İSTANBUL VE MARMARA, EGE, AKDENİZ, KARADENİZ BÖLGELERİ DENİZ TİCARET ODASI

ISTANBUL & MARMARA, AEGEAN, MEDITERRANEAN, BLACKSEA REGIONS CHAMBER OF SHIPPING

**Sayı** : 38591462-010.07.03-2024-639 05.03.2024
**Konu** : MEPC 81 Gündemi Hk.

Sirküler No: 176

Sayın Üyemiz,

Uluslararası Deniz Ticaret Odası (International Chamber of Shipping-ICS) tarafından Odamıza gönderilen, Ek'te sunulan yazıda;

Uluslararası Denizcilik Örgütü'nün (International Maritime Organization-IMO) Deniz Çevresini Koruma Komitesi 81'inci Dönem Toplantısı'nın (Marine Environment Protection Committee-MEPC 81) 18-22 Mart 2024 tarihleri arasında hibrit olarak gerçekleştirileceği, bahse konu toplantıya yönelik sunulan öneriler çerçevesinde ICS tarafından özet hazırlandığı belirtilmektedir.

Bu kapsamda, MEPC 81 gündeminde yer alan konu başlıkları ve içerik özetleri Türkçe'ye tercüme edilerek Ek'te sunulmuştur.

Bilgilerinize arz/rica ederim.

Saygılarımla,

*e-imza*
İsmet SALİHOĞLU
Genel Sekreter

**Ek:**
1- ICS'in Yazısı ve Eki (141 sayfa)
2- MEPC 81 Gündem Maddeleri (2 sayfa)

Dağıtım:
Gereği:
- Tüm Üyeler (WEB sayfası ve e-posta ile)
- İMEAK DTO Şube ve Temsilcilikleri
- Türk Armatörler Birliği
- S.S. Armatörler Taşıma ve İşletme Kooperatifi
- GİSBİR (Türkiye Gemi İnşa Sanayicileri Birliği Derneği)
- Gemi, Yat ve Hizmetleri İhracatçıları Birliği
- VDAD (Vapur Donatanları ve Acenteleri Derneği)
-TÜRKLİM ( Türkiye Liman İşletmecileri Derneği)

Bilgi:
- Yönetim Kurulu Başkan ve Üyeleri
- İMEAK DTO Şube YK Başkanları
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ER-1



04 March 2024 **MC(24)26**

**TO: MARINE COMMITTEE**

**COPY: CONSTRUCTION AND EQUIPMENT SUB-COMMITTEE**

**ICS BRIEF FOR MEPC 81**

***Action Required: Members are invited to review the attached brief prepared for the 81st session of IMO's Marine Environment Protection Committee.***

MEPC 81 will be held from Monday 18th to Friday 22nd March 2024. A hybrid meeting capability will be provided by IMO as well as the ability to attend in-person.

The ICS brief for the meeting is attached as an **Annex** to this circular.

Members attending the meeting within their national delegations are requested to advise the undersigned in order to facilitate any coordination that may be necessary.

Any comments on the brief or questions should be addressed to the undersigned at: chris.waddington@ics-shipping.org

MC(24)26 -Annex A – MEPC 81 ICS Brief

Chris Waddington
Technical Director

# ICS BRIEFING NOTES FOR MEPC 81

## PROVISIONAL TIMETABLE

| Date | Agenda item | Groups |
|---|---|---|
| Monday,<br>18 March 2024 | 1 Adoption of the agenda<br>7 Reduction of GHG emissions from ships<br>11 Identification and protection of Special Areas, ECAs and PSSAs<br>3 Consideration and adoption of amendments to mandatory instruments | <br>WG2<br>TG<br><br>DG |
| Tuesday,<br>19 March 2024 | 6 Energy efficiency of ships<br>5 Air pollution prevention<br>4 Harmful aquatic organisms in ballast water<br>2 Decisions of other bodies | WG1<br>WG1<br>RG |
| Wednesday,<br>20 March 2024 | 8 Follow-up work emanating from the Action Plan to address marine plastic litter from ships<br>9 Pollution prevention and response<br>10 Reports of other sub-committees<br>12 Technical cooperation activities for the protection of the marine environment | All groups to meet |
| Thursday,<br>21 March 2024 | 13 Application of the Committees' Method of Work<br>15 Any other business<br><br>Reports of groups | |
| Friday,<br>22 March 2024 | 14 Work programme of the Committee and subsidiary bodies<br>16 Consideration of the report of the Committee | |

| | |
|---|---|
| WG1 | Working Group on Air Pollution and Energy Efficiency |
| WG2 | Working Group on Reduction of GHG Emissions from Ships |
| DG | Drafting Group on Amendments to Mandatory Instruments |
| RG | Ballast Water Review Group |
| TG | Technical Group on the Designation of PSSA and Special Areas |

| | |
|---|---|
| | Documents with headings highlighted in green have been passed to MEPC 81 from earlier meetings |

**ICS Members attending the meeting on national delegations or as part of the ICS delegation are requested to inform the ICS Secretariat.**

**Members wishing to raise any issue during MEPC 81 are invited to contact** chris.waddington@ics-shipping.org

## ITEM 1: PROVISIONAL AGENDA

The Committee will be invited to adopt the agenda (MEPC 81/1) and approve the annotations thereto and the provisional timetable for its eighty-first session (MEPC 81/1/1).

**Papers:**

| | | |
|---|---|---|
| **1** | **Provisional agenda** | **Secretariat** |

Session commences at 9.30 a.m. (UTC) on Monday, 18 March 2024

Opening of the session

1 Adoption of the agenda
2 Decisions of other bodies
3 Consideration and adoption of amendments to mandatory instruments
4 Harmful aquatic organisms in ballast water
5 Air pollution prevention
6 Energy efficiency of ships
7 Reduction of GHG emissions from ships
8 Follow-up work emanating from the Action Plan to address marine plastic litter from ships
9 Pollution prevention and response
10 Reports of other sub-committees
11 Identification and protection of Special Areas, ECAs and PSSAs
12 Technical cooperation activities for the protection of the marine environment
13 Application of the Committees' method of work
14 Work programme of the Committee and subsidiary bodies
15 Any other business
16 Consideration of the report of the Committee

**1/1 Annotations to the provisional agenda and provisional timetable** **Secretariat**

This document provides information on the action the Committee will be invited to take in relation to the items on the agenda of MEPC 81. Annotations to the provisional agenda are contained in annex 1 and the provisional timetable for the meeting is set out in annex 2.

**Action requested of the Committee**

The Committee is invited to note the information provided, in particular the annotations to the provisional agenda, set out in annex 1, and the provisional timetable, set out in annex 2, and take action as deemed appropriate.

## ITEM 2: DECISIONS OF OTHER BODIES

The Committee will be invited to consider the outcomes of MSC 107, C 129, LC 45/LP 18, TC 73, C 130 and A 33 on matters of relevance to its work.

**Papers:**

**2 Outcomes of MSC 107 Secretariat**

This document invites the Committee to consider the following outcomes of MSC 107:

.1 note that MSC 107 adopted amendments to the 1974 SOLAS Convention, 1978 STCW Convention, 1978 and 1988 SOLAS Protocols and related mandatory codes and adopted and/or approved, as appropriate, a number of non-mandatory instruments (paragraphs 3.68 to 3.86, 11.2, 11.9, 12.10, 12.11, 12.16, 12.17, 12.18, 12.20, 14.18, 14.30, 14.33, 14.35, 14.37, 14.49, 15.3, 15.12 and 15.15, and annexes 2 to 14, 22 to 25, and 35);

.2 concurrently approve the draft MSC-MEPC circular on guidelines for the sampling of [oil fuel] for determination of compliance with the revised MARPOL Annex VI and SOLAS chapter II-2 and decide on the use of the term "oil fuel" or "fuel oil" in the guidelines (paragraph 6.18 and annex 16);

.3 note the mutual understanding concerning flashpoint documentation endorsed by MSC 107, subject to entry into force of SOLAS regulation II-2/4.2.1.6, and take action as appropriate (paragraphs 6.23 and 6.24);

.4 note the conclusion of MSC 107 that any work to address gender-neutral language in IMO instruments requires a holistic approach beyond the instruments under the remit of the Committee (paragraph 12.9);

.5 consider, with regard to the proposed development of a joint MSC-FAL circular on guidelines for the use of electronic certificates, which certificates and documents provided in the instruments under MEPC's purview could be addressed in future joint guidelines and advise MSC and the FAL Committee accordingly (paragraphs 13.22 and 13.23); and

.6 note the action taken regarding the ongoing high workload of MSC and its subsidiary bodies and that a working group will be established at MSC 108 to conduct a holistic review to address the issue (paragraphs 17.67 to 17.69).

**Action requested of the Committee**
The Committee is invited to note the information provided in this document and take action as appropriate under the relevant agenda items.

**2/1 Outcomes of C 129** **Secretariat**

This document reports on outcomes of C 129 relating to:

- Rules of procedure
- Strategy and planning
- Council reform
- Multilingualism
- Human resources matters
- Report of the Marine Environment Protection Committee
- Relations with non-governmental organizations
- World Maritime Day
- Hybrid meeting capability
- Matters arising from C/ES.35
- Appointment of the Secretary-General
- Supplementary agenda item

**Action requested of the Committee**
The Committee is invited to note the information provided in this document and take action as appropriate under the relevant agenda items.

**2/2 Outcomes of TC 73** **Secretariat**

This document reports on outcomes of TC 73 relating to:

- Integrated Technical Cooperation Programme.
- Resource mobilization and partnerships.
- The Capacity-building Decade 2021-2030 Strategy.
- Capacity-building: Strengthening the impact of women in the maritime sector.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document and take action as appropriate.

**2/3 Outcome of LC 45-LP 18** **Secretariat**

This document reports on outcomes of LC 45 and LP 18 relating to:

- Progress on implementation of the London Protocol and London Convention Strategic Plan.
- Revised guidance on best management practices for removal of anti-fouling coatings from ships.
- Marine geoengineering.
- Carbon capture and sequestration in sub-sea geological formation.
- Marine litter and microplastics.

- Disposal of fibre-reinforced plastic vessels (FRP vessels).
- Planning of Science Day 2024.

**Action requested of the Committee**
The Committee is invited to note the information provided, in particular the issuance of the Revised guidance on best management practices for removal of anti-fouling coatings from ships, which was developed in response to the request from the Committee.

## 2/4 Comments on the outcomes of MSC 107 IMarEST

IMarEST comments on the outcome of MSC 107 which proposed a joint MSC-MEPC circular in respect of fuel sampling. Given the different terminologies used, and hence scope of the term "oil fuel" in SOLAS chapter II-2 as opposed to "fuel oil" in MARPOL Annex VI, it is instead proposed that separate MSC and MEPC circulars be issued to cover this matter. However, recognizing that it is important that in respect of the essential elements there is uniformity, certain amendments are proposed to the existing fuel oil sampling guidelines, resolution MEPC.182(59), together with a number of updating and editorial points.

The following considerations are provided:

The term ””oil fuel”” as used in SOLAS chapter II-2 has a more limited meaning than the term ””fuel oil”” as used in MARPOL Annex VI. Consequently, if the term ””oil fuel”” were to be retained in the revised sampling guidelines that would exclude from that sampling procedure, and hence the obtaining of the required representative sample, all fuel oils which were not oil fuels such as those from biogenic or synthetic sources together with blends of those with petroleum derived fuels;

When compared to the requirements as given in appendix VI to MARPOL Annex VI ””Verification procedures for a MARPOL Annex VI fuel oil sample (regulation 18.8.2 or regulation 14.8.)”” as given by resolution MEPC.328(76), the draft sampling guidelines approved at MSC 107 includes a new section 10 titled ””Procedures and documentation following testing of retained sample””;

The flashpoint entry, as driven by the SOLAS chapter II-2 ””oil fuel”” related requirement, to the bunker delivery note as applicable to ””fuel oil”” as required by regulation 18.5 of MARPOL Annex VI results in complications. Hence there is the need for some of the amendments to MARPOL Annex VI to be considered for adoption at this session as first proposed by document MEPC 80/5/3 (Germany et.al.). However, in the case of the fuel related terminology to be used in any revised sampling guidelines it is considered that there is no workable compromise position possible which would retain the intent as it relates to the application of MARPOL Annex VI while at the same time covering the scope of SOLAS chapter II-2. Consequently, it is proposed that MSC and MEPC should each issue their own sampling guidelines which would thereby enable both to address their respective areas of interest without impacting on those of the other;

It is therefore proposed that the existing MEPC sampling guidelines be revised to incorporate the following relevant points.

Paragraph 4.3 be included, although reworded from that in the draft MSC-MEPC circular as: “The personnel taking the primary sample and preparing the MARPOL delivered sample should be familiar with the contents of these Guidelines and the use of the sampling equipment.”;

The minimum sample size be increased from the present 400 ml to 600 ml;

The paragraph 8.2 requiring seal identification to be recorded on the bunker delivery note should be amended to read "should" rather than "may" in order to emphasise, as far as is possible in a guideline, that is the intended approach;

The opportunity should be taken to now include the term "MARPOL delivered sample" as introduced by resolution MEPC.328(76) and as defined in regulation 2.1.22 of MARPOL Annex VI as the replacement, where appropriate, for the terms "representative sample" or "retained sample" thereby clearly distinguishing that sample from other representative or retained samples which may be drawn at the time of bunkering for either commercial or fuel testing purposes;

The words "for combustion purposes" relating to fuel oil should be deleted to reflect the related amendments to MARPOL Annex VI due to be adopted at this session. That deletion does not detract from the current meaning of the term but would provide consistency when those amendments enter into force thereby avoiding a further revision of the guidelines to so cover; and

A number of editorials would be proposed, such as consistent use of the term "fuel oil" and avoiding repeated reference to MARPOL Annex VI in the same paragraph.

A proposed draft text of the revised fuel oil sampling guidelines as they would apply to MARPOL Annex VI is provided in the annex to this document.

**Action requested of the Committee**

The Committee is invited to consider the comments and proposals contained in the document and take action as appropriate.

*ICS has co-sponsored the submission MEPC 81/2/7 on the same topic.*

**ICS thanks IMarEST for the submission. The document raises a lot of valid issues that will need careful consideration. This includes the need to reflect the latest versions of terminology. However, we do recollect the preference expressed by a majority of Member States during this work to develop a single guideline for sampling for both SOLAS II-2 and MARPOL Annex VI. In our view also, having a single guideline would be the preferred option and we recommend sending submission MEPC 81/2/7 that we have co-sponsored along with this submission for detailed consideration by the air pollution working group.**

**2/5 Urging Member States and all relevant stakeholders to promote actions to prevent illegal operations in the maritime sector by the "dark fleet" or "shadow fleet"** **India**

This document invites the Committee to consider an amendment to resolution A.1192(33) to incorporate the below clause to prevent criminalization of seafarers who may unknowingly become participants in the illegal operations of the dark fleet or shadow fleet as defined therein.

> "7 Recommends that Member States when encountering such potential illegal operation be mindful that the seafarers may unknowingly become participants in such activities and thus must exercise due caution to avoid criminalization of seafarers, unless evidence to the contrary exists"

**Action requested of the Committee**
The Committee is invited to consider the proposal given in paragraph 7 and take action as appropriate.

**2/6 Outcomes of C 130 and A 33** **Secretariat**

This document reports on the following outcomes of C 130 and A 33:

A33

- Actions to prevent illegal operations in the maritime sector by the "dark fleet" or "shadow fleet" - A 33 noted, in particular, that proposals for amendments to resolution A.1192(33) could be submitted to the relevant Committees (i.e. MSC, MEPC and LEG), including on matters raised at A 33 in this regard (A 33/D, paragraph 6(b).5).
- Decided, at the beginning of its session, to live-stream to the public its plenary meetings with some exceptions (A 33/8(b), paragraph 14.3.
- Invited MSC and MEPC to consider the Consolidated Audit Summary Reports (CASR) containing lessons learned from seven mandatory audits completed in 2019 and 2020 (Circular Letter No.4771).
- Endorsed the World Maritime Day theme of "Navigating the future: safety first!" for 2024.
- approved the appointment of Mr. Arsenio Antonio Dominguez Velasco of Panama to the post of Secretary-General of IMO for a period of four years, from 1 January 2024 until 31 December 2027.

C 130
Reports of MEPC 79 and MEPC 80
With regard to document C 129/10 (Secretary-General) on the outcome of MEPC 79 (C 129 postponed consideration to C 130), C 130 (C 130/D, paragraph 8.2):

.1 noted the information on decisions or progress made on relevant agenda items of the Committee.

.2 endorsed the approved new outputs on "Amendments to MARPOL Annex II in order to improve the effectiveness of cargo tank stripping, tank washing operations and pre-wash procedures for products with a high melting point and/or high viscosity" and "Revision of the Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships (resolution MEPC.107(49))"; and

.3 endorsed the renaming of output 7.5 as "Identified issues relating to the implementation of IMO instruments from the analysis of data".

With regard to document C 129/10/1 (Secretary-General) on the outcome of MEPC 80, C 130 (C 130/D, paragraphs 8.3 and 8.4):

.1 noted the information on decisions or progress made on relevant agenda items of the Committee;

.2 took into account the 2023 IMO Strategy on the Reduction of GHG Emissions from Ships (resolution MEPC.377(80)) when finalizing the text of Strategic Direction 3 (Respond to climate change) of the Strategic Plan;

.3 endorsed the approved new outputs on "Amendments to the 2017 Guidelines addressing additional aspects of the NOx Technical Code 2008 with regard to particular requirements related to marine diesel engines fitted with Selective Catalytic Reduction (SCR) systems (resolution MEPC.291(71)), as amended by resolution MEPC.313(74))" and "Amendments to the NOx Technical Code 2008 with regard to re-certification procedures of existing marine diesel engines on board ships";

.4 endorsed the change of the titles of outputs 1.21 and 2.15 to read "Development of guidance on matters relating to in-water cleaning" and "Development of amendments to MARPOL Annex VI and the NOx Technical Code on the use of multiple engine operational profiles for a marine diesel engine and on the clarification of test cycles", respectively;

.5 approved the proposed outputs of MEPC for the 2024-2025 biennium and the outputs on the post-biennial agenda of the Committee;

.6 approved the proposed plan (MEPC 80/14) of meeting weeks for MSC and MEPC and their subsidiary bodies for the 2024-2025 biennium for inclusion in the Secretary-General's relevant budget proposals, noting that, in accordance with the timeline for the development of candidate mid-term measures and the associated comprehensive impact assessment (2023 IMO Strategy on reduction of GHG emissions from ships, section 7), the proposed meeting weeks for the biennium would be extended to accommodate an extraordinary session of MEPC of one or two days in autumn 2025);

.7 endorsed the holding of the sixteenth meeting of the Intersessional Working Group on Reduction of GHG Emissions from Ships in the week prior to MEPC 81 and an intersessional meeting of the ESPH Technical Group in 2024; and

.8 approved the reports of MEPC 79 and MEPC 80 in general and transmitted them, with its comments and recommendations, to the Assembly at its thirty-third session, in accordance with Article 21(b) of the IMO Convention.

Relations with non-governmental organizations

- C 130 approved amendments to the terms of reference of the Intersessional Working Group on Relations with Non-Governmental Organizations (ISWG-NGO) (C 130/15(c)).

- C 130 expressed concerns regarding incidents during MEPC 80, including when three demonstrators gained unauthorized access to the IMO Headquarters building and interrupted the evening reception hosted by the Secretary-General, and stressed that such conduct was not acceptable (C 130/D, paragraph 15(c).6).

**Action requested of the Committee**
The Committee is invited to note the information provided in this document and take action as appropriate.

**2/7 Comments on the outcomes of MSC 107** **Liberia, ICS and INTERTANKO**

Liberia et.al. provide the following comments on the outcome of MSC 107. ICS has co-sponsored this document

The co-sponsors understand that the intention is to set up a uniform sampling procedure between the SOLAS and MARPOL Conventions, therefore, upon approval of the new circular, the existing guidelines, i.e. resolution MEPC.182(59) on 2009 Guidelines for the Sampling of Fuel Oil for Determination of Compliance with the Revised MARPOL Annex VI should be revoked. Therefore, the Committee should consider the mechanism of the revocation, i.e. whether to include the operative paragraph for revoking MEPC.182(59) in the joint MSC-MEPC circular or adopt another MEPC resolution for revocation. In addition, the Committee should consider instructing the Secretariat to update the current footnote to regulation 18 of MARPOL Annex VI, paragraph 8.1 in the future publication of the MARPOL Convention; and

The co-sponsors understand that FAL.5/Circ.39/Rev.2 on Guidelines for the use of electronic certificates are the guidelines for all certificates issued under the IMO instruments. However, by revising the status from a FAL Circular to a joint FAL-MSC circular, it gives an impression that such an electronic certificate does not apply to instruments adopted under the Committee, e.g. MARPOL, BWM, AFS, Hong Kong Ship Recycling Conventions, etc. MEPC 80 approved the unified interpretations to regulations 18.5 and 18.6 of MARPOL Annex VI, concerning electronic bunker delivery notes, as set out in annex 10, and instructed the Secretariat to revise MEPC.1/Circ.795/Rev.7 accordingly, for dissemination as MEPC.1/Circ.795/Rev.8. Electronic bunker delivery note (eBDN) is already widely used in the industry. It is understood that this Circular provides guidance on

security aspects of an electronic document such as signature and stamp. Noting that there are certificates issued for the instruments that belong to the Legal Committee, the co-sponsors are of the view that the original status, i.e. a FAL circular, should be kept, or a joint FAL-LEG-MEPC-MSC circular developed, pending the discussion at the Legal Committee.

**Action requested of the Committee**

The Committee is invited to consider the comments and proposals contained in the document and take action as appropriate.

*Please note our intervention for MEPC 81/2/4 (IMarEST).*

## ITEM 3: CONSIDERATION AND ADOPTION OF AMENDMENTS TO MANDATORY INSTRUMENTS

The Committee will be invited to consider, with a view to adoption, in accordance with article 19(2)(c) of the BWM Convention, draft amendments to the Convention concerning the use of electronic record books approved by MEPC 80 (MEPC 80/17, paragraph 4.32 and annex 7) and circulated by the Secretary-General, in accordance with article 19(2)(a) of the BWM Convention, under cover of Circular Letter No.4742 of 27 July 2023.

The Committee will also be invited to consider, with a view to adoption, in accordance with article 16(2) of the MARPOL Convention, draft amendments to:

.1 Protocol I of MARPOL (Revised reporting procedures for the loss of containers); and

.2 MARPOL Annex VI (Low-flashpoint fuels and other fuel oil related issues, marine diesel engine replacing steam system, accessibility of data and inclusion of data on transport work and enhanced granularity in the IMO Ship Fuel Consumption Database (IMO DCS)).

The draft amendments to Protocol I of MARPOL, as referred to in paragraph 3.2.1, were approved by MEPC 80 (MEPC 80/17, paragraph 10.1 and annex 19) and circulated by the Secretary-General, in accordance with article16(2)(a) of the Convention, under cover of Circular Letter No.4743 of 28 July 2023. The draft amendments to MARPOL Annex VI, as referred to in paragraphs 3.2.2, were approved by MEPC 80 (MEPC 80/17, paragraphs 5.20, 5.37, 6.29 and 6.30.2 and annex 9) and circulated by the Secretary-General, in accordance with article16(2)(a) of the Convention, under cover of Circular Letter No.4744 of 28 July 2023.

A drafting group is expected to be established to finalize the text of the above-mentioned amendments.

**Papers:**

| | | |
|---|---|---|
| **3** | **Draft amendments to the Ballast Water Management Convention** | **Secretariat** |

A draft amendment to the Ballast Water Management Convention is provided by the IMO Secretariat to the Committee for consideration and adoption.

MEPC 80 approved draft amendments to the Ballast Water Management Convention regarding the use of electronic record books. Each ship must have an approved electronic record book containing information specified in Appendix II, and entries must be signed by the officer in charge and master.

**Action requested of the Committee**
The Committee is invited to consider the draft amendments, with a view to adoption in accordance with articles 19(2)(a), (b) and (c) of the BWM Convention.

**3/1 Draft amendments to Article V of Protocol I of MARPOL** **Secretariat**

The Committee is invited to consider, with a view to adoption, proposed amendments to Protocol I of MARPOL, Article V, concerning revised reporting procedures for the loss of containers.

The Committee will recall that, at its eightieth session (3 to 7 July 2023), it considered and approved draft amendments to Article V of Protocol I of MARPOL concerning revised reporting procedures for the loss of containers, with a view to adoption at MEPC 81 (documents MEPC 80/17, paragraph 10.1, and CCC 8/18, paragraph 11.12).

The proposed amendments were circulated by the Secretary-General, in accordance with article 16(2)(a) of the MARPOL Convention, under cover of Circular Letter No.4743 of 28 July 2023.

The text of the proposed amendments, as approved by the Committee, is set out in the annex.

**Action requested of the Committee**
The Committee is invited to consider the draft amendments, with a view to adoption in accordance with articles 16(2)(a), (b), (c) and (d) of the MARPOL Convention.

**3/2 Draft amendments to MARPOL Annex VI** **Secretariat**
The annex to this document includes proposed amendments to MARPOL Annex VI relating to:

.1 low-flashpoint fuels and other fuel oil related issues;

.2 marine diesel engine replacing a steam system;

.3 accessibility of the data in the IMO Ship Fuel Consumption Database (IMO DCS); and

.4 inclusion of data on transport work and enhanced level of granularity in the IMO DCS.

The draft amendments relate to changes that were agreed at MEPC 80.

**Action requested of the Committee**
The Committee is invited to consider the draft amendments, with a view to adoption in accordance with articles 16(2)(a), (b), (c) and (d) of the MARPOL Convention.

**Chair,**
**We thank the Secretariat for paper 3/2 and the proposed amendments to MARPOL therein. We note that the proposed changes to regulation 27 provide the ability for the Secretary General to grant access to fuel oil consumption data to analytical consultancies and research entities under strict confidentiality rules. We acknowledge that this does reflect the consensus agreement within the MEPC 80 working group. However, the effectiveness of the confidentiality arrangements will depend on the wording of the pro-forma non-disclosure agreement. Hence, we would be grateful if a copy of the proforma could please be shared with delegates for comment.**

**3/3 Draft MEPC resolution on guidelines as required by regulation 13.2.2 of MARPOL Annex VI in respect of non-identical replacement engines not required to meet the Tier III limit** — **Secretariat**

The Committee is invited to consider, with a view to adoption, the draft MEPC resolution on guidelines as required by regulation 13.2.2 of MARPOL Annex VI in respect of non-identical replacement engines not required to meet the Tier III limit set out in the annex to this document.

**Action requested of the Committee**
The Committee is invited to consider the annexed draft MEPC resolution on 2023 guidelines as required by regulation 13.2.2 of MARPOL Annex VI in respect of non-identical replacement engines not required to meet the Tier III limit, with a view to finalization and adoption.

**3/4 Revision of the IMO ship fuel oil consumption Data Collection System (DCS)** — **India, RINA and IPTA**

This document proposes to further extend the granularity of DCS reported data beyond the changes already agreed at MEPC 80.

**Action requested of the Committee**
The Committee is invited to consider the information contained in this document, especially the proposals contained in paragraphs 14 to 16, and take action, as appropriate.

*The DCS changes are configured to support proposed improvements to the CII system which seek to refocus the system on the fuel used for propulsion. Although several groups have informally advocated for similar concepts, none as yet have made a formal submission to MEPC. Hence it is currently unclear how other consumed fuel would be accounted for (if at all), and how comprehensively this CII concept would address all the problems within the present system, e.g. relating to an inadequate range of reference lines, the perverse incentives provided by AER and cgDist and lack of heavy weather correction etc. Hence until such time as proponents of this CII concept make a formal submission, it is impossible to say what the necessary changes to DCS will be. In these circumstance it would be*

*better to put in hand preparations for an interim system of data collection that could be ready in time for 1st January 2026. Or alternatively revisit the proposal made by BIMCO in submission 80/6/11 for moving the DCS proforma out of MARPOL and into a set of guidelines.*

**Chair,**
**We thank India et al for paper 3/4. We believe the proposed changes to DCS are configured to support proposed improvements to the CII system which seek to refocus the system on the fuel used for propulsion. Although several groups have informally advocated for similar concepts, none as yet have made a formal submission to MEPC. In principle ICS considers this an attractive concept, and would encourage these groups to submit a formal proposal. However, in the absence of such a proposal, it is currently unclear how other consumed fuel would be accounted for (if at all), and how comprehensively this CII concept would address all the problems within the present system, e.g. relating to an inadequate range of reference lines, the perverse incentives provided by AER and cgDist, unfair treatment of short voyages and lack of heavy weather correction etc. Hence until such time as proponents of this CII concept make a formal submission, and until MEPC has chosen the preferred scope of CII improvements, it is impossible to say what the necessary and complete scope of changes to DCS will be. In these circumstances, we cannot support paper 3/4. Instead, we suggest it would be better to begin preparations for an interim system of data collection that could be ready in time for 1st January 2026 and could fully reflect the data needs of the agreed scope of changes to the CII system. Or alternatively, revisit the proposal made by BIMCO in submission 80/6/11 for moving the DCS proforma out of MARPOL and into a set of guidelines. Thereby facilitating more rapid amendments to the scope of DCS.**

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| **3/5** | **Comments on the draft amendments to regulation 13.2.2 of MARPOL Annex VI and associated guidelines** | **IMarEST** |

IMarEST provides a template for the information required by the draft amendments to regulation 13.2.2 of MARPOL Annex VI that a Party shall inform the Organization in those instances where a Tier II rather than a Tier III non-identical replacement engine has been installed. It is also proposed that this information should be made generally available through GISIS.

Additionally, a rewording of the draft amendment is proposed in order to avoid ambiguity. Furthermore, comments are made in relation to the draft resolution by which the revised associated Guidelines would be introduced.

IMarEST considers that under the existing requirements, the Organization has no information as to the extent to which it is found that the installation of a Tier III engine or engines was not feasible or why. Furthermore, without attending on board or requiring specific notification, the competent authority of a Party bordering an Emission Control Area listed in regulation 13.6 (NECA) is not aware of the numbers of those exempted engines which may be operated in their waters, or the

reasons for the given exemptions. In order to provide a uniform approach on the information to be provided to the Organization, a proposed template for inclusion as a new tab in the MARPOL Annex VI GISIS module is provided in the annex to this document. Included in that template are details of both the replaced, if applicable, and replacement engines. Additionally, a summary of the reasoning as to why the installation of a Tier III engine was not feasible and instead a Tier II engine was installed is to be included. That summary would be derived from the documentation, endorsed by the ship's Administration, which is to be retained with the installed Tier II engine's EIAPP Certificate, as given by paragraph 9 of the guidelines.

It is recognized that there are ships which never intend to enter a NECA which was in effect on or before the date of installation of a non-identical replacement engine. In such cases, it is fully consistent with the requirements of regulation 13 that such an engine be Tier II. The current version of the amended text of 13.2.2 could be read to apply to all Tier II replacement engines, rather than those to which Tier III would apply – that is the ship is intended to operate in a NECA which was in effect on or before the date of installation. The key point in allowing the installation of a Tier II engine in such cases was that the installation of a Tier III engine was agreed by the Administration as not to be feasible. Consequently, to clarify that requirement, and to avoid ambiguity, it is proposed that the amendment text be modified (additions – underlined, deletions - ~~struck through~~), as follows:

A Party shall notify the Organization in those instances where it has been accepted by the Administration of that Party that the installation of a Tier III non-identical replacement engine was not feasible and instead a Tier II rather than a Tier III ~~replacement~~ engine has been installed in accordance with the provisions of this paragraph.

Consequent amendment to point 2 of the draft resolution is also proposed along with the proposal to rename the guidelines as “2024 Gudelines..” taking into account that the guidelines will be adopted at this session. IMarEST also proposes that the Committee invites Parties that have found the installation of Tier III engines not to be feasible prior to the entry into force of the amendments to be considered at this session, to inform the Organization of those decisions using the proposed template.

**Action requested of the Committee**

The Committee is invited to consider the comments provided and the proposals contained in the document and take action as appropriate.

**ICS thanks IMarEST for the submission and would recommend that this is sent to the air pollution working group for detailed considerations.**

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| **3/6** | **Comments on the draft amendments to regulation 13.2.2 of MARPOL Annex VI** | **Liberia, Marshall Islands, and IACS** |

Liberia et.al. provide amendments to regulation 13.2.2 as contained in the document MEPC 81/3/2 concerning “amendments to MARPOL Annex VI Regulation 13" and associated guidelines.

The co-sponsors note that the proposed amendments to MARPOL Annex VI, regulation 13, paragraph 2.2, refer to "a Party", which follows the precedent in paragraph 7.1 of the same regulation. However, the co-sponsors are of the view that since it is a matter of conversion of ships in service, the decision must be made by the flag Administration, i.e. "the Administration”, not "a Party" to the convention. The same applies to the draft 2023 Guidelines as required by regulation 13.2.2, in respect of non-identical replacement engines not required to meet the Tier III limit and the unified interpretation and guidelines given in the draft revision of circular MEPC.1/Circ.795.

Related proposals for amendments is provided in paragraph 6 of the document.

**Action requested of the Committee**

The Committee is invited to consider the comments presented and the proposal in paragraph 6 of the document and take action as appropriate.

## ITEM 4: HARMFUL AQUATIC ORGANISMS IN BALLAST WATER

The Committee will be invited to consider the report of the Correspondence Group on Review of the BWM Convention (MEPC 81/4/2), re-established by MEPC 80 and tasked to define objectives for changes to specific Convention provisions and/or instruments, or the need for new provisions and/or instruments, to address the issues in the annex of the Convention Review Plan approved by MEPC 80.

