevant to the discussion on ZNZs and rewards.

60 The Group noted that several delegations had raised the need for the ZNZs and the reward approach to be technology, feedstock and fuel neutral and agnostic, and acknowledged that there was a need to sort out how the reward could balance rewarding fuels and technologies available today versus those that require upscaling in the longer term. In this regard, the Group noted also that several delegations had stressed the importance of the sustainability criteria. Some delegations expressed that rewards should not be technology neutral and agnostic but rather should be differentiated.

61 The Group further noted that several delegations had mentioned the need for the reward to be simple and easy to manage, and in this regard suggested a fix price at first few years (e.g. 5 years) to be followed by a more systematically designed approach, while several other delegations saw merit in further considering other approaches such as contracts for difference, auctions, multipliers, and use of MAC pricing.

62 To facilitate consideration at the next session, the Group invited all those having submitted draft guidelines to this session to consider jointly whether there is a way to merge their respective drafts, and develop a consolidated draft guideline, with placeholders for further text to be developed, to be submitted to the next session.

63 The Group also invited those that having proposed more elaborate reward design options to consider how their proposals could possibly fit in the various drafts of guidelines

submitted to this session, and work with the submitters of draft guidelines to identify possible placeholders for these reward options, to be considered at the next session.

64 The Group noted an interest in the holding of a GHG Expert Workshop on rewards, and agreed to revisit this matter during MEPC 84, taking into account the totality of the intersessional work load, also taking into account possible support from the Voluntary Multi Donor Trust Fund to allow for participation in such an Expert Workshop.

IMO Net-Zero Fund

65 The Group recalled that draft regulation 40 of MARPOL Annex VI foresees the establishment of the IMO Net-Zero Fund to support the implementation of the IMO Net-Zero Framework, and that the Committee shall adopt the governing provisions for the IMO Net-Zero Fund and appoint a Governing Board to oversee the day-to-day operations of the Fund on behalf of the Committee in accordance with the governing provisions.

66 The Group also recalled that draft regulation 40.4 already provides some indication of what elements should be included in the governing provisions, namely:

- .1 which entities may be eligible to receive funds from the IMO Net-Zero Fund;
- .2 the types of financing mechanisms by which funds may be disbursed;
- .3 the operating procedures of the IMO Net-Zero Fund and its Governing Board;
- .4 which entities and organizations the IMO Net-Zero Fund may cooperate with in the disbursement of revenue; and
- .5 allocations of revenue to the different purposes set out in regulation 41 on disbursement of revenue.

67 The Group also recalled that draft regulation 40.5 states that the Governing Board shall have a gender and geographically balanced composition, ensuring adequate representation of developing countries, in particular of SIDS and LDCs.

68 The Group had for its consideration seven documents submitted to this session and to MEPC/ES.2 containing comments and proposals regarding the Fund and its governing provisions, Governing Board, or in relation to the disbursement of revenue, namely documents ISWG-GHG 20/2 (India), ISWG-GHG 20/2/2 (Austria et al.), ISWG-GHG 20/2/5 (CESA), ISWG-GHG 20/2/10 (Guatemala et al.), ISWG-GHG 20/2/12 and ISWG-GHG 20/2/13 (Fiji et al), ISWG-GHG 20/2/18 (Republic of Korea), and MEPC/ES.2/2/14 (United Arab Emirates).

69 The delegation of the United States, supported by some other delegations, expressed the view that whilst the terms of reference for the ISWG-GHG 20 had been approved by MEPC 83, the lack of consensus on the draft IMO Net-Zero Framework which led to the adjournment of MEPC/ES.2 demonstrated that the membership was still contemplating on how to advance and whether or not to ultimately adopt the amendments to MARPOL Annex VI on the IMO Net-Zero Framework. The delegation of the United States further stated that its government rejected the establishment of the IMO Net-Zero Fund, which in their view was outside the remit of the Organization, and in view of the lack of consensus on the economic element of the IMO Net-Zero Framework, it was premature for the Group to discuss and consider implementing provisions of the Fund and its governing board.

70 In the ensuing discussion, several delegations expressed the view that working on IMO Net-Zero Fund design elements during the MEPC/ES.2 adjournment period would enable

providing useful clarifications on the governance and operational aspects of the Fund. Some of these delegations stressed that in their view the IMO Net-Zero Fund was a functional requirement of the IMO Net-Zero Framework and a necessary aspect to ensure a balance between ambition and ensuring a just and equitable transition.

71 Other delegations reiterated concerns regarding discussing Fund issues, which in their view was outside of IMO's mandate, it was premature to discuss implementing provisions of the Fund pending further guidance by the Committee on the adoption of the IMO Net-Zero Framework and that all concerns raised during past session in relation to the establishment of a Fund remained valid.

72 The delegation of the United Arab Emirates, in referring to document MEPC/ES.2/2/14 (United Arab Emirates), supported by some other delegations, expressed concerns regarding the further consideration of the establishment of the IMO Net-Zero Fund, emphasizing the mandate of IMO, as a specialized UN agency, and its responsibility to purely deal with technical matters; stressing that the establishment of IMO Net-Zero Fund should entail the development of an independent convention/agreement, rather than making amendments to a technical instrument such as MARPOL Annex VI; and noting that the proposed IMO Net-Zero Fund was in their view not applicable to the funds listed under regulation 6.7 of IMO's Financial Regulations. Furthermore, the same delegation stated that the matter of establishing such fund should be an overall policy of IMO which would fall under the functions of the Assembly (Article 15(g) of the IMO Convention) and therefore, the Assembly should be invited to consider this policy matter. The full statement by the delegation of the United Arab Emirates is set out in annex 2.

73 Several other delegations advocated that the Fund would be a functional requirement of the draft IMO Net-Zero Framework and reiterated their view that there were no restrictions to use MARPOL Annex VI as the legal basis for setting up the Fund, nor any limitations to set up the Fund within the remit of the Organization under the auspices of MEPC and in accordance with the Organizations Financials Rules and Regulations.

74 Regarding priority or core governing provisions that would have to be developed, delegations saw merits in building upon experience from relevant existing international funds. Several delegations stressed the need to develop provisions for the Governing Board as a priority, and to ensure that the composition of the Board aims at geographical and gender balance, reflecting diverse representation of countries' status and interests as well as an equitable representation of SIDS and LDCs. Several delegations highlighted the need for a robust Fund structure, with highest standards of accountability, avoiding conflicts of interest, independent periodic reviews, etc. Several delegations also stressed the need to ensure Member States oversight of Fund operations management. The delegation of China expressed the view that when drafting the governing provisions, it needs to be made clear that all issues related to the Fund need to remain within the remit of the Organization, and any third party could only have a supporting role.

75 With regard to the governing provisions, the Group noted that the draft regulations in the IMO Net-Zero Framework already provided quite detailed and clear provisions, and that the governing provisions could not go beyond those requirements in the legal framework and would remain under the oversight of the Committee, but provided a good basis and structure for the development and collation of governing provisions in one document, including provisions on purpose and scope; eligibility and disbursement criteria; governance structure, including on appropriate representation, audit, reporting, accountability; and allocation among the disbursement categories in draft regulation 41.

76 Regarding the use of interim arrangements or governing provisions whilst the Fund is being established and before revenue is received, several delegations stressed that it was not a priority, since MEPC/ES.2 had been adjourned. Some delegations saw merit in early establishment of the governing board to start working on priority issues well before entry into effect of the Fund whilst other delegations said that it was premature to discuss any interim arrangements at this stage.

77 Regarding disbursement categories listed in draft regulation 41, several delegations emphasized the need to setup a fair and transparent mechanism ensuring that revenue disbursement supports a just and equitable transition, in particular for developing countries, including SIDS and LDCs. Some delegations raised other aspects listed in draft regulation 41 such as the need to address negative impacts on States and food security, ZNZ rewards, seafarers training, etc. Some delegations also stressed the need to maintain the delicate balance in draft regulation 41.

78 Several delegations highlighted the importance of ensuring equitable access to the Fund.

79 Several delegations stressed the need to operationalize the CBDR-RC principle within the implementation of the Fund.

80 Following consideration, the Group noted that further work was needed on a number of elements related to the operationalization of the IMO Net-Zero Fund, including, inter alia, the legal status of the governing provisions, and the possible participation of non-Party and observer organizations in the Governing Board.

81 The Group invited interested Member States and international organizations to submit proposals to a future session on the IMO Net-Zero Fund.

82 The Group noted an interest in the holding of a GHG Expert Workshop in relation to the development of the governing provisions for the IMO Net-Zero Fund, notably to be informed of relevant experiences of relevant other existing funds, and agreed to revisit this matter during MEPC 84, taking into account the totality of the intersessional workload.

Guidelines related to the GHG Fuel Intensity (GFI) and GFI compliance approaches

83 The Group recalled that draft regulation 33 on the attained annual GFI, draft regulation 36 on the annual GFI compliance approaches and draft regulation 37 on reporting and verification of the annual GFI foresee a number of implementing provisions (guidelines, guidance and mechanism) to be developed to ensure the continuous improvement of the ship's GFI.

84 The Group also recalled that the draft IMO Net-Zero Framework envisages the consideration and development of the following guidelines :

- .1 guidelines on the calculation of the attained GHG fuel intensity (GFI);
- .2 guidelines on the annual GFI compliance approaches;
- .3 guidelines on reporting and verification of the annual GFI; and
- .4 guidance for submission of data related to the annual GFI of ships from a State not Party to MARPOL Annex VI.

85 The Group noted five documents submitted to this session containing proposals regarding the GFI and GFI compliance approaches, namely documents ISWG-GHG 20/2/1 (India), ISWG-GHG 20/2/6 (Norway), ISWG-GHG 20/2/9 (Marshall Islands and Mexico), ISWG-GHG 20/2/17 (IWSA), ISWG-GHG 20/2/20 (Norway and Republic of Korea) and ISWG-GHG 20/2/31 (CSC).

GFI calculation

86 Regarding GFI calculation in general, several delegations, in pointing out the calculation formula set out in draft regulation 33 of MARPOL Annex VI, supported maintaining technology neutrality based on life cycle assessment. In this regard, several delegations referred to the LCA Guidelines and the methodology set out therein to calculate full well-to-wake GHG emissions, providing a neutral assessment tool for various fuels and technologies. Several delegations expressed the view that concepts such as correction factors or multipliers should be considered with caution, along with possible linkages with ZNZ rewarding criteria to avoid any preferential treatment of certain fuels and/or technologies and to ensure equity and environmental integrity. Some delegations also stressed the importance in the further work of addressing the specificities of ice-classed ships. Some delegations did not support the inclusion of a multiplier, since in their view, multipliers would undermine environmental integrity, and the achievement of a just and equitable transition.