The Committee will also be invited to consider any submissions received under the agenda item and documents whose consideration has been deferred to this session by MEPC 80, concerning, inter alia, guidance on: the application of the BWM Convention to ships operating in challenging water quality; the type approval process for ballast water management systems; and the temporary storage of treated sewage and/or grey water in the ballast tanks under the BWM Convention.

A Ballast Water Review Group is expected to be established to consider matters referred to it by the Committee.

**Papers:**

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| **4** | **Application for Basic Approval of the ERMA FIRST FLOW ballast water management system** | **Denmark** |

Denmark has provided information about the Basic Approval application for ERMA FIRST FLOW ballast water management.

**Action requested of the Committee**
The Committee is invited to consider the proposal for Basic Approval and decide as appropriate.

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| **4/1** | **Report of the forty-fourth meeting of the GESAMP-Ballast Water Working Group** | **Secretariat** |

IMO Secretariat has provided information containing the report of the forty-fourth meeting of the GESAMP-Ballast Water Working Group (GESAMP-BWWG) and includes the evaluation of the proposal submitted for approval by Denmark.

**Action requested of the Committee**
The Committee is invited to approve the attached report in general and, in particular, to:

1. agree that Basic Approval be granted to the ERMA FIRST FLOW submitted by Denmark in document MEPC 81/4 (paragraph 4.2.2.1 of the attached report).
2. note the Group's recommendation that, for any future applications of any BWMS for Basic Approval, an application should include all system components and processes to be described and tested as intended for the system to operate in practice (paragraph 5.2 of the attached report).

**4/2 Report of the Correspondence Group on Review of the BWM Convention** **Australia**

Australia provides the report of the Correspondence Group on Review of the BWM Convention established by MEPC 80.

MEPC 78 established a Correspondence Group (CG) to develop a Convention Review Plan (CRP), which would focus attention on priority issues and be based on a review of clear principles that promote practicality, protectiveness, take a holistic view and achieve desired policy objectives. MEPC 80 established a CG on Review of the BWM Convention to address the issues in the annex of the CRP.

The CG developed a list of instruments for revision and/or creation to address the identified priority issues (13 in number), across each of the four control points (Equipment, Survey, Operation and PSC) and then summarized a list of Convention instruments for revision and/or creation. Two rounds of correspondence were undertaken to clarify objectives for specific Convention provisions and/or instruments to amend or develop.

A list of revisions to the Convention and a list of new guidance documents to be considered for development was derived. The CG was able to draft a proposed list of specific Convention provisions and/or instruments to amend or develop, as provided in annex 3 (MEPC 81/4/2).

**Proposals requiring further discussion**

The Correspondence Group did not have time to finalize all proposals, so some concepts were agreed to but require further discussion.

1. The Group provided views in support of a new requirement for a standard Ballast Water Management Plan (BWMP) template.
2. The Group supported the concept of removing type approval for BWMS that did not comprehensively meet the requirements of the BWMS Code. However, only administrations that approved the system may remove type approval.
3. The Group supported the concept of additional sampling and analysis of ballast water discharges in addition to current survey and certification requirements. Further discussion is required to finalize the Group's views on the frequency and type of analysis.
4. Proposed amendments to Appendix I (Form of International Ballast Water Management Certificate (IBWMC)) were unclear. Further discussion would help clarify which new information parameters are relevant to the ship and which information parameters are relevant to the BWMS.

**Action requested of the Committee**

The Committee is invited to consider the report of the Correspondence Group on Review of the BWM Convention and, in particular, to consider, with a view to finalization, the list of Convention instruments for revision and/or development, based on annex 3 to this report and a further consideration of the matters discussed in paragraphs 13 to 16.

*ICS is deeply concerned about the proposal made by several participants in the CG for "additional third-party testing" to ensure the effectiveness of Ballast Water Management Systems (BWMS) in meeting D2 standards during annual, intermediate, and renewal surveys following the initial survey. We would like to emphasize that the term "Third Party" requires further clarification.*

*ICS will actively participate in the BWRG during MEPC 81 and future CG's, and one of our key priorities will be to emphasize that any additional "Third Party" testing to ensure the effectiveness of BWMS should only be conducted through existing statutory and class survey schemes.*

*ICS agrees with Japan's suggestion in MEPC 81/4/9 that there should be no additional testing during the annual and intermediate surveys. However, testing and sampling may be necessary during the renewal survey. In ICS view, the proposal in MEPC 81/4/9 strikes a balance between ensuring the effectiveness of BWMS and minimizing any additional burden on ship owners.*

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| **4/3** | **Proposal for amendments to the Guidance for Administrations on the type approval process for ballast water management systems (BWM.2/Circ.43/Rev.1)** | **Germany, Greece and BEMA** |

The Co-sponsors present information regarding necessary modifications to a BWMS with existing type approval and proposes amendments to the Guidance for Administrations on the type approval process for ballast water management systems (BWM.2/Circ.43/Rev.1) that will support approval of BMWS modifications. According to the co-sponsors, the BWMS Code and Guidance for Administrations on the type approval process for ballast water management systems (BWM.2/Circ.43/Rev.1) lack guidance for approving modifications to BWMS. There are many scenarios that require changes to components within a BWMS with an existing type approval. These scenarios include improving, replacing, outdated components, as well as a need to address issues such as CWQ or improving energy efficiency.

Current procedures for amending a type approved BWMS are unclear and inconsistent across Administrations and/or their recognized organizations (RO), and it can take one year or more per application to modify a component in a BWMS with existing type approval. According to the co-sponsors, this creates barriers to technology innovation and increases BWMS equipment costs. The co-sponsors consider that streamlined and harmonized approval processes for modifications to ballast water management systems with existing type approval are urgently needed. They propose a flow chart for evaluation of modifications and a table of example modifications with a proposed amended scope of testing and evaluation. The review of the BWM Convention is currently underway and a package of amendments will be developed. However, it may take another three years for the amendments to be approved. Therefore, in order to achieve immediate results, the co-sponsors suggest amending the existing guidance in BWM.2/Circ.43/Rev.1 to include harmonized evaluation of modifications to a BWMS with existing type approval.

According to the co-sponsors, the BWMS Code refers to upgrades or changes within the requirements for readiness evaluation, but there is currently no defined process for approval of BWMS modifications after type approval. This creates significant barriers to the continued development of a robust and effective BWMS. The co-sponsors believe that BWM.2/Circ.43/Rev.1 should be amended to include guidance on evaluating and approving modifications to a BWMS with existing type approval.

**Action requested of the Committee**
The Committee is invited to consider the proposed amendments to BWM.2/Circ.43/Rev 1 as provided in the annex.

*ICS fully endorses India's concerns in MEPC 81/4/5 regarding the current inadequate testing requirements for Ballast Water Management Systems (BWMS) in relation to Challenging Water Quality (CWQ). ICS believe that addressing this issue through thorough testing for pre-treatment filters during type approval is crucial in addressing the challenges that ports with challenging water quality face.*

*MEPC 81/4/3 is not likely to be considered during MEPC 81 and most likely will be incorporated into the work of the review of the BWM Convention.*

**ICS thanks the co-sponsors for the document MEPC 81/4/3.**

**Chair, ICS agrees that a standard procedure for approving modifications to BWMS with existing type approval is required, but believes that additional measures other than those suggested by the co-sponsors in the document MEPC 81/4/3 are required to address the issue of type-approved BWMS becoming temporarily inoperable in ports with challenging water quality. ICS believe that the current testing requirement for BWMS in relation to challenging water quality is inadequate, and are concerned about the possibility of a similar scenario involving a modified or improved BWMS being temporarily inoperable in some ports around the world even after modification.**

**Chair, ICS would like to highlight that BWMS bypass is frequently caused by inoperable pre-treatment filters in river ports with high sediment levels and a robust pre-treatment filter is essential for new BWMS installations. ICS is concerned that the proposed actions in table 1, paragraph 5bis.8 of the annex for approval of modifications to BMWS major components with existing type approval may not be sufficient to ensure that the replaced component can operate in river ports with high sediment levels.**

**Therefore, ICS recommends that the pre-treatment filter should be more thoroughly tested for approval of modification, and that a framework should be developed that includes benchmarks or standards for CWQ as part of the modification approval process to ensure that the modified or improved pre-treatment filters work in river ports with high sediment levels.**

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| **4/4** | **Interim guidance on the application of the BWM Convention to ships operating in challenging water quality conditions** | **Australia, Canada, Ireland, Marshall Islands, Netherlands, Republic of Korea, ICS, BIMCO, INTERTANKO, INTERCARGO and BEMA** |

The co-sponsors propose interim guidance on the application of the BWM Convention to ships operating in Challenging Water Quality (CWQ). The co-sponsors inform that the Committee has discussed the impact of challenging water quality on ships using BWMS and has twice documented principles (MEPC 77 &79) that should be taken into account in addressing the issue.

The Committee was unable to finalize the CWQ guidance at MEPC 80 owing to a lack of consensus on various matters as well as time constraints. The present submission reflects the substantive discussions that occurred intersessionally. This document, which is based on document MEPC 80/4/8, continues to reflect the agreement of the BWRG at MEPC 79 that a single document is needed to cover the breadth of issues associated with CWQ. It includes principles, definitions, a process for managing CWQ, and guidance on record-keeping and communication. The revised proposal reflects extensive discussions on the appropriate balance between the use of BWMS in CWQ and cargo-related operational demands. It includes a new definition of operational demand and a principle requesting ports to consider the guidance when planning arrival, departure, and berthing times. Intersessional discussions resulted in deletion of references to port reception facilities, a table of contents was added, and a number of clarifications were brought to the guidance to further focus it on pre-planning.

The intersessional discussion considered the possibility of developing a database of CWQ reports to assist in the consideration of pre-emptive bypass, when warranted, by ships, flag States and port States. This concept is the subject of a separate submission (MEPC 81/4/11) and will be considered by the BWRG during MEPC 81.

With regards to the decontamination procedure set out in appendix 1 to the proposed guidelines should include enhanced measures to promote a return to compliance with the D2 performance standard, in particular flushing of emptied tanks with treated water and pumping through 5 times the normal volume of treated ballast water (flow through method).

**Action requested of the Committee**
The Committee is invited to:

1. Finalise the Interim guidance on the application of the BWM Convention to ships operating in challenging water quality conditions based on the proposal in the annex and adopt it by way of the annexed resolution.

2. Request submissions to the next session containing proposed consequential amendments to the Guidance on ballast water record-keeping and reporting (BWM.2/Circ.80) to address record-keeping in CWQ conditions.

*As a result of several submissions (MEPC 80/4/6, 80/4/13, 80/4/14, 80/4/16, 80/4/17) raising concerns about the proposed CWQ guidance (MEPC 80/4/8), and after several intersessional discussions with key stakeholders, ICS is satisfied to provide the following information, which outlines what were the concerns and how they have been addressed in the revised interim CWQ guidance.*

1. *CWQ can be based on location (It is PCWQ and not CWQ).*

    - *Member states are now more open to the idea of developing a CWQ port database after reversing their earlier grounded position. MEPC (81/4/11) which contains INTERTANKO's ports with challenging water quality (CWQ) database is a valuable tool for voyage planning and addressing CWQ situations.*

2. *BWMS selection.*

    - *Ship owners are still advised in the interim CWQ guidance to select the best BWMS for the vessel's intended voyage pattern. Consequently, selecting the best BWMS for the ship remains as an overarching principle. Regarding MEPC 81/4/5 by India, ICS will attempt to negotiate further in BWRG during MEPC 81.*

3. *Port treatment facilities are not acceptable alternatives for existing ships to comply with the Convention requirements as it is not an existing technology.*

    - *Intersessional discussions resulted in deletion of references to port reception facilities*

4. *It is excessive and not practical to obtain prior consent from the receiving port state before pre-emptive bypassing of BWMS.*

    - *The receiving coastal state needs to be informed only in cases of pre-emptive bypass. There is no need to inform coastal states in cases of reactive bypass, where the BWMS is operated in a port with challenging water quality until it fails.*

5. *The post-bypass procedures described in MEPC 80/4/8 are overly prescriptive, including the requirement to do ballast water exchange at least 5 times the volume of each ballast water tank.*

- *After intersessional discussions, no consensus was reached, and the BWRG during MEPC 81 will continue to explore further.*

*It is ICS's opinion that key fundamental elements have been revised in the proposed interim CWQ guidance, and the finalization of the CWQ guidance is the priority during MEPC 81. This revised CWQ guidance is only interim and will be reviewed at the end of the Experience Building Phase(EBP) in December 2026, so Members and their member companies can continue to provide feedback regarding the problems faced during the EBP.*

**4/5 Analysis of the type approval testing requirement of BWMS as per resolution MEPC.300(72) and type approved BWMS data** **India**

India provides information on issues which may be considered during the Ballast Water Management (BWM) Convention review discussions on the type approval criteria for land-based and shipboard testing of BWMS based on the analysis of the BWMS type approval and System Design Limitation (SDL) data. While there are efforts to streamline the approval process to evaluate modifications to a BWMS with existing type approval (Such as MEPC 81/4/3), the analysis done by India identifies that addressing the same at the type approval stage would be a sustainable solution to the issue.

Following are the three most important points:

1. The data available within the BWMS type approval documents regarding the capability of the type approved BWMS to operate in CWQ is limited, and thus would not be sufficient to make a judicious and reliable selection by ship owners.

2. Type Approval Certificates do not mention a system design limitation for TSS load and most BWMS are tested at a value just above the minimum TSS load criteria. (Nearly 80% of all BWMS are tested in water with less than 100 mg/L load of TSS which is nowhere near real life scenarios. The maximum TSS load criteria for ballast water management systems are 50 mg/L for brackish and freshwater conditions and there are no criteria required to meet for TSS, POC and DOC loads of intake ballast water under the type approval process).

3. BWMS upgrades often involve the removal of filters and increased total residual oxidant values. The adoption of this methodology to remove filters to deal with challenging water quality (CWQ) could have consequential effects on the plant's performance.

Accordingly, India proposes that the highest limit of challenges like TSS, POC and DOC, to which a BWMS is being tested, should be mentioned in the Type Approval Certificate and should be included as mandatory System Design

Limitation parameters, to bring greater transparency to BWMS performance and selection criteria.

**Action requested of the Committee**
The Committee is invited to consider the information provided in paragraphs 15 to 24 and the proposal in paragraph 25 during the BWM Convention review process.

*ICS fully supports India's concerns with regards to the current inadequate testing requirements for BWMS in relation to CWQ and believes that thorough testing for pre-treatment filters during type approval as suggested by India is getting to the core of the problem with ports with challenging water quality.*

*Not only does this submission pertain to the discussions on the BWM Convention review, it also refers to the document MEPC 81/4/3, which offers suggestions on how to streamline the modification process for BWMS with existing type approvals. ICS believes developing a framework with benchmarks or standards for challenging water quality (CWQ) is necessary to ensure modified pre-treatment filters work effectively in river ports with high sediment levels.*

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| **4/6** | **Proposal on guidance for the temporary storage of treated sewage and/or grey water in ballast water tanks** | **Japan, ICS, IACS and CLIA** |

The co-sponsors provide draft guidance for the temporary storage of treated sewage and grey water in ballast water tanks. Intersessionally, interested Member States and International Organisations developed the revised guidance annexed to MEPC 81/4/6 after reaching consensus between MEPC 79/4/11 and MEPC 80/4/12.

The revised Guidance emphasizes that ballast water and grey water should not be mixed, and that the ballast water tank should be emptied before and after temporary storage. The revised Guidance also states that the discharge of the ballast water should comply with the Ballast Water Management Convention and MARPOL Annex IV. The guidance also proposes revised procedures for tank flushing for obtaining approval from the Administration.

**Action requested of the Committee**
The Committee is invited to consider, with a view to approval, the draft guidance for the temporary storage of treated sewage and/or grey water in ballast water tanks, as set out in the annex of this document, and take action, as appropriate.

*ICS participated in the intersessional working group and is satisfied with the outcome so far. There are, however, some minor elements that can be resolved further by intervening in the BWRG during MEPC 81. They are*

1. *ICS would like to add the following to paragraph 17.2 of the Annex, which addresses the concern that water from the same location should be considered.*

*" or sea water taken from and discharged at the same location/high seas".*

2. *As it is phrased now in paragraph 10 of the Annex, vessels not able to meet the D2 standard are not allowed to use this guidance and ICS proposes to add a new sentence.*

   *"However, vessels with an inoperable BWMS that is attempting to meet D1 standards should conduct the flushing procedure acceptable to their administration".*

3. *The requirement in paragraph 17.1 that if a ship is unable to flush each designated BW tank must be pumped at least three times is concerning to ICS, this sentence should be deleted as ICS does not see a qualification for pumping at least three times the volume of each designated BW tank(s) if the ship cannot flush.*

**4/7 Comments on document MEPC 81/4/2: challenges encountered by ships engaged in short voyages in water bodies shared by Parties to the BWM Convention** **INTERTANKO**

INTERTANKO comments on the report of the Correspondence Group on Review of the BWM Convention (MEPC 81/4/2), focusing on priority issues 5 and 7. INTERTANKO highlights challenges faced by ships engaged in short voyages in water bodies shared by Parties to the BWM Convention, where compliance with the Convention becomes impractical. INTERTANKO suggests a review of the Guidelines (G7) and BWM.2/Circ.63 to address these challenges. The proposal also includes the establishment of Same Risk Areas (SRA) in specific locations to facilitate effective Convention compliance for ships operating in those areas.

**Action requested of the Committee**
The Committee is invited to consider the comments and proposals in paragraphs 9 to 14 and take action as appropriate.

*ICS can fully support the proposal to establish a SRA and the immediate review of the circular BWM.2/Circ.63 and the long term revision of the G7 Guidelines to address the challenges encountered by ships unable to carry out BWE/T during short voyages*

**4/8 Comment on document MEPC 81/4/4** **Japan**

Japan proposes to gather data on ships that have implemented interim challenging water quality (CWQ) guidance. According to Japan, this data should include ship name, IMO number, BWMS type, flow rate, date, port name, berth name/number, alarm information, and any changes to the scheduled berthing time. Japan also believes that information gathering and reporting by Member States and international organizations through the GISIS platform could be one of the possible options.

**Action requested of the Committee:**
The Committee is invited to consider the comments in paragraphs 4 to 9 and take action as appropriate.

*ICS believes Japan's proposal is valuable for assessing the effectiveness of the interim CWQ guidance which will be reviewed at the end of the Experience Building Phase (EBP). Members and their Member Companies are encouraged to collect data and contribute to the experience building phase.*

**4/9 Comments on document MEPC 81/4/2 about sampling and analysis of ballast water discharges at flag State survey and port State control** **Japan**

Japan comments on MEPC 81/4/2 (the report of the Correspondence Group on Review of the BWM Convention) and suggests sampling and analysing ballast water discharges only during renewal surveys to ensure BWMS comply with the standards in regulation D-2.

The Correspondence Group on Review of the BWM Convention is still debating the frequency and type of sampling and analysis of ballast water discharge at flag State surveys. Under the current BWM Convention, type approval testing and commissioning testing are the only ways to ensure BWMS meet regulation D-2 standards. Observing that the majority of the Correspondence Group favoured the requirement that ballast water management plans (BWMP) must include a maintenance log derived from the original equipment manufacturer's manual. Japan believes that this requirement to include a maintenance log in the BWMP will ensure that BWMS comply with the standards in regulation D-2.

According to Japan, sampling and analysis of Exhaust Gas Cleaning System (EGCS) discharges are only required at renewal surveys to ensure compliance. Additionally, the draft revision of MARPOL Annex IV of the MARPOL Convention also proposes requiring detailed analyses of effluent discharges of Sewage Treatment Plants (STP) only during renewal surveys. For this reason, Japan supports sampling and analysis of ballast water discharges of the BWMS only at renewal surveys (not at annual and intermediate surveys). Also, as detailed analysis may be difficult, Japan also suggests indicative analysis be used for analysing ballast water discharges of BWMS at renewal surveys to ensure BWMS meet regulation D-2.

Japan also proposes a four-phase framework for PSC inspections, where a PSC Officer may only proceed to the next phase if, in principle, a problem has been identified at each stage.

1. An initial inspection should focus on documentation, such as the BWMP, and training the BWMS officer.
2. This second stage involves a more detailed inspection of the BWMS whereby the PSC Officer determines whether the BWMS has been operated in accordance with the BWMP and the self-monitoring operational

indicators verified during type approval. Undertaking a detailed inspection should be in accordance with the conditions of article 9(2) of the BWM Convention.

3. Sampling can occur at the third stage of PSC inspection, relying on "indicative analysis" to determine whether the ship meets Regulation D-2, and whether detailed analysis is required.
4. The fourth stage, if necessary, includes "detailed analysis" to ensure compliance with D-2.

**Action requested of the Committee:**
The Committee is invited to consider the proposals in paragraphs 14 and 15 and take action as appropriate.

*ICS is concerned about the proposal (Supported by many participants in the CG) for "additional third-party testing" for ensuring BWMS effectiveness to meet D2 standards during annual, intermediate, and renewal surveys following the initial survey. In this regard, ICS can agree with Japan's suggestion that there should be no additional testing at the time of the annual survey and intermediate survey, but testing and sampling may be necessary at the time of the renewal survey.*

*ICS is also concerned about the term “third party” and believes that third party testing to ensure BWMS effectiveness should only take place through existing statutory and class survey schemes.*

**4/10 Comments on document MEPC 81/4/3 about a proposal for amendments to the Guidance for Administrations on the type of approval process for ballast water management systems (BWM.2/Circ.43/Rev.1)** **Japan**

Japan provides comments on MEPC 81/4/3, proposing procedures for determining necessary tests when changing the design of BWMS. According to Japan, these procedures should reduce unnecessary testing, promote research and development, and ensure compliance of international shipping with the BWM Convention.

Japan believes that promotion of BWMS with high performance and reliability is necessary to improve compliance of international shipping with the BWM Convention. Accordingly Japan supports the development of Guidance for changing the design of BWMS to ensure consistency of the required testing for each change. As a result, Japan supports the content of actions for type approval of modifications to BMWS major components in table 1 of document MEPC 81/4/3, but considers it useful to determine the procedures based on the table in paragraph 9 of MEPC 81/4/10.

**Action requested of the Committee**
The Committee is invited to consider the proposal in paragraph 9 and take action as appropriate.

*Please refer to the intervention in MEPC 81/4/3*

**4/11 Comments on documents MEPC 81/4/2 and 81/4/4: Database on the experience of tankers in ports with challenging water quality** **INTERTANKO**

INTERTANKO's ports with Challenging Water Quality (CWQ) database captures members experience in ports where CWQ and contains reports received of challenges faced by ships operating in ports with CWQ. Ships can use the information in their voyage planning and can share the information with mariners, IMO, administration and potentially affected coastal States. According to INTERTANKO the CWQ database used together with the interim CWQ Guidance (MEPC 81/4/4) could enhance compliance to the BWM Convention.

The current INTERTANKO's CWQ database displays 323 reports of incidences where CWQ has impacted the implementation of the BWM Convention. These reports include practical parameters, associated triggers, the BWMS treatment type, and corrective action for the system. For example: The database contains information on operations where CWQ was identified, and the reason why CWQ was detected (through a system failure, a reduced treatment rate or a sequence of both).

According to INTERTANKO, until universally adaptable BWMS are developed, the CWQ database can be used to identify specific locations where a BWMS may have to operate in sub-optimal conditions and may serve as a reference for effective communication with ballast water receiving port state Administrations.

**Action requested of the Committee**
The Committee is invited to consider paragraphs 21 to 23, note the information provided in the document and take action, as appropriate.

*INTERTANKO's ports with challenging water quality (CWQ) database is a valuable tool for voyage planning and addressing CWQ situations. It allows for swift analysis of past issues, identifying trends and aiding in continuous research and design improvements for ballast water management systems (BWMS). The database will be opened to Member States, Parties to the BWM Convention, and industry stakeholders in two phases. The information from the CWQ database can enhance the notification process for areas where ballast water uptake should be avoided, and it can aid in coordinating efforts to minimize differing interpretations and instructions to affected ships.*

**4/12 Comments on document MEPC 81/4/3** **Republic of Korea**

The Republic of Korea provides comments on MEPC 81/4/3, which proposes amendments to the Guidance for Administrations (BWM.2/Circ.43/Rev.1) on the type approval process for BWMS. The Republic of Korea suggests developing

separate guidance for the evaluation and approval of BWMS modifications, rather than incorporating it into the existing circular - BWM.2/Circ.43/Rev.1.

Republic of Korea also recommends establishing a preliminary assessment process to ensure that changes to non-major components of the BWMS do not compromise its normal operation and the safety of ships. Additionally, the Republic of Korea encourages mutual recognition for approving BWMS modifications between Administrations and suggests implementing a preliminary assessment procedure for BWMS and/or modifications approved by other Administrations to ensure reliability and achieve a mutually acceptable agreement.

**Action requested of the Committee:**
The Committee is invited to consider the discussion in paragraphs 4 to 8 and the proposals in paragraph 9 and 10, and take action as appropriate.

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| **4/INF.3** | **Information on the type approval of the RADClean® ballast water management system** | **Islamic Republic of Iran** |

Iran provides information that it has type approved the RADClean® BWMS manufactured by Rahavaran Ayandeh Darya Company in accordance with the Code for Approval of Ballast Water Management Systems (BWMS Code) in compliance with regulation D-3.1 of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004.

**Action requested of the Committee**
The Committee is invited to note the information contained in this document.

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| **4/INF.6** | **Findings from a study to evaluate the performance of ballast water management systems installed on board ships against the D-2 standard of the Ballast Water Management Convention** | **Australia** |

The results of an Australian study have been presented that evaluated the performance of ballast water management systems (BWMS) fitted onboard ships that visited Australian ports between 2021 and 2023.

The study aimed to assess compliance with the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWMC). The findings showed that there were non-compliances with the discharge limits for organisms in the ≥50 µm size class, indicating a need for increased monitoring of ballast water discharges. Out of the 44 samples taken 23 failures of the BWMS to meet the D-2 performance standard were experienced during the sampling process. According to the study, identifying the root causes of non-compliance and environmental concerns was not always possible, and therefore further analysis and monitoring are needed.

**Action requested of the Committee**
The Committee is invited to take note of the findings from this study to evaluate the performance of BWMS installed on board ships against the D-2 standard of the BWMC as part of the EBP.

*The majority of the ships involved in the study were bulk carriers, with 95% of them arriving in Australian ports in ballast. However, ICS notes that the study did not specify the origin of the ships.*

*Based on the information presented, ICS strongly suspect that the ships that had the problem of non -compliance came from Chinese river ports with high sediment levels (challenging water quality issues). As a result, the ships may have resorted to bypassing the BWMS and performing exchange operations in the deep sea.*

*In ICS opinion, BWE + BWT is not the preferred option of the industry and in future IMO work of the BWM Convention review, ICS will emphasise the need to prioritise the development of a robust pre-treatment filter that can work in port with high sediment level while also striking a balance by protecting the interests of ships with existing BWMS installations.*

**4/INF.9 Information on challenges associated with the use of portable ballast water management systems as a contingency measure** **IMarEST**

IMarEST provides information on the challenges faced when using portable Ballast Water Management Systems (BWMS) as contingency measures. According to IMarEST, these portable BWMS are used in cases where an installed BWMS is temporarily inoperable or when a ship encounters Challenging Water Quality. IMarEST believes that the demand for contingency measures is likely to increase as the implementation of the BWM Convention progresses. However, there is currently a lack of clarity in existing regulations and guidance, which has hindered the acceptance and implementation of portable BWMS. To address these challenges, IMarEST suggests expanding regulation B-3 to include other contingency measure technologies, revising commissioning testing requirements, allowing contingency measure technologies to obtain type approval, and eliminating additional testing or approval requirements if the contingency measure is included in the approved BWMP.

**Action requested of the Committee**
The Committee is invited to note this information when further developing guidance for contingency measures and amendments to the Convention.

*ICS believes that Port treatment facilities cannot be considered as a viable contingency measure technology. This position is based on the reasons outlined in MEPC 80/4/6 (paragraphs 31 to 34). Therefore, IMarEST's proposal to modify regulation B-3 to include other contingency measure technologies and to revise the requirements for type approval and commissioning testing for the contingency measure technologies is not supported.*

**4/INF.13 Information regarding procedural aspects that affect modifications to a ballast water management system with an existing type approval** **BEMA**

BEMA provides additional information to that contained in MEPC 80/INF.18 and MEPC 81/4/3 on modifications to a ballast water management system (BWMS) with an existing type approval.

BEMA discusses the level of detail required in the documentation to obtain type approval and the implications for implementing BWMS modifications and performance. BEMA provides examples of the complicated lengthy and costly procedures involved during a modification, including the comprehensive requirement for information regarding the "bill of materials" (BOM) listing all components in the approved BWMS, which is considered non-compliant if it differs from the BOM. BEMA also highlights the need for streamlined and standardized procedures to enable BWMS manufacturers to modify existing type approved systems without impacting performance or meeting requirements.

**Action requested of the Committee**
The Committee is invited to take note of the information in this document as well as the example BOMs contained in the annexes.

*Please refer to the intervention in MEPC 81/4/3*

**4/INF.16 Information on the type approval of the Semb-Eco ballast water management system** **Singapore**

Singapore provides information on the type approval of the Semb-Eco BWMS manufactured by Sembcorp Marine.

**Action requested of the Committee**
The Committee is invited to note the information contained in this document.

**4/INF.18 Development of an international standard on commissioning testing procedures for BMWS using electrolytic methods** **ISO**

The BWMS Code requires the commissioning testing of ballast water management systems, but specific procedures are not provided. The ISO is developing guidance on how to perform commissioning testing procedures for BWMS using electrolytic methods, and will update the Committee in due course.

**Action requested of the Committee**
The Committee is invited to note the information contained within this document

**4/INF.24 Information on the type approval of the Cyeco ballast water management system** **Norway**

Norway has provided information that it has type approved the Cyeco ballast water management system (BWMS) manufactured by Shanghai Electric Cyeco Environmental Technology Co., Ltd., in accordance with the Code for Approval of Ballast Water Management Systems (BWMS Code) in compliance with regulation D-3.1 of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004.

**Action requested of the Committee**
The Committee is invited to note the information contained in this document.

**4/INF.33 Information on the type approval of the BalClor® Smart ballast water management system** **Denmark**

Denmark provides information that they have type approved the BalClor® Smart ballast water management system (BWMS) manufactured by SunRui Marine Environment Engineering Co., Ltd., in accordance with the Code for Approval of Ballast Water Management Systems (BWMS Code).

**Action requested of the Committee**
The Committee is invited to note the information contained in this document.

## ITEM 5: AIR POLLUTION PREVENTION

The Committee will be invited to consider any submissions received under the agenda item and a working group is expected to be established to consider matters referred to it by the Committee.

**Papers:**

**5 Ozone-depleting substances Secretariat**

The Secretariat presents updated information on the treatment of ozone-depleting substances (ODS) used by ships. It is recalled that the Kigali Amendment to the Montreal Protocol was adopted at the 28th Meeting of the Parties to the Montreal Protocol (MOP 28) on 15 October 2016, which also includes hydrochloroflourocarbons (HCFCs) as part of its ambit and entered into force on 1 January 2019. It is noted that MARPOL Annex VI prohibits systems or equipment that contain ODS, other than HFCs, to be installed on ships constructed on or after 19 May 2005, or to be installed on existing ships after that date. No HCFC containing systems or equipment is permitted to be installed on ships constructed on or after 1 January 2020, with installation on existing ships similarly banned thereafter.

It is recalled that MEPC 74, having noted Decision XXX/7 on Future availability of halons and their alternatives adopted by MOP 30, reiterated a request to member states to collect data on halon systems from the maritime sector, in particular the number of ships equipped with halon systems and to convey this information to the Ozone Secretariat. It is also recalled that this decision requested the Halons Technical Options Committee of the Ozone Secretariat to identify pathways for enhancing the recovery of Halons from ship recycling process. In this regard it is recalled that the 2023 Guidelines for the Development of the Inventory of Hazardous Materials (resolution MEPC.370(80)) under the Hong Kong Convention, contain guidance concerning the cataloguing of halons and other ODS in the development of the Inventory of Hazardous Materials (IHM).

The secretariat suggests that the Committee may wish to further note that the request to collect data on halon systems was reiterated in MSC-MEPC.1/Circ.3 ad, it is recalled that a set of amendments to MARPOL to allow for the use of electronic record books entered into force, and that regulation reg. 12.6 of MARPOL Annex IV requires each ship subject to regulation 6.1 that has rechargeable systems that contain ODS to maintain an ODS record book, which may form part of an existing logbook or electronic record book as approved by the Administration.

**Action requested of the Committee**
The Committee is invited to note the information provided and take action as appropriate.

**5/1 Clarification regarding Engine International Air Pollution Prevention (EIAPP) Certificate re-issuance at change of flag of a State** **India**

India seeks clarification regarding re-issuance of Engine International Air Pollution Prevention (EIAPP) certificate at the time of change of flag of a ship.

Regulation 13 of MARPOL Annex VI prescribes NOx emissions compliance requirements for each marine diesel engine with a power output of more than 130 kW installed on a ship. The NOx Technical Code 2008 requires that engines to which regulation 13 of MARPOL Annex VI is applicable are to be issued with an EIAPP Certificate after a pre-certification survey or after every time a major conversion, as defined in regulation 13, is made to an engine to which the Code is applicable.

India provides their observation that in recent times there have been instances where port State authorities have asked for the EIAPP Certificate to be re-issued by or on behalf of the gaining flag whenever there is change of flag of a ship. India is of the opinion that the initial EIAPP Certificate, should be considered as valid and re-issuance of the EIAPP certificate is not required at the time of change of flag, since it is related to equipment (engine) that has not changed.