87 There was broad support for using the annex to document ISWG-GHG 20/2/6 as a basis for the GFI calculation guidelines. With regard to calculating the energy provided by wind propulsion systems, shore power or solar power in GFI calculation, there was a preference for using effective energy provided to the ship, as proposed in document ISWG-GHG 20/2/6 to ensure technology neutrality. Several other delegations saw merits in further exploring the fuel-equivalent approach proposed by IWSA, and the Group noted that further work was needed on this matter and encouraged delegations to continue discussions on this matter.

88 The observer from IWSA expressed concerns regarding the treatment of wind propulsion in document ISWG-GHG 20/2/6, as in their view this approach would lead to an attained GFI distortion as the efficiency rating of the combustion process should be included to deliver a level of equivalency, as proposed by IWSA in documents MEPC 83/7/33 and MEPC 83/INF.33. These documents recommend a simplified fuel-equivalent approach, counting wind energy as the amount of fuel needed for equivalent energy, using only the main engine's efficiency as the conversion factor. While true equivalency should consider propulsive efficiency, using just the main engine efficiency is suggested for simplicity. The full statement by the observer from IWSA is set out in annex 2.

89 Following consideration, the Group invited interested Member States and international organizations to work together on the consideration and development of GFI calculation guidelines, using the annex to document ISWG-GHG 20/2/6 as a basis, and submit an updated proposal to a future session.

GFI compliance approaches

90 Regarding GFI compliance approaches, several delegations stressed that draft regulation 36 of MARPOL Annex VI contains clear requirements and that guidelines should not go beyond the draft regulations.

91 Divergent views were expressed regarding voluntary cancellation of units outside the sector: while some delegations supported in principle, other delegations expressed concerns, stressing that it would require complex safeguards to avoid double-counting. Several delegations also expressed concerns regarding limiting the use of surplus units.

92 Several possible base documents were mentioned for the development of guidelines on GFI compliance approaches, including documents submitted to previous session, such as annex 2 to document ISWG-GHG 17/2/8 (Angola et al.).

93 Following consideration, the Group invited interested Member States and international organizations to work together on the consideration and development of guidelines on GFI compliance approaches, and submit an updated proposal to a future session.

GFI reporting and verification

94 Regarding GFI reporting and verification, several delegations highlighted that draft regulation 37 of MARPOL Annex VI contains clear requirements.

95 There was broad support for using document ISWG-GHG 20/2/1 as a basis to develop draft amendments to the SEEMP Guidelines. Several delegations highlighted that further work was needed to ensure alignment with MARPOL Annex VI and to ensure that all cases would be well covered in the revised SEEMP Guidelines, including for new ships and for approval of technologies during a calendar year.

96 Several delegations noted that in addressing other elements on reporting and verification, the Organization should avoid introducing unnecessary complexity and double reporting and build upon the IMO GFI Registry.

97 Following consideration, the Group invited interested Member States and international organizations to submit proposed guidelines on reporting and verification of the annual GFI to a future session and to work together on the consideration and development of draft amendments to the SEEMP Guidelines using document ISWG-GHG 20/2/1 as a basis with a view to submitting an updated proposal to a future session

Submission of data on the annual GFI of ships from a State not Party to MARPOL Annex VI

98 The Group invited interested Member States and international organizations to submit proposed guidance on submission of data related to the annual GFI of ships from a State not Party to MARPOL Annex VI to a future session.

IMO GFI Registry

99 The Group recalled that draft regulation 38 of MARPOL Annex VI provides a clear description of the functionalities of the IMO GFI Registry, as well as ship specific obligations and access to the Registry.

100 The Group also recalled that draft regulation 38.1 requires the Secretary-General to establish and administer the IMO GFI Registry to facilitate the implementation of draft regulation 36 on GFI compliance approaches and that draft regulation 38.2 states that ships shall have by 1 October 2027 an account with the IMO GFI Registry and shall pay by 30 June 2028 their first annual administration fee to the Registry.

101 The Group also recalled that the draft IMO Net-Zero Framework foresees work on the establishment of the Registry as follows:

- .1 consideration and development of guidelines on the development, management and operation of the Registry, to support implementation of draft regulation 38.1;

- .2 in parallel, development of Registry system;
- .3 with regard to the determination of the annual IMO GFI Registry administration fee, consideration of an initial assessment by the Secretariat, followed by the development and adoption of guidelines to support the implementation of draft regulation 38.3 and ensure that ships can pay by 30 June 2028 their first annual administration fee; and
- .4 consideration and development of guidelines on functioning and access to the Registry.

102 The Group noted that four documents submitted to this session contain proposals regarding the GFI Registry, namely documents ISWG-GHG 20/2/11 (RINA), ISWG-GHG 20/2/16 (ICS), ISWG-GHG 20/2/19 (Republic of Korea), ISWG-GHG 20/2/21 (EDF). The Group also noted document MEPC/ES.2/3/7 (Singapore) outlining key considerations regarding the development of the GFI Registry and informing on the development of a small-scale pilot to support the Secretariat in developing the Registry IT system.

103 In considering key elements to be included in guidelines on the development, management and operation of the Registry, several delegations highlighted the relevance of recommendations set out in documents ISWG-GHG 20/2/11 (RINA) and ISWG-GHG 20/2/21 (EDF). Several delegations stressed the importance of covering aspects such as, inter alia: data access and confidentiality, governance and oversight, account management, data standards and security, interoperability, automated error checks, fraud prevention, access for Port State Control, capacity-building support, etc. In considering data to be transferred to the Registry, several delegations stressed that it should be determined based on draft appendix XII of MARPOL Annex VI, while other delegations saw merits in providing data with greater granularity to allow automation of GFI calculation and checks. Regarding account management, several delegations supported the development of a two-tiered administrative structure whereby account opening/closing and verification would rest upon national Administrations, while the Secretariat would manage the technical platform.

104 There was broad support for the Secretariat to initiate initial preparatory work towards the establishment of the GFI Registry to ensure its timely development. The Secretariat clarified that the preparatory work would have no budget implications at this stage but would merely consist of mapping basic system requirements and existing practices ahead of any future development. The Group welcomed the proposal by Singapore to develop a small-scale pilot to provide input to the development of the IMO GFI Registry and underlined the importance of testing any prototype with relevant stakeholders and invited the Secretariat to liaise with the delegation of Singapore in their preparatory work. Some delegations expressed the view that since the amendments on the IMO Net-Zero Framework had not been adopted, there was no urgency in developing the Registry, and to allocate substantial resource and budget to its development

105 The Group recalled that under the draft IMO Net-Zero Framework, the Registry was designed to be a data platform, to record, track and attest units, rather than a trading platform. Several delegations suggested that experience could be drawn from existing registries in the development of the GFI Registry. The delegation of Canada reserved its position regarding the legal status of Surplus Units recorded on the IMO GFI Registry.

106 Regarding the establishment of the annual GFI Registry administrative fee, several delegations stated that the fee should be used to cover the administrative costs of the Registry and should serve no other purposes. Several delegations expressed support for defining the

purpose and scope of the fee in referring in particular to document ISWG-GHG 20/2/19. Some of these delegations positively evaluated the proposal to introduce early-payment discounts and instalment options, and suggested continuing discussions along this line. Some delegations, in referring in particular to document ISWG-GHG 20/2/16, supported a fixed fee, with a cap on the maximum quantum of the annual fee.

107 Some delegations were of the view that it was premature to determine in detail the methodology for determination of the annual fee at this stage or on setting a cap on the annual fee. Some delegations expressed a preference for a possible tiered fee based on tonnage to accommodate smaller ships, particularly in developing States, or to help ships operating primarily around national coastlines, but that occasionally travel overseas, meet their obligations without unreasonable annual cost burden.

108 The observer from IACS called for caution in case of any discrepancies between the ship's balance statement produced by the GFI Registry and its certificate of compliance issued by the Administration in case the ship's record in the Registry is updated. The observer from IACS further noted that in accordance with draft regulation 37, the Administration should report verified data to the GFI Registry. Therefore, the Registry itself should not undertake additional verification actions.

109 Following consideration, the Group:

- .1 invited interested Member States and international organizations to work together and submit proposals for guidelines on the development, management and operation of the GFI Registry to MEPC 84, taking into account submitted documents and discussions at this session; and
- .2 noted that, in order to ensure the timely completion of the GFI Registry system, the Secretariat would initiate initial preparatory work, taking into account documents submitted and discussions at this session, and provide an update to MEPC 84.

Planning of next ISWG-GHG and MEPC meetings

110 Further to various requests for clarification following from the adjournment of MEPC/ES.2, the Group noted the information provided by the MEPC Secretary / Director of the Marine Environment Division with regard to the planning of the upcoming ISWG-GHG and MEPC meetings. In particular, the Director highlighted that:

- .1 Following the approval by MEPC 83 on the provisional agenda for MEPC 84 (MEPC 83/17, paragraph 14.27), the Secretariat issued Circular Letter No.5031, inviting for participation to that meeting as well as the provisional agenda (MEPC 84/1);
- .2 Under agenda item (13) on "Work programme of the Committee and subsidiary bodies" of MEPC 84, the Committee would consider the programming of the resumption of MEPC/ES/2, also taking into account the Organization's overall meeting programme for 2026, and following which the Secretariat will issue the associated circular letter and provisional agenda for the resumed MEPC/ES.2;
- .3 Closer to MEPC 84, the Secretariat in consultation with the Chair would issue the annotations to the provisional agenda for MEPC 84 setting out the Chair's intentions on how to organize the meeting taking into account documents received for that session; and

- .4 ISWG-GHG 21 might pre-consider relevant documents submitted to MEPC 84 which fall within the terms of reference of the Group, while other submitted documents will be considered by the Committee first;

Further consideration of the development of the IMO Life Cycle GHG Assessment (LCA) framework

111 The Group recalled that the draft IMO Net-Zero Framework contained explicit references to the LCA Guidelines as the foundational methodology for calculation GHG fuel intensity (GFI) and for fuel certification and that these guidelines would serve as a critical tool in assessing the environmental impact of marine fuels across their entire life cycle, from production and distribution (well-to-tank) to combustion and use onboard (tank-to-wake).

112 The Group had for its consideration 15 documents submitted under this agenda item, namely:

- .1 ISWG-GHG 20/3 (Marshall Islands and Mexico), providing comments on the development of sustainability themes/aspects of the LCA Guidelines, including the need to consider the land rights of Indigenous and rural communities in relation to indirect land-use change (ILUC); calling robust carbon emission tracking and measures to mitigate adverse impacts on biodiversity, water availability and food security; and emphasizing the importance of incorporating a qualitative focus, supported by national documentation, to prevent disproportionate technical and economic burdens on producers in developing States;
- .2 ISWG-GHG 20/3/1 (Australia et al.), supporting a globally consistent application of sustainability themes/aspects of the LCA Guidelines, focusing on requirements of Sustainable Fuels Certification Schemes (SFCS), using water quality and availability as an illustrative case; highlighting that building on the common elements shared with existing sustainability certification systems was expected to result in the lowest additional administrative burden; outlining a transparent working method that would avoid ambiguities, supports robustness, credibility and accountability of the certified fuels claimed as contributing to the IMO Net-Zero Framework while ensuring the required adaptability to widely varying sustainability themes/aspects; and calling for the active involvement of internationally experienced certification schemes in this work as well as the establishment of a Correspondence Group to progress the matter with a view to completing the work by the end of 2026 at the latest;
- .3 ISWG-GHG 20/3/2 (Norway), describing a novel fuel pathway for LNG (natural gas feedstock) with the use of carbon capture and storage (CCS) in the upstream process; and proposing a new fuel pathway code to be included in appendix 1 of the 2024 LCA Guidelines to accommodate the verification and certification of the actual well-to-tank (WtT) emission factors of the fuel;
- .4 ISWG-GHG 20/3/3 (ICS et al.), presenting recommendations to refine the LCA Guidelines addressing key methodological challenges, focusing on the submission and review of proposed default emission factors by the GESAMP-LCA WG, and suggesting various aspects to guide its work, including: ensuring that data submitted for the calculation of default GHG emission factors is aligned with international quality standards; replacing the

approach of selecting the upper emission value as default by a scientifically representative method, establishing a biennial review to update default emission factors; suggesting the temporary use of credible alternative data sets for purely fossil fuel pathways lacking robust data; clarifying methodologies for calculating emission credits including negative emissions; and creating specific fuel pathway variants for ships using part of their cargo as fuel to reflect their unique well to tank (WtT) emissions;

- .5 ISWG-GHG 20/3/4 (IPIECA and SGMF), proposing amendments to the 2024 LCA Guidelines to: clarify the inclusion of the International Organization for Standardization (ISO) life cycle assessment (LCA) standards when calculating actual well-to-tank (WtT) emission factors; and expand power purchase agreements (PPAs) for the well-to-wake (WtW) marine fuel life cycle;
- .6 ISWG-GHG 20/3/5 (IPIECA and RINA), proposing the incorporation of underground carbon capture and storage (CCS) provisions into the 2024 LCA Guidelines to ensure the environmentally safe and secure long-term containment of carbon dioxide via geological storage, aiming to support the consistent application of CCS technology for marine fuels regulated under the purview of IMO; and inviting consideration of additional guidance to be developed by the Organization as deemed appropriate;
- .7 ISWG-GHG 20/3/6 (Malaysia), proposing the recognition of pre-combustion captured inherent CO₂ arising from natural gas processing as a carbon neutral feedstock for the production of low-carbon e-fuels, specifically e methanol, noting that emission credit from the use of captured CO₂ carbon stock was still pending methodological development under the parameters e_{CCU} and S_{FCCU} of the LCA Guidelines; and highlighting the potential of low-carbon e methanol to serve as a large-scale and immediate GHG reduction solution for the maritime industry;
- .8 ISWG-GHG 20/3/7 (CSC), proposing the re-establishment of the Correspondence Group on the Further Development of the LCA Framework to consider impacts of marine fuels beyond direct emissions or other sustainability criteria; highlighting the need to ensure that the LCA framework adequately addresses a comprehensive life cycle perspective, by focusing on LNG, bio-LNG, and e-LNG as an example; and presenting concerns that the use of mass balance and book and claim approaches could undermine the environmental effectiveness of the IMO Net-Zero Framework;
- .9 ISWG-GHG 20/3/8 (WWF et al.), highlighting the significant risk that high ILUC emissions from food and feed-based marine fuels could undermine intended GHG savings under the IMO Net-Zero Framework, drawing on examples from other regulatory frameworks such as the EU's Renewable Energy Directive (RED) and ICAO's CORSIA programme; arguing that a purely qualitative approach cannot prevent the use of high-ILUC risk biofuels under the IMO Net-Zero Framework; and proposing that the Group encourages interested Member States and international organizations to provide concrete proposals to MEPC 84 on how to incorporate quantitative metrics into a risk-based ILUC framework in the 2024 LCA Guidelines; and how to safeguard against the use of fuels made from identified high-ILUC risk feedstocks to ensure the environmental integrity of the IMO Net-Zero Framework;

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- .10 ISWG-GHG 20/3/9 (CSC), sharing the findings of a literature review and summary report on the well-to-tank (WtT) GHG intensity of liquefied natural gas (LNG) in Canada; and based on this assessment, providing recommendations related to LNG;
 - .11 ISWG-GHG 20/3/10 (Brazil), presenting complementary suggestions on how to operationalize the qualitative ILUC risk-based approach, adding to the previously submitted documents ISWG-GHG 16/3/6 (Angola et al.) and MEPC 83/7/3 (Brazil) on this subject; proposing a phased implementation timeline of the qualitative ILUC risk based approach to enable progress; and suggesting to hold an Expert Workshop on the matter before MEPC 84;
 - .12 ISWG-GHG 20/3/11 (Argentina et al.), presenting an updated review of the scientific literature, providing evidence that sustainable biofuel production can coexist with sustainable food systems and environmental protection; highlighting techniques that minimize the risk of land use change and can contribute to broader benefits, including improved energy access, emissions reductions, enhanced soil quality, strengthened agricultural infrastructure and modernization, and rural development – all of which support food security in emerging economies; outlining the necessary conditions for expanding biofuels supply in developing countries; discussing that effective and well established certification schemes, traceability mechanisms, and supportive public policies have been critical in controlling deforestation and promoting sustainable agricultural practices; and providing recommendations on regional approaches based on the assessment;
 - .13 ISWG-GHG 20/3/12 (IPIECA and RINA), proposing that the accounting of avoided emissions due to waste management improvements be assessed as part of equation (1) of the 2024 LCA Guidelines, specifically by amending the definition of parameter e_{fecu} , which covers emissions associated with the feedstock; and proposing a new footnote in equation (4) of the guidelines to recognize the potential of net negative emissions;
 - .14 ISWG-GHG 20/INF.3 (RINA), containing an overview of a low ILUC risk certification approach to IMO's global fuel standard developed by the Roundtable on Sustainable Biomaterials (RSB); and
 - .15 ISWG-GHG 20/INF.4 (RINA), containing an overview of a sustainability approach to certification for the IMO global fuel standard developed by the Roundtable on Sustainable Biomaterials (RSB).
- 113 The Group considered the matters under this agenda item in the following order:
- .1 LCA methodology;
 - .2 sustainability themes/aspects; and
 - .3 information on specific fuel types and fuel pathway codes.

LCA methodology

- 114 The Group noted that four documents had been submitted to this session containing proposed amendments to the 2024 LCA Guidelines methodology, namely documents ISWG-

GHG 20/3/2 (Norway), ISWG-GHG 20/3/4 (IPIECA and SGMF), ISWG-GHG 20/3/5 and ISWG-GHG 20/3/12 (IPIECA and RINA).

Avoided emissions and net negative emissions

115 The Group considered proposals in document ISWG-GHG 20/3/12 to amend the explanation of the e_{feco} parameter to account for avoided emissions and to recognize the possibility of net negative GHG emissions results.

116 In the ensuing discussion, several delegations acknowledged the potential value of accounting for avoided emissions, particularly for fuels from biogenic sources, and recognizing net negative GHG emissions, especially in relation to biofuels and synthetic fuels with carbon removal attributes. Several delegations expressed the need for caution and raised concerns about methodological complexities, risks of double counting, and the mixing of attributional and consequential LCA approaches in the proposed approach. Several other delegations suggested to refer the document to the GESAMP-LCA Working Group for advice. Some delegations stressed the importance of ensuring that any future methodology is scientifically sound, equitable and addresses the specific circumstances of developing countries.

117 Following consideration, the Group acknowledged the need to address avoided emissions and net negative emissions and invited the co-sponsors of document ISWG-GHG 20/2/12, as well as other interested delegations, to submit an updated proposal to MEPC 84.

ISO methodologies and frameworks

118 The Group considered the proposal in document ISWG-GHG 20/3/4 to require that actual value calculations be completed in accordance with methodologies and frameworks set in ISO standards 16067:2018 and ISO 14044:2006.

119 In the ensuing discussion, while a number of delegations saw merits in ensuring the use of standardized LCA calculation methodologies, the Group noted that this approach was not sufficiently mature at this stage, especially regarding implementation details, certification systems and compatibility with the IMO LCA framework. Several delegations stressed that ISO standards were already referenced in the LCA Guidelines. Several delegations highlighted that inserting a general reference to relevant ISO standards would not be sufficient. Several delegations raised concerns about the administrative burden and the risk of excluding other appropriate standards. Several delegations emphasized the need for fairness, flexibility, and technical support for developing countries. Several other delegations suggested that GESAMP-LCA WG might further assess the proposal to ensure methodological consistency.

120 Following consideration, the Group agreed that further evaluation was needed to determine, for example, whether all contents of the ISO standards are applicable. The Group invited the co-sponsors, as well as other interested delegations, to refine the proposal and submit an updated proposal to a future session.

Power purchase agreements (PPAs)

121 The Group considered the proposal in document ISWG-GHG 20/3/4 to allow the use of power purchase agreements (PPAs) in establishing the GHG intensity of electricity used for marine fuel production.

122 In the ensuing discussion, several delegations acknowledged that PPAs were a well established mechanism in energy markets and could facilitate the production and uptake of relevant ZNZ fuels and technologies. Several delegations emphasized the need for further consideration, particularly regarding verification complexity and the importance of integrating

PPAs within chain of custody models. Several delegations recommended clarifying the scope of application, limiting the use of PPAs to the WtT stage, while others expressed concerns about inconsistent verification standards.

123 Following consideration, the Group agreed that more consideration was required on this issue and invited the co-sponsors, as well as other interested delegations, to further refine the proposal and submit an updated proposal to a future session.