India invites the Committee to confirm their understanding and to consider clarifying in the guidelines for port State control under MARPOL Annex VI as set out in appendix 18 to Procedures for Port State Control, 2023 (resolution A.1185(33)).

**Action requested of the Committee**

The Committee is invited to consider proposals in paragraph 11 of this document and take action as appropriate.

*United States provides their comments to this document in MEPC 81/5/7.*

**5/2 Proposed amendments to the 2021 Guidelines for Exhaust Gas Cleaning Systems (resolution MEPC.340(77)) to provide clarity regarding acceptance of data on discharge water nitrate concentrations gathered from exhaust gas cleaning systems of similar design** **India**

India proposes amendments to the 2021 Guidelines for Exhaust Gas Cleaning Systems (resolution MEPC.340(77)) to clarify the acceptance of data on discharge water nitrate concentrations from EGCSs of similar design as an alternative to sample and actual nitrate content analysis. The proposed amendments (included in the annex to the document) aim to ensure uniform implementation of paragraph 10.1.5.3 of the guidelines.

India is of the opinion that the 2021 EGCS Guidelines should clarify the factors under consideration for determining design similarities and establish a basis for Administrations to accept reports on nitrate concentrations gathered from other EGCSs. India also recommends that records be retained on board, including the

report of discharge water nitrate concentration from EGCSs of similar design and particulars of operating parameters.

**Action requested of the Committee**
The Committee is invited to consider the proposals in paragraph 8 of this document and take action as appropriate.

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| **5/3** | **Perceived shortcomings of regulation 13 of MARPOL Annex VI NOx emission air pollution reduction programme** | **Belgium, Canada, Denmark, Germany, Ireland, Netherlands, Norway and United States** |

Belgium et.al. outline growing concerns that the regulation 13 NOx emission control programme, and the NOx ECA requirements in particular, are not achieving the anticipated reductions in air pollution from marine diesel engines. In addition, the document describes the effects of which continue to be worrisome given the dangerous human health and environmental impacts of these emissions. The co-sponsors provide inter alia the following considerations: The contribution of international shipping to national NOx emission inventories can be significant. In Europe, shipping can contribute as much as 37.6% of total NOx emissions of the EEAA-32 countries. In the United States, in 2022, commercial shipping contributed 2.9% of the total national NOx inventory (all sources), and 5.8% of the national mobile source NOx inventory. Canada estimates that international and domestic shipping combined represents 14.9% relative to the total NOx emissions released in Canada from all sources in 2021, which has grown from just 6.6% in 2000;

Through the 2008 amendments to MARPOL Annex VI, a geographic approach was adopted, by which more stringent Tier III NOx limits, set at 80% below the Tier I limit, would apply to engines above 130 kW while operated in designated NOx Emission Control Areas (NOx ECAs), beginning in 2016. In all other areas, the Tier II NOx limits, set at 20% below the Tier I limit, apply to engines on ships built beginning in 2011;

The Tier II 20% NOx reduction was expected to be met through engine-based changes, such as fuel injection timing and air handling. In principle, these controls would function at all times. The Tier III 80% NOx reduction was expected to be met largely through the use of Selective Catalytic Reduction (SCR), or operation on LNG fuel and possibly also with Exhaust Gas Recirculation (EGR). These NOx reducing technologies are on/off technologies that allow ships to turn the NOx emission control system off when not operating in an ECA, reducing the overall cost of the programme. All of these technologies have low load considerations that require disabling the emission control system below a certain exhaust gas temperature or engine load;

There are currently four designated NOx ECAs, with different effective dates. The North American NOx ECA covers portions of the United States, Canada and certain French territories; the Tier III NOx limits apply to engines on ships with a keel laying date of 1 January 2016 or later. That date also applies for the United States Caribbean Sea NOx ECA. For the Baltic Sea and North Sea NOx ECAs, the Tier III NOx limits apply to ships with a keel laying date of 1 January 2021 or later. Two additional NOx ECAs are under consideration, covering the Norwegian Sea (MEPC 81/11/1 (Norway)) and Canadian Arctic waters (MEPC 81/11 (Canada));

A few documents have been submitted to PPR and MEPC providing results from assessment of the effectiveness of the various NOx areas. These include:

In document MEPC 80/5/1, Canada provides the results of a study regarding NOx emissions from Tier III engines in ECAs to understand the effect of low-load operation on the performance of NOx Tier III technologies. Marine Emissions Inventory Tool (MEIT) data was used to determine load distribution of all ships transiting Canadian waters around the Port of Vancouver in 2019 and AIS data was used to determine speed information for a small subset of ships for comparison purposes. The load distributions derived from this data did not produce load distributions consistent with the current understanding of ship operation. While a more robust analysis would be needed to verify the derived loads, these data suggest that ships spend between 25% and 35% of their operational time below 25% engine load where NOx emission reduction technology may be completely disengaged or operating inefficiently. This finding indicates that the standard NOx engine test cycle modal emission weighting factors may not adequately address emissions occurring at less than 25% power and is failing to control emissions below 25% power, as that operating mode is the lowest power point on the E2 and E3 test cycles and the 10% power points on the D2 and C1 (10% load) test cycles are exempt from the mode cap of 1.5 times the NOx standard.

In document MEPC 81/INF.7, Canada shares the information on the number of Tier III ship calls to Canada to date and impacts of NOx Tier III standards in Canadian waters. Canada's air quality modelling work indicates that implementation of the NOx Tier III standards would help to reduce NO2, O3 and PM2.5 emissions and improve air quality in coastal areas and near port cities in Canada. However, due to the slower-than-expected incidence of Tier III ship calls to Canada, Canada has not seen the benefits of the expected NOx emission reduction in the North American ECA submission;

In document PPR 11/INF.2/Rev.1, Belgium et al. present a review of various studies that evaluated emission compliance based on remote NOx emissions measurement campaigns carried out in the North Sea and Baltic Sea ECAs. Analyses were performed on data from drone-based measurements, fixed monitoring stations, helicopter-borne measurements, ship emission inventories, and remote sniffer and fixed sniffer station measurements. Only one third of NOx emission from Tier III compliant ships in the ECA were found to be within the emission limits, and more than 50% of observed Tier III ships exceeded the Tier II emission limits. The uptake of Tier III ships was found to be slow due to the keel laid date. Only 21% of ships larger than 5,000 GT built in 2021 and 2022 had a

keel laid date in or after 2021 and were certified as Tier III, meaning many recently built ships operating in the North Sea and Baltic Sea ECAs do not meet Tier III standards. Other findings indicate that ships often operate at low loads in and near coastal areas. The studies state that applicable test cycles do not secure low NOx emissions for engine operating conditions below 25% load and weighting factors applied to mode points are biased toward higher loads. They also found that SCR technology is likely to be disengaged at low loads due to low exhaust gas temperatures; and

In document PPR 11/INF.4, the United States examines Tier III ECA compliance based on the nature of the fleet that entered the United States in 2015 and 2021 and how those ships were operated in 2021. Fleet turnover analysis shows that most ships built beginning in 2016 have keel lay dates in 2015 and are therefore not Tier III compliant. Ship operation analysis for 2021 shows that approximately 38% of Tier III engine operation was below 25% load, where SCR is likely to be disengaged due to low exhaust gas temperature; there is also a cost incentive to disengage NOx emission controls as a consumable reductant, typically urea, is used. These two factors mean that the expected ECA NOx emission reductions have not been realized. Based on the above, the co-sponsors consider that NOx ECA reduction standards are not achieving the desired NOx reductions for the following three reasons: The combination of the marine engine test cycle and the MARPOL Annex VI and NTC auxiliary control device (ACD) could result in disabling Tier III NOx technology at low loads, leading to little or no NOx reductions in an ECA. The assessments described above show that real-world ship operations within ECAs are often at loads lower than 25%. This means the SCR is not engaged, due to low exhaust temperatures, and the engines are not achieving the expected 80% emission reduction. Many technologies are available which could be used to maintain exhaust gas temperature and extend the operating range of NOx emission reduction technologies below 25% power. These technologies include changes to charge air cooling strategies, SCR catalyst location, use of fuel with lower sulphur content, cylinder deactivation, fuel post injection, and heated urea dosers.

Low-speed operation also affects the operation of Exhaust Gas Recirculation (EGR) system emission control. A review of EGR equipped engine technical files reveals that the EGR system is typically turned off via an ACD at low load in order to prevent damage to the EGR and engine components. In addition, there are reasons to believe that the same types of concerns extend to the Tier II programme, and those standards may not be achieving their intended reductions. For example, the test cycle limitations described above also apply to Tier II engines, which may experience much higher emissions at low load operation.

The keel laying dates incentivize behaviour to avoid compliance with the Tier III NOx limits altogether. It is noted that shipyards took advantage of compliance being tied to keel laying to lay massive numbers of keels in 2015 to avoid having to install Tier III engines in ships built beginning in 2016. These old, 2015 keels were being used to build new ships as late as 2022 and after. A similar effect is being seen for 2020 keels to avoid the Tier III standards in the Baltic and North Sea NOx ECAs. The effective date for future ECAs would be based to "the date of adoption of the future emission control area, or a later date as may be specified in the

amendment designating the NOx Tier III emission control area, whichever is later." As a result, ships built beginning in 2016 that did not expect to operate in a future NOx ECA (e.g., in Europe) were not equipped with Tier III engines. Such a ship would be restricted from operating in only the North American and United States Caribbean Sea NOx ECAs. A ship with a keel laid before the effective date of the Baltic and North Sea NOx ECAs, or any future ECA, may forever operate in those ECAs without restriction.

There are challenges in linking compliance procedures to the real-world operational load-behaviour of marine engines. To demonstrate compliance with regulation 13 NOx limits, a ship must show that each engine at or above 130 kW installed onboard achieves the standards, as evidence by an Engine International Air Pollution Prevention (EIAPP) certificate. This approach has proven to be quite ineffective, as port State control officers are often limited to paperwork inspections to verify compliance even in those cases where there are reasons to believe there was non-compliance based on remote sensing or other information. This weak compliance approach can motivate emission violations, especially if the violation cannot be detected through paperwork. Tier II engines are also limited to paperwork compliance, even though modern electronically controlled engines can also be adjusted just by another engine operational profile to fall out of compliance.

Furthermore, the co-sponsors believe that it is important to address these concerns even as the international marine transportation sector moves to zero and near-zero carbon fuels. The use of alternative fuels, which is expected to be the main compliance method for achieving the Chapter 4 greenhouse gas reductions, may not always reduce NOx emissions. At least some alternative fuels (fatty acid methyl ester (FAME) biodiesel, methanol, hydrogen, and ammonia) may have different NOx emissions than marine diesel fuel, which could affect compliance with both the Tier II and Tier III standards. Also, nitrous oxide (N2O), which is a by-product of combustion, is generally recognized as having much greater global warming potential than CO2, and its emission can be adversely affected by improperly designed NOx reduction technologies. Based on these considerations, the co-sponsors recommend the Committee to consider the information set out in this document, including documents referenced in it, to examine the shortcomings of the current NOx control programme in regulation 13 of MARPOL Annex VI and consider a way forward to ensure the NOx control programme provides cleaner air and the protections and health benefits for the affected populations of the current as well as future NOx ECAs envisaged when the programme was created.

**Action requested of the Committee**

The Committee is invited to consider the proposals and information contained in this document and to take action as appropriate.

*Please see the ICS intervention on document MEPC 81/5/6 which provides comments on this document.*

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| **5/4** | **Regulation 4.1 of MARPOL Annex VI must not be interpreted in isolation of other regulations, resolutions and obligations** | **FOEI, WWF, Pacific Environment and CSC** |

The co-sponsors emphasize the duty of State Parties to MARPOL Annex VI to not harm the environment, human health, property, or resources when approving alternative compliance methods. Regulation 4 of MARPOL Annex VI provides for the use of alternative compliance methods for meeting emissions requirements and according to the co-sponsors the broad language of regulation 4 has been misinterpreted to justify the use of scrubbers as an alternative to low-sulphur fuels. However, concerns have been raised about the environmental and social impacts of scrubber discharges, including the deposition of harmful substances and ocean acidification. There are also legal questions regarding the consistency of scrubber discharges with international law. The co-sponsors suggests that scrubbers may not be a reliable alternative to low-sulphur fuels and calls for a reconsideration of their use. The co-sponsors propose that flag States no longer approve scrubbers as an alternative compliance method and that coastal States ban scrubber discharges in their waters.

Recommendations
On the basis of the information presented, the co-sponsors believe that scrubbers are not an acceptable alternative compliance method for regulation 14 of MARPOL Annex VI and urge the Committee to:
1. Consider whether the use of scrubbers as an equivalent to low sulphur fuels is aligned with the duties outlined in regulation 4.4 of MARPOL Annex VI.
2. Amend MARPOL Annex VI regulation 4 to explicitly prohibit the use of scrubbers as a means of alternative compliance thereby removing practices under MARPOL which are inconsistent with the obligations of IMO Member States under UNCLOS.
3. Until a global ban is introduced, encourage national maritime administrations to ban the discharge of scrubber waste within their jurisdictional waters and to stop approving scrubbers as an alternative compliance method for ships registered under their flags.

**Action requested of the Committee**
The Committee is invited to consider the information contained in this document, in particular paragraph 11, when considering regulatory matters as per its scope of work and to take action, as appropriate.

*It would be premature to consider a total ban on EGCS technology before identifying ways to manage the risks associated with their discharge.*

**[ICS thanks the co-sponsors for the document MEPC 81/5/4.**

**Chair, ICS is also concerned about the regulatory certainty to early adopters of emerging innovations. Ships that have installed EGCS equipment in line with the existing regulations and in good faith should be allowed to use them without being penalized in any way. Penalising existing EGCS installations that were installed in accordance with regulations will create a bad precedent**

**for many stakeholders that were early adopters of EGCS technology when they made these investments relying on encouragement, approval, and in many cases help, from maritime administrations.**

**Chair, ICS believes that shipowners need to have trust in the regulations if we are to avoid potential unintended consequences, not least related to alternative fuels to meet the IMO GHG strategy targets. Therefore we would strongly recommend that before any decision is made with respect to existing vessels, where scrubbers have been fitted in good faith by shipowners in compliance with MARPOL Annex VI, careful consideration is given as to what that might mean if the use of this technology is rescinded].**

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| **5/5** | **Regulating Black Carbon emissions from international shipping impacting the Arctic** | **FOEI, WWF, Pacific Environment and CSC** |

FOEI et.al. provide suggestions for regulation to deliver "fast and immediate" action on Black Carbon (BC) emissions via a fuel switch, followed by stricter emission cuts via a polar fuel standard and designation of BC emission control areas (ECAs) as a stepped approach.

The co-sponsors highlight that in document MEPC 65/4/22 (Norway), the Arctic Council's Arctic Monitoring and Assessment Programme (AMAP) highlighted the significance of close-to and within Arctic sources of BC, concluding that BC emissions above 60°North were more significant than those at lower latitudes and mitigating measures should recognize this. AMAP defined the Arctic as all regions north of 60°North. Document MEPC 80/9/2 (FOEI et al.) proposed that at a minimum the geographic scope of measures should cover the maritime waters of the Arctic Human Development Report (AHDR) area or those defined by AMAP. Alternatively, all waters above 60°North (excluding the Baltic Sea) could be simpler for navigational purposes.

The co-sponsors note that the polar fuel standard and BC ECA proposals – but not the fuel switch – are based on setting a fuel standard that will lead to reductions in emitted BC, albeit varying according to ship and engine type, age and operating conditions. The standard, which all fuels will need to comply with, will limit the aromaticity of the regulated fuel by setting a minimum H/C ratio as measured by an H/C fuel test undertaken by fuel suppliers and incorporated in the BDN. Whether the H/C minimum would be the same for both the fuel standard and BC ECAs would be a point for discussion and would be dependent on whether BC ECAs would set stricter requirements for BC emissions in or near to the Arctic or aim to reduce BC emissions from further afield. The appropriate fuel test to measure the H/C content of marine fuels would need to be agreed upon and a testing regime undertaken to ascertain the paraffinic/aromatic levels of different fuel samples. Data on trends and variances could then be generated to enable agreement on appropriate limits.

**Action requested of the Committee**
The Committee is invited to urgently agree on the need for mandatory measures to achieve the fast and immediate action to reduce BC emissions and to consider the approach set out in the annex to this document.

*Please see the ICS intervention to the document MEPC 81/5/8*

**5/6 Comments on document MEPC 81/5/3 Finland**

Finland provides comments on document MEPC 81/5/3 (Belgium et al.) containing perceived shortcomings of the regulation 13 NOx emissions air pollution reduction programme. Finland supports that the concerns of the effectiveness of MARPOL Annex VI regulation 13 be examined. Furthermore, Finland proposes that the level of implementation of these regulations should be investigated as a priority to ensure that the regulations are implemented in a uniform manner. In addition, the inspection methods should ensure that engines are compliant for their whole lifetime. Finally, the root causes for the emission measurement results in the studies referred to in MEPC 81/5/3 and PPR 11/INF.2/Rev.1 deserve further investigation.

Finland raises the following considerations.

Comparing measurement results in one specific load condition to the cycle limit value should not be considered as compliance criteria. Data from repeated measurements should be used more commonly to improve accuracy, evaluate repeatability, and exclude outlying data points;

In modern propulsion systems (utilizing power take-in and power take-off, hybrid batteries, etc.) the ship speed does not necessarily fully correlate with engine power. In multi-engine installations, the number of operating engines can be reduced according to the needed power to maintain higher average loads, resulting in lower fuel consumption and emissions. Further studies are welcome to improve the correlation of simulated and real operational loads;

In summary, the reported remote measurement results referred to in document PPR 11/INF.2/Rev.1 may not quantify the emissions to an accuracy that could be used to verify compliance with the NOx Technical Code but provide indications that emission results should be further studied;

In the majority of the studies the measured emissions of Tier II ships were below the cycle limit. Regarding the remote measurements of Tier III ships, document PPR 11/INF.2/Rev.1 refers to two documents. The research by van Dinther et al. (2022) states "no Tier III ship passed by our station a sufficient amount of times to be taken into account". Furthermore, the other research contains only 97 remote sensing data points, which is very limited when compared to data available on Tier II ships. 2 One reason for the small number of measurements on Tier III ships is the issue related to the keel laying date as explained in document MEPC 81/5/3. Nevertheless, the observations support that the results from Tier III ships deserve

further consideration;

Emission values in the studies have been presented in units of g/kWh. This unit has a natural tendency to increase when the engine power is decreasing and the denominator in the calculation is approaching zero. It should be noted that during low load operation, the total amount of emissions in units of kg/hour is decreasing even though the g/kWh value is increasing;

Regarding the use of alternative fuels pointed out in paragraph 21 of document MEPC 81/5/3, the possible issue with biofuels (FAME) was already solved by the unified interpretation in MEPC.1/Circ.795/Rev.7. In the case of HVO, various studies have reported lower emissions than corresponding fossil fuels. Regarding the other alternative fuels (LNG, hydrogen, methanol, etc.), typically lower emissions are measured. Furthermore, all these fuels (including ammonia) will have their own EIAPP certification with detailed emission measurements and must meet the same regulated limit values as traditional fuels. Additionally, nitrous oxide (N2O) is a greenhouse gas and the emission limits should be addressed in the relevant GHG emission regulations, e.g. the LCA Guidelines;

The EIAPP certificate states that the engine fulfils the requirements of MARPOL Annex VI, regulation 13 when it leaves the factory. After that, the responsibility for compliance is transferred to the shipyard which acts as an integrator. Similarly, when the shipbuilding is finished and the ship is in full compliance with MARPOL Annex VI, the IAPP certificate is issued. After the ship delivery, the responsibility is transferred to the shipowner, and the shipyard is not in control of how the ship is operated or modified. The ship will be surveyed each year in the annual survey and once the survey is completed satisfactorily the IAPP certificate is endorsed as proof that the ship complies with MARPOL Annex VI. Entities responsible for survey and certification have a vital role in the implementation of the relevant regulations in a uniform manner; and

It is observed that ships may operate at low loads for energy saving and GHG emission reduction purposes. For new ships, new energy efficiency requirements are applied and it is expected that new ships will be designed for lower speeds and power output, resulting in higher relative engine loads.

Based on these considerations Finland proposes the following:

Further analysis is required to find out the root causes and the corrective actions should be focused on the most relevant matters. It is important that the analysis would be extended to cover the whole engine lifecycle. The current regulations emphasize the initial certification and provide methods to ensure continued compliance. Finland is of the view that securing proper implementation of the current regulations over the whole engine life cycle in a uniform manner should be prioritized;

The analysis should also cover the roles and responsibilities of all relevant stakeholders, such as engine manufacturers, shipyards, recognized organizations, flag Administrations, service companies and ship operators, to ensure that responsibilities are assigned clearly, and reasonable measures are taken to ensure

compliance;

The level of implementation of current regulations controlling engine NOx emissions should be investigated. In practice, recognized organizations (ROs) carry out the certification work on behalf of the flag States. The RO Code (resolution MSC.349(92)) contains methods for flag States to ensure that the ROs carry out the certification as expected. Member States should be invited to provide relevant information on their methods and experiences from their RO oversight programmes. It is possible that EIAPP certified engines, which by definition comply with NOx regulations, fulfil the intent of the regulations in varying degrees because the interpretations may be different. Therefore, tightening the regulations might not solve the problem if the requirements are not implemented in a uniform manner;

If remote measurements are used to provide indicative information on in-use emissions, a uniform measurement procedure should be developed, so that comparable data can be gathered; and

If new technical solutions are needed, those should be both technically and economically feasible. Marine fuel quality and low exhaust gas temperature of efficient marine engines are a challenge for after treatment solutions. It is also important to balance the potential stricter requirements on NOx levels taking into account the resulting higher GHG emissions in a way that overall reasonable emission reductions are achieved.

**Action requested of the Committee**

The Committee is invited to consider the proposals in paragraphs 14 to 19 of the document and to take action as appropriate.

**ICS thanks the authors of documents MEPC 81/5/3 and MEPC 81/5/6. ICS fully supports the consistent implementation of regulations for the control of Nitrogen Oxide emissions from ships as provide in Regulation 13 of MARPOL Annex VI. We note that the value used to gauge compliance is the weighted emission of NO2 from the engine and therefore agree with the view that Finland expresses in paragraph 4 of their submission MEPC 81/5/6 that comparing measurement results in one specific load condition to the cycle limit value should not be considered as compliance criteria. With regards to the concerns raised by Belgium et.al. In MEPC 81/5/3, we believe that further data collection and careful analysis is required based on the proposals contained in paragraph 14 to 19 of the document MEPC 81/5/6.**

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| **5/7** | **Comments on document MEPC 81/5/1 regarding Engine International Air Pollution Prevention (EIAPP) Certificate re-issuance at change of flag of State** | **United States** |

United States provides comments on document MEPC 81/5/1 (India) seeking clarification regarding re-issuance of the Engine International Air Pollution Prevention (EIAPP) Certificate at the time of change of flag of a ship.

United States considers that India’s interpretation of the EIAPP requirements as presented in MEPC 81/5/1 is not consistent with MARPOL Annex VI and the NTC. The receiving Administration is responsible for approving all aspects of the ship's certification when changing flag, including the EIAPP Certificates.

Regarding the question of a ship's EIAPP Certificate's status upon reflagging, United States considers that the receiving Administration has a choice. After a survey confirming that the engines are installed and are operated according to the engine manufacturer's original instructions, the receiving Administration can re-issue the EIAPP Certificate under its own authority or elect to rely on the original EIAPP Certificate – just as it would for engines installed on a new ship being built under its authority. In other words, the receiving Administration can review the original certification information, make its own compliance determination, and issue a new EIAPP Certificate under its authority. Alternatively, it can elect to exercise section 2.2.8 of the NOx Technical Code 2008. In either case, the important point is that the choice is up to the receiving Administration. In many cases, the choice will depend on the receiving Administration's domestic legal arrangements. If the receiving Administration elects to recognize the original EIAPP Certificate, it is important to note that decision in the ship's certification records. Because each engine above 130 kW installed on a ship must have an EIAPP Certificate, the receiving Administration can have attached to each such EIAPP Certificate, a statement noting its decision. This is important, so there is no confusion by port State control authorities about the authenticity of an EIAPP Certificate issued by one Administration as it applies to engines installed on a ship operating under the authority of another, for either newly constructed/flagged ships or for reflagged ships.

**Action requested of the Committee**
The Committee is invited to consider the proposals and information contained in this document, and to take action, as appropriate.

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| **5/8** | **Regulating Black Carbon emissions from international shipping impacting the Arctic and the importance of fuel quality** | **FOEI, WWF, Pacific Environment and CSC** |

FOEI et.al. provide additional comment and background on marine fuel quality issues to support the proposals set out in document MEPC 81/5/5 (FOEI et al.) for concrete actions to control and reduce Black Carbon emissions from ships operating in or near to the Arctic.

The following considerations are provided.

Cleaner fuels will generally result in lower and less harmful emissions of Black Carbon (BC). This fact is well recognized by the road transport sector where both the sulphur and aromatic content of road fuels have been heavily regulated for

decades in both Europe and North America to mitigate air quality and human health impacts;

The need to reduce the human health and environmental impacts of sulphur in international shipping fuels has been recognized with the introduction of increasingly stringent limits on sulphur content, the introduction of SOx-ECA provisions for coastal States, the implementation of the 0.5% global limit on the sulphur content of marine fuels in 2020, and the accompanying worldwide ban on the carriage of non-compliant fuels for combustion on board a ship;

Despite 13 years of IMO deliberations, international shipping has yet to face any regulatory action to limit emissions of BC. This is, in-part, because of a widespread belief that factors such as engine load, ship and engine age, ship size and other conditions, including weather, are the main determinant of BC emissions;

A technology-based approach does not, however, take account of the scientific consensus that has emerged over recent years that the levels of hydrogen and aromatics in fossil fuels are a major determinant of these fuels' sooting propensity;

The need for regulatory action to address shipping BC emissions has been heightened by the recognition of the International Civil Aviation Organization (ICAO) and European regulators, that aviation soot (BC or non-volatile particulate matter – nvPM) affects not only air quality and human health but also the climate, with BC an important short-lived climate pollutant;

Work at ICAO to cut soot/BC emissions from jet engines began in 2008 and focussed on addressing the harmful effects on human health of nvPM – ultrafine particulate matter – around airports. During this work it was recognised that the hydrogen/carbon (H/C) ratio as an indicator of the aromatic content is the best measure of a fuel's sooting propensity. ASTM International2 tests for H/C ratio were included in certification procedures for ICAO jet engine nvPM standards which came into force in 2021;

Work at ICAO to cut soot/BC emissions from jet engines began in 2008 and focussed on addressing the harmful effects on human health of nvPM – ultrafine particulate matter – around airports. During this work it was recognised that the hydrogen/carbon (H/C) ratio as an indicator of the aromatic content is the best measure of a fuel's sooting propensity. ASTM International tests for H/C ratio were included in certification procedures for ICAO jet engine nvPM standards which came into force in 2021;

European Commission will in the future consider amending the aviation ETS Directive to put a price on non-CO2 impacts, while a separate study is now getting underway on regulatory options to reduce fossil jet fuel's aromatic content through additional refinery processing. Despite known scientific uncertainties in calculating contrail non-CO2 equivalents, tackling the sector's non-CO2 climate impact is now

widely regarded as low-hanging fruit;

PPR 11/6/1 (Canada, Germany and Iceland) and PPR 11/6/3 (FOEI, WWF, Pacific Environment and CSC) cite multiple scientific studies showing that hydrogen content and aromatics greatly influence the sooting propensity, and thus levels of BC emissions from fossil fuels. Both documents support the use of the H/C ratio of a marine fuel to be the most scientifically accurate approach to determining a marine fuel's sooting propensity in the context of mitigating Arctic ship BC emissions. The proposal in document PPR 11/6/2 (ISO) to use the Viscosity Gravity Constant (VGC) as an indicator of a fuel's paraffinic nature has raised concerns because it was developed before the advent of fuel blending to comply with the 2020 sulphur limits. It also drew on an often-cited 2005 ASTM study3 on fuel quality issues which had clearly spelled out the importance of the H/C ratio;

It is not clear, however, how simply incorporating a methodology to determine a fuel's paraffinic nature in ISO 8217 would lead, in practice, to changes in fuel use in or near the Arctic unless IMO first took action to adopt a regulation which required the prior testing of fuels for aromatic/paraffinic/hydrogen content and the result being recorded on the bunker delivery note (BDN);

Document PPR 11/6/INF.7 (ISO) explains that fuel test results for HFO and VLSFO/ULSFO fuels were analysed – but not distillates which being more severely refined can generally be expected to be more paraffinic. A quick way to verify this would be for MEPC to request the ISO to analyse the distillate fuel test results it has access to as proposed in document PPR 11/6/3;

The Committee should urge industry and national bodies to undertake tests on the H/C ratio of marine fuels as a matter of urgency and request that the H/C ratio be included in ISO 8217, as proposed in document PPR 11/6/1, for the purposes of mitigating ship BC emissions in or near the Arctic. Member States and national standards bodies should also pursue such action; and

Two documents recently submitted to PPR 11 (PPR 11/INF.6/Rev.1 (RINA) and PPR 11/6/6 (IPIECA)) acknowledge the efficacy of switching to distillate fuels as an Arctic BC mitigation strategy while suggesting that installing exhaust after treatment technology (scrubbers) can be a viable alternative. However, this is not borne out by the science, would effectively promote the continued use of residual fuels, and, as document PPR 11/INF.6/Rev.1 acknowledges, there are currently no BC-related regulatory incentives for the uptake of such after-treatment measures.

**Action requested of the Committee**

The Committee is invited to consider the fuel quality steps detailed in the document, namely, to pursue the H/C ratio as a measure of a marine fuel's sooting propensity and to support the development of the polar fuel standard and Arctic BC ECA options, as well as the proposal in document MEPC 81/5/5 to implement a mandatory switch to distillates or other cleaner fuels by ships operating in or near the Arctic, and to take action, as appropriate.

**ICS thanks FOEI et.al for their submissions. ICS fully supports the IMO's efforts to reduce the impact on the arctic of black carbon emissions from international shipping. We note with appreciation, the approval of the draft guidelines on recommendatory Black Carbon emission measurement, monitoring and reporting and the draft guidance on best practice on recommendatory goal-based control measures to reduce the impact on the Arctic of Black Carbon emissions from international shipping at PPR 11 and the way forward identified with regards to collecting more data on fuel characteristics.**

**With regards to the comments from FIEI et.al on marine fuel quality, specifically on the comparison with road transport sector and aviation, we would present the following comments based on the related intervention from ISO provided at PPR 11. It is misleading to apply the findings from aviation fuels to marine fuels since these are totally different products. It is also misleading to align black carbon emission drivers from these different sectors. In aviation, for example, there is an essential uniformity of the standard continuous high intensity combustion in short time. Whereas, in marine practice we have from high speed to low speed and everything in between. A longer combustion timescale and variability of operating conditions, loads and fuel preparation. Hence in aviation, fuel characteristics have a major control over BC emissions, whereas in marine operations it is just one factor.**

**We also note references to non-volatile PM and soot, whereas the work on reducing BC emissions is aimed at a specific subset of PM as specified by the bond et.al. definition that the IMO has agreed. With respect to a switch to distillate, previous studies have shown that, depending on engine design and operating profile this could have a negligible impact in some cases. Which is why we support the way forward identified by PPR 11.**

**5/INF.7 Information on the number of Tier III ship calls to Canada to date and impacts of NOX Tier III standards in Canadian waters** **Canada**

The document shares the information on the number of Tier III ship calls to Canada to date and results of modelling analysis on air quality and health impacts of NOX Tier III standards in Canadian waters.

The document concludes that the slower-than-expected incidence of Tier III ship calls to Canada to date is having an adverse impact on health and environment in coastal areas and near port cities in Canada.

**Action requested of the Committee**
The Committee is invited to note the information contained in this document in conjunction with the full report set out in the annex.

**5/INF.12 Sampling of low-flashpoint fuels supplied to ships for use on board as fuel** **IBIA**

IBIA provides information on a method developed for the sampling of low-flashpoint fuels supplied to ships for use on board as fuel.

A "Sampling Method for Low-Flashpoint Fuel" to address the critical need for safety and efficiency in handling low flashpoint fuels during bunkering operations has been developed by Green Marine Bunkering Pte. Ltd., Singapore. By employing modified sampling techniques, this method aims to enhance the accuracy of fuel quality assessments, mitigate safety risks, and optimize the overall bunkering process. The proposed sampling solution for low-flashpoint fuel bunkering is set out in the annex to this document. It should be noted that the proposed solution is a concept and further study on sampling equipment suitability remains to be done including, for example, on sample containers suitable for air freight.

**Action requested of the Committee**
The Committee is invited to note the information provided.

**5/INF.19 Issuance of electronic bunker delivery notes (eBDN) and bunkering digital documentation in the port of Singapore** **Singapore**

This document provides information on MPA's Digital Bunkering initiative and the eBDN that is issued by MPA-licensed bunker suppliers

MEPC 80 accepted the use of electronic bunker delivery notes (eBDN). Following the session, the Maritime and Port Authority of Singapore (MPA) launched its Digital Bunkering initiative on 1 November 2023, which is the implementation of eBDN in the Port of Singapore.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

**5/INF.21 Environmental impact assessment of EGCS effluents** **Finland**

Finland provides a summary of the key findings from the environmental impact assessments of Exhaust Gas Cleaning System (EGCS) effluents in the Baltic Sea, North Sea, English Channel, and Mediterranean Sea areas. The assessments were conducted as part of the Horizon 2020 EMERGE project, which focused on evaluating and mitigating the environmental impacts of ship exhaust abatement. The study included sampling, analysis, ecotoxicological testing, and environmental modelling of EGCS effluents. The findings indicate that EGCS effluents can have varying impacts on marine species, with invertebrates being more affected than

phytoplankton. Norway also highlights the importance of considering the complex chemical composition of EGCS effluents and the potential indirect effects on fish populations. Additionally, it mentions the economic evaluation of EGCS investments and the potential risks associated with continued use of high sulphur fossil fuels.