New fuel pathway code for LNG with upstream CCS

124 The Group considered the proposal in document ISWG-GHG 20/3/2 to include a new fuel pathway code for LNG with upstream carbon capture and storage (CCS) in appendix 1 of the 2024 LCA Guidelines.

125 In the ensuing discussion, there was broad support for the proposal. Several delegations proposed to first request GESAMP-LCA Working Group to provide scientific advice on the proposal before concluding on the proposed amendments to the LCA Guidelines.

126 In conclusion, the Group recommended including the amendment on a new fuel pathway code in a future revision of the LCA Guidelines.

127 In this connection, several delegations, in stressing the need for methodological clarity and consistency as well as technology neutrality, supported further amending the LCA Guidelines to allow the use of actual certified values for purely fossil pathways, and not only those using CCS in upstream production. Several other delegations stressed that section 10.4 of the 2024 LCA Guidelines did not permit the use of actual values for purely fossil fuel pathways. Several delegations stated that a clear and transparent procedure for adding new fuel pathways should be developed.

Minimum requirements for geological storage of CO₂

128 The Group considered the proposal in document ISWG-GHG 20/3/5 to incorporate a set of minimum requirements for the geological storage of CO₂ and geological storage associated with enhanced oil recovery, based on international standards ISO 27914:2017 and ISO 27916:2019, respectively.

129 In the ensuing discussion, there was support in general for the proposal, while noting that many other relevant developments would need to be taken into account and that this may not be a priority for the Committee at this stage. Several delegations highlighted in particular the need to ensure alignment with other international instruments such as ICAO, the London Protocol, the Organization's existing framework on OCCS as well as existing national legislation related to geological storage.

130 Following consideration, the Group invited the co-sponsors, as well as other interested delegations, to further refine the proposal and submit an updated proposal to a future session.

GESAMP-LCA WG methodology

131 The Group recalled that MEPC 81 had agreed to the establishment of GESAMP-LCA WG and approved its terms of reference in accordance with the 2024 LCA Guidelines. In addition, MEPC 83 approved the *Methodology for submission, scientific review and recommendation of proposed default emission factors by GESAMP-LCA WG* (MEPC.1/Circ.916). The Group also recalled that MEPC 83 had noted that possible adjustments to the LCA Guidelines identified by GESAMP-LCA WG at its first meeting might

be considered during a future revision of the Guidelines. The Group further recalled that the reports of the second and third meetings of GESAMP-LCA WG would be submitted to MEPC 84.

132 The Group considered document ISWG-GHG 20/3/3, containing recommendations to guide the work of GESAMP-LCA WG, particularly on the review of proposed default emission factors.

133 In the ensuing discussion, several delegations supported the application of strict data quality requirements and emphasized the importance of aligning submissions with internationally recognized ISO standards, noting that these were already referenced in the 2024 LCA Guidelines.

134 Several delegations expressed concerns about the current approach of selecting the upper emission value as the default GHG factors, which would result in overly conservative outcomes, and supported the use of a more balanced and representative approach such as weighted average, provided that clear principles are established to manage outliers and account for regional variations. Several other delegations supported maintaining the current approach and emphasized the need for scientific input in the process of selecting default emission factors and could not support the weighted average approach. Several delegations recalled the ongoing work on representativeness and conservativeness undertaken by GESAMP-LCA WG and suggested waiting for its report on the matter.

135 Several delegations supported conducting regular reviews of default emission factors aligned with scientific progress, while cautioning against retroactive changes, and emphasized the need for representatives and scientific advice.

136 There was support in general for addressing the issue of ships using cargo as fuel. Several delegations supported the proposal to create specific fuel pathway codes or variants for ships using cargo as a fuel, noting its particular relevance for gas carriers and emphasizing the need for clear boundary definitions and measurement criteria. Several delegations suggested that ships using cargo as a fuel should be evaluated separately and that certified actual values may offer a more practical alternative to expanding the list of default emission factors. Several other delegations expressed openness to new fuel pathways but recommended exploring more effective mechanisms to address upstream emissions.

137 Several delegations expressed their preference for considering possible changes to the GESAMP-LCA Working Group's methodology at a later stage, as part of a broader evaluation of the process.

138 Following consideration, the Group invited the co-sponsors of document ISWG-GHG 20/3/3 to submit an updated proposal to MEPC 84, taking into account the reports of the second and third meetings of GESAMP-LCA WG, along with the views expressed at this session.

139 The Group also considered document ISWG-GHG 20/3/11, presenting information on sustainable biofuel production. In the ensuing discussion, several delegations emphasized the role of sustainable biofuels in advancing maritime decarbonization, particularly within the context of developing countries, highlighting that, when supported by robust regulatory frameworks, sustainable biofuel production could support food security and environmental protection. Several delegations stressed the need for effective certification schemes and traceability mechanisms, and supported that GESAMP-LCA WG consider regional diversity and varying levels of technological and infrastructural readiness when assessing the default values. Several delegations expressed caution against the use of regional values. Several delegations expressed caution against endorsing specific fuels or technologies within IMO

GHG measures, advocating for a technology-neutral approach that allows all fuels and technologies to be evaluated based on their genuine characteristics.

140 As requested, the statement by the delegation of Indonesia is set out in annex 2.

141 The Group acknowledged that GESAMP-LCA WG could not address a large number of additional methodological issues at this stage, as its priority was to review proposed default emission values. The Group therefore invited submitters of documents requesting an advice from GESAMP-LCA WG to clearly describe the expected mandate to GESAMP-LCA WG in their submission.

Sustainability themes/aspects

142 The Group noted that five documents submitted to this session contained proposals regarding sustainability themes/aspects in the LCA Guidelines, namely documents ISWG-GHG 20/3 (Marshall Islands and Mexico), ISWG-GHG 20/3/1 (Australia et al.), ISWG-GHG 20/3/7 (CSC), ISWG-GHG 20/3/8 (WWF et al.) and ISWG-GHG 20/3/10 (Brazil).

143 The Group also noted the information set out in documents ISWG-GHG 20/INF.3 and ISWG-GHG 20/INF.4.

144 Several delegations recognized the importance of the sustainability themes/aspects in the LCA Guidelines, and expressed that further work was needed in their development, ensuring environmental integrity and alignment with global biodiversity commitments, as outlined in the Convention on Biological Diversity and the Kunming-Montreal Global Biodiversity Framework. Several delegations expressed the view that the Organization, in its further work on sustainability themes/aspects, should build upon the work conducted by existing certification schemes and the work carried out by ICAO on this matter. One delegation raised concerns about sustainability theme 2 (carbon source) in the LCA Guidelines, stating that it might restrict the use of innovative carbon capture technologies, and recommended deleting it from section 7 of the LCA Guidelines to preserve neutrality and encourage innovation.

145 Regarding social and economic sustainability themes, whilst several delegations supported their inclusion, several other delegations expressed concerns about introducing detailed and quantitative indicators, arguing that such measures could disadvantage developing countries due to their varied governance structures and development stages. One delegation expressed the preference for general provisions and proposed that compliance should be demonstrated through national legislation rather than international benchmarks.

146 Regarding sustainability theme/aspect 3, several delegations stressed the importance of financial support to decarbonize electric grids, particularly in developing countries, SIDS and LDCs, to achieve genuine emission reductions in producing sustainable e-fuels.

147 Regarding ILUC and how to operationalize the ILUC risk-based approach, several delegations emphasized the need for clearer definitions and classifications of low- and high-ILUC risk, along with concrete measures to mitigate ILUC impacts. Proposals included enhancements to the operational framework, including phased implementation, short-term thresholds, and a no-high ILUC risk option. One delegation expressed concerns about linking additionality requirements with ILUC, as this would introduce complexity, risk discouraging sustainable land management, and conflict with a project-level assessment model. Several delegations expressed reservations about adopting quantitative methodologies for ILUC assessment, due to methodological uncertainties, lack of international consensus, and potential geographic biases that could disadvantage developing countries. Some delegations,

in supporting the use of quantitative methods, expressed concerns that the qualitative risk-based approach could misrepresent the environmental impact of certain biogenic feedstocks.

148 During the discussion, several delegations supported the re-establishment of a correspondence group on further development of the LCA framework to address possible metrics and indicators, as well as social and economic sustainability themes and aspects. Several delegations suggested to convene an expert workshop to address key sustainability issues within the LCA Guidelines, including ILUC. One delegation specifically recommended consultation with the Secretariat of the Convention on Biological Diversity (CBD) regarding ILUC issues. Several delegations expressed caution about the multiplication of GHG workstreams and working arrangements.

149 Following consideration, the Group noted that there was interest in advancing the development of sustainability themes/aspects, in particular environmental themes/aspects, in order to provide further clarification in the LCA Guidelines, and invited interested Member States and international organizations to submit documents proposing relevant amendments to the LCA Guidelines or draft terms of reference for the correspondence group to a next session. Regarding ILUC risk-based classification, the Group agreed that further work on this issue should take into account the outcome of GESAMP-LCA WG, expected to be submitted to MEPC 84.

Information on specific fuel types and fuel pathway codes

150 The Group noted information on specific fuel types and fuel pathway codes provided in documents ISWG-GHG 20/3/6, ISWG-GHG 20/3/9 and ISWG-GHG 20/3/11.

151 The Group requested the Secretariat to consolidate possible draft amendments to the 2024 LCA Guidelines identified by GESAMP-LCA WG 1 (MEPC 83/7/1, annex, paragraph 6.7), as well as the draft proposed amendments on a new fuel pathway code for LNG with upstream carbon capture and storage in document ISWG-GHG 20/3/2 (see paragraph 120), for consideration by ISWG-GHG 21.

152 The full statement by the delegation of Saudi Arabia on the further consideration of the development of the IMO Life Cycle GHG Assessment (LCA) framework are set out in annex 2.

Finalization of the draft terms of reference for the Fifth IMO GHG Study, using document MEPC 83/7/2 as the basis

153 The Group recalled that MEPC 83 had instructed the Group to finalize the draft terms of reference for the Fifth IMO GHG Study, using documents MEPC 83/7/2 (Secretariat) as the basis and taking into account the following documents:

- .1 MEPC 83/7/14 (Brazil), presenting the key sources of fugitive methane emissions related to the use of LNG in shipping; highlighting the need for rigorous methods to account for and mitigate those emissions; and requesting to include the accounting of fugitive methane emissions through the LNG value chain within the scope of the Study;
- .2 MEPC 83/7/24 (IWSA), highlighting a series of baseline assumptions and considerations to be taken into account in the proposed terms of reference for the Study; stressing that careful consideration of the holistic approach to energy provision, technology readiness levels, emission profiles, emission forecasting and comparative analysis of energy solutions was crucial to ensure fair transition pathways; and informing that the use of wind propulsion

could be used as an example of how assumptions and approaches could severely impact the assessment of one particular technology basket; and

- .3 MEPC 83/7/42 (China), commenting on document MEPC 83/7/2 and proposing modifications to the draft terms of reference of the Study, aimed at enhancing completeness and maintaining consistency with previous studies and related policy decisions.