**Action requested of the Committee**
The Committee is invited to take note of the information in this document.

*To address the concerns raised in the document submitted by Finland, ICS recommends updating and revising the current guidelines for EGCS - MEPC.340(77) particularly section 10 – water quality criteria.*

**5/INF.34 Operational experience with biofuels and analysis of emissions associated with their use** — **Canada**

This document presents the results of a study on the use of biofuels on board three Canadian flagged ships from two Canadian shipping companies in relation to operational impacts, technical preparations prior to use, and associated air pollution emissions.

The study found that:

compared to MDO and HVO, FAME content biofuels are incompatible with certain materials that may be present in the ship's fuel oil system (e.g. certain elastomers, copper containing metals and galvanized surfaces). However, these incompatibilities can easily be addressed by completing an audit of the ship's fuel oil system prior to using such fuels to assess any material incompatibilities and completing any required modifications in advance (e.g. ensuring a sufficient spare stock of fuel oil filters to address the filter clogging that can result from the biofuel's solvent-like characteristics);

compared to MDO and HVO, FAME biofuels have a higher cloud point, thus restricting operations in sub-zero conditions without accompanying efforts to warm the tanks;

neither shipping company encountered operational issues with using FAME biofuels and no modifications to their respective ship fuel oil systems were required;

there was no bacteria growth nor negative impacts associated with the storage of the biofuels in the fuel oil storage tanks of the companies' ships;

the sulphur content associated with all biofuel blends was well below the 0.10% sulphur limit appliable in the MARPOL designated North American Emission Control Areas (NAECA);

PM and BC emissions associated with pure biofuel (B100) were low in comparison to MDO emission factors, PM emissions were higher at low loads in comparison

with MDO emission factors for two of the trial ships and were only lower than MDO emission factors for engine loads higher than approximately 75%. The increased PM emissions associated with low loads for the two ships may be attributed to the measurement method;

atmospheric conditions in the engine-room can influence onboard measurement of NOx emissions;

both B100 and MDO exceeded the applicable NOx emission limit at the 25% load point for one ship and at two separate load points below 25% for another ship; however, the weighted average NOx emissions across all engine loads and ships associated with all biofuel blends, including B100, did not exceed the limits stipulated in the NOx Technical Code 2008; and

biofuel blends below B100 show lower weighted average NOx emissions in comparison to MDO. However, B100 resulted in higher weighted average NOx emissions compared to MDO, while being within the limit of the NOx Technical Code 2008.

**Action requested of the Committee**
The Committee is invited to note the information contained in this document and its annex.

**5/INF.36 Global update on scrubber (EGCS) bans and restrictions** — **FOEI, WWF, Pacific Environment and CSC**

The co-sponsors provide an overview of a study conducted by the International Council on Clean Transportation (ICCT), which provides an update on measures restricting scrubber use in various countries.

According to the study the number of vessels outfitted with scrubbers is increasing, and found 93 bans and restrictions in place against scrubbers and associated discharges as of February 2023. The study considered measures implemented at the national, sub-national, and port levels. Most bans apply to open-loop scrubbers only and leave room for the use closed-loop and hybrid scrubbers. In some cases, there are general bans on “contaminated waters” and/or “wastewater.” Because of the levels of contaminants in scrubber wash water and bleed-off water, the study considered such bans to implicitly apply to scrubbers. Nevertheless, more precise rules could leave less space for ship operators’ interpretation. That many of the measures are being implemented by ports shows the potential to go beyond IMO and national regulations. Indeed, in Europe, most of the bans and restrictions have been introduced at the port level. In the Americas, bans and restrictions are almost evenly split between national/sub-national and port-level measures, and in Africa, the Middle East, and Asia, the measures are mostly implemented on a national level. Future work could include calculating the geographical area covered by these

measures and the prevented wash water discharges thanks to the bans and restrictions.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

*It would be premature to consider a total ban on EGCS technology before identifying ways to manage the risks associated with their discharge. Please refer to the intervention in MEPC 81/5/4.*

**5/INF.38 Puget Sound Exhaust Gas Cleaning System (EGCS) wash water ecological risk assessment** **CLIA**

CLIA presents the findings of a risk assessment study conducted on open loop Exhaust Gas Cleaning System (EGCS) wash water discharges from cruise ships in the Puget Sound region of the United States. The study was based on the recommended methodology provided in the 2022 Guidelines for risk and impact assessments of EGCS discharge water(MEPC.1/Circ.899). The study used state-of-the-science methods to evaluate potential environmental risks, including analytical determinations, empirical testing, and modelling.

The results showed that measured concentrations of metals in the discharge water were below United States EPA ambient water quality criteria and Washington State standards, and WET tests indicated limited chronic toxicity to tested organisms in undiluted overboard discharge waters. The modelling results suggested minimal ecological risk in both in-transit and in-port scenarios.

**Action requested of the Committee**
The Committee is invited to consider the information provided in this document and, in particular, its relevance to the ongoing deliberations under the PPR Sub-Committee on the evaluation and harmonization of rules and guidance on the discharge of discharge water from EGCS into the aquatic environment, including conditions and areas.

## ITEM 6: ENERGY EFFICIENCY OF SHIPS

The Committee will be invited to consider, in particular, the following issues, together with any submissions received under the agenda item:

.1 2022 Report of fuel oil consumption data submitted to the IMO Ship Fuel Oil Consumption Database (DCS) and Report on annual carbon intensity and efficiency of the existing fleet;

.2 implementation and review of the short-term measure;

.3 matters related to the DCS, EEDI, EEXI and SEEMP; and

.4 proposals related to the development of guidance for marine bunkering vessels on carriage requirements for biofuels intended for use as marine fuels.

The working group envisaged to be established under agenda item 5 (see section 5) may be requested to also consider matters relating to this agenda item.

**Papers:**

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| **6** | **Report of fuel oil consumption data submitted to the IMO Ship Fuel Oil Consumption Database in GISIS (Reporting year: 2022)** | **Secretariat** |

This document provides a report of the fuel oil consumption data for 2022 submitted to the IMO Ship Fuel Oil Consumption Database in GISIS.

The following general findings with regard to the fuel consumption data for the 2022 reporting period were noted:

- Data was reported by 28,834 ships (28,171 for 2021)
- 28,834 ships out of a potential 33,991 ships (84.8%) that were estimated to fall under the scope of regulation 27 of MARPOL Annex VI, submitted data
- By 10 August 2023, the number of ships identified with potential errors was reduced to 176 ships and have not been included in the report for the 2022 reporting period, set out in the annex to this document
- 213 million tonnes of fuel (212 million tonnes for 2021), on a quantity basis, was used by the aforementioned 28,834 ships. Total fuel used was slightly higher in 2022 compared to 2021

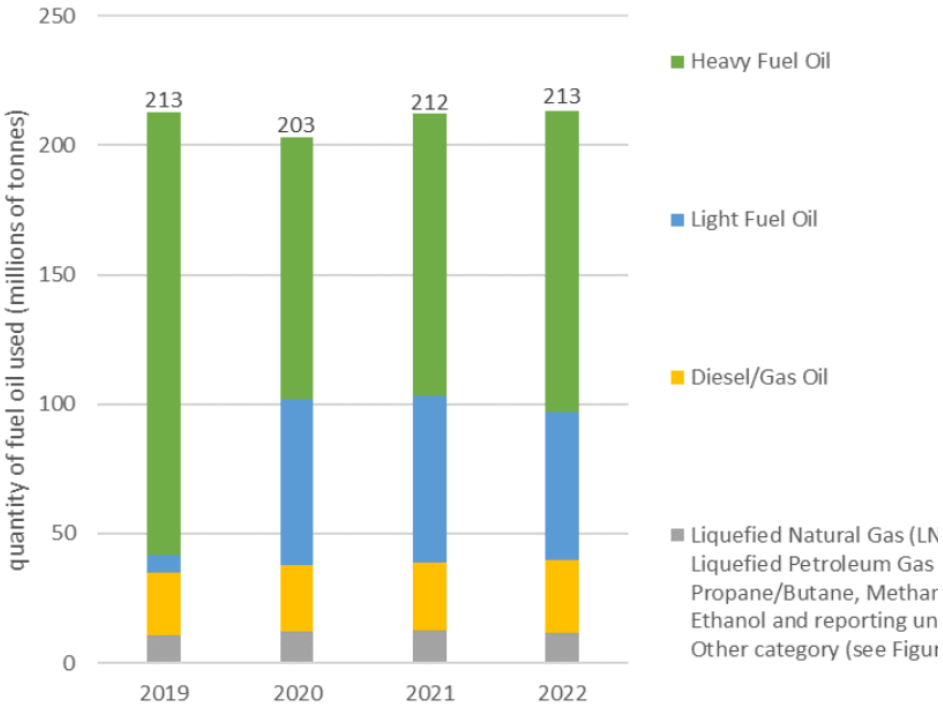



**Figure 1: The aggregated annual amount of each type of fuel oil consumed ships of 5,000 GT and above from 2019 to 2022**

**Action requested of the Committee**

The Committee is invited to consider the summary report of the fuel oil consumption data submitted to the IMO Ship Fuel Oil Consumption Database for 2022 and relevant information in this document, and in particular to:

.1 approve, in principle, the summary of the fuel oil consumption data submitted to the IMO Ship Fuel Oil Consumption Database for 2022 as set out in the annex;

.2 note the issues with the IMO Ship Fuel Oil Consumption Database module in GISIS, the ongoing improvements to the reporting process, including the modifications to GISIS to allow CII and other parameters to be reported during the 2023 reporting period as set out in paragraphs 13 to 17;

.3 approve, in principle the reporting on carbon intensity developments on the basis of supply-based measurements, using AER and cgDIST indicators, as set out in table 3 in the annex;

.4 note that in the absence of cargo-related data and, in particular, transport work the Secretariat intends to submit a separate document reporting on the demand-based carbon intensity of international shipping for the period from 2019 to 2022; and

.5 take action as appropriate.

**6/1** **Report on annual carbon intensity and efficiency of the existing fleet (Reporting years 2019, 2020, 2021, and 2022)** **Secretariat**

This document reports on demand-based and supply-based carbon intensity for the years 2019, 2020, 2021 and 2022.

Paragraph 1.5 of the CII reduction factors guidelines (G3) states that the Organization should continue to monitor development in annual carbon intensity improvement using both demand-based and supply-based measurements in parallel to the annual analysis of the fuel consumption data reported to the IMO DCS.

With regard to the demand-based measurement, MEPC 79 noted that the Secretariat was not in a position to calculate carbon intensity developments on the basis of demand-based measurements due to the absence of cargo data or, ideally, transport work data in the IMO DCS, and therefore requested the Secretariat to proceed with the procurement of such data for future reporting on demand-based carbon intensity developments to the Committee. Hence, the Secretariat contracted UMAS International to estimate demand-based carbon intensity for 2019 to 2022 using a mathematical modelling process, which leverages AIS data, provided by Spire Maritime, and data submitted to IMO DCS.

Table 1 below provides annual average supply-based carbon intensity measurements for 2019 to 2022, based on the AER/cgDIST metrics, as calculated by the Secretariat using the data submitted to IMO DCS from 2019 to 2022. On the basis of the data procured by the Secretariat, the demand-based carbon intensity measure, using the Estimated EEOI metric, has also been calculated.

**Table 1: Average annual carbon intensity and percentage change compared to 2019**

| | Annual average carbon intensity and percentage change in carbon intensity compared to 2019 | | | | | | IMO DCS Fuel Consumption Report to Committee | |
|---|---|---|---|---|---|---|---|---|
| **Year** | **AER** | | **cgDIST** | | **Estimated EEOI** | | **Report to Committee** | **Total fuel consumption (tonnes)** |
| **2019** | 5.90 | 0.0% | 8.44 | 0.0% | 10.94 | 0.0% | MEPC 76/6/1 | 213 million |
| **2020** | 5.83 | -1.2% | 8.24 | -2.3% | 10.92 | -0.2% | MEPC 77/6/1 | 212 million |
| **2021** | 5.89 | -0.1% | 8.34 | -1.2% | 10.90 | -0.4% | MEPC 79/6/1 | 203 million |
| **2022** | 5.66 | -4.1% | 8.05 | -4.6% | 10.89 | -0.5% | MEPC 81/6 | 213 million |

**Figure 1: Supply-based carbon intensity of international shipping**

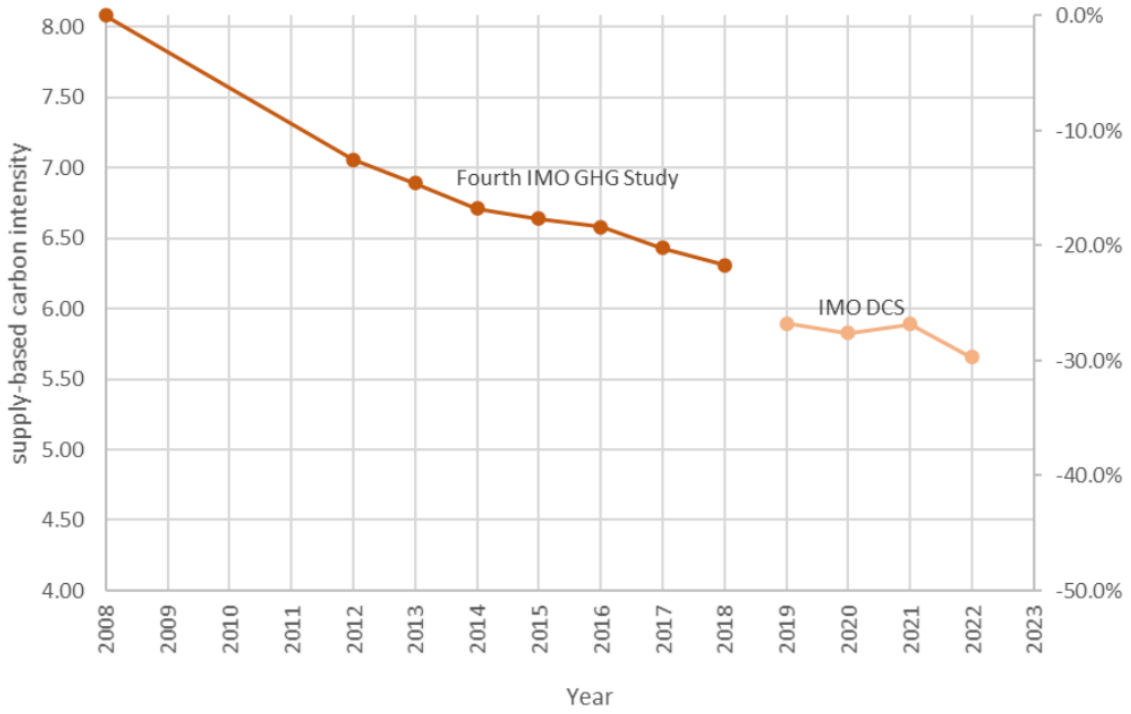
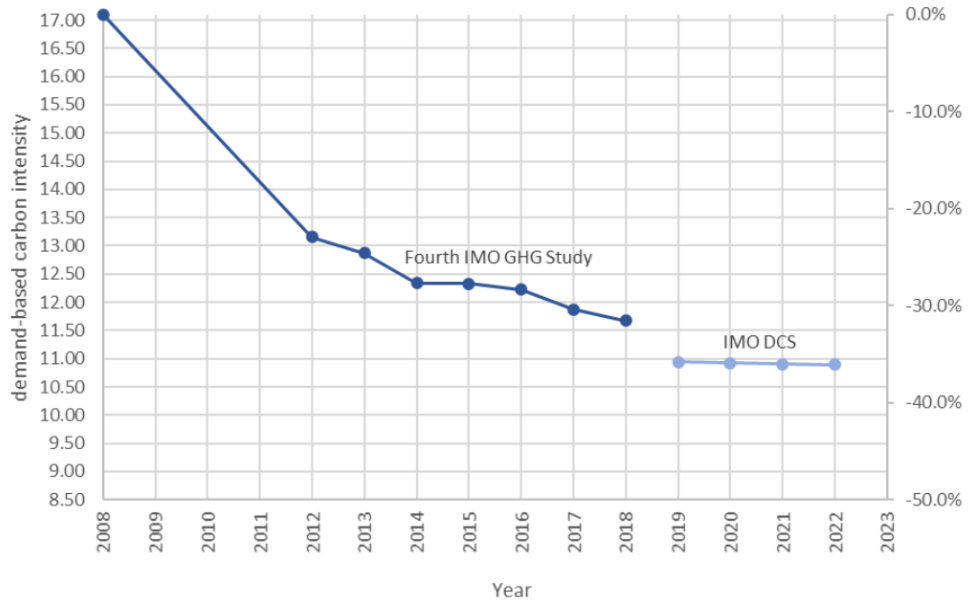



**Figure 2: Demand-based carbon intensity of international shipping**




It should be noted that the percentage changes shown in figures 1 and 2, in particular the comparison of carbon intensity of 2019 to 2022 against that of 2008, are indicative in nature due to being derived from two different datasets.

Following the analysis of the carbon intensity of the shipping fleet from 2019 to 2022, the following general outcomes can be noted:

.1 for the period 2019 to 2022, as an average across the fleet:

.1 supply-based carbon intensity in AER/cgDIST demonstrated an overall decrease of up to 4.6% relative to 2019, but with yearly fluctuations; and

.2 demand-based carbon intensity expressed in EEOI has only very gradually changed between years to just below 0.5% in 2022, relative to 2019, but also demonstrating a more consistent value when comparing between reporting years;

**Action requested of the Committee**
The Committee is invited to consider the report on the carbon intensity of the existing fleet for 2019 to 2022 and relevant information in this document and, in particular, to:

.1 note the general outcomes as set out in paragraph 19 and in the annex;

.2 note the limitations of calculating the estimated demand-based carbon intensity using AIS draught data; and that this is not a full substitute for reported cargo data or, ideally, transport work data to IMO DCS, as explained in more detail in the annex; and

.3 take action as appropriate

**6/2 Data collection system to support the CII review ICS**

This paper describes the CII data collection system that has been set up by ICS. It has been set up to support MEPC's review of the CII rating system. It enables shipowners and ship managers to submit a copy of their aggregate validated DCS data and separately to submit, in unvalidated aggregate form, the additional scope of data agreed at MEPC 80 (e.g. including greater granularity of fuel consumption and transport work). This data will enable a better understanding of how effectively the rating system is performing and is an important starting point for proposals for system improvement. Respondents can elect to share their data in anonymized form with IMO and with trade associations. To support the CII review it is important to collect the widest possible extent of data. Therefore, ICS invites Member States to circulate information on this data collection facility to ships flying their flag and thereby encourage its use.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document and invite Member States to circulate information on this voluntary data collection facility to ships flying their flag, and thereby encourage its use.

*If invited by the chair the following intervention should be used to introduce the paper:*

**Chair,**
**ICS is committed to supporting the review of the CII rating system, and we understand that a key part of this will be collecting fuel consumption data, From this we can determine which aspects of the system are working well**

**and which are not functioning so well. We are all then better placed to propose system improvements.**

**Within our paper 6/2 we describe and provide access to the data collection system that ICS has set up for this purpose. The system has been live since October 2023 and has already received a limited amount of data.**

**Data upload via the ICS website is available to anyone and is in two parts. The first part covers almost the same scope of annual aggregate data that ships are already reporting to DCS. The second part covers the additional scope of DCS data that was agreed at MEPC 80. The reporting requirement for this additional data will not come into force until late 2025, and therefore for this second part we are inviting ships to report unvalidated annual aggregate data.**

**Where submitters have confirmed their consent, the data can be shared in anonymised form with IMO and trade associations.**

**The Committee is invited to note the information provided in this document and invite Member States to circulate information on this voluntary data collection facility to ships flying their flag, and thereby encourage its use.**

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| **6/3** | **Addressing the emerging risks associated with the use of shaft or engine power limitation systems on ships** | **ICS, IMPA and IHMA** |

This document discusses the experience of maritime pilots and industry with overridable shaft or engine power limitation systems on ships complying with regulation 25 of MARPOL Annex VI. The paper outlines two challenges:

- The emergent risks to the safe navigation of ships and pollution prevention arising from delays in the availability of the power reserve on ships,
- The challenge associated with approval of shaft or engine power limitation systems which are consistent with IACS Recommendation 172 and which do not physically limit shaft or engine power.

The paper identifies various ambiguities and inconsistencies between the IMO guidelines and IACS Recommendation 172. It proposes amendments to resolution MEPC.335(76), as amended by resolution MEPC.375(80), to address this situation.

**Action requested of the Committee**
The Committee is requested to note the information provided, consider the action proposed in paragraphs 19 and 20, and take action as appropriate.

*IMPA led the development of this paper and it is anticipated they would introduce it, if invited to do so.*

**Chair,**

**As a co-sponsor of paper 6/3, we fully support the proposed resolution amendments.**

**The concerns highlighted within the paper reflect the feedback that we have received from our membership, and to ensure safety and environmental protection it is important to expedite the proposed changes to MEPC 335(76) and MEPC 375(80.**

**6/4 Proposals on the clarification of the application of required EEDI of each Phase to the five ship categories under regulation 24 of MARPOL Annex VI** **China**

This document identifies some inconsistencies in the EEDI regulations with respect to the appropriate phase requirements to apply to a new build.

In order to ensure unified interpretation and consistent implementation of relevant EEDI requirements of MARPOL Annex VI, China proposes that, similar to the seven ship categories, the applicable new ships of the required EEDI of each Phase for the five ship categories of LNG carriers, cruise passenger ships, ro-ro cargo ships (vehicle carriers), ro-ro cargo ships and ro-ro passenger ships be explicitly provided in paragraph 1.2 of MEPC.1/Circ.795/Rev.8, taking into account the interpretation given in paragraph 1.1 and the definition of "a ship delivered on or after 1 September 2019". A draft revision of MEPC.1/Circ.795/Rev.8 to this effect is provided in the annex to the paper.

**Action requested of the Committee**
The Committee is invited to consider the proposals in the document and take action as appropriate.

**Within the example provided within the paper, of the two possible interpretations of the regulations, China is supporting the less onerous interpretation, where the requirements of the earlier EEDI phase are applicable.**

**6/5 Considerations of ships' GHG emissions data quality and integrity as a basis for current and future IMO GHG regulatory measures** **Austria et.al**

This document highlights various issues relating to DCS data quality, integrity and the verification process. It also underlines potential risks and vulnerabilities of the current system for further analysis and actions that could be investigated to address them. Finally, it proposes to review the suitability of the IMO Ship Fuel Oil Consumption Data Collection System (DCS) for the implementation and enforcement of current and future regulatory GHG measures regarding data quality and integrity, focusing, inter alia, on the identification and assessment of risks and vulnerabilities before addressing them.

The co-sponsors propose that the Committee invite the Secretariat to conduct, as soon as possible, a review of the suitability of the IMO DCS for the implementation and enforcement of current and future regulatory GHG measures. Such a review,

the form of which is to be discussed, would include data quality and integrity, focusing, inter alia, on the identification and assessment of risks and vulnerabilities and possible solutions to address them.

**Action requested of the Committee**
The Committee is invited to consider the elements presented in this document and in particular the proposal made in paragraph 18, and take action as appropriate.

**Chair,**
**We thank Austria et al. for paper 6/5. ICS supports the principles advocated by this paper, i.e. the need to ensure DCS data quality and data integrity. Noting the progressive nature of the GHG regulations, we believe these aspects will become increasingly important, not only in protecting against potential fraudulent activity but also identifying and correcting errors in the validation processes. Hence we agree the need to progress discussions on this matter. At this stage, we suggest that any Terms of Reference for such a review should include the definition of an appeals procedure that ship owners could access, if they suspect there have been errors in the validation or recording of their DCS data.**

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| **6/6** | **Resolution clarifying the current status of the CII rating system** | **Bahamas, Liberia, ICS, CLIA, INTERTANKO, IPTA, INTERCARGO and INTERFERRY** |

This document proposes a draft MEPC resolution that clarifies the current status of the Carbon Intensity Indicator (CII) rating system. The objective of the resolution is to raise awareness among wider stakeholders (e.g.: financiers, insurers, charterers, brokers and port State control), that CII is currently within a de facto experience building phase and key elements of the system are interim. A review of the system is currently under way, and must be completed by 1 January 2026. During this review period, and to avoid unintended consequences, the draft MEPC resolution urges Member States to advise wider stakeholders not to utilize CII, or its metrics (i.e.: AER or cgDIST) for assessment of energy efficiency or regulatory compliance risk.

**Action requested of the Committee**
The Committee is invited to consider the information and proposals contained in this document, in particular the proposal in paragraph 12, and to take action as appropriate.

*If we are invited to introduce the paper, the below introduction should be utilised:*

**Chair,**
**I must begin by reaffirming ICS's support for the CII review process. We wish to see a fairer system emerge, and in the present circumstances we believe that IMO's soft enforcement approach is appropriate and correct.**

**By now we are all aware that the CII rating system is not yet performing as intended and a number of system weaknesses have already been identified. During the review period, we must work together to ensure a comprehensive package of changes is adopted, that can ensure a universally fair and robust system can go forward.**

**However, outside of IMO the current system status is not always fully understood and within our wider stakeholders there are some that are assigning a reliance on CII ratings that is not appropriate or fair at this early stage of the system's development. Although MARPOL Annex VI Regulation 28 calls for these wider stakeholders to provide incentives to A or B rated ships, in some quarters this is being applied more as a penalty than an incentive, and if left unquestioned is likely to lead to unintended consequences for the decarbonisation process. I.e. well designed and efficiently operated ships will be penalised due to factors beyond their control. For example due to short voyages, excessive port waiting time and most perversely achieving high cargo loads.**

**Hence, our proposed resolution respectfully calls for member states to raise awareness within these stakeholders of the current CII system status, and urge them not to utilise the ratings, or the AER or cgDist metrics for decisions of consequence during the review period.**

**We urge all Member states to support this resolution.**

## 6/7 A discrepancy in the definition of "capacity" for the CII calculations in the CII Guidelines, G1, and the CII Guidelines, G5

**Republic of Korea and IACS**

The sponsors identify an inconsistency in the definition of a ship's capacity that exists within the CII G1 and G5 guidelines, for certain ship types.

As-per the G1 guidelines, the definition of capacity is the maximum deadweight or gross tonnage, whereas in the G5 guidelines the definition varies according to the ship size, as-per the below table:

**Table 1: Parameters for determining the 2019 ship type specific reference lines**

| Ship type | | Capacity | *a* | *c* |
|---|---|---|---|---|
| *Bulk carrier* | *279,000 and above* | *279,000* | 4745 | 0.622 |
| | less than 279,000 DWT | DWT | 4745 | 0.622 |
| … | | | | |
| *LNG carrier* | 100,000 DWT and above | DWT | 9.827 | 0.000 |
| | 65,000 DWT and above, but less than 100,000 DWT | DWT | 14479E10 | 2.673 |
| | *less than 65,000 DWT* | *65,000* | 14779E10 | 2.673 |
| *Ro-ro cargo ship (vehicle carrier)* | *57,700 GT and above* | *57,700* | 3627 | 0.590 |
| | 30,000 GT and above, but less than 57,700 GT | GT | 3627 | 0.590 |
| | less than 30,000 GT | GT | 330 | 0.329 |

To address this inconsistency, the sponsors propose changing the G5 guidelines as follows:

"*Capacity* is deadweight or gross tonnes as defined for each specific ship type in the *2022 Guidelines on operational carbon intensity indicators and the calculation methods (CII Guidelines, G1)* (resolution MEPC.352(78)) ~~*2022 Guidelines on the reference lines for use with operational carbon intensity indicators (CII Reference lines Guidelines, G2)* (resolution MEPC.353(78));~~".

**Action requested of the Committee**
The Committee is invited to consider the foregoing, the proposal in paragraph 13, and take action, as appropriate.

**Chair,**
**We thank the Republic of Korea et al for paper 6/7, and we support their requested change to the G5 guidelines. However, within the first line of the existing capacity definition, we note there is a confusing and incorrect reference to gross tonnes. Could we please ask for this to be also corrected to gross tonnage.**

| | | |
|---|---|---|
| **6/8** | **Consistent reporting and categorization of LNG carriers and gas carriers in the IMO Data Collection System** | **INTERTANKO and RINA** |

The sponsors identify an inconsistency between how gas carriers were assigned to an EEDI reference line at EEDI phase 0, as compared to phase 1. All gas carriers and LNG carriers were grouped together for EEDI Phase 0, whereras for EEDI Phase 1, LNG carriers were separated from the gas carriers and given their own category and EEDI reference line. Since the assigned EEDI ship type category is recorded in the IEEC, this mix of Phase 0 LNG carriers with gas carriers also affected the CII reference line derivation.

As can be seen from the below graph, the gas carrier CII reference line is more onerous than the LNG carriers', and therefore LNG tankers lumped in with the gas carriers are currently disadvantaged.

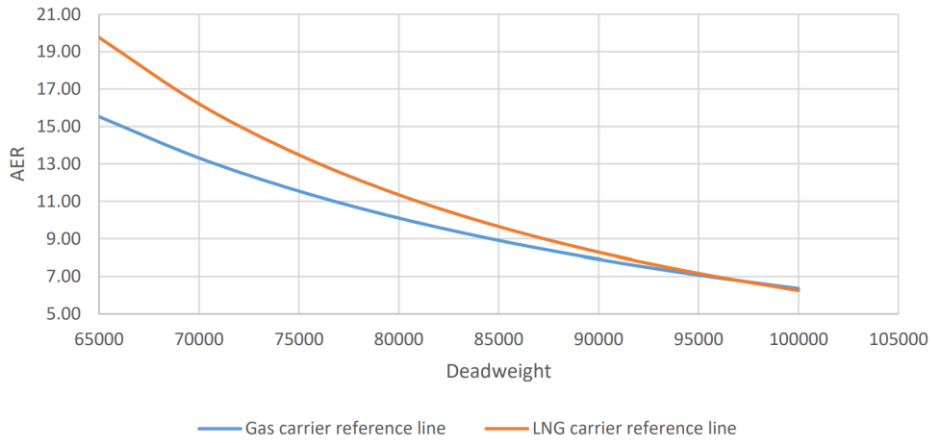


**Figure 3: Comparison of LNG carriers in the gas carrier and LNG carrier CII reference lines between 65,000 and 100,000 DWT**

The sponsors propose that all LNG carriers currently categorized as gas carriers be recategorized as LNG carriers for the purpose of DCS reporting and CII. This recategorization shall not be interpreted so as to affect the ship type indication on a ship's IEEC. They also propose that the IMO Secretariat recalculate the AER of the LNG and gas carrier fleet for 2021 and 2022, once the recategorization is completed.

**Action requested of the Committee**
The Committee is invited to consider the proposals in paragraphs 12 and 13 of this document and take action, as appropriate.

*For purposes of consistency the proposals appear logical, and should be supported.*

## 6/9 Amendments to the SEEMP Guidelines — RINA

The sponsors highlight the various changes to the scope of DCS data that were agreed at MEPC 80. The sponsors also identify several consequential changers to the SEEMP requirements that will need to be addressed by MEPC. The Sponsors invite Member States and international organizations to commence work on these amendments.

**Action requested of the Committee**
The Committee is invited to note the discussion in paragraphs 2 to 9 of this document and take action, as appropriate.

*The proposed changes to SEEMP are appropriate and should be supported.*

## 6/10 A proposed draft MEPC circular providing guidance for marine bunkering vessels on the carriage requirements of biofuels intended for use as marine fuels — India and Republic of Korea

The paper identifies several shortfalls in the existing regulations pertaining to the carriage of biofuels and biofuel blends by bunker vessels. If left unadressed these could effectively limit the adoption of drop-in biofuels.

More specifically, the paper identifies that while various biofuels and biofuel blends from B30 to B100 are being introduced into the shipping industry for reducing GHG emissions and complying with CII requirements, most conventional bunkering vessels suitable for carriage of oil fuels subject to MARPOL Annex I that do not meet the carriage requirements for biofuels can only engage in the carriage of their blends containing less than 25% of biofuels. This essentially means that the shipping industry's efforts and contribution to reduce GHG emissions have not been supported in a timely manner due to the regulatory barriers.

The co-sponsors propose the following way forward with respect to the carriage of marine biofuels and its blends on conventional bunkering vessels certified for the carriage of MAPROL Annex I cargoes:

.1 As proposed in the annex to the document, an interim MEPC circular should be urgently provided to the industry for tentatively allowing the conventional bunkering vessels certified for carriage of oil fuels under MARPOL Annex I to transport up to B30 biofuels which are mostly preferred in the market. Member Governments are encouraged to establish their own national legislations for the carriage requirements of biofuel blends in consideration of the relevant information such as circular MSC-MEPC.2/Circ.17 and the IBC Code when bunkering vessels engage in the carriage of biofuel blends containing more than 30% of biofuel by volume up to B100; and

.2 Further discussions on the development of carriage requirements on biofuels for conventional bunkering vessels certified for carriage of oil fuels under MARPOL Annex I or the revision of current carriage requirements as provided in the IBC Code and circular MSC-MEPC.2/Circ.17 should be proceeded through PPR Sub-Committee and ESPH Group.

**Action requested of the Committee**
The Committee is invited to take note of the information provided in this document, especially the proposals in paragraph 20 and the annex to this document and take action as appropriate.

**6/11 Proposal to clarify the term heavy load carrier in MARPOL Annex VI** **China**

This document proposes to clarify the term "heavy load carrier" used in paragraph 2.2.15 of MARPOL Annex VI by amending the unified interpretation to MARPOL Annex VI (MEPC.1/Circ.795/Rev.8), taking into account the recommendations developed by IACS.