154 The Group had for its consideration three documents submitted under this agenda item, namely:

- .1 ISWG-GHG 20/4 (CLIA et al.), proposing to expand the scope of the Fifth IMO GHG Study emissions inventory to include other relevant substances from low- and zero-carbon fuels, such as ammonia, hydrogen and formaldehyde, with at this stage a sole focus on quantifying these emissions; proposing that the Study include a clear classification of emission sources to ensure that all TtW emissions are comprehensively considered, namely: (1) fugitive, (2) operational, (3) combusted, and (4) un-combusted emissions; and proposing amendments to the draft terms of reference for the Study;
- .2 ISWG-GHG 20/4/1 (Brazil), proposing adding elements to the draft terms of reference for the Fifth IMO GHG Study, specifically: a regional disaggregation of the analysis and results; a more detailed consortium selection process; an adjusted timeline to ensure the study is comprehensive and informs the 2023 IMO GHG Strategy review in a timely manner; and quantitative analysis of the current availability and consumption of zero- and near-zero emission energy sources, including sustainable non-fossil fuels, along with projection and supply through the year 2050; and
- .3 ISWG-GHG 20/4/2 (CSC), proposing adding elements to the draft terms of reference for the Fifth IMO GHG Study, specifically: historic trends and future scenarios for both carbon intensity and energy efficiency (energy consumed in MJ); better disaggregation of fuel consumption and emissions data in the bottom-up (ship activity) estimates; ensuring transparent access to the underlying data in a standardized format; and proposing changes to the draft terms of reference for the Fifth IMO GHG Study.

155 In the ensuing discussion, the following general comments on the draft terms of reference were made, inter alia: the Study should maintain consistency with the Fourth IMO GHG Study in structure, scope and methodology as far as possible; the Study should be completed in timely manner to provide relevant information as input to the review of the 2023 IMO GHG Strategy; the Study should remain transparent and not policy prescriptive; data for 2026 should be included in the inventory of GHG emissions and carbon intensity estimates, subject to availability of data; any comparative analysis of technologies should consider total cost of ownership; etc. Regarding regional disaggregation of the analysis and results, while several delegations supported this approach to provide information about emissions, fuel consumption and operational characteristics across different geographical areas, other delegations expressed concerns and recalled that IMO GHG studies were providing insights at global level. Several delegations expressed concerns regarding adding an excessive number of additional tasks in the TORs.

156 In considering the Study scope, methods and data, views were expressed, inter alia, on the following aspects: breaking down of GHG emissions inventory by gross tonnage, e.g. ships of 100 to 400 GT, 400 to 5,000 GT and 5,000 GT and above; consideration of potential additional harmful substances in the scope of the inventory; consideration of fugitive

emissions; updates assumptions on emission factors; inclusion of estimates of GHG fuel intensity on a well-to-wake basis; exclusion of carbon intensity estimates for 2008 from the draft TORs; inclusion of estimates of energy consumed in MJ for 2008; trends in energy consumed; use of transparent and replicable modelling approaches; dedicated module for quantitative analysis of the current availability and consumption of zero- and near-zero emission energy sources, along with projection, maximum potential availability and supply through the year 2050; etc. As requested, the statements by the observers from EUROMOT and IWSA are set out in annex 2.

157 In considering logistics and administrative arrangements, views were expressed, inter alia, on the following elements: consortium selection process; access to underlying data of the Study; anonymization of the underlying so that identification of specific ships is not possible in line with existing practice for IMO DCS data; incorporation of a section on QA/QC; etc.

158 Following consideration, the Group agreed to use the draft terms of reference for the Fifth IMO GHG Study set out in annex 1 as the basis for its further work, to be considered as 'work in progress' to support further discussions during ISWG-GHG 21.

Any other business

159 Following consideration and having noted the interest expressed by several delegations in organizing GHG Expert Workshops (GHG-EW) under agenda item 2, namely on 'ZNZs and rewards', 'governing provisions for the IMO Net-Zero Fund', and 'ILUC', the Group noted that MEPC 84 would further consider these requests in the context of the overall intersessional workload after MEPC 84.

160 The Group also noted that the IMO Future Fuels and Technology Project would organize a technical seminar on biofuels in the margins of PPR 13 on Thursday 12 February 2026, which might also cover topics such as sustainability and ILUC, while with regard to the ZNZs and reward, and in particular with regard to the various proposed reward structures, such as the flat rate, contracts for difference, auctioning, and multiplier, the Secretariat would organize an informal webinar (GHG-INF) ahead of ISWG-GHG 21 where the different submitters of documents could present their documents in more detail.

161 In this regard, several delegations suggested to also organize a webinar on the Fund's governing provisions ahead of ISWG-GHG 21 during which the Secretariat could present its comparative analysis. Several other delegations preferred to await MEPC 84 before agreeing on any intersessional work on the governing provisions. Notwithstanding, the Chair encouraged interested Member States and international organizations to informally work together and consider organizing webinars to present their documents ahead of ISWG-GHG 21.

162 The delegation of the Netherlands (Kingdom of) proposed to develop a list of outstanding requests for clarification in relation to the draft IMO Net-Zero Framework and to discuss how to address those requests. The delegation of Saudi Arabia expressed its opposition to reopening the discussion on the way forward at this point. As requested, the full statements are set out in annex 2.

Action requested of the Committee

163 The Committee is invited to approve the report of the Group in general, and in particular to:

- .1 note the progress made, including views expressed and comments made on the development of new and/or revision of existing guidelines, provisions, guidance and other documents, as appropriate, to support the

implementation of the IMO Net-Zero Framework, subject and without prejudice to the adoption of amendments on the IMO Net-Zero Framework;

- .2 note the progress made, including views expressed and comments made on the follow-up work on the further development of the LCA Framework; and
- .3 note the progress made by the Group on the development of the terms of reference for the Fifth IMO GHG Study, including a revised version of the draft terms of reference for its further work, to be considered as 'work in progress' and to be used as basis for further work (paragraph 152 and annex 1).

ANNEX 1

DRAFT TERMS OF REFERENCE FOR THE FIFTH IMO GHG STUDY

Following consideration of the draft terms of reference for the Fifth IMO GHG Study and relevant documents submitted to MEPC 83 and ISWG-GHG 20, the Group agreed to use the text set out in this annex as a basis for its further work, noting that this was work in progress.

Indicative outline

Key definitions

Executive summary

1 Inventory of GHG emissions from international shipping 2018-~~[2025]~~[2026]

1.1 Introduction and scope

1.1.1 The 2023 IMO Strategy on reduction of GHG emissions from ships (resolution MEPC.377(80)) recalls that:

- .1 the Third IMO GHG Study 2014 estimated that GHG emissions from international shipping in 2012 accounted for some 2.2% of global anthropogenic CO₂ emissions and that such emissions could grow by between 50% and 250% by 2050; and
- .2 the Fourth IMO GHG Study 2020 estimated that GHG emissions from international shipping in 2018 accounted for some 2.89% of global anthropogenic GHG emissions and that such emissions could represent between 90% and 130% of 2008 emissions by 2050.

1.1.2 The 2023 IMO GHG Strategy also identifies that future annual IMO emission and carbon intensity estimates using the available data from the IMO Ship Fuel Oil Consumption Database (IMO DCS) and other relevant sources would help reduce the uncertainties associated with these emission estimates and scenarios.

1.1.3 The Fifth IMO GHG Study should be transparent, non-policy-prescriptive and include the issues described below.

1.1.4 The inventory should include current global emissions of GHGs and relevant substances emitted from ships of 100 GT and above engaged in international voyages as follows, breaking down the emissions at least in the size categories 100 – 399 GT; 400-4999 GT; and 5000 GT and above [including a categorization by their type, size, and average age.]:

- .1 GHGs should be defined as the six gases initially considered under the UNFCCC process: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆), subject to data availability;
- .2 [other relevant substances that may contribute to climate change include:

- .1 nitrogen oxides (NO_x) [as well as the conversion of ammonia (NH₃) and NO_x], non-methane volatile organic compounds (NMVOCs) [including but not limited to formaldehyde], carbon monoxide (CO), particulate matter (PM) and sulphur oxides (SO_x), subject to data availability; [and]
- .2 Black Carbon (BC), subject to data availability and recognizing the complexity of providing accurate estimates; [and]
- .3 [ammonia (NH₃) and hydrogen (H₂), subject to data availability and recognizing the complexity of providing accurate estimates with sole aim to quantifying these emissions at this stage.]
- .3 for the purpose of the emission estimates calculation of substances other than CO₂, the emission factors methodology presented in section 2.2.5 and annex B of the Fourth IMO GHG Study 2020 should be updated, taking into account the *Guidelines on life cycle GHG intensity of marine fuels* (LCA Guidelines), as appropriate; and
- .4 the inventory should include total annual GHG emission² series from 2018 to [2025][2026], or as far as statistical data are available.

1.1.5 Emission estimates ~~and projections~~ should take into account the well-to-wake GHG emissions of marine fuels as addressed in the LCA Guidelines, with the understanding that the information provided would not prejudice the accounting of upstream and downstream emissions. Estimates should be provided ~~both~~ for well-to-tank, tank-to-wake and well-to-wake GHG emissions.

[1.1.6 Emission estimates and projections should categorize emission sources to ensure that all types of tank-to-wake (TtW) emissions are comprehensively captured. This includes fugitive emissions, operational releases, and both combusted and un-combusted fuel emissions, subject to data availability and recognizing the complexity of providing accurate estimates.]

[1.1.7 Assessment of the embedded carbon of all equipment and infrastructure required for well-to-wake provision of the energy source/fuel along with an inclusion of depreciation, recyclability and other circular economy considerations for that pathway and vessels.]

1.2 Differentiation between domestic and international voyages

1.2.1 The definitions set out in the Third IMO GHG Study 2014 are as follows:

"International shipping: shipping between ports of different countries, as opposed to domestic shipping. International shipping excludes military and fishing vessels. By this definition, the same ship may frequently be engaged in both international and domestic shipping operations. This is consistent with the IPCC 2006 Guidelines."