**Action requested of the Committee**
The Committee is invited to consider the information contained in this document, especially the proposal in paragraph 7 and take action as appropriate.

*The proposal is simply back -filling a more detailed IACS definition of heavy load carrier into the appropriate IMO unified interpretation. It is a logical pragmatic approach and should be supported.*

**6/12 Proposed amendments to the capacity used in the CII Guidelines, G5 for voyage adjustments and correction factors** **China**

This paper identifies exactly the same inconsistencies as paper 6/7 with respect to the inconsistencies with which the ship capacity can be calculated as-per the CII guidelines. The sponsors also propose the same solution as 6/7, i.e. by modifying the G5 guidelines thus:

*Capacity* is deadweight or gross tonnes as defined for each specific ship type in the ~~*2022 Guidelines on the reference lines for use with operational carbon intensity indicators* (*CII Reference lines Guidelines, G2*) (resolution MEPC.353(78))~~ *2022 Guidelines on operational carbon intensity indicators and the calculation methods* (*CII Guidelines, G1*) (resolution MEPC.352(78));

**Action requested of the Committee**
The Committee is invited to consider the proposal in paragraph 13 and take action as appropriate.

**Chair,**
**We thank China for paper 6/12, and we support their requested change to the G5 guidelines. However, within the first line of the existing capacity definition, we note there is a confusing and incorrect reference to gross tonnes. Could we please ask for this to be also corrected to gross tonnage.**

**6/13 Industry project on the assessment of CII functionality** **RINA**

This document presents a status update for a Mærsk Mc-Kinney Møller project to collate CII data and propose improvements to the CII rating system. The papere identifies the following problems with the present system:

1 forcing owners/charterers to collaborate on the delivery/redelivery CII rating of a ship, but lack of clear and balanced CII clauses in charter parties making it difficult to share responsibilities;

.2 inconsistencies in the provided correction factors, where some segments benefit from exemptions, while others do not. All emissions are to be given equal treatment;

.3 drydock is accounted for in the CII calculation affecting it negatively. However, it is needed to implement solutions such as retrofits, coating applications and design changes leading to improved operational efficiency;

.4 port delays and idle periods are in many cases unavoidable considering the current status quo and make CII ratings worse;

.5 weather can significantly impact the CII, although it has also been argued by the group that the weather routing is to be seen as an integral part of ship performance planning and the need to account for it when dealing with energy efficiency regulations;

.6 the usage of DWT in the AER metric does not properly reflect the utilization of the ship, and to determine annual transport work actual cargo weight carried could be a better proxy. The example shared was that, because of the use of DWT, there is no reward for reducing the amount of ballast legs and increasing the utilization of a ship;

.7 incentive to cover more distance leading to increasing emissions while maintaining the CII rating levels within acceptable limits, which does not align with the goal of reducing total emissions. An example given was that instead of idling in case of port congestion, a ship is incentivized to continue sailing as to continue to increase the distance travelled and therefore not have its CII rating impacted negatively. Although the additional fuel cost of such behaviour might prevent the ship from doing so, this does not align with the goal of reducing total emissions;

.8 in the attempt to design a single and simple metric to cover all ships and operational modes, the CII neglects substantial ship differences. This leads in many cases to worse ratings for ships that overall emit less emissions than their peers.

.9 CII enforcement mechanism, no penalty or incentive scheme formalized;

.10 it is difficult to propose business cases as cost of non-compliance is difficult to measure; and

.11 the current approach, where each ship is to comply with CII requirements individually, leads to a piecemeal approach towards investment in energy efficiency. Preference is given to technologies leading to minimum acceptable CII rating. A fleet compliance metric would allow for concentrated investments potentially unlocking more disruptive technologies on single ship or driving 'fleet' energy efficiency (e.g. schedule optimization of ships) that could lead to larger energy efficiency gains and overall reduced emission totals.

The paper identifies the following issues to be addressed:

.1 DWT vs. actual cargo weight, and incorrect incentives for ballast vs. laden condition;

.2 port delays, idle periods, drydocking time, and other issues giving rise to current correction factors; and

.3 fleet level considerations.

The paper concludes that many of the issues can be attributed (wholly or in part) to the current CII metric not providing a proper representation of a ship's performance and emissions considering its operating profile and trading pattern, and to the role of individual ships as part of a fleet.

The CII project is envisaged to be completed in 2024. Results will be disseminated via publications and workshops, and via a submission to MEPC 82 with final results and recommendations.

**Action requested of the Committee**
The Committee is invited to take note of the initial results of the study in the review of the CII, to address the negative effects while preserving the positive effects.

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|---|---|---|
| **6/14** | **Consequential modifications to the SEEMP and related Guidelines following the amendments to MARPOL Annex VI on the IMO ship fuel oil consumption Data Collection System (DCS)** | **Japan and Norway** |

This document proposes consequential modifications to the 2022 Guidelines for the Development of a Ship Energy Efficiency Management Plan (SEEMP guidelines) and 2022 Guidelines for Administration Verification of Ship Fuel Oil Consumption Data and Operational Carbon Intensity, aiming at reflecting the draft amendments to MARPOL Annex VI on the IMO's Ship Fuel Oil Consumption Data Collection System (DCS) approved by MEPC 80 to ensure its smooth implementation.

**Action requested of the Committee**
The Committee is invited to consider this document and especially the proposals contained in paragraph 8 and annexes 1 and 2, with a view to adopting the proposed modifications to the Guidelines, and take action as appropriate.

*The proposed amendments include practical guidance on:*

- *How the fuel utilised by consumers that are not fitted with flow meters can be accounted for.*
- *Consumption of onshore power*
- *Direct CO2 measurement of a consumer*

*Within the table in annex 2, there does not appear tp be anywhere that the Cf factor for "other fuels" can be recorded, e.g. a biofuel blend. Including a data engtry point in the table for Cf could be an improvement.*

*This proposal covers the same ground as 81/6/9 as RINA and should be read alongside it.*

**6/15 Assessment of an alternative CII metric for ro-ro cargo and ro-ro passenger ships** **INTERFERRY**

This document outlines a study undertaken to assess an alternative CII metric for ro-ro cargo and ro-ro passenger ships, seeking to mitigate the negative influence of high frequency service on the attained CII. The investigated metric substitutes days of operation for distance travelled. It is noted that when improvements for some issues are achieved by using an alternative metric, other issues are exacerbated. The study was not able to find any solution that would provide for a more fair and robust CII application for these ship types.

The sponsors conclude that for segments as diverse as ro-ro passenger ships and ro-ro cargo ships, it would be more relevant and fair to approach carbon efficiency on a per ship basis, which would enable targeted interventions specific to a route or a ship with a specific operational profile, and will also help to avoid some of the known perverse incentives of the current CII metric.

**Action requested of the Committee**
The Committee is invited to take note of the results of the study, as part of the ongoing review into the carbon intensity indicator.

**6/16 Consistent reporting of fuels to the IMO DCS** **ICS, INTERTANKO and RINA**

IACS, INTERTANKO and RINA provide proposals for the consistent reporting of VLSFO, ULSFO, biofuels and e-fuels to the IMO DCS.

The co-sponsors present the following considerations:

Resolution MEPC.364(79), also known as the 2022 EEDI Calculation Guidelines, does not consider the introduction of the 2020 global sulphur cap and so fuels such as VLSFO and ULSFO are missing. These fuels are therefore reported in a variety of different ways, ranging from one of the EEDI guideline defined fuels to use of the "Other" category with a non-standard label;

It is understood that some biofuels have simply been reported as fossil fuels, and the use of biofuels is likely to increase since the approval of MEPC.1/Circ.905 at MEPC 80, which introduced a methodology for the use of biofuels in the calculation of the attained CII which will also introduce custom Cf that are partially based on a well-to-wake approach;

Analysis of the 2019, 2020, 2021 and 2022 Reports of fuel oil consumption data submitted to the IMO Ship Fuel Oil Consumption Database in GISIS shows a large

increase in LFO reported and a corresponding decrease in HFO reported between the years 2019 and 2020, as a result of the sulphur cap. This indicates that a significant amount of low-sulphur fuel has been reported as light fuel oil;

However, the reports themselves also note that some fuel oil is reported incorrectly when the IMO Secretariat carries out verification and quality control of the submitted data. Paragraph 13.1 of document MEPC 81/6 (Secretariat) states that "It was found that some fuel oil was reported incorrectly, such as VLSFO and LFO, under the "Other" fuels category. This issue was rectified by moving these fuels to be under the Heavy Fuel Oil fuel category in line with the Fourth IMO GHG Study 2020 in that the Low Sulphur Heavy Fuel Oil has the same emission factors as conventional HFO."

It is understood that due to the lack of other guidance, the categorization used in the Fourth IMO GHG Study 2020 was followed; however, this introduces yet another variation in how these fuels are reported. It also leads to possible under-reporting of CO2 emissions since HFO has a lower Cf than LFO;

There is a need for standard reporting of these fuels, particularly bearing in mind what the DCS is intended to be used for;

It is likely that there has been significant under-reporting since the Port of Rotterdam reported sales of 301,051 tonnes of biofuel blends in 2021 and 790,639 tonnes in 2022, * which appears to significantly exceed the quantities reported to the DCS as shown below. It is also known that some biofuel was not reported because there was no benefit to be gained due to the use of tank-to-wake emission factors in the DCS;

One of the uncertainties around biofuel reporting to the DCS is whether only the mass of the biofuel portion is reported, or the total mass of the fuel blend. Indeed, from the figures submitted to the DCS, it is not possible to tell whether this represents only the bio-derived portion, or the total mass of the blend. It is quite likely that this is a mix of the two options. Since blend percentages vary, reporting just the mass of the blend means that it would not be possible to derive the quantity of pure biofuel that is being used, and would lead to overestimation of the quantities of biofuel being supplied. This would also lead to underreporting of fossil fuel quantities;

The interim guidance contained in MEPC.1/Circ.905 suggests that for blends, the Cf should be based on the weighted average of the Cf for the respective amounts of fuels by energy. While this is helpful for implementation in CII, and for reporting of fuels to the Administration where the full breakdown of fuel consumption by voyage or batch is available, this is unhelpful for reporting of annualized fuel consumption to the DCS for reasons explained in paragraph 12; and

It is expected that reporting of low- and zero-carbon fuels from fuel producers or suppliers will eventually be carried out using an IMO mandated fuel certification scheme, as it currently is done with ICAO CORSIA. This would not necessarily render obsolete any fuel reporting to the IMO DCS, since the DCS reported quantities can be used to check the quantities of fuel being reported under the certification scheme, in a manner similar to double-entry bookkeeping.

Based on the above-mentioned considerations, the co-sponsors propose the following:

It is recommended that guidance for uniform reporting of VLSFO and ULSFO to the IMO DCS is agreed and included in the unified interpretations to MARPOL Annex VI. Note that this is for the purposes of consistent categorization of such fuels, and not to create new categories or Cf;

It is recommended that for biofuels which meet the requirements of MEPC.1/Circ.905, only the mass of the bio component as identified in the Proof of Sustainability should be reported to the IMO DCS as a biofuel, and not the total mass of the biofuel blend;

If any biofuel is used that does not meet the requirements of MEPC.1/Circ.905, consideration should be given to reporting such biofuels separately from both fossil fuels and biofuels;

In case any e-fuels are reported to the IMO DCS, only the e-fuel component should be reported as an e-fuel and the remaining fossil component reported as the appropriate fossil fuel; and

Suitable nomenclature and conventions should be developed for the reporting of bio and e-fuels to avoid an excessive number of different and non-standard fuel names in the DCS which will make processing and analysis of the DCS data more challenging.

**Action requested of the Committee**

The Committee is invited to consider the proposals in paragraphs 17 to 21 of this document and take action, as appropriate.

## 6/17 Comments on document MEPC 81/6/6:"resolution India clarifying the current status of the CII rating system"

This document confirms India’s support for the resolution proposed by ICS et al. Whilst acknowledging the list of system weaknesses within 81/6/6, the paper also highlights the following additional problems with the CII reference lines:

- There are significant inconsistencies in the range of correction factors afforded to each vessel type. For example bulk carriers and general cargo

ships have few correction factors when compared to tankers. Therefore bulk carriers and general cargo ships are expected gto be more significantly impacted by CII.

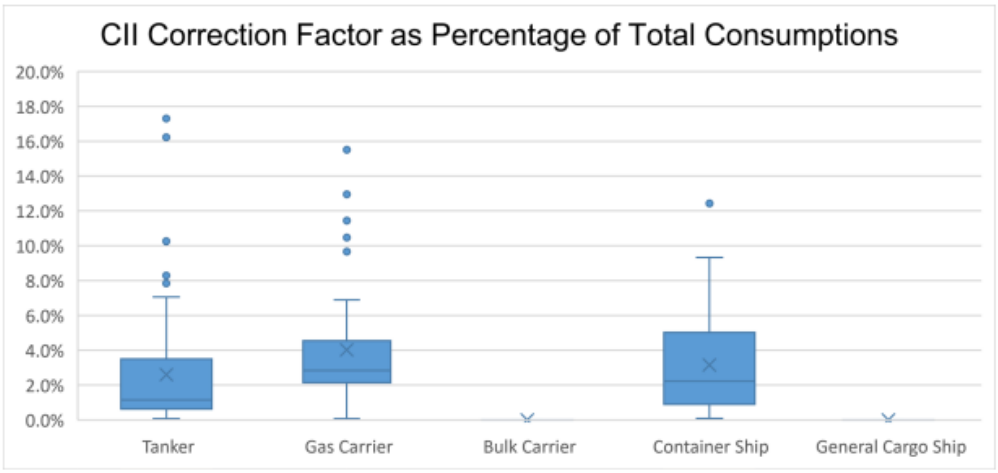


**Figure 1: Fuel consumption for ship type specific correction factors as a percentage of total fuel consumption**

- For some ship types, e.g. gas carriers and LNG carriers, the reference lines are discontinuous and this suggests the reference lines are poorly defined.

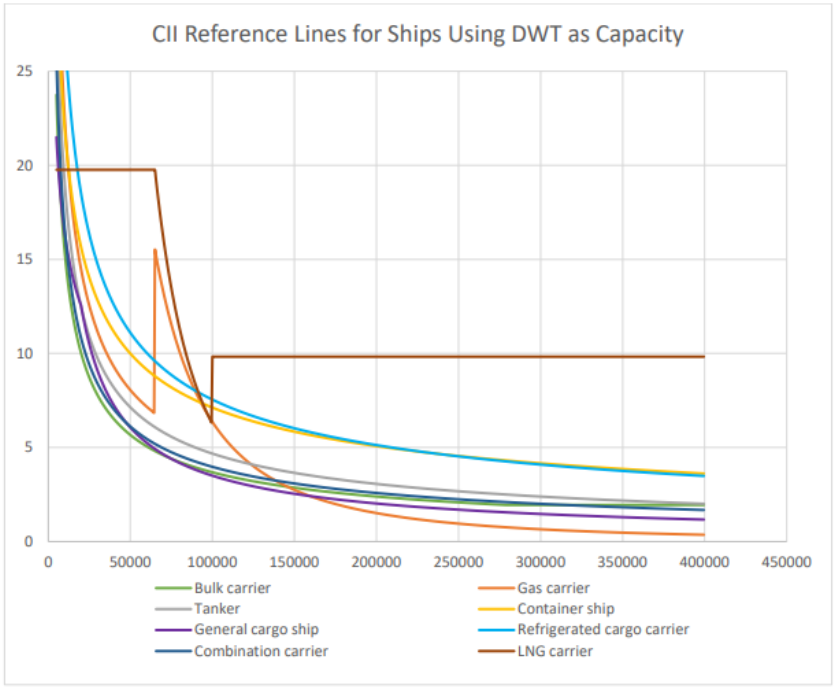


**Figure 2: CII reference lines for different ship types**

## Action requested of the Committee

The Committee is invited to consider the issues raised in paragraphs 4 to 11 and to take action, as appropriate.

| | | |
|---|---|---|
| **6/18** | **The implications of the 2023 IMO GHG Strategy and work on the basket of mid-term measures for the revision of the CII** | **WWF, Pacific Environ, CSC'** |

This document expresses the Sponsors view that the review of the Carbon Intensity Indicator (CII) should ensure harder enforcement of a mechanism that will drive energy efficiency in-line with the targets within the 2023 IMO GHG strategy.

Although the authors acknowledge that the CII system weaknesses should be investigated and if possible improved, they believe the pursuit of a perfect CII should not get in the way of an improved CII.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document, in particular the recommendations/conclusions in paragraph 14, and ensure that these are considered during the process of revision of CII.

*The view expressed by the sponsors reflects a relatively extreme and inflexible approach to the CII review which would likely result in some ship types and services becoming unviable. Such an outcome is unlikely to be in the interests of decarbonisation. For example, if AER remains unchanged, and hard enforcement were to follow, ballast voyages would remain incentivised over cargo legs. Similary if no compensation were afforded for port waiting time or short voyages, some routes may become unviable, and modal shift to land or air transportation is likely.*

**Chair,**
**We thank the sponsors for paper 6/18, and we agree that energy efficiency has been and will remain a key part of our decarbonisation efforts. Paper 81/6/1 confirms that the carbon intensity of shipping has reduced steadily by 30% since 2008, which represents excellent progress towards our 40% by 2030 goal. We also agree that the CII system weaknesses must be corrected. Indeed, unless these are comprehensively addressed, we will increasingly see unintended consequences, which may include the closure of routes, and the disappearance of certain vessel types. Noting that shipping remains the most energy efficient form of transport, it is unlikely that the resulting modal shift of cargo to land and air transportation would be in the best interests of decarbonisation. Hence it is very important that a universally fair CII system emerges from the review, and a system that incentivises the right behaviours.**

**We also wish to highlight that going forward, CII is unlikely to be the only regulatory measure to drive efficiency. Beyond 2030 the alternative fuels will play an ever increasing role, and adoption of these fuels will be heavily dependent on the scarce resource of green electricity. This limited supply will determine a fuel price that will ensure that minimising consumption is increasingly in the best interests of the industry. Hence multiple regulatory measures will ensure energy efficiency is here to stay.**

**6/INF.2** **EEDI database - Review of status of technological development (Regulation 24.6 of MARPOL Annex VI)** **Secretariat**

This document provides the latest summary of data and graphical representations of the information in the EEDI database

The number of EEDI reports by ship type and EEDI phase are summarised within the below table:

| Applicable Phase | Non-mandatory | 0 | 1 | 2 | 3 | Total |
|---|---|---|---|---|---|---|
| Bulk carrier | 161 | 1,745 | 1,435 | 345 | 3 | **3,689** |
| Gas carrier | 30 | 243 | 174 | 67 | 1 | **515** |
| Tanker | 212 | 881 | 1,329 | 227 | 19 | **2,668** |
| Containership | 141 | 376 | 589 | 147 | 16 | **1,269** |
| General cargo ship | 25 | 84 | 248 | 69 | 1 | **427** |
| Refrigerated cargo carrier | - | 9 | 20 | 11 | - | **40** |
| Combination carrier | - | - | 5 | - | - | **5** |
| LNG carrier | 3 | 2 | 119 | 13 | - | **137** |

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

*Apart from a few RoRo outliers, the graphical plots confirm that the majority of ships continue to meet the EEDI requirements.*

**6/INF.4** **Carriage of biofuels for supply to a ship for use as fuel oil on board that ship** **IBIA**

This paper notes that ships engaged in bunkering operations and certified under MARPOL Annex I cannot carry biofuel blends with >25% biofuel even within port waters. Member States when agreeing at MEPC 78 to allow the use of fuels containing up to and including 100% biofuel as "fuel oil" under MARPOL Annex VI may not have foreseen this issue but it now presents a potential impediment to the global adoption of biofuels as fuel oil for ships and the ambition for the decarbonization of international shipping in the short term as set out in the 2023 IMO GHG Strategy.

IBIA notes that current international provisions for the carriage of biofuels on ships require ships carrying biofuels as cargo to be certified in accordance with MARPOL Annex II when the content of the fuel oil is greater than 25% biofuel . This is because the cargo is then categorized as a "noxious liquid substance" under MARPOL Annex II requiring additional design and operational features to mitigate risks and a need to be carried on a chemical tanker.

IBIA also notes that ships that have been supplied with fuel oil having >25% biofuel blends for use on board as permitted under MARPOL Annex VI, can carry

that fuel oil in the ship's fuel tanks whilst not being required to comply with MARPOL Annex II

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

**6/INF.22 Lessons learned from the CII consulting conducted by the Republic of Korea — Republic of Korea**

This document recounts the experience of the sponsors with respect to a study they conducted on a range of ships that were predicted to score D and E ratings under the CII system. The following table summarises the studied ships:

**Table 1: List of targeted ships for consulting project**

| | Company | Ship Type | DWT | Flag | Delivery | CII rating |
|---|---|---|---|---|---|---|
| 1 | A | Bulk | 58,655 | Panama | 2010 | E |
| 2 | B | Bulk | 42,102 | Panama | 2013 | E |
| 3 | C | Bulk | 63,203 | Marshall Islands | 2015 | D |
| 4 | D | Bulk | 43,537 | Panama | 2010 | E |
| 5 | E | Bulk | 33,144 | Republic of Korea | 2010 | D |
| 6 | F | Tanker | 12,144 | Republic of Korea | 2015 | D |
| 7 | G | Bulk | 51,265 | Marshall Islands | 2010 | E |
| 8 | H | Tanker | 11,290 | Republic of Korea | 2009 | D |
| 9 | I | Tanker | 8,072 | Republic of Korea | 2009 | D |
| 10 | J | Bulk | 23,703 | Republic of Korea | 2010 | E |
| 11 | K | Bulk | 179,181 | Panama | 2009 | D |
| 12 | L | Bulk | 11,300 | Republic of Korea | 2006 | D |

The following were identified as major factors contributing to the low ratings:

.1 long waiting times for ships caused by port circumstances;

.2 difficulty of application of CII correction factors (tanker only);

.3 deficiency of systematic policy CII rating management plan; and

.4 lack of communication and cooperation between stakeholders.

For the studied ships, the average number of days of navigation under 3 knots, including anchoring, drafting and cargo operating time of the studied ships in 2022 is 181 days when calculated based on the AIS data .

**Action requested of the Committee**

The Committee is invited to note the information contained in this document.

*Port waiting time has been consistently identified across multiple studies as a major factor for low CII ratings.*

**6/INF.27 Review of Carbon Intensity Indicator INTERCARGO**

This paper summarises the findings of extensive studies by INTERCARGO, ABS, BV, ClassNK, DNV and LR on the impact of short voyages, port waiting time and ship loading conditions on attained CII.

It was found that the following factors worsen a ship's CII rating:

- Short voyages
- Port waiting time
- High percentage cargo capacity utilisation

The following graphs support these conclusions:

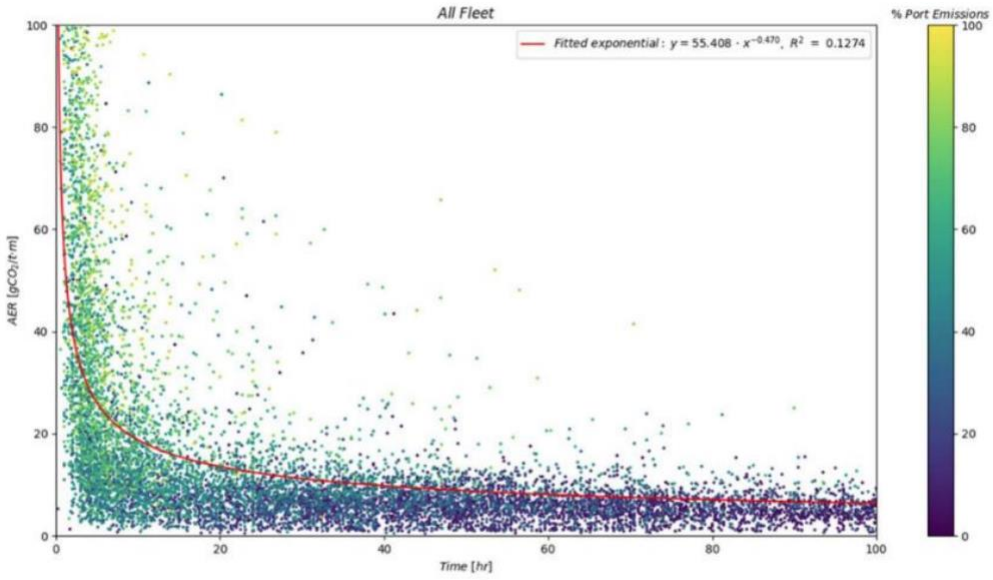


**Figure 1: Distribution of voyage AER towards voyage duration**

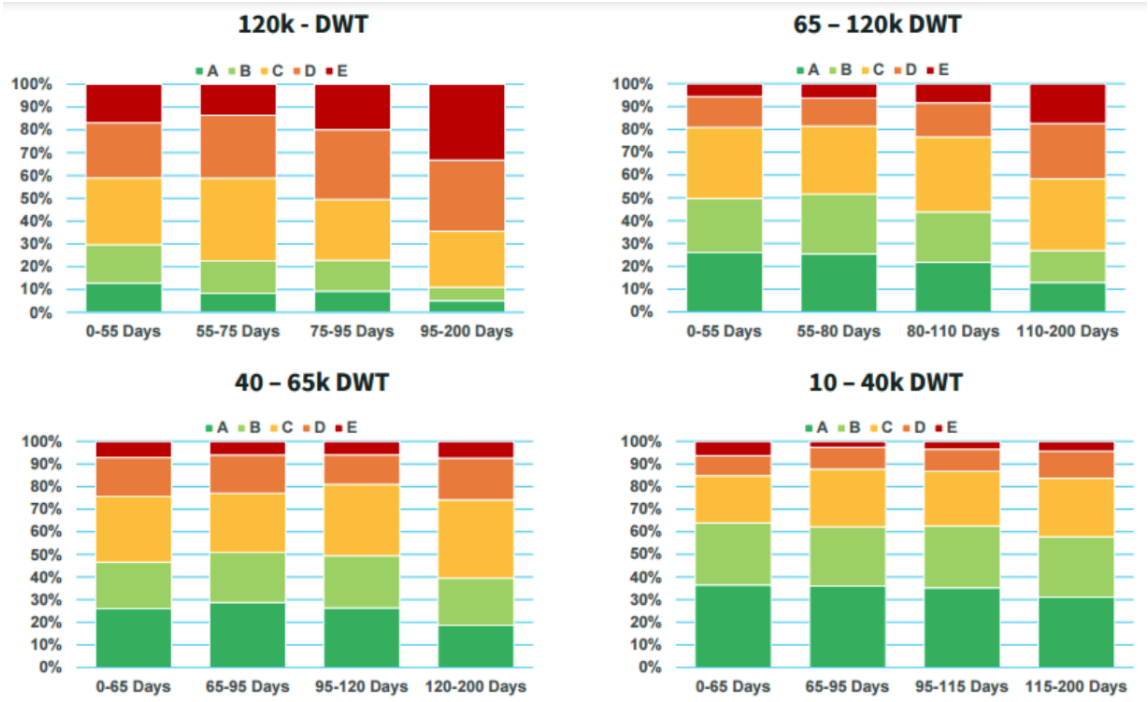


**Figure 3: Port waiting times impact on CII (data source MSI)**

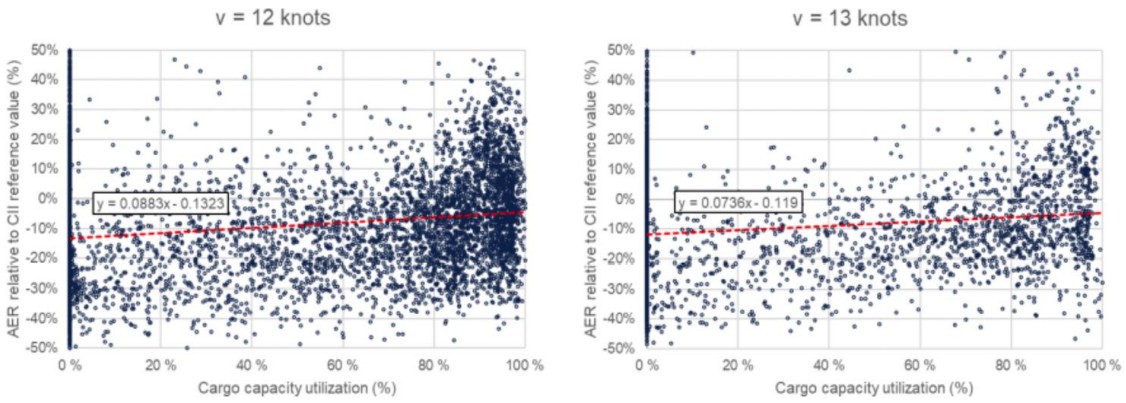


**Figure 5: CII performance vs. cargo capacity utilization for each voyage, average speeds of 12 and 13 knots**

## Action requested of the Committee

The Committee is invited to note the information contained within this document during the review of the short-term measure.

*A range of other previous studies have all shown the same trends. This paper serves to further under line the weaknesses and perverse incentives of the current CII system.*

**6/INF.28 Impact of short voyages on the Carbon Intensity Indicator** **INTERCARGO**

This paper is supplementary to INF. 27 and provides further detail to the INTERCARGO studies on the impact of short voyages on CII rating.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

*A range of other previous studies have all shown the same trends. This paper serves to further under line the weaknesses and perverse incentives of the current CII system.*

**6/INF.29 Impact of port waiting time on the Carbon Intensity Indicator** **INTERCARGO**

This paper is supplementary to INF. 27 and provides further detail to the INTERCARGO studies on the impact of port waiting time on CII rating.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

*A range of other previous studies have all shown the same trends. This paper serves to further under line the weaknesses and perverse incentives of the current CII system.*

**6/INF.30 Impact of port waiting time on the Carbon Intensity Indicator** **INTERCARGO**

This paper is supplementary to INF. 27 and provides further detail to the INTERCARGO studies on the impact of port waiting time on CII rating.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document and its annex

*A range of other previous studies have all shown the same trends. This paper serves to further under line the weaknesses and perverse incentives of the current CII system.*

**6/INF.31 Impact of ship loading condition on the Carbon Intensity Indicator** **INTERCARGO**

This paper is supplementary to INF. 27 and provides further detail to the INTERCARGO studies on the impact of loading condition on CII rating.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

*A range of other previous studies have all shown the same trends. This paper serves to further under line the weaknesses and perverse incentives of the current CII system.*

**6/INF.32 Impact of ship loading condition on the carbon intensity indicator** **INTERCARGO**

This paper is supplementary to INF. 27 and provides further detail to the INTERCARGO studies on the impact of loading condition on CII rating.

Two interesting conclusions which were not recorded in INF.27 are listed in this paper as follows:

- There are some important uncertainties that may impact the results. Severe weather conditions may in some cases lead to voyages with abnormally high AER, whereas calm sea may be advantageous to AER performance of ships. The impact of weather can in some cases distort any other impact on AER, such as loading condition.

- Utilizing as much of a ship's carrying capacity (or deadweight) as possible is an effective way of achieving CO2 emission reduction today. Since CII for bulk carriers is the AER, which is based on deadweight as capacity parameter, there is a large risk of penalizing ships that manage to optimize their trade patterns to have higher utilization. These ships will have a higher share of time in laden condition compared to the average, and as suggested by findings presented in this memo, is therefore likely to have a higher annual AER.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

*A range of other previous studies have all shown the same trends. This paper serves to further underline the weaknesses and perverse incentives of the current CII system.*

## ITEM 7: REDUCTION OF GHG EMISSIONS FROM SHIPS

The Committee will be invited to consider, in particular, the following issues, together with any submissions received under the agenda item, taking into account the progress made at the sixteenth meeting of the Intersessional Working Group on Reduction of GHG Emissions from Ships, as appropriate:

.1 proposals on candidate mid-term measures in the context of Phase III of the Work plan for the development of mid- and long-term measures;

.2 interim report of the Steering Committee on the conduct of the comprehensive impact assessment of the basket of candidate mid-term measures; and

.3 further development of the life cycle GHG intensity assessment (LCA) framework.

A working group is expected to be established to consider matters referred to it by the Committee.

**Papers:**

| | | |
|---|---|---|
| **7** | **Update on the work by the Steering Committee on the Comprehensive Impact Assessment – Outcomes of the first and second meetings** | **Secretariat** |

This document provides an update on work undertaken by the Steering Committee on the comprehensive impact assessment of the basket of candidate mid-term measures, in particular the outcomes of the first and second meeting of the Steering Committee, which were held on 25 to 26 September and 24 to 25 October 2023, respectively, and constitutes, along with its potential addendum, the interim report requested by MEPC 80.

**Action requested of the Committee**
The Committee is invited to consider the information provided in this document and in the annexes, and to take action, as appropriate.

*ICS has concerns about the complexity of the CIA, and the number of different combinations of measures being analysed, and whether this will hinder rather than help the urgent need for the Committee to start work on a regulatory text or measures that will be ready for approval by MEPC 83. It is almost impossible for those that have developed detailed proposals to keep up with work on this 'parallel workstream'.*

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| **7/ Add.1** | **Update on the work by the Steering Committee on the Comprehensive Impact Assessment – Outcome of the third meeting** | **Secretariat** |

This document provides an update on work undertaken by the Steering Committee on the Comprehensive Impact Assessment of the basket of candidate mid-term measures, in particular the outcome of the third meeting of the Committee, which

was held on 13 December 2023, and constitutes, along with document MEPC 81/7, the interim report requested by MEPC 80.

**Action requested of the Committee**
The Committee is invited to consider the information provided in this document and in the annex, and take action, as appropriate.