"Domestic shipping: shipping between ports of the same country, as opposed to international shipping. Domestic shipping excludes military and fishing vessels. By this definition, the same ship may frequently be engaged in both international and

² Refer to paragraph 3.3.4 of the *2023 IMO Strategy on reduction of GHG emissions from ships* (resolution MEPC.377(80)).

domestic shipping operations. This definition is consistent with the IPCC 2006 Guidelines."

1.2.2 The Fourth IMO GHG Study 2020 differentiated between domestic and international voyages according to two methods: the "voyage-based allocation" and the "vessel-based allocation" of emissions.

1.2.3 The Fifth IMO GHG Study should provide emission estimates using the same two methods and further develop clear and unambiguous definitions and refine methods for differentiation between domestic and international voyages with the aim to exclude domestic voyages from the inventory for "international shipping". This would mitigate the risk of the double counting of emissions from ships. The study should also further develop clear and unambiguous definitions and refine methods for the treatment of emissions at berth, at anchor, and idling emissions, as well as a distinction between emissions/fuel use from auxiliary engines, as far as possible.

1.3 *Methods and data*

1.3.1 The emission estimate should include a thorough review of the methodology and assumptions used in the inventory forming part of the Fourth IMO GHG Study 2020, taking into account peer-reviewed literature peer-reviewed and other high-quality literature [work] undertaken since publication of the Fourth IMO GHG Study 2020. The review of the methodology and assumptions may be undertaken by the steering committee established by MEPC and/or by an expert group, as appropriate.

1.3.2 The emissions inventory is a technical exercise building on the methodology developed under the Second IMO GHG Study 2009, the Third IMO GHG Study 2014 and the Fourth IMO GHG Study 2020 and should be based on available data on fleet composition and size as well as on other technical ship particular data.

1.3.3 Analytical work should be based on available fleet and ship particular data, taking into account intellectual property rights as well as other relevant provisions.

1.3.4 Estimates should be determined by a top-down methodology such as fuel sales and shipping demand, and by a bottom-up (ship activity) methodology. The bottom-up methodology should be subject to data availability and following the methodology and assumptions used in the Second, Third and Fourth IMO GHG Studies, but consider methodological developments in peer-reviewed [and other high-quality] literature. This should, which should, however, be complemented by data derived from all relevant sources, including the IMO DCS, to reduce the uncertainties associated with emission estimates. The bottom-up estimate should be compared with the top-down estimate and any discrepancy analysed and explained, as far as possible.

1.3.5 IMO DCS data, generally being a reliable source of actual operational data, albeit with limited coverage, should serve as a benchmark for data calibration purposes particularly for individual ships. IMO DCS data may be used for data calibration purposes, to assess the correlation of emissions estimates or trends from various sources, and t~~The Fifth Study should develop methodologies and approaches to compare and evaluate data from these different various sources against this benchmark; and explore possible approaches for resolving the misalignment in GHG emissions between the DCS data and bottom-up estimates.~~

1.3.6 Ship type and size categories should be aligned, as far as possible, with those used in MARPOL Annex VI, in particular for the application of the short-term GHG reduction

measure, although for comparability purposes those used in the Fourth IMO GHG Study may also be considered.

1.4 Outcome

Results should be compared and discussed with the aim of identifying an estimate for GHG emissions from international shipping [and from shipping as a whole] on an annual basis from 2018 to [2025] [2026].

1bis Estimates of GHG fuel intensity

1bis.1 The Fifth IMO GHG Study should provide estimates of the world fleet's GHG fuel intensity in conjunction with and the share of zero or near-zero GHG emission technologies, fuels and/or energy sources (ZNZs) to increase, from 2018 to [2025][2026], or as far as statistical data are available, using the data consistent with the outcome of the inventory estimates.

1bis.2 The estimates for GHG fuel intensity should be provided for well-to-tank, tank-to-wake, and well-to-wake phases, using the methodologies and parameters specified in the LCA Guidelines. [The definition and scope of ZNZs should align with those used in the [mid-term measures][2023 IMO GHG Strategy]].[footnote using NZF ZNZ reg 39]

2 Estimates of carbon intensity

2.1 Carbon intensity estimates for the years 2018-[2025][2026]

2.1.1 The Fifth IMO GHG Study should provide estimates of the world fleet's CO₂ emissions and energy consumed (MJ) per transport work,³ from 2018 to [2025][2026] or as far as statistical data are available, using the outcome of the inventory estimates.

2.1.2 Carbon intensity indicators should be estimated using parameters consistent with the IMO DCS, as relevant, for the various ship types. Other potential indicators are also suggested to be estimated as far as statistical data are available, including additional reporting parameters to the IMO DCS.

2.1.3 In order to better understand the reduction in emissions that are a result of changing fuels and those that have come about via improvements in the energy efficiency of ships, the Fifth IMO GHG Study should also include estimates of the energy consumed (MJ) per transport work from 2018 to [2025][2026] or as far as statistical data are available.

2.2 [Emission estimates for the year 2008]

~~2.2.1 The Fifth IMO GHG Study should review estimates of the carbon intensity of international shipping for the year 2008,⁴ as set out in the Fourth IMO GHG Study, and provide refined estimates, as appropriate.~~

2.2.1bis The Fifth IMO GHG Study should also estimate the energy consumed (MJ) by international shipping [and shipping as a whole] for the year 2008, using data from the Fourth IMO GHG Study.

³ Refer to paragraph 3.3.2 of the 2023 IMO Strategy on reduction of GHG emissions from ships (resolution MEPC.377(80)).

⁴ The calculation should take into account estimates identified in section 2.1.

2.2.1~~ter~~ The Fifth IMO GHG Study should estimate the WTW GHG emissions of international shipping [and shipping as a whole] for the year 2008, using data from the Fourth IMO GHG Study.

2.2.2 Carbon intensity estimates ~~for 2008 and~~ for 2018 to [2025][2026] should specifically demonstrate progress towards the level of ambition set out in the 2023 IMO GHG Strategy to achieve at least a 40% reduction of carbon intensity by 2030 compared to 2008. The estimates of the carbon intensity of international shipping for the year 2008, as set out in the Fourth IMO GHG Study, should be used as a reference for these purposes.

2.2.3 The Fifth Study should also provide a comparison of the carbon intensity of shipping with other transport modes, subject to data availability and recognizing the complexity of providing accurate estimates.

3 Scenarios for future international shipping emissions [2025][2026]-2050

3.1 Introduction

3.1.2 The Fifth IMO GHG Study should develop business-as-usual emission scenarios⁵ on the basis of all ~~possible~~ plausible combinations of representative concentration pathways (RCPs) and shared socio-economic pathways (SSPs), and discuss their plausibility in the light of recent peer-reviewed scientific literature and GDP growth projections made by international economic organizations. In addition, the Study should develop business-as-usual emission scenarios on the basis of one or more recent GDP growth projections made by international economic organizations, e.g. the OECD, IMF, World Bank.

3.1.3 The Fifth IMO GHG Study should project transport demand and shipping emissions up to 2050.

3.2 Methods and data

3.2.1 In developing future scenarios that affect emissions from international shipping, the Fifth IMO GHG Study should take fully into account the application of relevant adopted IMO regulations and other industry measures to re-evaluate the status of GHG emissions from shipping. Updated Marginal Abatement Cost Curves (MACCs) taking into account recent [and projected] technology and economic trends [, as well as both regionally-appropriate technology and any constraints on regional availability of technology,] in shipping should be developed as technical information for reference.

[3.2.2 All modeling approaches should be transparent in parameters, replicable, and subject to sensitivity analysis.]

⁵ ["Business-as-usual emission scenarios" assume that the current IMO [policies][regulations] on GHG emissions of ships remain as they are in force at the time of awarding the contract.] [*"Business-as-usual emission scenarios" assume that IMO [policies][regulations] on GHG emissions of ships remain as they are at the time of commencing the development of these scenarios, inclusive of any MARPOL amendments that have been adopted but have not yet entered into force.*]

3.3 Outcome

3.3.1 Results should be compared and discussed with the aim of identifying, as far as possible, trends for GHG emissions and carbon intensity from international shipping [and from shipping as a whole] between [2025][2026] and 2050.

3.3.2 In addition to providing updated GHG emissions projections, the Fifth Study should also provide updated maritime transport demand projections and associated energy consumption projections of the world fleet.

3.3.3 Projections should take into account the well-to-wake GHG emissions of marine fuels as addressed in the LCA Guidelines [as well as the embedded carbon of all equipment and infrastructure required for well-to-wake provision of the energy source/fuel] with the understanding that the information provided would not prejudice the accounting of upstream and downstream emissions. Projections should be provided for well-to-tank, tank-to-wake and well-to-wake GHG emissions.

3.3.3bis The presentation of results should include trends in absolute GHG emissions in well-to-wake emissions accountancy, 'carbon intensity' as currently conceived, and energy (MJ). Where results explain/attribute these trajectories to uptake or changes in technology, fuel and operation, these should be clearly demarcated as changes in GHG intensity of energy used on board, and changes in energy efficiency of the ship.

[3.3.3ter Projections should be based on regional disaggregation of variables, such as emission patterns, fuel consumption, and operational characteristics across different geographical areas.]

[Disaggregation of fuel consumption & emissions data]

[3.3.4 Results should include a distinction between emissions/fuel use under way, emissions at berth, at anchor, and idling emissions, as well as a distinction between emissions/fuel use from auxiliary engines, as far as possible.]

[3.3.4bis Results should be disaggregated breaking down the emissions at least in the size categories 100 – 399 GT; 400-4999 GT; and 5000 GT and above [,including a categorization by their type, size, and average age].

[4 Transparent access to the underlying data]

[[Subject to limitations imposed by contracts, [and consistent with existing provisions in regulations on DCS data accessibility,] disaggregated output data used in the Fifth IMO GHG Study's analysis, which underpins its conclusions, should be made available to the public in an anonymized, accessible, and machine-readable format.]

Bibliography

Organizational matters

Responsibility of the authors

While taking into account relevant new information, the authors should not duplicate existing studies that have already been completed. Therefore, in conducting the Fifth IMO GHG Study, the authors should consult a broad range of reputable organizations, institutions and resources

with relevant experience and/or expertise within areas of the terms of reference. The authors should validate the credibility of the information obtained. The responsibility for the content of the Study would rest with the authors.