*This interim report contains no information at that this stage which will assist the development of those measures, which need to be approved at MEPC 83.*

**7/1 Updates on the GHG-TC Trust Fund Secretariat**

This document provides an update on the IMO GHG-TC Trust Fund as established in May 2019 and donations so far received (including that received from ICS) and activities funded.

Donations: 1 Canada ($90,000); .2 Cyprus ($18,000); .3 Denmark ($170,000); .4 France ($270,000); .5 Germany ($405,000); .6 Japan (Nippon Foundation) ($374,000); .7 Malaysia ($135,000); .8 Netherlands (Kingdom of the) ($150,000); .9 Norway ($71,000); .10 Singapore ($100,000); .11 United Arab Emirates ($15,000); .12 United Kingdom ($125,000); and .13 ICS ($106,000).

**Action requested of the Committee**
The Committee is invited to consider the information provided in this document, in particular the proposed amendment to the terms of the reference of the Trust Fund and to identify possible future activities to be funded by the Trust Fund, and take action as appropriate.

*The report can be noted.*

**7/2 Four regulatory elements critical to an effective global GHG agreement WSC**

Following the adoption 2023 IMO GHG Strategy, WSC identifies four regulatory elements that WSC considers critical to formulating an IMO GHG instrument that can achieve the necessary environmental outcomes:

.1 establishing a full set of GHG energy-intensity standards that are defined upfront;
.2 an effective GHG emissions pricing mechanism/economic instrument that includes proportional regulatory provisions related to the GHG intensity of the fuels and technologies used;
.3 a flexibility provision that allows "vessel pooling"; and
.4 regulations using well-to-wake (WtW) values.

**Action requested of the Committee**
The Committee is invited to consider the four regulatory recommendations highlighted in this document and take action, as appropriate.

*The detailed measures proposed by ICS to ISWG-GHG 16 are broadly consistent with this approach, although rather than be explicit about the use of WTW emissions for the ZESF Fund and Reward (Feebate) Measure, the ICS proposal takes account of life-cycle emissions while making it clear, as matter of principle, that ships should not be charged for life-cycle emissions for which other sectors are responsible.*

| | | |
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| **7/3** | **Glossary of climate change definitions in relation to shipping** | **IUMI, IAPH, BIMCO, IFSMA, INTERTANKO, InterManager, IPTA and FONASBA** |

This document presents a glossary of climate change definitions in relation to shipping. To ensure consistent terminology, the co-sponsors propose that the Committee agree to develop a glossary of definitions relevant to the reduction of GHG emissions from shipping so as to harmonize the language used in the shipping industry. The co-sponsors furthermore propose that the glossary of climate change definitions in relation to shipping, set out in the annex, could be used for further discussions by MEPC on terminology, while recognizing that the Committee may not wish to adopt the exact definitions or consider all definitions relevant.

**Action requested of the Committee**
The Committee is invited to consider the information provided in this document, in particular the proposal set out in paragraphs 30 and 31, together with the glossary of climate change definitions in relation to shipping set out in the annex, and take action as appropriate.

*ICS acknowledges the work that has gone into producing this glossary, but whilst the basket of mid-term measures is still being negotiated, many of the definitions used will continue to evolve.*

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| **7/4** | **Report of the Correspondence Group on the Further Development of the LCA Framework** | **Brazil, Japan and EC** |

The document provides the report of the Correspondence Group on the Further Development of the LCA Framework established by MEPC 80.

Salient outcomes from the work of the Group are as follows:

The Group finalised a revised template for the well-to-tank data collection. The Group agreed that the terminology used should be aligned with the 2023 IMO GHG Strategy and therefore it was suggested to replace "carbon intensity" with

"greenhouse gas intensity" and to specify the time frame for the considered electricity mix (e.g. the last year, or the last three years in case of significant fluctuations, using data available from reliable sources, such as the International Energy Agency (IEA));

The Group agreed a template for tank-to-wake default emission factors reflecting the LCA Guidelines that “"the reference values should be accompanied by the relevant technical and scientific information and evaluated against the corresponding information as appropriate, including the agreement between the reference values". The Group also agreed to the inclusion of the CfN2O, CfCH4, Cslip and Cfug emission factors;

Regarding the selection of test cycle to establish default CfCH4 and CfN2O, the Group supported to use the current NOx Technical Code (NTC) test cycles as a reference to establish measurement procedures to measure N2O emissions, until amendments to the NTC are approved, based on the fact that the measurements during NOx certification would provide accurate data with reasonable efforts. However, the CG members raised the need for revision of the NTC test cycles, with the aim of being applicable to a wider set of technological options;

To reflect the majority views, Cfug was included in the TtW template. However, a substantial number of the members questioned the usage of Cfug, which was not related to fuel specific life cycle carbon intensity;

The LCA Guidelines adopted by MEPC 80 did not consider a procedure to properly account for the balance of emissions of aftertreatment systems. The majority of the CG members supported that the LCA Guidelines should allow for the possibility to account for the reduction of emissions from aftertreatment/abatement systems. However, they opposed to have default emission factors, stating that these systems will have quite varying performance, and for that fact it should only be allowed the deduction of emissions through a certification scheme;

Acknowledging the limited amount of received submissions, the Coordinators were not in a position to propose new default emission factors for the WtT part, but to compile the submitted ones for further analysis. The complete compilation of all proposed WtT and TtW reference values is presented in annex 2 of this document;

The majority of the CG members supported the following methodological considerations regarding fuels from Carbon Capture and Utilization (CCU) pathways:

when used into a fuel, the final destiny of the carbon source is the atmosphere, therefore no specific credit for removal of carbon from the atmosphere can be generated for CCU pathways, in the WtT;

conversely, in order to determine whether emissions resulting from the combustion of the final fuel have to be considered, it is necessary to follow the atmospheric carbon balance logic. In particular:

.1 the CO2 emissions resulting from fuel combustion shall not be included in the

TtW GHG emissions if the carbon used to produce the fuel batch is sourced from biogenic feedstock (in line with the approach taken in the existing LCA Guidelines);

.2 the CO2 emissions resulting from fuel combustion shall not be included in the TtW GHG emissions if the carbon used to produce the fuel batch is directly sourced from the atmosphere (i.e. Direct Air Capture (DAC) technology);

.3 the CO2 emissions resulting from fuel combustion shall not be included in the TtW GHG emissions if the carbon used to produce the fuel batch was obtained from gases or exhaust gases (even if resulting from the use of fossil feedstock), which are produced as an unavoidable and unintentional consequence of the production process in industrial installations, so can qualify as a waste. This approach can be justified by the fact that the use of the carbon source to produce a fuel batch ultimately is not expected to alter the previous fate of the emissions (released in the atmosphere), and allow for an additional fuel production which likely displace other fossil sources;

In this specific CCU case (fossil-derived source of carbon for fuel production), some additional provisions are required to ensure the framework integrity, in particular:

.1 the production of the new batch of fuel does not alter the previous fate of the carbon atoms; and

.2 the production of the new batch of fuel does not alter the original production process, from which the waste gas was derived.

From an accounting perspective, it is crucial that the initial emitter of the gas used to produce the new batch of fuel and its country maintain the burden of emission for all captured carbon, irrespective of whether the carbon atoms end up in the final fuel or not; the carbon burden must be documented and included in the chain of custody.

The majority of the CG members supported the methodological proposition regarding the emission credit from carbon capture and storage on board. The Group also provided comments on the topics of the calculation method, the leakage risk, the handling of the captured carbon, proof of storage and the possibility for on board carbon capture and usage (OCCU). Few CG members did not support the proposed methodological refinements;

The majority of the CG members supported the following methodological approach to be adopted for CfCO2: in the case where fuels could be represented using chemical formula, CfCO2 emission factor could be calculated by multiplying the molar ratio of carbon to CO2 by the molar ratio of carbon to the fuel. CfCO2 factors for Propane, Butane, Ethane, Methanol and Ethanol are contained in resolution MEPC.364(79). Moreover, CfCO2 factors of fossil fuels as diesel oil and LNG are also contained in resolution MEPC.364(79), Therefore, these CfCO2 factors do not have to be newly obtained. On the other hand, if fuels cannot be represented using chemical formula such as biofuels and fossil fuels, the CfCO2 factor can be calculated using actual measurement carbon content;

The Group noted that the CfCH4 and CfN2O emission factors depend on the type of fuel and engine, and the engine load. In the case of existing fuels and existing engines, the CfCH4 and CfN2O factors can be obtained using reference values from Fourth IMO GHG Study 2020. However, for a new type of fuel and engines, the CfCH4 and CfN2O factors would need to be measured actually;

The Group strongly opposed the consideration of the engine degradation even in the shop tests. Justified by different inputs received from CG members, inter alia that: the engine should be properly maintained in accordance with the maintenance requirements from the manufacturer; the complexity to establish a general procedure to determine emissions due to degradation of the engine during test-bed measurements; the increased CH4 or N2O emissions due to degradation were not expected, while engine degradation had not been implemented for other existing maritime regulations such as NOx or SOx emissions; and finally, the methodology of the NOx Technical Code based on either the parameter check method or direct measurement was more appropriate to perform through life surveys to ensure engines remain in accordance with their approval;

The majority of the Group supported the use of the average GHG intensity of the national grid to be used as input data for relevant default values and for Onshore Power Supply (OPS) values and suggested sources that should be allowed, such as governmental and utility sources, certified real data from providers, internationally acknowledge public databases, electrical grid operators, national inventories, national energy regulators and reputable organizations. The majority of the CG members did not see the value of creating a separate electricity life cycle label since according to paragraph 8.1 of the LCA Guidelines the FLL already accounted for electricity; and

The majority of the CG members supported the development of technical procedures for onboard measurement based on test cycle approach, and for onboard continuous monitoring, but not on a mandatory basis, and with a clear framework and robust methodology for obtaining results. The Group also pointed that the procedures should include at least three options as follows: 1) test-bed measurements; 2) onboard measurements based in test cycle approach; and 3) continuous onboard measurements.

**Action requested of the Committee**
The Committee is invited to:

note the discussion by the Group on the further development of the LCA framework, as summarized in this document and its annexes;

consider, with a view to adoption at this session, the proposed amendments to resolution MEPC.376(80) (LCA Guidelines), as set out in annex 1 to this document;

recall that the Group has identified the need for a continuous scientific review of the LCA Guidelines to ensure that new technological advances and scientific

knowledge are taken into account; and

consider possible ways to undertake the continuous scientific review of the LCA Guidelines, such as the creation of a dedicated expert group, and take action, as appropriate.

**7/5 Effective implementation of resolution MEPC.229(65) on Promotion of technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships** **Secretariat**

This document provides an overview of activities undertaken by the Secretariat in response to resolution MEPC.229(65) on Promotion of technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships and IMO GHG Strategies, adopted in 2013

**Action requested of the Committee**

The Committee is invited to consider the information provided in this document; suggest any other initiatives that could be undertaken (at global and/or regional level); share bilateral technological cooperation initiated in accordance with MEPC.1/Circ.861; and to take action as deemed appropriate.

**7/6 Impact and extent of hydrogen emissions and impact on the LCA Framework** **EDF**

EDF provides an overview of the extent and impact of hydrogen emissions from the production and carriage of hydrogen. The document identifies that there are significant uncertainties in the emissions rates of hydrogen within the value chain (from leakage, purging, venting), with both environmental and safety implications. In particular, research identifies that hydrogen can have a significant indirect global warming impact which necessitates additional measures to eliminate, or at least minimize, leakage on safety and environmental grounds.

The following considerations are presented.

when emitted into the atmosphere, around 30% of hydrogen reacts with the naturally occurring hydroxyl radical. This reaction ultimately increases the amounts of potent short-lived greenhouse gases such as methane, ground level ozone and upper atmosphere water vapour, resulting in indirect warming on the climate;

At least 15 scientific publications over the past two decades, including two Intergovernmental Panel on Climate Change (IPCC) assessment reports, have cautioned about the warming effects of hydrogen emissions;

The latest science suggests that hydrogen emissions are 30 to 40 times more powerful at trapping heat over the following 20 years than carbon dioxide for equal mass, and 8 to 12 times more powerful over a 100-year period;

In high leakage situations (around 10% leakage rate), hydrogen emissions could nearly cut in half anticipated near-term climate benefits of replacing fossil fuel systems. However, minimizing hydrogen emissions to around a 1% leak rate could mostly eliminate climate impacts. In order to maximize the climate benefits of hydrogen deployment, it is therefore important to minimize emissions from leakage, venting and purging;

Incorporating hydrogen's warming effects in climate impact assessment methodologies, such as LCAs, is critical to accurately assessing a hydrogen initiative's climate impact, which can affect decision-making of how to best use hydrogen in the energy transition. Based on the available literature, LCA tools can immediately incorporate plausible hydrogen emissions levels in total or by value chain component;

Peer-reviewed and published EDF research found that total hydrogen emissions rates across the value chain range from about 0.2% to 20%. Estimates also vary wildly for individual stages. Due to the significant uncertainty in hydrogen leakage rates, it is essential that a cautionary approach is taken by the Organization in the development of policies or instruments until further data is made available. That includes designing systems so that hydrogen is not vented or purged into the atmosphere unless absolutely necessary to mitigate non-routine safety concerns;

**Action requested of the Committee**
The Committee is invited to consider the information contained in this document and take action as appropriate.

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| **7/7** | **System boundary for estimation of annual GHG emissions in international shipping** | **Republic of Korea** |

Republic of Korea proposes to clarify the system boundaries of the LCA Guidelines for their application in calculating and assessing the annual GHG emissions of international shipping within the context of the 2023 IMO GHG Strategy.

The following considerations are presented.

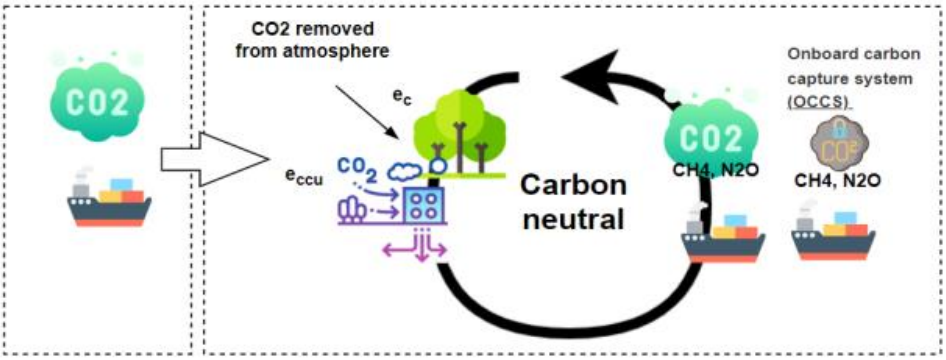
- To determine whether the level of ambition or the indicative checkpoints in the 2023 IMO GHG Strategy are achieved, the following formula can be used.

  [The total annual GHG emissions from international shipping] ≥ [The total energy consumption (MJ) from international shipping] X [GHG intensity (gCO2eq/MJ(LCV)) using the fuel or electricity in a consumer on board the ships]

- the determination of the system boundary of international shipping's GHG emissions is crucial to achieving the net-zero GHG emission and evaluating the indicative checkpoints in the 2023 IMO GHG Strategy, and depending on how the boundary is determined, total GHG emissions from international

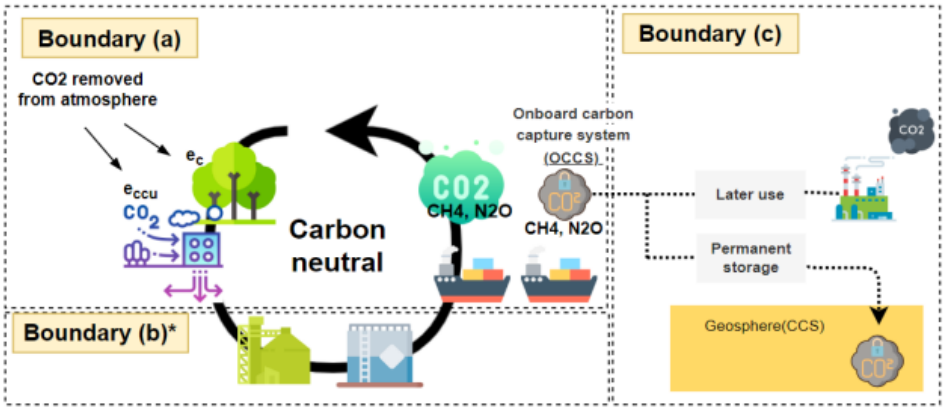
shipping will be evaluated differently;

- While the LCA Guidelines should continue to be further developed independently as a technical tool, discussions on their application should start as soon as possible to achieve a clear and unified understanding. An example of this is the establishment of system boundaries for the calculation of annual GHG emissions from international shipping mentioned in the 2023 IMO GHG Strategy.




- In the figure above, the left-hand side illustrates that when considering TtW emissions, only CO2 emissions from ships (the traditional TtW emission) are taken into account, irrespective of the carbon source of the fuel. On the right-hand side, the range of TtW emissions in the LCA Guidelines is depicted. This includes an example incorporating emission credits (ec and eccu) for the utilization of biofuels or e-fuels (synthetic fuels). Additionally, it encompasses an onboard carbon capture element (ec: emission credit for biomass growth, eccu: emission credit for "captured CO2" used as carbon feedstock in the synthetic fuel production process);

- The figure below illustrates an example of the application of the LCA Guidelines for calculating annual GHG emissions from international shipping, specifically focusing on the application of system boundaries. Boundary (a) represents the range shown in TtW emissions formula of the LCA Guidelines and, although the figure shows carbon sources from the atmosphere (e.g. biogenic and direct air capture), GHG emissions from international shipping should be calculated differently depending on these sources. Boundary (b) pertains to the scope of the WtT emissions formula in the LCA Guidelines, as indicated by the figure reference mark(*). On the other hand, Boundary (c) encompasses the transport and storage of captured CO2 on board the ship within the system boundary to determine its fate: whether for later use or permanent storage.




- As an illustration of a straightforward system boundary for calculating the annual GHG emissions of international shipping, it can be defined as "(a)," "(a) + (b)," or "(a) + (b) + (c)" of the boundaries. These variations will yield different GHG emissions calculations, contingent upon the realization of the 2023 IMO GHG Strategy with respect to the level of ambition and indicative checkpoints;

In light of the above, the Republic of Korea proposes to initiate the clarification on the system boundaries of the LCA Guidelines for their application in calculating and assessing the annual GHG emissions of international shipping within the context of the 2023 IMO GHG Strategy, in addition to proceeding with the further development of the LCA Guidelines.

**Action requested of the Committee**
The Committee is invited to consider the proposal contained in this document and take action as appropriate.

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| **7/8** | **Initiation proposal on the Fifth IMO GHG Study 2025 (2018-2023)** | **Australia and Republic of Korea** |

This document proposes initiation of the Fifth IMO GHG Study 2025 (2018-2023) and an indicative timeline. The sponsors believe the Fifth IMO GHG Study 2025 will be particularly important because it will be possible to compare the results before and after the implementation of short-term measures from 2023, as well as the Initial Strategy and the 2023 IMO GHG Strategy.

The sponsors propose the below timeline to initiate and conduct the study:

| | |
|---|---|
| **March 2024 (MEPC 81)** | MEPC 81 to review and decide on the initiation of the Fifth IMO GHG Study 2025 (2018-2023) |
| **ISWG-GHG 17** | ISWG-GHG 17 to initiate the development of the terms of reference and invite financial contributions to undertake the study |
| **September 2024 (MEPC 82)** | MEPC 82 to agree to the terms of reference, establish a steering committee, and instruct the Secretariat to issue an Invitation to Tender |
| **October 2024** | Announcement deadline for tenders to submit bid, and distribution of bid documents to the steering committee for evaluation |
| **November 2024** | Tender evaluation by the steering committee, and contract with the bidder |
| **Spring 2025 (MEPC 83)** | MEPC 83 to review the interim report |
| **Autumn 2025 (Extraordinary MEPC) or MEPC 84** | Extraordinary MEPC or MEPC 84 to consider the Fifth IMO GHG Study with a view to approval |

**Action requested of the Committee**
The Committee is invited to consider the proposal on the initiation of the Fifth IMO GHG Study 2025 (2018-2023) and related work timeline, and take action as appropriate

**7/9 The elements to be considered following the adoption of 2023 IMO GHG Strategy** **Republic of Korea**

This document presents the correlation of the 2023 IMO GHG Strategy with the short- and mid-term measures on the reduction of GHG emissions from international shipping and the various aspects as to how the future GHG reduction measures should be developed to meet the levels of ambitions and indicative checkpoints for 2030.

In particular it is suggested that IMO:

.1 initiates the discussions on future EEDI framework to improve energy efficiency requirements for new ships, aligning then with the 2023 GHG Strategy and the LCA Guidelines;

.2 considers an indicative checkpoint for reducing total annual GHG emissions by 20% to 30% by 2030 to be included in the review of short-term measures for a 40% reduction in carbon intensity by 2030 and the subsequent determination of reduction rates from 2027 to 2030;

.3 establish a clear definition of zero or near-zero GHG emission technologies and fuels, and include the intermediate target for the uptake of 5% to 10% zero or

near-zero GHG emission technologies and fuels into technical elements of the mid-term measures, e.g. GHG Fuel Standard (GFS); and .

4 integrate the indicative checkpoints into MARPOL Annex VI and relevant guidelines with a view to providing a legal basis for reaching net-zero GHG emissions from international shipping and serving as indicators for assessing the reduction of GHG emissions in line with the 2030 and 2040 targets when developing the regulatory standard and the basket of mid-term GHG reduction measures, comprising technical elements and economic elements.

**Action requested of the Committee**
The Committee is invited to consider the information contained in this document, in particular the proposal in paragraph 25, and take action as appropriate.

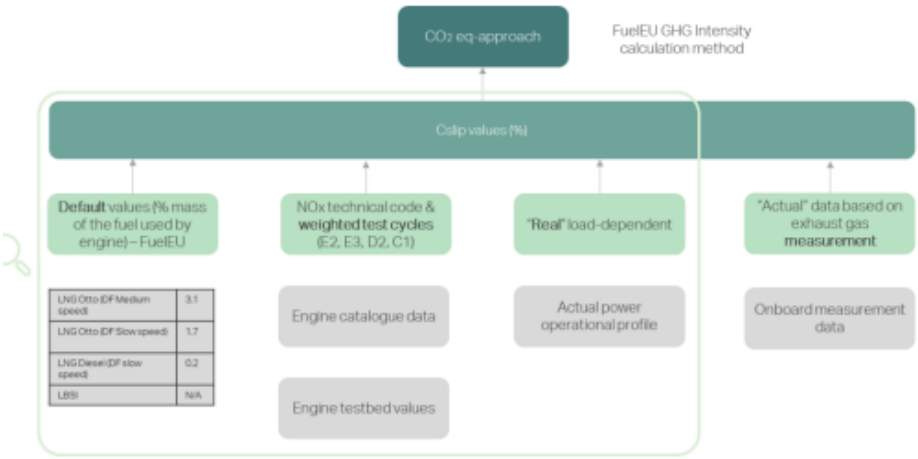
*ICS appreciates these proposals, but thinks that the current priority must be for the Committee to finalise regulatory text for those mid-term measures which urgently need to be approved by 2023.*

**7/10 Quantification of onboard methane slip RINA**

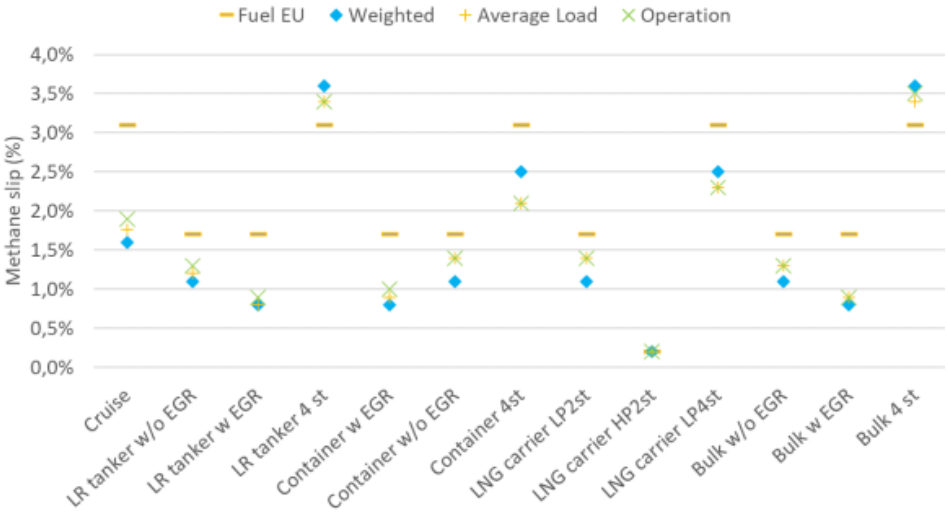
RINA presents possible methodologies to quantify methane slip from LNG-fuelled engines and at a ship level. The purpose is to describe the different methodologies and their accuracy in quantifying ship-level methane slip. This information can be used in the development of regulatory measures aimed at limiting methane emissions from shipping. The material presented in this document is based on a study carried out by the Mærsk Mc-Kinney Møller Centre for Zero Carbon Shipping (MMMCZCS) with a wide cross-section of industry stakeholders. RINA is a Knowledge Partner of the Centre.

As reported in document MEPC 81/INF.25, methane emissions simulations were performed based on actual operational profiles obtained from in-service data for a variety of ship types and engines. Engine methane slip profiles as a function of engine load were fixed for each engine type (two-stroke high pressure (HP), two-stroke low pressure (LP), and four stroke low pressure (LP)) for different ship types and sizes. The current document focuses on ways to quantify the onboard methane slip from engines. The fugitive emissions are not modelled.

Four different methane slip quantification methods were assessed: 1) default emission values, 2) test cycle approach - weighted average, 3) average load with actual methane slip profile, and 4) in-service operation emissions - online measurement. Figure below provides an overview of these methods:




The figure below shows the results of calculations of ship-level methane slip based on actual operational data of a typical ship corresponding to each segment using the four quantification methods:




RINA provides the following observations based on these results:

1. Methane emissions on a ship level can be estimated relatively accurately, provided that the engine operational profile and methane slip characteristics are known;

2. Estimates of methane slip based on the average load approach resulted in calculated emission levels similar to online measurement of actual slip during operation. This appears to apply for all shipping segments. Online measurements can in principle be used to ascertain methane emission levels during operation;

3. The weighted approach based on IMO test cycles seems to provide a relatively accurate estimate of methane slip, although the indicated slip is typically lower than the actual operational slip. It is likely that the situation might be improved by including lower load conditions (below 25% MCR) in the test cycle or by assigning a higher weighting value to lower load conditions;

4. The default emission values based on FuelEU Maritime provide a reasonably conservative estimate for the majority of cases considered.

RINA considers that in principle, it would be feasible to measure and document methane emissions as a part of the Engine International Air Pollution Prevention (EIAPP) certification scheme during factory testing and establish limiting regulatory values based on a weighted cycle, similar to the NOx Technical Code. Establishing a regulatory scheme on a ship level would incentivize engine design measures and operational procedures that mitigate methane slip. Measuring the relevant emission components during the EIAPP approval tests at specific test points would allow for a calculation of GHG emissions with relative accuracy based on either the engine operational profile or fuel consumption.

RINA considers that possible methods to quantify onboard methane slip can be part of a regulatory scheme and that in view of the 2023 IMO GHG strategy and LCA Guidelines agreed on at MEPC 80, onboard methane slip is likely to be part of a future GHG Fuel Standard.

**Action requested of the Committee**
The Committee is invited to consider the information in this document, especially the recommendation in paragraph 11 of the document, and take action as appropriate.

**7/11 Comments on document MEPC 81/7/4 Austria et.al**

Austria et.al. provide the following comments on document MEPC 81/7/4, providing the final report of the Correspondence Group on the Further Development of the LCA Framework established by MEPC 80 and highlight the importance of ensuring continuation of further technical discussion and work towards the identification of relevant methodologies for verification and certification of actual methane and nitrous oxide tank-to-wake emission factors.

For TtW actual emission factors of CfCH4 and CfN2O, as well as for Cslip, it is important to take into consideration the relevance of a verification and certification methodology which incentivizes the development of improved energy conversion technologies, with lower TtW or slippage GHG emission footprint. Such a possibility will promote innovation and create a favourable framework for continuous development of energy conversion technologies;

Notwithstanding the need to cover all energy conversion technologies, the pressing need refers immediately to internal combustion engines, remarkably dual-fuel/gas engines operating already today with methane and, in the very near future, also with ammonia as fuel;

Different methodologies for verification and certification exist which could be considered for the purpose of demonstrating actual TtW emissions of methane (CH4) and nitrous oxide (N2O) from engines, including test bed and onboard certification, with the last option possible through different approaches, including test cycle, continuous monitoring or even engine load distribution. Irrespective of

the approach, as a guiding principle, any certification procedure should provide reasonable assurance that the engine on average emits less than the default values for TtW emission factors;

The use of the NOx Technical Code 2008 (NTC 2008) for both test bed certification approach (chapter 5 of the NTC 2008) and onboard verification (chapter 6 of the NTC 2008) may be considered as a possible starting point, along with the use of onboard certification and verification, through test-cycle, continuous monitoring or engine load distribution, for the discussion and development of further work for the specific objective of measurement of CH4 and N2O emissions; and

The use of onboard certification and verification, through test-cycle, continuous monitoring or engine load distribution, is also a possibility that can be considered for the demonstration of actual CH4 and N2O emission factors.

On the basis of the above considerations, the co-sponsors propose that the specific work on the development of a methodology for verification and certification of actual CH4 and N2O emission factors and Cslip values be given priority for the continuation of the work on the LCA Guidelines, in a possible inter-sessional work continuation, following MEPC 81. Such continuation of the work should enable to further add to resolution MEPC.376(80), as adopted, with the relevant methodology and reference protocols to be followed for demonstration of actual CH4 and N2O emission factors.

To further support the work ahead, the co-sponsors refer to accompanying document MEPC 81/INF.8 containing identification of different methodologies that may be considered as a starting point. In addition, the co-sponsors propose indicative terms of reference for intersessional continuation, as set out in the annex to this document.

**Action requested of the Committee**
The Committee is invited to consider the proposal in paragraphs 13 to 15 of this document and take action, as appropriate.

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| **7/12** | **Addressing impacts to Indigenous cultural heritage within the IMO commitment to a just and equitable transition, as well as throughout the Committee's mandate** | **ICC** |

This document identifies that a just and equitable transition must include measures to recognize and address impacts on the cultural heritage of Indigenous Peoples, and urges the Committee to explore how it can support the protection and revitalization of Indigenous cultural heritage with respect to all issues within its mandate, including response and liability for marine spill incidents.

**Action requested of the Committee**
The Committee is invited to consider the comments provided in this document and take action, as appropriate.

*This submission can simply be noted.*

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| **7/13** | **Comments on the report of the Correspondence Group on the Further Development of the LCA Framework** | **Norway, RINA and WSC** |

Norway et.al. provide comments on the report of the Correspondence Group on the Further Development of the LCA Framework and raises a number of issues requiring further consideration and policy decisions by the Committee.

Based on these considerations the co-sponsors propose that the Committee should:

agree that where the Committee identifies a need for engine testing and certification to address emissions, including abatement systems and measurement standards, this should be addressed via mandatory instruments, though interim guidelines could be used as a first step to expedite work and gain experience;

expedite work on a regulatory framework for the use of onboard CCS in line with document MEPC 80/7/7, including approval of CCS systems, chain of custody and control of the captured carbon, and associated measurement standards;

integrate engine testing and certification, and metrology standards, for methane and nitrous oxide emissions with existing work on the NTC, and consider whether the NTC should evolve to become an engine emission certification code;

consider the need to develop requirements for control of emissions of methane and nitrous oxide from ships; and

utilize the ISO 8178 series when developing requirements for methane and nitrous oxide but develop detailed IMO requirements rather than referencing the ISO standards. This will allow the Organization to incorporate any amendments deemed necessary to maintain control over its own standards. This was the approach used to develop the NTC.

The co-sponsors propose that the Working Group on Air Pollution and Energy Efficiency of MEPC (and Working Group on Prevention of Air Pollution from Ships of the PPR Sub-Committee, as appropriate) be tasked to consider how a framework for the measurement of emissions of methane, nitrous oxide and other GHGs along with associated engine certification issues identified in paragraph 12 could be developed. The co-sponsors note that such GHG emission measurements are necessary to establish LCA values, and suggest that in parallel, the Intersessional Working Group on Reduction of GHG Emissions from Ships or the proposed expert group on LCA matters could consider non-metrology elements that are relevant for the establishment of the relevant LCA values.

Recognizing the urgency of operationalizing the LCA Guidelines, it may be necessary to agree interim guidelines whilst the work outlined in the above paragraph is undertaken. Such interim guidelines would be without prejudice to

future instruments and the work of the air pollution Working Group. Noting that some ships may make significant investments in monitoring equipment and processes under this provision, the Committee should consider grandfathering rights in case mandatory instruments are developed.

**Action requested of the Committee**

The Committee is invited to consider the information provided in this document, in particular the proposals set out in paragraphs 12 to 14, and take action as appropriate.

**7/14 Comments on document MEPC 81/7/4 (report of the Correspondence Group on the Further Development of the LCA Framework)** **EUROMOT**

EUROMOT provides the following comments on document MEPC 81/7/4 (Brazil et al.), providing the report of the Correspondence Group on the Further Development of the LCA Framework established by MEPC 80.

To advance the methodology of the LCA Guidelines for the quantification of TtW CH4 and N2O actual emission factors, a pragmatic and robust certification procedure should be established based on the existing NOx certification framework (NTC 2008);

The NTC 2008, could be amended by additional measurement methods and equipment for CH4 and N2O from ISO 8178. Alternatively, a stand-alone technical procedure could be developed, based on the NTC 2008 and including relevant elements from ISO 8178, regarding measurement methods and equipment for CH4 and N2O. In light of this, EUROMOT proposes to further develop procedures for test cycle certification based on NTC 2008, integrating relevant parts of ISO 8178;

This approach has the following advantages:

.1 work amending NTC 2008, or using NTC 2008 as a basis, integrating relevant elements from ISO 8178 regarding measurement for CH4 and N2O, would be a limited task meaning that procedures could be operationalized at relatively short notice;

.2 certification of CH4 and N2O could be done in parallel with the NOx certification, which would come with the same accuracy and replicability and would limit costs and burden;

.3 test bed testing enables accurate control of the engine-related parameters necessary to calculate specific emissions;

.4 it would provide certainty as the emission factors can be derived immediately without developing any other more complex procedures;

.5 existing data could be used retroactively, since emission data for CH4 and N2O have already been collected by many engine manufacturers following these procedures during witnessed parent engine emission testing; and

.6 when applying the NTC 2008 procedures, onboard measurements of NOx emissions correlate well with the test bed results.

Both the alternatives for certification of actual emission factors described in document MEPC 81/INF.8, namely continuous emission monitoring and engine load distribution would increase the burden of certification compared to the test cycle approach. Further, several open questions remain for both alternatives, and further work is needed before they could be operationalized;

The concerns expressed in document MEPC 81/INF.8, regarding the representativeness of the existing test cycles and weighting factors are acknowledged. In this regard, it is noted that, when establishing the NTC 2008, the Organization included main elements of ISO 8178, which represents a compiled development of steady state test cycles used for defining emission standards for various applications of non-road engines in the European Union, United States, Japan and other countries worldwide. Thus, the engine test cycles in the NTC 2008 are aligned with well-established procedures and emission limits around the world;

Absolute emissions (g/nautical mile) of an engine being operated in low load is small, despite looking at the specific emissions in g/kWh. The reason for this is simple: when the engine load decreases towards zero, the specific emission value in g/kWh actually increases to infinity. However, the absolute emission in g/h or g/nautical mile does not, since the power respective exhaust gas mass flow is reduced accordingly;

EUROMOT is, however, open to consider a review of the existing test cycles and weighting factors to clarify if there is a need for a revision;

It is proposed to account for aftertreatment systems by considering aftertreatment systems converting/oxidizing CH4 (CH4 reducing devices) as a part of the engine/energy converter in the certification of TtW actual emission factors, similar to NOx reducing devices in the engine's NOx certification process;

It is not clear what would qualify as a "representative study" in the case of TtW emission factors for Cslip, CfCH4 and CfN2O. New reference values for further TtW default emission factors must be thoroughly documented and carefully scrutinized and, consequently, should not be based on single measurements. Otherwise, there is a risk of setting the default emission factors for a certain fuel too high as 9.3 prescribes that "the upper emission value should be selected as default". Further, EUROMOT recommends to base the collection of TtW emission data for representative studies on the test cycle approach, as described above; and

plume measurements cannot replace test bed and/or onboard measurements according to established standards (e.g. ISO 8178) as a basis for the establishment of default emission factors.

**Action requested of the Committee**

The Committee is invited to consider the comments and proposals in this document, and take action, as appropriate.

**7/15 Comments on document MEPC 81/7/4**

**Australia, Belgium, Brazil, Canada, Denmark, France, Germany, Greece, Irelend, Japan, Netherlands, Norway, Switzerland, United States, ICS, OCIMF, INTERTANKO, INTERCARGO, IPIECA, RINA, IBIA, WSC, Pacific Environment, SGMF, IWSA, EDF and ZESTAs**

Australia et.al. provide comments on document MEPC 81/7/4, providing the final report of the Correspondence Group on the Further Development of the LCA Framework, established by MEPC 80 and proposes the establishment of an expert group on LCA matters of a technical nature, including information and possible ways forward regarding its composition, operating rules, funding and work programme.

This document reiterates the need to establish an expert group on the LCA Guidelines and provides information and possible ways forward regarding its composition, operating rules, funding options and work programme. It should be noted that this framework will support the implementation of the midterm measures, and therefore it should be operationalized promptly.

The co-sponsors of this document note that in accordance with part V (review) of the LCA Guidelines, in order to consider and reflect the technological developments as well as the progress in scientific knowledge, certain elements of

the LCA Guidelines should be subject to further refinement and review. These elements include the identification of default emission factors and continuous scientific review thereof, the development of procedures and criteria to recognize certification, guidance for third-party verification, as well as other elements. The above-mentioned identified elements require continuity, and this process goes beyond the dedicated work of the CGs and the IMO expert workshop. For the establishment of an expert group to further develop the LCA Guidelines, knowledge and experience should not be limited to that available from the previous CGs: experience gained also in other sectors could be considered and used to the extent possible to exploit synergies, building on lessons learned, avoiding duplications but also critically reviewing the outcomes. A suitable reference from the aviation sector is that of the Alternative Fuel Task Force later converted into the Fuel Task Group (FTG) and the Working Group 4 (WG4) of the Committee on Aviation Environmental Protection (CAEP) at ICAO, a committee similar to MEPC.

Based on the above considerations, the co-sponsors propose the establishment of an expert group on marine fuels life cycle assessment by MEPC 81, tasked to progress on the identification of default emission factors for the existing fuel pathways, further consider sustainability and its certification, specific methodological issues that are relevant for measuring actual emission factors, further refine methodological elements (e.g. el, esca, eccs, eoccs, eccu), catering for new technologies in the LCA guidelines, and provide guidance to certification and verification, building on the outcomes of GHG-EW 4. The expert group should report to the Committee and its technical and scientific recommendations may be first considered by ISWG-GHG.

The co-sponsors recommend establishing a LCA group under or in a similar operational mode as GESAMP. Given the international nature of the Organization, the activities of the expert group will be coordinated by nominated experts of IMO Member States, considering that the group's composition and coordination should be geographically balanced, appropriately represented by developed and developing countries, including small island developing States (SIDS) and least developed countries (LDCs). Nominated members should sign a declaration of no conflict of interest and a confidentiality agreement before each session.

To support the costs associated to the meetings, including the participation of experts from developing States, it is proposed to follow the same approach as the GESAMP task team to assess the available evidence relating to the environmental impact of discharges of exhaust gas cleaning systems effluent, established by MEPC 74, funded on a voluntary basis by Member States and stakeholders.

The basis of the work programme for the expert group should be agreed by the Committee and would include a list of tasks and deliverables. The expert group would be responsible to define its own internal functioning rules, to attribute tasks, to identify and flag possible gaps in available expertise. The group may recommend that the Committee includes additional tasks to its work programme based on technical and scientific considerations. An indicative proposed work programme for the first cycle of the expert group could include the following tasks that have been identified in the course of the previous CGs:

.1 scientific review of the core LCA methodology;

.2 scientific review of the WtT GHG default emission factors of fuel production pathways and technologies;

.3 scientific review of the TtW GHG default emission factors of fuel usage and onboard technologies;

.4 establishment of procedures for fuels certification schemes;

.5 establishment and review of procedures to certify TtW actual values;

.6 scientific review of the Fuel Lifecycle Label;

.7 ILUC risk classification;

.8 integrity of emission reporting;

.9 sustainability themes/aspects review, including the social and economic dimensions of sustainability; and

.10 sample calculations and/or validation methods on LCA and DLUC.

**Action requested of the Committee**
The Committee is invited to consider the proposal contained in this document and take action, as appropriate.

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| **7/16** | **Comments on document MEPC 81/7/4 - Proposal on amendments to the formula for emission credit from carbon capture and storage on board (eoccs) in the LCA Guidelines** | **China** |

China provides a proposal on amendments to the formula for emission credit from carbon capture and storage on board (eoccs) in the Guidelines on life cycle GHG intensity of marine fuels (LCA guidelines) (resolution MEPC.376(80)) by removing ecc, et, and est from the formula.

In the calculation equation of TtW GHG emission factors in the LCA Guidelines, the emission credit from CCS on board (eoccs) has been considered as a deduction item and all the emissions resulting from the process of capturing (ecc), and transporting (et) the CO2 up to the final storage (including the emissions related to the injection, etc.) need to be deducted. The formula is $eoccs = cSC - ecc - et - est - ex$, where csc is the credit from the CO2 captured and stored, ecc is the emissions associated with the process of capturing, compressing and temporarily storing the CO2 on board, et, est and ex are respectively the emissions produced when CO2 is transported to storage locations, stored and other potential emissions.

In the calculation equation of WtT GHG emission factors in the LCA Guidelines, the emission credit from carbon capture and storage has also been considered. The calculation formula is $eccs = cSC - ecc - et - est - ex$. It can be seen that the carbon capture and storage emission factors on board eoccs in the TtW adopt a calculation method similar to WtT.

China considers that the boundaries of CCS on board may not necessarily be identical with those on land. As it is not practical for a ship to trace the GHG emissions associated with transport to a storage site and the long-term storage, the boundary for eoccs should be limited on board. As long as the captured CO2 are delivered to a reception facility, the accounting of the GHG emissions should come to the end. The reception facilities may be certified to ensure that the captured CO2 will be duly handled. Therefore, the et and est should not be considered in the eoccs formula.

It is appropriate to take into account ecc in the WtT eccs formula, because the energy consumption of CCS system is from outside the fuel production system. When considering emissions credits from CCS on board, the situation is different from that of fuel production, as the energy consumption of onboard CCS system is generated by the combustion of the fuel itself, not from the energy imported from outside the ship, and the corresponding emissions are already included in the total emissions of the fuel, so ecc should not be considered. If ecc is considered at this time, there will be a problem of double counting emissions, and an error will occur when calculating the WtW GHG intensity actual value of the fuel. A calculation example is provided in annex 1 to this document.

China also considers that Similar situations also apply to methane slip aftertreatment systems, where the emissions associated with energy consumption of the system itself do not need to be considered when calculating the emission credit of the systems.

Based on the above discussion, the eoccs formula is proposed to be revised as follows:

.1 delete the two items et and est to limit the boundary for eoccs on board; and

.2 delete the item ecc to avoid double counting emissions and calculate fuel GHG intensity correctly.

Specific amendments to the eoccs formula are given in the draft amendments to resolution MEPC.376(80), in annex 2 to this document for the consideration of the Committee.

**Action requested of the Committee**
The Committee is invited to consider the proposals contained in paragraphs 8 and 9 of the document, and take action, as appropriate.

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| **7/17** | **Comments on document MEPC 81/7/4 - Proposal on the inclusion of aftertreatment systems emission** | **China** |

**factor in emission factors equations of the LCA Guidelines**

China comments on the report of the Correspondence Group on the Further Development of the LCA Framework and outlines the need to add an independent aftertreatment systems emission factor to the LCA Guidelines TtW equation.

The following considerations are provided:

- For LNG dual-fuel engines, methane slip from combustion chamber or crankcase is unavoidable. To address methane slip emissions, the LCA Guidelines adopt the Cslip factor, which is defined as a factor accounting for fuel that escapes from the energy converter without being oxidized, including fuel that escapes from combustion chamber/oxidation process and from crankcase. In other words, the Cslip factor is to address the fuel that escapes from combustion chamber or crankcase rather than the fuel from the exhaust pipe into the atmosphere;

- Methane slip from combustion chamber can be reduced by primary (in-engine) measures related to engine design and operation or secondary measures through exhaust gas aftertreatment. Methane slip aftertreatment systems are designed to remove CH4 from the exhaust gas by downstream cleaning technique. An example of an LNG dual-fuel engine CH4 slip and aftertreatment system is illustrated below:


- There are two main methane slip aftertreatment solutions: methane oxidation catalysts (MOC, applicable only to four-stroke engines) and plasma reduction technology . MOC can oxidize methane escaping from engines to carbon dioxide and water using a precious (noble) metal-coated catalyst. Plasma reduction system consists of a catalyst and absorbent-free aftertreatment technology that utilizes electric power to convert methane to carbon monoxide and water. These two kinds of technology are now in the developmental stage and the first pilot installations on board have started to be tested;

- In view of methane slip aftertreatment systems working principle, a general approach to properly account for the balance of emissions from the installation of these systems was suggested by the coordinators of the CG and supported by the majority of the CG members. The following method is proposed by the coordinators of the CG: the reduction of CH4 emissions from

conversion/oxidation of methane; the increase of CO2 emissions from conversion/oxidation of methane; the increase of emissions due to energy consumption from the aftertreatment system; and the possible emissions of N2O;

- It can be concluded that the reduction of emissions from methane slip aftertreatment systems cannot be regarded as a part of the Cslip factor in terms of conceptual definition or accounting method.

China suggests that a new emission factor $eafterteatment$ be added to the TtW GHG emission factors equation (2) in the LCA Guidelines as a deduction item [$eafterteatment$]. The factor $eaftertreatment$ is the emission credit from the aftertreatment system, in gCO2eq/g fuel.

It is proposed that the emission balance of aftertreatment systems should not consider the increase of emissions due to energy consumption from the systems. $eafterteatment$ should be calculated according to the following formula:

$$eaftertreatment = er - eothers$$

where, $er$ is the reduction of CH4 or N2O emissions from aftertreatment systems, in gCO2eq/g fuel; $eothers$ is the other increase of GHG emissions due to conversion/oxidation of CH4 or N2O, in gCO2eq/g fuel. For CH4 aftertreatment systems, the formula is as follows:

$$eCH4\_aftertreatment = CCH4\_r \times GWPCH4 - CCO2\_in$$

where, $CCH4\_r$ is the reduction of CH4 by aftertreatment systems, in gCH4 /g fuel; $GWPCH4$ is Global Warming Potential of CH4 over 100 years, in gCO2eq/g CH4; $CCO2\_in$ is the increase of CO2 emissions, in gCO2 /g fuel.

Considering that ammonia fuel engines may adopt N2O aftertreatment systems in the future, the proposed aftertreatment emission factor is applicable for all possible aftertreatment systems, not just for methane slip aftertreatment system, so $eaftertreatment$ is used to make the formula more concise.

In order to determine the emissions factors $er$ and $eothers$ , China considers that the measurement procedures need to be further developed to clarify whether shop tests, on-board measurements or continuous monitoring methods are used, and which kind of test cycle is used. In any case, the emission factor $eaftertreatment$ should be specifically certified, since the emission credit from aftertreatment systems depends on the operating time and work efficiency.

Specific amendments to the LCA Guidelines (resolution MEPC.376(80)) to add $eaftertreatment$ to TtW equation are provided in the annex to this document.

**Action requested of the Committee**

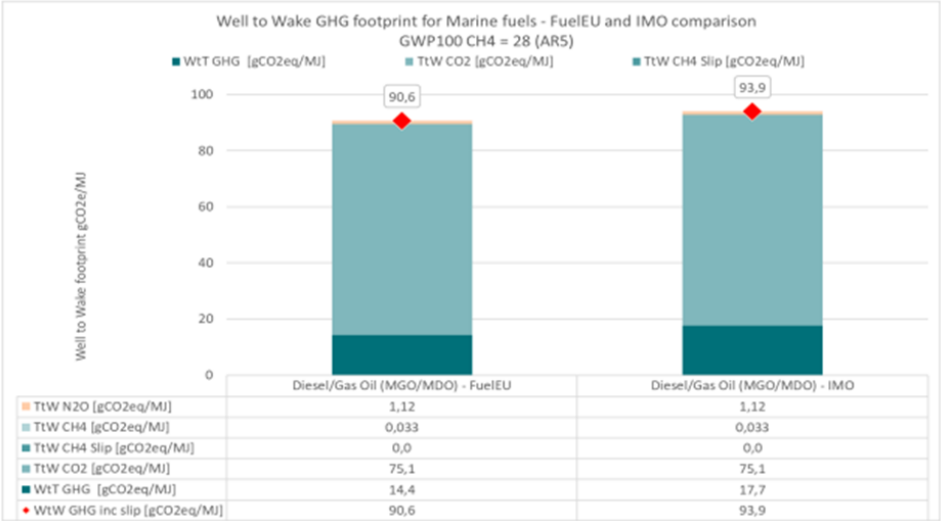
The Committee is invited to consider the proposals in paragraphs 11 to 15 of the document and to take action, as appropriate

**7/18 Comments on document MEPC 81/7/4 Norway**

Norway provides comments on the report of the Correspondence Group on the Further Development of the LCA Framework (MEPC 81/7/4) and proposes that, when developing default emission factors for fossil fuels, it should be taken into account that the actual WtW values for fossil fuels cannot be certified in the current LCA framework.

According to paragraph 10.4 in the LCA Guidelines, "the use of actual WtT emission factors is not applicable to purely fossil pathways". In other words, only default emission factors can be used for fossil fuels. According to paragraphs 9.2 and 9.3 of the LCA guidelines, WtT default emissions factors should be calculated using representative and conservative assumptions, and at least three reference values should be considered, and the upper emission value should be selected as the default emission factor. The interpretation of the CG coordinators was that "three reference values from three different, representative sources" means three different LCA models. Default emissions factors will thus be higher than the average emissions of the fuel pathways they are used for. This encourages the certification of actual values and prevents fuel producers from choosing to use default emission factors because they are lower than the fuel's real emissions. However, as fossil fuels can only use default emission factors and not actual values, the emission factors used for fossil fuels will almost always be higher than the real emissions of the fuel.

Norway considers that since it is not possible to certify actual values for fossil fuels, the reasons behind the principle for selecting higher than average default emissions factors do not apply to these fuels. It can therefore be argued that the default emission factors for fossil fuels should be selected based on the average emissions of the fuel pathway, and not on the upper emission values. The figure below shows a comparison of the current initial default emission factors of the fuel type MGO/MDO (fuel pathway #5 as presented in appendix 2 to the LCA Guidelines), and the default emission factor for MDO/MGO used in FuelEU (regulation (EU) 2023/1805). Norway notes that the default emission factor of MGO/MDO is higher in the LCA Guidelines than in FuelEU.




As set out in the 2023 IMO GHG Strategy (resolution MEPC.377(80)), a goal-based marine fuel standard regulating the phased reduction of the marine fuel's GHG intensity will be part of the basket of candidate mid-term GHG reduction measures. Norway notes that if the marine fuel standard uses the WtW default emission factor of MGO/MDO as a reference value, and the required GHG intensity of the fuel standard in 2030 is set as e.g. 6% of the default emission factor of MGO/MDO, the required GHG intensity would be 85.2 gCO2eq/MJ if using the Fuel EU default value for MGO/MDO and 88.3 gCO2eq/MJ if using the initial default emission factor of MGO/MDO in the LCA Guidelines. A lower default value for MGO/MDO would thus lead to a lower emission limit.

Norway therefore proposes that the default emission factors for fossil fuels should be based on the average of the reference values considered, and to amend the text in resolution MEPC.376(80) accordingly.

**Action requested of the Committee**
The Committee is invited to consider the proposal contained in this document, and to take action, as appropriate.

## 7/19 Possible draft amendments to MARPOL Annex VI to establish a Fund and Reward (Feebate) mechanism as a maritime GHG emissions pricing mechanism. — ICS

As approval of a maritime GHG emissions pricing mechanism will be required at MEPC 83, ICS says it is imperative that the Committee tasks ISWG-GHG 17 to commence detailed work on the development of the text of the necessary amendments to MARPOL Annex VI for submission to MEPC 82. ICS has co-sponsored document ISWG-GHG 16/2/3 (Bahamas et al.), setting out further details of a Fund and Reward (Feebate) mechanism, establishing a Zero Emission Shipping Fund (ZESF), and setting out a package of possible draft amendments to MARPOL Annex VI to inform a decision at MEPC 81 about measures to be finalized and to expedite their approval.

**Action requested of the Committee**
The Committee is requested to consider the proposals set out in this document, in particular in paragraph 14, and to take action, as appropriate.

*The paper is a summary of the submission made to ISWG-GHG 16, so that the Committee is aware of the ZESF proposal and the urgent need for IMO to make progress on drafting regulatory text that can be approved at MEPC 83*.

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| **7/20** | **Comments on document MEPC 81/7/4 related to Cslip for low-pressure dual-fuel (LPDF) 4-stroke engines based on the results of the Fugitive and Unburned Methane Emissions from ships (FUMES) project** | **WWF, Pacific Environment and CSC** |

WWF et.al. provide comments on document MEPC 81/7/4, providing the report of the Correspondence Group on the Further Development of the LCA Framework, and summarizes the key findings of the Fugitive and Unburned Methane Emissions from Ships (FUMES) project, a collaboration between the International Council on Clean Transportation (ICCT), Explicit ApS, and the Netherlands Organization for Applied Scientific Research (TNO). Based on the results of the FUMES study, the co-sponsors propose that the Committee agree to a default Cslip value of at least 6% for LPDF 4-stroke engines under the LCA Guidelines.

Under the FUMES project , researchers conducted three measurement campaigns (plume, onboard, and fugitive) to assess real-world methane emissions from LNG-fuelled ships. For the plume campaign, the team used drones and helicopters to measure 45 plumes from 34 unique ships operating near the coasts of Netherlands (Kingdom of the), Denmark, Belgium, and Australia in 2022. During the onboard campaign, researchers measured methane from an LNG-fuelled ferry, operating between Finland and Sweden, in spring 2023. During the fugitive campaign, researchers used a novel approach to quantify the rate of methane emissions from the LNG cargo unloading operations of three LNG tankers at a European LNG terminal in September 2022.

The following key results are presented:

Methane slip from 22 measurements of 18 unique ships that exclusively used LPDF 4-stroke engines2 (L4 ships) averaged 6.42% with a median of 6.05%. For six measurements at or above 50% combined main engine load , the average was 6.07% and the median was 6.59%. Methane slip was greater than the EU assumption of 3.1% in 77% of the measurements, which is meant to represent methane slip at 50% engine load. These same 77% of measurements were also greater than the Fourth IMO GHG Study assumption of 3.5% methane slip, which is meant to represent emissions on the E2/E3 test cycle;

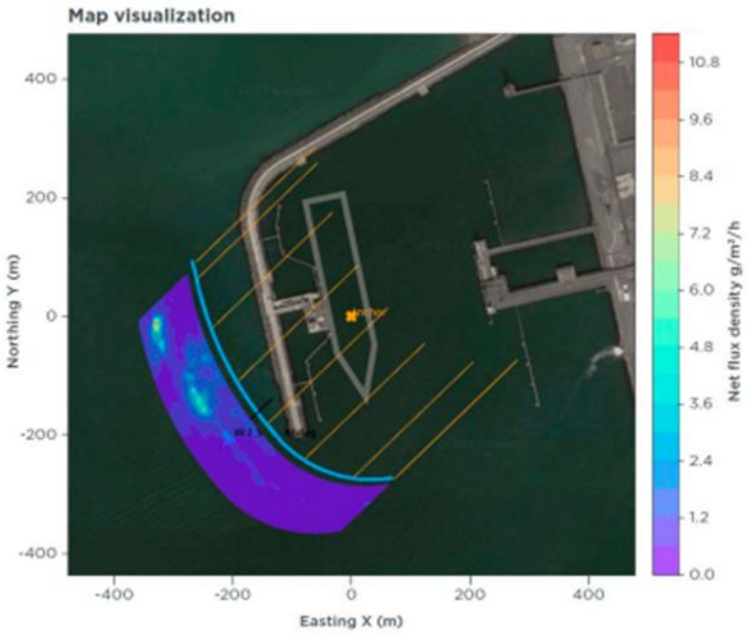
Ships with LPDF 2-stroke main engines and LPDF 4-stroke auxiliary engines (L2L4) emitted the lowest ship-level methane slip. L2L4 ships emitted an average of 2.50% methane slip across all engine loads and 1.58% when operating at above

10% main engine load;

Below 10% main engine load, the LPDF 2-stroke main engines were likely switched to diesel mode, leaving only the LPDF 4-stroke auxiliary engines as the source of methane slip. For the L2L4 ships, the researchers found that LPDF 4-stroke auxiliary engine LNG consumption was significantly correlated with methane slip (p = 0.017): for every 10-percentage point increase in LPDF 4-stroke auxiliary engine consumption, ship-level methane slip increased by 0.5 percentage points;

The researchers could not say whether the EU or the Organization methane slip values for LPDF 2-stroke or high-pressure dual-fuel (HPDF) 2-stroke engines were reasonable because they were not able to isolate the methane slip from these engines without interference from methane slip from LPDF 4-stroke auxiliary engines; and

The researchers found that LNG cargo unloading operations can release 11 to 21 kilograms of methane per hour (kg/h) for a small, 10,000 cubic meter (m3 ) capacity LNG tanker that uses conventional diesel engines (i.e. does not use LNG as a fuel). The unloading operations of large 162,000 to 174,000 m3 capacity LNG tankers that use LPDF 4-stroke engines can result in fugitive methane emissions between 24 to 40 kg/h, including approximately 8 kg/h of methane slip from the engines. The figure below shows an example, where the hotspot on the left was determined to most likely be methane slip from the ship's LPDF 4- stroke engines, whereas the other areas show methane leaks associated with LNG cargo unloading operations. While the amount of methane released as a percentage of cargo unloaded is small, the methane emissions rates (kg/h) from unloading operations were estimated to be greater than the emissions rates from the LPDF 4-stroke engines used by the large LNG tankers.




Based on the results of the FUMES study, the co-sponsors propose that the Committee agree to a default methane slip (Cslip) value for Dual Fuel, 4-stroke,

Medium Speed, Low Pressure/Otto Cycle (LPMSDF 4-s Otto) engines of at least 6%. This is based on the finding that the average and median methane slip for these engines was greater than 6%, even for measurements at higher combined main engine loads. Shipowners will have the opportunity to certify engines to lower-than-default values under the procedures that will be established in the LCA Guidelines.

**Action requested of the Committee**
The Committee is invited to consider the proposal in paragraph 12 of the document, to review the study referenced in the document, and to take action, as appropriate.

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| **7/21** | **Comments on documents MEPC 81/7 and MEPC 81/7/8** | **Canada, United Kingdom and United States** |

This document comments on document MEPC 81/7 (Secretariat) on the comprehensive impact assessment of the basket of candidate mid-term measures and document MEPC 81/7/8 (Australia and Republic of Korea) on the initiation of the Fifth IMO GHG Study.

The co-sponsors do not consider that the Fifth IMO GHG Study needs to be completed ahead of the adoption of mid-term measure(s) in 2025. However, the co-sponsors consider that the Fifth IMO GHG Study should be completed in advance of the initiation of the review of the 2023 IMO GHG Strategy at MEPC 86 in summer 2027. The co-sponsors therefore propose that the final report on the Fifth IMO GHG Study be submitted to MEPC 85 in autumn 2026.

**Action requested of the Committee**
The Committee is invited to consider the proposals set out in this document and take action, as appropriate.

*ICS broadly agrees with the co-sponsors, but also thinks it is premature to consider the scope of the next study, including the possibility of looking at the sector's WTW emissions, until after the package of mid-term measures has been adopted.*

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| **7/INF.5** | **Commercial readiness of absolute zero GHG technologies** | **ZESTAs** |

This document presents in detail the commercial and technical readiness of absolute zero GHG technologies which have been built and validated in a marine operational environment. Several case studies are provided.

**Action requested of the Committee**
The Committee is invited to note the information in this document, especially the Technology Readiness Levels (TRLs) and Commercial Readiness Levels (CRLs) of the absolute zero GHG technologies, in the development of the mid-term measures.

**7/INF.8 Possible options for certification of energy converters for actual tank-to-wake methane and nitrous oxide emission factors and actual Cslip values** — **Austria et.al**

This document provides an overview of potential options for certification of Tank-to-Wake (TtW) CH4 and N2O emissions and Cslip from engines/energy converters, inclusive of any aftertreatment technology. Furthermore, this document describes the benefits and drawbacks of different approaches.

**Action requested of the Committee**
The Committee is invited to note the information in the annex of this document, in support of and as a complement to document MEPC 81/7/4, and to include it as part of the documents to assist in the continuation of the work by the CG on the further development of the LCA framework.

**7/INF.10 Outcome of the United Nations Climate Change Conference held in Dubai, United Arab Emirates, in November and December 2023 (COP 28)** — **Secretariat**

This document reports on the outcome of the United Nations Climate Change conference held in Dubai, United Arab Emirates, in November and December 2023 (COP 28).

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

**7/INF.11 Report of the Ad-Hoc Expert Workshop on the Life Cycle GHG Intensity of Marine Fuels (GHG-EW 4)** — **Secretariat**

This document provides a report of the Ad-Hoc Expert Workshop on the Life Cycle GHG Intensity of Marine Fuels (GHG-EW 4), organized by the Secretariat on 14 and 15 December 2023 following the request of MEPC 80.

**Action requested of the Committee**
The Committee is invited to note the information set out in this document.

**7/INF.17 Onboard carbon capture** **Liberia**

This document contains a case study of an onboard carbon capture system (OCCS) applied to a 3,200 TEU containership for pilot trials. The sponsor's goal is to provide the Committee with a recent example of a successful pilot of an onboard carbon capture system to demonstrate that this new category of marine decarbonization technology is already viable for use on board ships.

The system described has been developed by Seabound. The system captures the $CO_2$ in the flue gas of the ship and avoids up to 95% of $CO_2$ emissions into the atmosphere. It uses a unique, second-generation type of carbon capture technology called calcium looping. A stream of calcium oxide pebbles is continuously fed into the device through a pneumatic conveying system. The calcium oxide (CaO) reacts with $CO_2$ from the exhaust, forming calcium carbonate ($CaCO_3$).

The system is compact. It can be retrofitted onto existing ships or designed for new builds. The spent calcium carbonate is stored on board in a standard shipping container.

Calcium carbonate is a widely used resource in the construction industry. It is a core input into concrete, lime mortar, and glass, among other applications. The calcium carbonate from Seabound's process can be sold as an aggregate for these purposes. Alternatively the carbonation process can be reversed through calcination. Specifically, the calcium carbonate can be fed into a calciner, heated by renewable energy, and then separated into gaseous $CO_2$ and calcium oxide. The calcium oxide can be recycled to capture more $CO_2$ onboard another vessel, and the pure $CO_2$ can be sold for alternative fuel production such as for methanol , or geologically sequestered permanently.

One of Seabound's prototype devices was installed and tested onboard the MV Sounion Trader (IMO 9243198), a medium-sized container ship with 40,146 gross tonnage and a capacity of handling 3200+ containers.

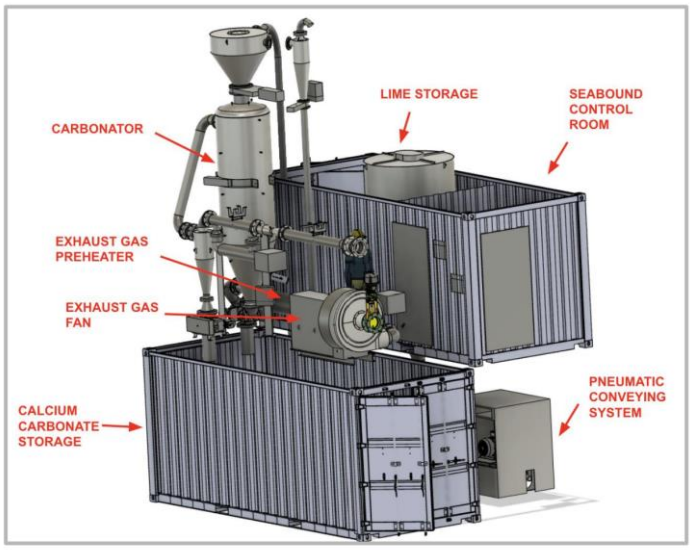


**Diagram 2: Seabound Pilot 1 System**

For the first pilot, approximately 16 tonnes of calcium oxide was exposed to and reacted with CO2 from the ship's exhaust, resulting in calcium carbonate in pebble form. The pebbles were stored on board in a standard 20 foot container.

Electricity consumption on board for a full commercial system is estimated to be about 7.33 kWh per metric ton of CO2 captured, most of which is used for the solid conveying equipment. As an example, a 50 ton of CO2/day onboard carbon capture system would require ~15kW of power.

The sponsors recommend that the Organization encourage and support the adoption of onboard carbon capture technologies as a critical component of the maritime industry's path to reduced GHG emissions, such as by including carbon capture in the EEDI, EEXI and CII regulatory framework as proposed in document MEPC 80/7/7 (China et al.).

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

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| **7/INF.20** | **Comments provided on the Correspondence Group on the Further Development of the LCA Framework** | **Brazil, Japan and EC** |

This document provides the comments provided to the Correspondence Group on the Further Development of the LCA Framework, established by MEPC 80, on consultation rounds 1, 2, 3 and 4.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

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| **7/INF.23** | **Recommendations for the safe implementation of Onshore Power Supply for tankers and terminals** | **OCIMF and INTERTANKO** |

This document informs the Committee of the work progressed by an OCIMF workgroup, composed of industry experts from organizations representing standardization bodies, tanker owners, tanker operators, charterers, ports and terminals, and classification societies, to develop guidance for the safe application of Onshore Power Supply (OPS) alongside the berth for tankers, the terminal, and their interface.

**Action requested by the Committee**
The Committee is invited to take note of the interim findings of the workgroup, provided in paragraphs 3 to 9, and, with reference to MEPC.366(79).