Steering committee

A steering committee should be established by the Committee at its eighty-fourth session. It should be geographically balanced (e.g. referring to the five UN regions); equitably represent developing and developed countries; include relevant stakeholders; and should be of a manageable size (therefore, as small as possible).

The steering committee should:

- .1 act as a focal point for the Committee;
- .2 provide input into the tendering process, using the list of criteria for technical evaluation of tenders set out in the appendix, and approve the Study outline;
- .3 conduct an external review of quality assurance and quality control (QA/QC) issues in the final report before it is submitted to MEPC 87, consulting experts chosen by members of the steering committee and taking into account suggestions of independent experts and academic and research institutions proposed by Member States and observers; and
- .4 confirm that the Study meets the terms of reference, and review and monitor its progress.

The steering committee should, as far as possible, take decisions by consensus, make all efforts to ensure the timely completion of the Study and undertake most of its work using modern communication methods, e.g. email and teleconferencing.

Consortium selection process

The selection of the consortium responsible for carrying out the Fifth IMO GHG Study should be carried out through a transparent and competitive formal solicitation process. The terms of reference shall specify that this process will invite proposals from qualified research institutions, academic bodies, and industry experts, [consultancies and other organizations with relevant expertise]. The solicitation will clearly define the Study's requirements, expected deliverables, timeline, and evaluation criteria. This approach will ensure that the selected consortium possesses the necessary expertise, resources, and impartiality to undertake a comprehensive and credible Study, thereby maximizing the quality and reliability of the Fifth IMO GHG Study.

Quality Assurance and Quality Control

The contractor should put in place robust internal quality assurance and quality control processes and tenderers should provide full details of these processes in their bids.

Contract and implementation

The IMO Secretariat will be responsible for procuring the services of the contractor(s) by 30 September 2026 and supervising the execution of the Fifth IMO GHG Study. IMO's General Terms and Conditions will be applicable to the contract(s). If the tenderer intends to subcontract part of the work or to carry out the work in cooperation with another

partner, full details will have to be given in the bid. Overall responsibility for the work will remain with the contractor(s).

All payments will be made in US dollars and therefore quotes should be provided in that currency. If any currency conversions are required, the rate of exchange will be the official United Nations operational rate applicable on the date of payment.

In line with IMO's General Terms and Conditions, Staff Regulations and Rules, Financial Regulations and Rules and Procurement Policies, contractor(s) and subcontractor(s) should avoid administrator and staff conflicts of interest and should have policies in place that prevent staff, board members, consultants and management from having financial, commercial or fiduciary conflicts of interest in relation to the development of and provision of services related to the Fifth IMO GHG Study.

Delivery

The final report of the Fifth IMO GHG Study should be submitted to the eighty-seventh session of the Marine Environment Protection Committee, expected to be held in spring 2028.

ANNEX 2

STATEMENTS BY DELEGATIONS

Statement made by the delegation of Mexico

"Thank you, Chair.

Happy Diwali.

Delegates, as always, Mexico respects the decision of the members in the Committee. Nonetheless, allow us to reflect on the most significant challenge that humanity has faced. Undoubtedly, climate change is the greatest risk to food security, our economies, and our livelihoods. Unfortunately, there are no costless solutions.

According to the International Maritime Organization Fourth IMO GHG Study, currently global shipping produces about three per cent of total greenhouse gas emissions. However, this share is projected to rise to up to 10 per cent by 2050 if current trends continue. In other words, if we do not implement the 2023 IMO GHG Strategy.

If current trends continue, shipping could consume six to ten per cent of the remaining global carbon budget for 1.5 °C, roughly equivalent to 15–25 gigatonnes of CO₂. This matches the combined remaining budgets of the European Union, India, and Japan, leaving far less room for other sectors, risking the Paris goals out of reach.

In light of this challenge, Mexico calls on all delegations to rejoin forces while having these figures in mind. Let this delay be a brief impasse, not a lasting setback. Let's use this session and the one after to find the path we built together.

Multilateralism means delivering global solutions to global challenges. Last week, we could not accomplish the solutions already agreed upon. Defending multilateralism is defending this room as our best place to protect our people and the planet. We will work this year—and beyond, if needed—to set the course agreed in April and reach the destination envisaged for MEPC ES.2.

Thank you, Chair."

Agenda item 2: Development of new and/or revision of existing guidelines, provisions, guidance and other documents, as appropriate, for supporting the uniform and effective implementation of the IMO Net-Zero Framework

Statement made by the delegation of United Arab Emirates

"This delegation wishes to bring to the attention of this Working Group the document submitted by United Arab Emirates document MEPC/ES.2/2/14 which is provided a number of elements relevant to this discussion.

United Arab Emirates does have a similar concern addressed by the delegation of the United States on the technical nature of this Organization.

As highlighted in the document on the ***Historical background related to the technical nature of the Organization that*** when this Organization was its in 1948, there were a number of declarations to keep the scope of the activities of the Organization to purely technical and

nautical related activities and clear declarations or reservations were made by several Member States⁶, when they deposited their instruments of accession/ratification that if the Organization were to extend its activities to matters of purely commercial or economic nature, a situation might arise where Governments would have to consider resorting to the provisions regarding withdrawal contained in Article 59 of the Convention.

Second element, IMO experience related to the establishment of mandatory funds (IOPC Funds). During the early stages of the development of a draft text for the 1971 Fund Convention which is replaced later by 1992 IOPC Funds, the Legal Committee, in the sixties, considered the question as to whether the Fund instrument should be a Protocol to the 1969 Convention or a separate convention. As a result, a separate Fund was decided and established under Conventions adopted under the auspices of IMO, which was a completely independent legal entity. Not only that but the understanding of this delegation that if the 2010 HNS Protocol enters into force, it would also be managed and operated by IOPC Funds. Therefore, IMO should not deviate from this experience which is proven to be successful. Therefore, the establishment of IMO Net-Zero Fund should entail the development of an independent convention/agreement, rather than making amendments to a technical instrument such as MARPOL Annex VI. This approach is similar to the approach on the establishment of the IOPC Funds by the Legal Committee.

Third, the funds listed under regulation 6.7 of IMO's Financial Regulations and the proposed IMO Net-Zero Fund, the proposed IMO Net-Zero Fund is not applicable to the funds (trust, reserve and special funds) listed under regulation 6.7 of IMO's Financial Regulations for the reason explained in the document MEPC/ES.2/2/14, particularly, paragraphs 14 – 17. Furthermore, this matter is an overall policy of IMO which falls under the functions of the Assembly (Article 15(g)) and therefore, the Assembly should be invited to consider this policy matter.

In conclusion, United Arab Emirates does understand that this discussion may provide some clarity. However, it would not address all concern raised in the previous sessions. Therefore, this delegation is in agreement with the delegations of the United States and Saudi Arabia that is premature to have discussion on the IMO Net-Zero Fund which is subject to the outcomes of the last week of the second extraordinary session of MEPC."

Statement made by the delegation of International Windship Association (IWSA)

"Thank you, Chair and distinguished delegates,

On behalf of the International Windship Association (IWSA), we would like to share our views on Norway's proposal, ISWG-GHG 20/2/6 for GFI attained calculations. IWSA appreciates Norway's efforts to clarify the greenhouse gas intensity metric, but IWSA has some concerns and suggests a more consistent approach.

The IWSA-GHG 20/2/6 proposal adds together the chemical energy content of fuel (measured as Lower Calorific Value (LCV)) and the energy delivered by wind propulsion. This method mixes input energy (fuel) with output energy (wind), which are not directly comparable. This distorts the GFIa metric, making it look better when energy sources that require thermal combustion conversion, like liquid and gaseous fuels, are used, and unintentionally disadvantages wind propulsion technologies.

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[UNTC](#)

By favouring fuels used in thermal combustion engines (and other thermal combustion energy converters), the GF1a metric loses its neutrality and becomes less comparable. This goes against the IMO fundamental principles and IMO decarbonization strategy, which supports technology neutrality. It also reduces the incentive for using (non-fuels, liquid and gaseous) zero or near-zero emission energy sources, ultimately making the GF1 metric decarbonization efforts less effective.

As an illustrative example: if a ship reduces emissions by 20% per year using either wind propulsion or a low-carbon fuel blend, the proposal ISWG-GHG 20/2/6 in question would assign a higher GF1a value—and potentially higher RU payments—to wind propulsion compared to the fuel blend, despite identical greenhouse gas savings. This disadvantages wind technology. IWSA recommends a simplified fuel-equivalent approach: count wind energy as the amount of fuel needed for equivalent energy, using only the main engine's efficiency as the conversion factor. While true equivalency should consider propulsive efficiency, using just the main engine efficiency is suggested for simplicity.

This approach uses the established LCV basis for fuels, keeps the rules simple, and ensures fair comparison. IWSA's proposal (MEPC 82/7/9) is straightforward and technology-neutral, supporting the IMO Net-Zero Framework and the wider decarbonization agenda.

IWSA's submission ISWG-GHG 20/2/17 also expands on some of these issues and also highlights additional key issues; urgency of deployment, scalability, total cost of ownership/operation and co-benefits of wind propulsion that feed into any discussion of full impact of proposed solutions, multipliers and other issues and we are happy to discuss these issues further.

In summary, IWSA urges the working group to address these technical issues and consider adopting the fuel-equivalent approach for GF1a calculations. IWSA is ready to help the group to refine this important methodology for the benefit of all stakeholders and we have shared some detailed feedback with the Norwegian delegation."

Thank you, Chair.

Agenda item 3: Further consideration of the development of the IMO Life Cycle GHG Assessment (LCA) framework

Statement made by the delegation of Indonesia

"Thank you, Chair.

Apologize for taking the floor before you deliver the summary.

Thank you for the International Windship Association (IWSA) for the reception last night.

Referring to document ISWG-GHG 20/3/11, Indonesia would like to thank our co-sponsors: Argentina, Brazil, and Malaysia, and would like to reiterate the aim of this document is to emphasize the strategic importance of sustainable biofuels as part of a fair and equitable transitional approach to the decarbonization of international maritime transport. It also highlights that, based on the latest scientific studies, biofuels produced and managed under appropriate regulatory frameworks can contribute to decarbonization without compromising food security.

Indonesia notes the comments made by some delegates yesterday, and we thank them for their valuable insights. Indonesia fully shares the understanding that IMO's decarbonization measures should remain technology neutral, enabling all Zero and Near Zero options to compete on their verified performance. Additionally, Indonesia underscores the importance of capacity-development and technical cooperation to help all regions generate robust LCA data and access verification systems. Therefore, Indonesia wants to clarify that our submission, does not advocate preferential treatment for any specific fuel or technology.

Rather, it aims to show that, when produced sustainably, biofuels can serve as one of many viable pathways toward maritime decarbonization, alongside other low- and zero-emission options such as hydrogen, ammonia, or synthetic fuels. Recognizing the potential of sustainable biofuels does not contradict technology neutrality; it simply ensures that all options are assessed objectively based on their scientific evidence, emission performance, and sustainability characteristics.

Furthermore, highlighting regional characteristics, particularly in developing countries, is not a call for differentiation, but rather a reflection of practical realities, including variations in resource availability, infrastructure, and feedstock potential. This is consistent with paragraph 4.1 of the 2024 LCA Guidelines, which allows regional conditions to inform emission factors where appropriate.

In this regard, our submission seeks to enrich the technical understanding available to the GESAMP-LCA Working Group, ensuring that assessments of GHG pathways remain accurate, inclusive, and globally representative—without prejudging or prescribing any specific technology.

Finally Chair, as Indonesia believes that this clarification is important, we request our intervention to be appended to the final report.

Thank you, Chair."

Statement made by the delegation of Saudi Arabia

"Thank you, Chair. Saudi Arabia believes that the development of LCA guidelines represents an important milestone in aligning maritime decarbonization efforts with comprehensive lifecycle GHG accounting. On question 1 and 2, Saudi Arabia believes that several provisions of the current LCA Guidelines raise concerns regarding fairness, methodological consistency, and technology neutrality.

On question 3 and 4 the current LCA Guidelines arbitrarily prohibit the use of actual well-to-tank GHG values for conventional fuel oils, while allowing all other fuel pathways to use actual data. This creates an internal inconsistency that undermines both fairness and scientific integrity. This selective limitation prevents accurate representation of real, verifiable upstream emissions and risks distorting comparative GHG accounting across energy pathways. To ensure the guidelines remain environmentally credible and non-discriminatory, Saudi Arabia believes that it is of a great importance that the Guidelines be adjusted to allow the use of actual well-to-tank GHG values for conventional fuel oils, consistent with all other pathways.

The introduction of "Sustainability Theme 2 (Carbon Source)" introduces ambiguity and could create unintended restrictions on the eligibility of fuels derived from captured or fossil-based CO₂. The rationale for this provision remains unclear, and its inclusion risks undermining source neutrality and discouraging innovation in carbon capture and utilization technologies. To maintain clarity and neutrality, Saudi Arabia recommends that Section 7.2.2 of the

Guidelines be deleted and that any future sustainability criteria focus strictly on measurable lifecycle GHG outcomes rather than the origin of the carbon source.

On question 6, Saudi Arabia believes that the treatment of Indirect Land Use Change (ILUC) in the current guidelines also requires careful reconsideration. The risk-based, qualitative approach will overstate the climate performance of certain biofuels while masking real environmental impacts. ILUC accounting should be applied consistently and transparently using quantitative methods to avoid bias.

Finally, the current practice of temporarily zeroing out emissions reductions from Onboard Carbon Capture Systems (OCCS) effectively deprioritizes a technology that could play a key role in near- to mid-term GHG reduction. This omission risks delaying critical investments in OCCS research, development, and infrastructure. Saudi Arabia therefore urges that the development of OCCS guidelines be prioritized and accelerated, with a view to integrating verified OCCS performance into the LCA guidelines as soon as possible.

Taken together, these issues risk introducing systemic biases that favour specific fuel types or regions rather than promoting genuine lifecycle GHG mitigation. To maintain environmental integrity and uphold the principles of fairness, transparency, and neutrality, the LCA framework must apply consistent methodologies across all pathways, ensure equal treatment of data, and recognize all credible means of reducing greenhouse gas emissions."

Agenda item 4: Finalization of the draft terms of reference for the Fifth IMO GHG Study, using document MEPC 83/7/2 as the basis

Statement made by the delegation of EUROMOT

"Thank you chair, good day to all distinguished delegates and observers.

EUROMOT thanks all submitters of documents on the terms of reference for the 5th IMO GHG study.

EUROMOT would also like to thank the Secretariat for ISWG-GHG 20/J/4 presenting all proposed changes to the terms of reference which EUROMOT can support in general.

EUROMOT would, however, like to provide specific comments on ISWG-GHG 20/4 by CLIA et al.

If the Committee decides to include emissions of formaldehyde, ammonia and hydrogen EUROMOT would urge caution when establishing emission factors for these substances as only limited data for marine engines are available.

It is important to note that emission factors applicable for smaller engines used in land-based applications cannot be directly transferred to marine engines.

Further, EUROMOT invites the contractors of the 5th IMO GHG study to take emission data from industry, including engine manufacturers, into account as laboratory studies on non-CO₂ exhaust emissions from marine engines are limited.

EUROMOT would also like to stress the importance of updating assumptions on emission factors when more data has become available, as required by section 1.3.1 of the draft terms of reference.

In this context, EUROMOT notes that the 2020 4th IMO GHG Study made assumptions on black carbon emissions due to lack of data.

To address the lack of data on black carbon, EUROMOT submitted document PPR 11/INF.10, providing additional data on black carbon emissions for different sizes of marine engines operating on various fuels.

EUROMOT respectfully suggests revisiting the assumptions on black carbon emissions when conducting the 5th GHG study, taking into account the data provided by EUROMOT in PPR 11/INF.10.

EUROMOT would kindly ask to have this intervention reflected in the report.

Thank you Chair."

Statement made by the delegation of IWSA

"Thank you Chair, distinguished delegates.

IWSA aligns with the CSC suggestions on ship efficiency contributions and data transparency. IWSA agrees with the UK delegation comments on the need to include definitions of terms used regarding fuels/energy sources/technology etc, but would expand that to wider definitions, such as 'sustainability', 'green' and so on – words matter. IWSA also agrees with the China delegation comments regarding consistency and alignment with the 4th GHG study in most cases, however in certain circumstances and sections there are concerns when it comes to comparative analysis of fuels/energy sources/technologies.

The International Windship Association submission MEPC 83/7/24 highlights and questions a series of baseline assumptions and considerations which underpin sections of the proposed 5th GHG study. This submission also links to a WMU publication chapter that adds further context and academic support for the submission. IWSA notes that quite a number of the issues we raised have been addressed in the J-paper, ISWG-GHG 20/J/4 and that is very welcome, however I think I can speak for many delegates in this room as taking this study as a key reference point helping to guide policy for the next five years and beyond.

The inclusion of a wider air emission calculations, not solely direct GHGs, in the ISWG-GHG 20/J/4 is indeed welcome, however adopting a wider total climate impacting approach is also valid and important to consider where fuels/energy sources and technologies are in comparison, including impacts such as Underwater Radiated Noise (URN), lubricant or hull coating leakage, any scrubber to water emissions, dredging activities, etc.

There are two further key components that should be factored into the study TOR related to emissions. Firstly, it is important to keep the analysis open to changing science and policy pathways, thus including GWP20 alongside GWP100 analysis, for example. Secondly, and connected to this is the need for the study to reflect the level of urgency. Environmental and climate change do not follow gentle curve decline, they are subject to tipping points, saturation risks, overshoot all leading to dramatic/volatile change. Therefore, giving a weighting to immediately deployable and easily scaled solutions should be considered as these will be far more impactful when dealing with the climate and ocean emergency that we face.

Any comparative analysis of energy sources and technologies should be approached from a 'Total Cost of Ownership/Operation' approach including all externality costs (health, climate impact, social disruption etc.), the LCA not only of fuel but also well-to-wake equipment embedded emissions and circular considerations, explicit inclusion of out-of-sector subsidies

received for each energy source and factoring in of 'Risk' such as accidental/incidental impacts, stranded assets, conflict impacts etc. This should also include an assessment of opportunity costs/impacts from each energy/fuel/technology pathway, something noticeably missing from the previous 4th GHG study.

IWSA is also deeply concerned about the reference materials used in the study. We have new and quickly emerging/adapting technology segments, that were either immature or non-existent at the time of the 4th GHG study and this innovation and scaling curve should be factored in. Exclusion and bias is also a great concern in these materials. As an example, there have been very few scientific and industry reports until recently that list wind propulsion as an 'energy source' but still refer to it as an 'energy efficiency' measure which indicates 'liquid/gaseous' fuel bias – this is just a single example, therefore there should be rigorous screening criteria for reference materials used.

More detailed concerns on all of these specific issues are outlined in our submission MEPC 83/7/24 and we are prepared to work collaboratively to further incorporate these concerns into the 5th GHG study TOR and IWSA requests that this statement is reflected in the report and the intervention is appended to the final report."

Thank you Chair."

Agenda item 5: Any other business

Statement made by the delegation of the Netherlands (Kingdom of the)

"Thank you chair, for giving us the floor.

The Working Group is now on the agenda item "any other business". The Netherlands notes in the annotated agenda that no documents have been submitted under this agenda item. The Netherlands also notes that the Group is invited to consider any matters raised under this agenda item during the session. The Netherlands would like to raise the following matter, which is clearly within the remit of the tasks given to us by the Committee:

The situation we are currently in is that the IMO Net-Zero Framework is not adopted yet because several delegations asked for clarification on specific issues. MEPC ES.2 has been adjourned for twelve months. So the Committee and the Working Group have twelve months to get to a situation in which the Committee can decide on adoption.

Regarding the requests for clarification the Netherlands delegation hopes that the discussions this week on the draft guidelines under agenda item 2 have started to provide these clarifications. And the Netherlands trusts that our next round during ISWG-GHG 21 will also be helpful taking another step towards finalization of guidelines. And thus, further spelling out how exactly the IMO Net-Zero Framework will work.

The Netherlands is not one hundred percent sure, however, that all requests for clarification relate to guidelines. Raising this point now under any other business allows delegations to table other questions now, so that the Group can develop a list of things and deal with these issues in a timely manner. After all, the Committee and the Working Group have a limited timeframe to do the necessary work to clarify, further develop, or otherwise.

That is why the Netherlands would be interested in developing a plan to address all these issues within twelve months. Let us all work together in the spirit of cooperation."

Statement made by the delegation of Saudi Arabia

"Thank you, Chair. Saudi Arabia wishes to express our opposition to reopening the discussion on the way forward, and to convey our concerns regarding the initiation of work to develop plans addressing issues related to the IMO Net-Zero Framework. Saudi Arabia believes it is important not to rush into decisions or actions in a hasty manner, but instead to proceed carefully and in full consideration of the decision taken by the majority of Committee Member States during the MEPC Extraordinary Session."