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| **7/INF.25** | **Possible pathways to methane slip reduction** | **RINA** |

This document presents modelling of projected methane emissions from the use of LNG as a marine fuel towards 2050, based on pertinent assumptions on LNG

uptake across different shipping segments, ship operation, methane slip, and after-treatment technology options. The document assesses the impact of various methane slip reduction measures on the projected overall methane and GHG emissions from shipping. The results support the potential benefits of developing a regulatory approach to limit methane slip emissions in the industry.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

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| **7/INF. 26** | **Study on the impact of mid-term GHG reduction measures towards the 2023 IMO GHG Strategy goals** | **Japan** |

This document contains research studies on the GHG Fuel Intensity (GFI) reduction pathways and requirements in light of the adoption of the 2023 IMO GHG Strategy. The studies were implemented by the Japan Transport and Tourism Research Institute (JTTRI). The intent of this information is to support the discussion on mid-term measures. The study emphasizes the importance of using appropriate regulatory and incentive measures such as market-based measures (MBMs).
**Action requested of the Committee**
The Committee is invited to note the information contained in this document and the interim report on the study by the JTTRI in the annex.

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| **7/INF. 37** | **The 2023 IMO GHG Strategy and the Paris Agreement temperature goal** | **Canada** |

Canada presents well-to-wake (WtW) greenhouse gas (GHG) emissions and intensity pathways for the international shipping sector under various warming scenarios within the Paris Agreement temperature goal ($1.5°C \leq \Delta T < 2°C$). The results indicate that the emissions targets in the 2023 IMO GHG Strategy are aligned with the "1.5°C warming limit (with a probability of 50%, with no or limited overshoot)" scenario. However, this alignment comes with certain caveats. To remain within the 1.5°C GHG budget, it will be important to: a) reduce emissions more than the upper end of the 2040 indicative checkpoint (80% GHG reduction compared to 2008); and b) maintain the emissions reduction pathway in the non-checkpoint years. This assessment underscores the urgent need to develop and implement mid-term measures, in particular a GHG pricing scheme and a GHG fuel intensity standard (GFS) that are sufficiently stringent to deliver on the strategy's emissions reduction targets

**Action requested of the Committee**
The Committee is invited to note the information contained in this document and its annex.

**7/INF.39 White paper on wind propulsion** **Comoros, France, Solomon Island and IWSA**

This document presents a very detailed IWSA paper summarising the current status of the wind ship industry. The following details some of the key points:

Potential GHG reductions

- Analysis of the maximum technical abatement potential by CE Delft (June 2023)* indicates that significant reductions in GHG emissions of between 28-47% can be realized with a combination of wind-assisted propulsion; and 20 or 30% speed reduction relative to 2018 (for those ship types where such a speed reduction results in a reduction of GHG emissions).

- As a standalone technology cluster, wind propulsion could easily deliver 20%+ fuel and emissions reductions across the fleet

Regulatory aspects

- Adopting a holistic energy-focused approach as opposed to a narrow fuel-centric one is key to the delivery of the IMO 2030, 2040 and 2050 levels of ambition and indicative checkpoints on decarbonization as well as other non-GHG emission reduction targets. This requires
    - The development of a level playing field for all energy sources, including wind propulsion.
    - The adoption of an integrated, holistic energy approach, instead of a narrower 'fuel-centric' one;
    - Full emissions calculation: assess and compare wind propulsion with other fuel pathway options on a full life cycle assessment of emissions (not only TtW GHG emissions);
    - safety and technical – the current regulatory model does not adequately incorporate wind-assist technologies and primary wind ships.
- Global Fuel Standard – there is support from a number of key delegations to either having wind propulsion included as a fuel in this or for the GFS to be amended to a Global Fuel & Energy Standard. Further work is underway by ITTC on how to assess wind contribution with revised, standardised Key Performance Indicator (KPI's) as noted above.
- Short-term measures based on EEXI and CII are now in force since January 01, 2023 and these are expected to have profound effects on the decarbonisation of shipping operations in the mid- to long-term, especially after the review of these measures culminating in 2026 and the potential to include firm enforcement or penalty clauses
- The lifecycle assessment of fuels (LCA) and the inclusion of wind in this process is being undertaken to create a foundation for the policy design and development at IMO and upon which both a Global Fuel Standard (GFS) [Preferably a Global Fuel and Energy Standard] and Mid-/Long-term

measures will be based upon. It is very important that all energy sources or 'fuels' are included in this assessment that are used to propel ships.
- Most regulatory and policy pathway development at a National, Regional and International level to-date has neglected to include and integrate direct renewable energy sources such as wind energy used for propulsion in the structures and formula used.
- The IMO Lifecycle Assessment of Fuels does recognise directly harnessed wind energy as a 'fuel', which is designated as Pathway 128 and the Fuel EU Maritime legislation that will enter into force in 2025 extends a reward factor ranging from 0.95 to 0.99 for the use of wind propulsion, however in this same formula, RFNBO fuels receive a 2x multiplier in the calculation to encourage uptake and thus incentivise the building out of the infrastructure required to produce, transport and bunker those alternative low carbon fuels.
- The report proposes to remove the 5,000GT vessel size lower limit on all regulations

<u>Market penetration</u>

- As of August 2023, there were 30 large WPT equipped commercial ships in operation across a range of segments
- The EU market analysis (CE Delft 2016/7) forecast up to 10,700 installed systems until 2030
- Added research indicated 37,000 to 40,000 ships with wind propulsion installations by 2050 or 40 to 45% of the global fleet.
- These findings align with the EU report forecasts of 10-15% of the global fleet (mainly tankers and bulkers) installed with WPT in 2030 (CE Delft 2016-17) and the UK Clean Maritime Plan (2019) analysis of future markets for WPT, with 40-45% of the global fleet installed by 2050
- This growth pattern is starting to follow the pattern of a classic 'S-curve', with installations from 2014-2021 being 15 ships in total. While in 2022 this number grew by eight installations and projections are for 24 system installations and wind ready vessels to be delivered in 2023 (or early 2024).
- As such, in this analysis, WPT is rated as the second most important propulsion technology field behind alternative fuels (at £8-11 billion per year in the 2050s), representing around 15% of the market potential for propulsion systems.

<u>Finance</u>

- As wind propulsion technologies harness a free energy source, there is the potential for WPT to be supplied using a variety of different approaches:
  - (i) Leasing system: where the savings from the fuel pay the costs of the lease.
  - (ii) (ii) Pay-As-You-Use model: where the CAPEX is paid for by a sharing of the fuel savings over subsequent years of operation. Schinas et al (2022)
  - (iii) (iii) Wind-As-A-Service: where modular WPT or containerised systems are deployed on ships working on the best routes

- Adoption of a "Total Cost of Ownership" (TCO) approach is needed if business models, returns on investment and the full impact of WPT's are to be appreciated;

Benefits

- It should be noted that wind-energy delivered directly to the ship is free of all emissions, not only those direct GHG's that are dealt with in the upcoming EU and IMO regulations. This means all climate impactors such as Black Carbon (BC), fugitive H2 emissions, Volatile Organic Compounds (VOC) and Underwater Radiated Noise (URN) etc.

On board generation of renewable energy

- The design of the Windhunter tanker vessel by Mitsui OSK Lines (MOL) is predicated to become a climate positive vessel, where it generates all of its fuel component from harvested wind energy but takes that one step further and produces hydrogen to be stored in toluene in its tanks as cargo. A 60m scaled prototype will be in operation in 2024 with the full-scale vessel slated for 2030

Option of wind-ready ships

There is the option to prepare the ships to take either a specified WPT or in general prepare the vessel to take WPT installations in the future, otherwise designated as 'wind-ready'

At least one Classification society, ABS, has created a 'wind-ready' notation already applied to six delivered tankers

**Action requested of the Committee**

The Committee is invited to note the information contained in this document.

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| **7/INF.40** | **Review of wind statistics approach of MEPC.1/Circ.896 for verification of wind propulsion systems** | **RINA and IWSA** |

This document presents additional considerations when applying wind probability as used in MEPC.1/Circ.896 for the assessment of the performance of wind assistance propulsion systems (WAPS) in EEDI and EEXI. This document contributes to the review process of the methods adopted and outlines an approach that uses adjusted wind probability derived using global wind routing studies.

The seventy-seventh session of the Marine Environment Protection Committee (MEPC 77) approved the 2021 Guidance on treatment of innovative energy efficiency technologies for calculation and verification of the attained EEDI and EEXI (MEPC.1/Circ.896) with updated methods to quantify the effect of wind propulsion systems, into the EEDI and EEXI. The guidance includes a global wind probability dataset dating back to document MEPC 62/INF.34 (Germany) in 2013. This global wind probability approach was perceived to be too conservative as ships with wind propulsion may sail on more favourable routes and also use wind routing on oceanic crossings, which would result in better wind statistics than the

global average. To this end MEPC.1/Circ.896 specifies that only 50% of wind conditions with the largest thrust generated from the wind propulsion system are to be used.

The 50% wind statistics approach among other elements was deemed to be an appropriate interim measure.

However, the results from this study show that the wind probability datasets obtained using voyage routing globally can provide a substantial benefit to overall GHG performance (and EEDI/EEXI). The predicted performance using this wind probability dataset may be closer to what can be achieved in practice on average by a ship of this type and designated WPT configuration. All encountered wind angles and wind speeds are included in this approach, which can be used in principle to assess the relative performance differences between wind propulsion technologies for a given ship. This approach may be considered as part of the MEPC.1/Circ.896 review process.

**Action requested of the Committee**
The Committee is invited to note the information in this document and its annexes, in particular the results from the study.

*The paper presents details of a technique which can provide a more accurate assessment of the potential performance of wind propulsion than the 50% wind statistics approach can provide*.

## ITEM 8: FOLLOW-UP WORK EMANATING FROM THE ACTION PLAN TO ADDRESS MARINE PLASTIC LITTER FROM SHIPS

The Committee will be invited to consider any submissions received under the agenda item.

**Papers:**

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| **8** | **Increasing momentum to tackle plastic pollution in the marine environment** | **CSC** |

CSC requests an update on the steps taken to review the Action Plan to prevent marine plastic litter from ships and progress on the related actions. CSC also provides a brief update on the broader context of the emerging governance landscape on plastic pollution.

In 2018, the IMO adopted an Action Plan to address marine plastic litter from ships, recognizing the importance of preventing pollution and contributing to the Sustainable Development Goals. The plan's implementation was followed by a proposal to monitor and evaluate its effectiveness, with a comprehensive review scheduled for 2025. However, the review of the Action Plan was deferred to a later meeting due to ongoing work and workload. This document calls for an update on the review at the current meeting, emphasizing the need to address new and existing threats related to marine plastic pollution. Plastic pollution is a planetary emergency, intersecting with the climate crisis and biodiversity loss, and current actions have fallen short of the necessary level of ambition. Fishing gear loss is a significant issue, causing entanglement of marine animals and damage to coral reefs. The existing regulatory framework has not adequately addressed the myriad sources of marine plastic pollution, and there is a lack of visibility and oversight of emerging threats. The negotiations for a new legally binding instrument to end plastic pollution are ongoing, and IMO's engagement in these negotiations is crucial. The urgency of plastic pollution requires a globally coordinated effort across all economic sectors, with interventions starting on land.

**Action requested of the Committee**

The Committee is invited to:

1. Note the information contained above.
2. Request the Secretariat to provide an update on progress of items in the Action Plan at MEPC 81.
3. Ensure sufficient time for discussion on the next steps at IMO with regard to marine plastic pollution, including substantive discussion on the recommendations in the report from GESAMP WG 43.
4. Request the Secretariat to provide an update in the form of an information document to the fourth and fifth sessions of the Intergovernmental Negotiating Committee under UNEA 5/14 on the current legal and regulatory framework related to marine plastic pollution under IMO.

**8/1 Review of Action Plan and other sources of microplastics from ships** **FOEI and CSC**

The co-sponsors provide comments on document MEPC 81/8 (CSC) and emphasizes that although some progress has been made in addressing marine plastic litter from ships, more work is needed to achieve the goal of zero plastic waste discharged to sea by 2025. The Action Plan, adopted in October 2018, includes various outcomes such as reducing marine plastic litter from fishing vessels, shipping, and improving port reception facilities. However, there are still gaps to be addressed, particularly in understanding the contribution of ships to marine plastic litter. The co-sponsors highlight new research on microplastic fragments entering the ocean from rope hauling and the need for standards in rope maintenance, replacement, and recycling.

The co-sponsors also identify grey water from ships as another source of microplastic pollution that requires regulation. Additionally, a Norwegian study reveals that around 6,900 tonnes of microplastics are released annually from antifouling paints, emphasizing the need for targeted measures to restrict these releases. The co- sponsors urge the Committee to consider taking urgent action to address the sources of microplastics during the review of the Action Plan.

**Action requested of the Committee**
The Committee is invited to take note of the views expressed in paragraphs 2 and 3, and the information provided in paragraphs 4 to 7 on sources of marine plastics from ships, and to consider action to address these sources of microplastics during the review of the Organization's Action Plan to address marine plastic litter from ships.

**8/INF.15 Information on the awareness and compliance for prohibition of single-use plastic in Indian waters** **India**

The Indian Maritime Administration has implemented a phased reduction on the use of single-use plastics on Indian-flagged ships since October 2019. An order was issued prohibiting the use of single-use plastics on Indian ships and foreign ships in Indian waters, effective from January 2020. An addendum to the order defines single-use plastics as disposable plastics and prohibits their use, except for certain essential items. All ships are required to have a plan showing how they will comply with the phase-out of single-use plastics. Data from the Swachh Sagar DGS single-use plastic portal indicates good awareness and compliance with the prohibition of single-use plastics.

**Action requested of the Committee**
The Committee is invited to note the positive information contained in this document, in particular the data presented in paragraphs 15 to 18, which may encourage more Member States to initiate similar voluntary efforts to contribute to the global environment.

*As per the latest addendum to DGS order no:5 of 2019. Further clarification is required, especially in paragraph 4.2 of the addendum, regarding how foreign*

*ships visiting Indian ports can avoid the use of Indian single-use plastics, since global supply lines must be modified to supply biodegradable alternatives for prohibited SUP items. It is highly impractical for foreign ships to comply to the India's single use plastic directive in Indian waters.*

*Despite the fact that this is an information paper, the following intervention is necessary because it is a separate issue which is of significant interest to some of our Members, as the Indian Single Use Plastic directive poses significant challenges to foreign vessels visiting Indian ports.*

**Thanks to India for the document MEPC/8/INF.15.**

**Chair, In 2019, the DGS order no:5 enacted India's Single Use Plastic Directive, which aims to reduce plastic pollution and enhance environmental sustainability. However, ICS firmly believes that it is highly impractical for foreign ships to comply with this directive in Indian waters.**
**Chair, one of the primary concerns is the lack of clarity and consistency in the directive's implementation. Paragraph 4.2 of the latest addendum to DGS order no:5, which outlines the specific guidelines for foreign ships, has been found to be confusing by foreign shipping companies. This confusion makes it difficult for them to adhere to the order requirements effectively.**
**Biodegradable alternatives to plastic products are not yet readily available on a global scale, making it difficult for foreign ships to obtain the necessary biodegradable alternatives before heading to Indian ports. The lack of biodegradable alternatives in global supply lines further exacerbates the practical challenges posed by India's stand-alone regional plastic directive and places significant burdens on foreign ships visiting Indian ports.**
**Chair, In conclusion, ICS believes that India's Single Use Plastic Directive in its current form is highly impractical for foreign ships operating in Indian waters. The confusion surrounding the order's implementation and the global supply line challenges make it challenging for foreign ships to adhere to the order effectively. It is essential that the directive is adapted and revised to ensure its practicality and compliance for foreign ships, while maintaining its commitment to reducing plastic pollution.**

## ITEM 9: POLLUTION PREVENTION AND RESPONSE

The Committee will be invited to consider urgent matters emanating from PPR 11, as appropriate.

**Papers:**

**9 Legal advice on exhaust gas cleaning systems Secretariat**

IMO legal Affairs Office ( IMO Secretariat) provides legal advice on the use of exhaust gas cleaning systems (EGCS) as an alternative compliance mechanism under MARPOL Annex VI and its relationship with the legal framework established under the UN Convention on the Law of the Sea (UNCLOS). The legal opinion consisted of two main elements:

**EGCS and UNCLOS:**
The co-sponsors of MEPC 79/5/3 emphasize that the supposed inconsistency is not between MARPOL and UNCLOS, but rather between UNCLOS and the use of EGCS as an alternative compliance mechanism and propose an immediate ban on EGCS use. The legal opinion does not advocate for any specific course of action or advocate for a particular position regarding EGCS usage. Overall, the legal opinion indicated that there is no legal barrier preventing MEPC and the PPR Sub-Committee from further deliberating and agreeing on objective thresholds and limits (e.g. EGCS discharge water criteria) that would be applicable in determining whether and when the use of EGCS causes harm to the marine environment while considering that

1. The allowance of EGCS as an alternative compliance mechanism under MARPOL Annex VI is presumed to be the will of Member States that are Parties to MARPOL Annex VI. National Administrations decide whether to allow exhaust gas cleaning systems as an alternative to the use of compliant low-sulphur fuel oil, guided by the parameters set forth by IMO in relevant guidance documents.
2. It is essential for evidence-based decision making to be balanced with the precautionary approach as set out in resolution MEPC 67(37) to avoid adverse effects or harm to certain marine environments.

**Coastal State regulation of EGCS in the EEZ:**
MEPC 80/5/5 and MEPC 80/5/7 raise questions on the legal basis for coastal State regulation of the discharge of EGCS discharge water beyond the territorial sea (i.e. in EEZ areas). The key points are that Part V of UNCLOS sets forth the applicable rules for the EEZ and that mutual obligations of due regard apply. UNCLOS provides that coastal States may adopt laws and regulations for the prevention, reduction and control of pollution from vessels conforming to generally accepted international rules and standards. However, coastal States may implement special mandatory measures for vessel-source pollution in their EEZ through consultation with IMO.

**Action requested of the Committee:**
The Committee is invited to note the information provided above and to take action, as appropriate.

## ITEM 10: REPORTS OF OTHERS SUB-COMMITTEES

The Committee will be invited to consider the outcome of III 9 and CCC 9.

**Papers:**

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| **10** | **Report of the ninth session of the Sub-Committee on Implementation of IMO Instruments (III 9)** | **Secretariat** |

The Secretariat provides the list of actions requested of the Committee on matters emanating from III 9.

**Action requested of the Committee**
The Committee is invited to:

.1 note that the Sub-Committee, having noted the information contained in document III 9/3/1 providing an overview and provisional analysis of the information contained in the port reception facilities (PRFs) module and the information by the Secretariat that engagement with the European Maritime Safety Agency (EMSA) had commenced on the data transfer mechanism outlined in document MEPC 77/14 (Austria et al.), recommended that the Secretariat set this element as a priority, with a view to reducing the administrative burden for Member States (paragraph 3.11);

.2 endorse, subject to a concurrent decision by MSC, the issuance of III.3/Circ.10 on Casualty Analysis and Statistics containing observations on reports of investigation into casualties (paragraph 4.21);

.3 endorse, subject to a concurrent decision by MSC, the issuance of III.3/Circ.11 on Development of lessons learned by Marine Safety Investigating State for promotion of awareness of the expectation to fill the field on the Lessons learned, along with a marine safety investigation (paragraph 4.25);

.4 endorse the decision of the Sub-Committee that it would embark on a detailed revision of the Guidelines for port State control (PSC) under the Ballast Water Management (BWM) Convention only after MEPC had concluded its current revision of the BWM Convention, given the nature, the number and the complexity of the issues involved (paragraph 5.40);

.5 endorse the decision of the Sub-Committee to add the annex to resolution MEPC.357(78) as a new appendix to the draft Procedures for PSC, 2023 without alterations (paragraph 5.42);

.6 note that the Sub-Committee approved the draft Procedures for Port State Control, 2023 and the associated draft Assembly resolution, to revoke resolution A.1155(32), for submission to A 33 for consideration with a view to adoption, as authorized by MSC 106 and MEPC 79 (paragraph 5.51 and annex 3);

.7 note that the Sub-Committee invited interested Member States to submit proposals to the Committees for a new output on guidance addressing the implementation of recurrent references to mandatory IMO instruments by Member

States based on analysis of consolidated audit summary reports (CASRs) in accordance with MSC-MEPC.1/Circ.5/Rev.4 (paragraph 8.7.1);

.8 endorse, subject to a concurrent decision by MSC, the recommendation of the Sub-Committee on the need for alignment of the Auditor's Manual (Circular Letter No.3425) with the relevant part of the III Code Implementation Guidance concerning the phrase "to the satisfaction of the Administration" or equivalent, and to provide it as input to the Council's Joint Working Group on the Member State Audit Scheme when revising the Auditor's Manual (paragraph 9.13);

.9 note that the Sub-Committee developed, in the draft Guidance in relation to the IMO Member State Audit Scheme (IMSAS) to assist in the implementation of III Code by Member States, the guidance in relation to the provisions in the various IMO instruments containing the term "to the satisfaction of the Administration", or equivalent (paragraph 9.31);

.10 approve, subject to a concurrent decision by MSC, the draft MSC-MEPC.2 circular on Guidance in relation to the IMO Member State Audit Scheme (IMSAS) to assist in the implementation of the III Code by Member States noting that the work on this output has been completed (paragraphs 9.34 and 9.35 and annex 4);

.11 note that the Sub-Committee approved the draft Survey Guidelines under the Harmonized Survey and Certification (HSSC), 2023, together with the draft requisite Assembly resolution, to revoke resolution A.1156(32), for submission to A 33 for consideration with a view to adoption, as authorized by MSC 106 and MEPC 79 (paragraph 10.22 and annex 5);

.12 note that the Sub-Committee approved the draft 2023 Non-exhaustive list of obligations under instruments relevant to the IMO Instruments Implementation Code, together with the draft requisite Assembly resolution, to revoke resolution A.1157(32), for submission to A 33 for consideration with a view to adoption, as authorized by MSC 106 and MEPC 79 (paragraph 11.8 and annex 6);

.13 note the biennial status report of the Sub-Committee for the 2022-2023 biennium (paragraph 16.2 and annex 8);

.14 approve, subject to a concurrent decision by MSC, the proposed biennial agenda for the 2024-2025 biennium and outputs on the Committees' post-biennial agendas that fall under the purview of the Sub-Committee (paragraph 16.3 and annex 9);

.15 approve, subject to a concurrent decision by MSC, the provisional agenda for III 10 (paragraph 16.4 and annex 10); and

.16 approve the report in general.

**10/1 Report of the ninth session of the Sub-Committee on Carriage of Cargoes and Containers (CCC 9)** — Secretariat

The Secretariat provides the list of actions requested of the Committee on matters emanating from CCC 9.

**Summary of the outcome of CCC 9**

CCC 9, through the establishment of a Working Group on Development of Technical Provisions for Safety of Ships Using Alternative Fuels, made progress on the development of the following draft interim guidelines:

1. the draft interim guidelines for ships using hydrogen as fuel; and
2. the draft interim guidelines for ships using ammonia as fuel.

Due to time constraints, the draft interim guidelines for ships using low-flashpoint oil fuels were not considered by the Working Group.

Subsequently, CCC 9 agreed to the updated work plan for developing new alternative fuels under the IGF Code, as set out in annex 1 to document CCC 9/14.

Taking into account the urgency of providing guidance to Administrations, shipowners and the industry at large on the safe use of hydrogen and ammonia as fuel, and in support of the Organization's emission targets, CCC 9 re-established the Correspondence Group on Development of Technical Provisions for Safety of Ships Using Alternative Fuels; and agreed to the convening of an intersessional Working Group on Development of Technical Provisions for Safety of Ships Using Alternative Fuels, from 9 to 13 September 2024, immediately prior to CCC 10, subject to approval by MSC 108 and endorsement by the Council.

CCC 9 also agreed to the draft MSC circular on Interim guidelines for use of LPG cargo as fuel, as set out in annex 6 to document CCC 9/14, for approval by MSC 108.

**Action requested of the Committee**

The Committee is invited to:

1. endorse the updated work plan for the development of new alternative fuels (paragraphs 3.24 and annex 1);
2. approve the biennial status report of the Sub-Committee for the 2022-2023 biennium, taking into account the outcome of C 130 (paragraph 11.3 and annex 8);
3. approve the proposed biennial agenda of the Sub-Committee for the 2024-2025 biennium, taking into account the outcome of C 130 (paragraph 11.3 and annex 9); and
4. approve the proposed provisional agenda for CCC 10 (paragraph 11.4 and annex 10).

## ITEM 11: IDENTIFICATION AND PROTECTION OF SPECIAL AREAS, ECAS AND PSSAS

The Committee will be invited to consider a proposal (MEPC 81/11) for the designation of Canadian Arctic Waters as an Emission Control Area for Nitrogen Oxides, Sulphur Oxides and Particulate Matter.

The Committee will also be invited to consider a proposal (MEPC 81/11/1) for the designation of the Norwegian Sea as an Emission Control Area for Nitrogen Oxides and Sulphur Oxides.

Depending on the outcome of the Committee's deliberations on the above matters, a technical group may be established to further consider matters referred to it by the Committee.

**Papers:**

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| **11** | **Proposal to designate Canadian Arctic waters as an emission control area for nitrogen oxides, sulphur oxides and particulate matter** | **Canada** |

Canada proposes to designate an emission control area in Arctic waters under Canadian sovereignty and jurisdiction, in accordance with regulations 13 and 14 and appendix III to MARPOL Annex VI.

The prospective ECA, herein referred to as the Canadian Arctic ECA, would prohibit ships from using fuel with a sulphur content greater than 0.1% m/m and would require all ships constructed after 1 January 2025 to comply with NOX Tier III limits as specified in MARPOL Annex VI. This regulation would limit emissions of nitrogen oxides (NOX), sulphur oxides (SOX), and particulate matter (PM), including black carbon (BC).

The proposed Canadian Arctic ECA includes the portion of Canada's Arctic waters shown in the figure below where the outer limit is generally setback 3 nautical miles from the 200 nautical mile limit or follows the maritime boundary between Canada and Kingdom of Denmark (Greenland) from the Lincoln Sea to the Labrador Sea. The proposed Canadian Arctic ECA is bound in the Beaufort Sea by the 137th meridian west. The southern outer limit terminates at the 60th parallel north in the Labrador Sea and is adjacent to the existing North American ECA. See annex 2 for a full description and a chart of the proposed boundary.


Annex 1 to this proposal provides a complete analysis that demonstrates how the proposal satisfies each of the eight criteria for designation of an ECA established under MARPOL Annex VI, appendix III; annex 2 sets forth a detailed description of the proposed ECA boundary; and annex 3 presents a chart of the proposed area. Canada has also prepared draft amendments, presented in annex 4 of this proposal, to include the proposed ECA in the appropriate paragraphs of regulations 13 and 14 of Annex VI and to appendix VII of the Annex.

**Action requested of the Committee**

The Committee is invited to consider the information presented in this document and its annexes and to approve the proposed Canadian Arctic ECA, as described, for the control of NOX, SOX, and PM, with a view to adoption, at MEPC 82 of amendments to regulations 13.5, 13.6, and 14.3 to formally designate this Emission Control Area under MARPOL Annex VI and to appendix VII to the Annex.

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| **11/1** | **Proposal to designate the Norwegian Sea as an Emission Control Area for Nitrogen Oxide and Sulphur oxides** | **Norway** |

Norway proposes to designate the Norwegian Sea as an Emission Control Area for Nitrogen Oxides and Sulphur Oxides.

The area proposed to be designated as a new ECA is the Norwegian Sea as defined in regulation 13.9.4 of MARPOL Annex II. The geographical delimitation of the proposed ECA area is shown in the figure below.


Annex 1 to this document provides proposed amendments to MARPOL Annex VI to designate the Norwegian Sea as an emission control area for nitrogen oxides and sulphur oxides. Annex 2 to this document includes a complete analysis of how the proposal satisfies the criteria for designation of ECAs as set out in appendix III of MARPOL Annex VI.

Norway notes that NOx Tier III requirements apply to ships constructed on or after a certain date while operating in an ECA. The definition of "ship constructed" is given in regulation 2.1.28 of MARPOL Annex VI: "Ships constructed means ships the keels of which are laid or that are at a similar stage of construction. Norway highlights a study by Ward Van Roy et al* highlighted that many keels are being laid prior to the entry-into-force date of a NOx ECA and sold at a later stage. When the keel is laid, the ship can be built, delivered and put into operation several years later. This practice delays the positive health and environmental effects represented by new NOx ECAs and hampers a level playing field among the "new ships" operating in the area.

MSC.1/Circ.1500/Rev.2 provides guidance on drafting of amendments to the SOLAS Convention and related mandatory instruments and chapter 4.2.1 gives guidance on the format of application dates including the "three dates criteria" (building contract, keel laid and delivery date). The three dates criteria are also used in MARPOL Annex VI, for example, in regulation 2.2.1 where "A ship delivered on or after 1 September 2019" is defined using the "three dates criteria".

Norway is of the view that using the keel laying date and the current definition of ship constructed delays the desired effect of new regulations and propose to use the "three dates criteria" for the designation of the new NOx ECA in the Norwegian Sea.

**Action requested of the Committee**
The Committee is invited to consider the proposals and information contained in this document and to take action as appropriate.

**11/2 Comments on document MEPC 81/11/1** **Belgium and Netherlands**

Belgium and the Kingdom of Netherlands provide the following comments on the designation of the Norwegian Sea as an Emission Control Area for Nitrogen Oxides and Sulphur Oxides, as provided in document MEPC 81/11/1.

- The way in which Norway is proposing to apply the 'Three dates criteria' as part of the keel-laying date requirement in their proposed amended to MARPOL Annex VI is exemplary. Keel-laying dates have been an established definition to determine which ships are required to comply with NOx regulations, yet the earlier existing application for the North American/United States Caribbean, North Sea and Baltic Sea ECA's has left room for many ships to be built using older TIER-II-standards, thereby hurting efforts to reduce NOX-emissions;

- For the North Sea ECA, the co-sponsors have undertaken research into the question whether the same pattern has occurred following the effective date of the North Sea ECA. The co-sponsors findings, on the basis of available data and discussion with subject matter experts, have been that, even though there has been an increase in the number of keels laid in 2020, compared to other years, the high number of registered laid keels has not occurred to the same degree as it had in 2015;

- The European Maritime Safety Agency (EMSA) and the European Environment Agency (EEA) mentioned the slow uptake of Tier III in the EMTER report. Peaks of Keel Laying Dates of ships in service worldwide correspond to periods before the entry into force of major requirements. The largest peak corresponds to the last quarter of 2015, just before the entry into force of the nitrogen oxides (NOx) emission control area (NECA) requirements in North America and the United States Caribbean Sea. Although the construction of the ships in question was completed well after the entry into force of the new requirements, they will be subject to previous standards because their keels were laid before the entry into force; and

- The application of 'three dates criteria' with regard to regulations on the in effective date of new ECA's will lead to a more effective implementation of policies meant to ensure better air quality and reduced negative environmental effects.

Based on the experience of the co-sponsors and the information given in this commenting document, it is recommended that any future regulations concerning the use of a keel laying date make use of the 'three dates criteria'.

**Action requested of the Committee**
The Committee is invited to note the information set out in this document and to consider the recommendation in paragraph 11 of the document.

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| **11/3** | **Feedback on ECA proposals from Canada and Norway and related matters** | **FOEI, WWF, Pacific Environment and CSC** |

FOEI et.al welcome the proposals from Canada and Norway to designate Emission Control Areas (ECAs) for nitrogen oxides, sulphur oxides and particulate matter, in Canadian Arctic waters and the Norwegian Sea, respectively. This document also highlights the need to ensure the benefits of establishing ECAs are fully realized by taking urgent action to rectify the fundamental shortcomings of both regulation 13 of MARPOL Annex VI and the 2008 NOx Technical Code.

The following considerations are provided.

The proposed designation of ECAs in Canadian Arctic Waters and the Norwegian Sea has the potential to drive broad positive change, especially if the compliance mechanism rests on a switch to distillates and/or to truly cleaner fuels;

Document MEPC 81/11 provides a welcome and clear reference to the fact that alternative compliance methods, particularly the use of scrubbers, do not provide the same BC benefits;

The new ECA proposals highlight the need for continued work on a possible designation of a broader ECA in the North-East Atlantic Ocean as referred to in document MEPC 80/INF.35. Such an ECA will significantly expand the socio-economic, environmental and health benefits for a large number of coastal communities along the North-East Atlantic region;

Documents MEPC 81/INF.7 and PPR11/INF.4 highlight several crucial elements stemming from the slow construction rate of Tier III ships due to apparent evasive behaviour by shipowners. This is related to the gap between keel laying dates and construction dates that leads to a lower-than-expected number of Tier III ships operating in the North American ECA, which, combined with ships operating at low engine loads within the ECA, ultimately triggers the disengagement of Tier III abatement technology;

The results of NOx measurement campaigns focused on post 2021 operations in the European ECAs (PPR 11/INF.2/Rev.1) suggest that Tier II ships had, on average, higher NOx emissions than older Tier I ships; that, on average, Tier III ships had NOx emissions substantially higher than the maximum Tier III limit of 5.25 g/kWh; and that about 50% of the observed Tier III ships exceeded the maximum Tier II emissions limit. An analysis by the International Council on Clean Transportation (ICCT) and partners also shows that Tier II engines built between 2011 and 2015, have significantly higher NOx emission rates than older Tier I

engines;

Norway’s proposal to use the "three dates criteria" in its proposal for the designation of a NOx ECA in the Norwegian Sea is supported; and

EU Member States and EU members of the Baltic Marine Environment Protection Commission (HELCOM) have set out their concerns regarding NOx in the Baltic NECA, including the absence of certification testing for NOx levels at low engine loads and their inability to prosecute NOx Tier III-violations successfully. Central to this road map for action on the Baltic Sea NECA was the call for initiatives at both MEPC and PPR to resolve the serious shortcomings in both MARPOL Annex VI and the NOx Technical Code as first discussed at MEPC 80.

**Action requested of the Committee**

The Committee is invited to note the information contained the document and is urged to support the proposed ECAs in Canadian Arctic waters and in the Norwegian Sea, and to support decisions being taken by the Committee at this session to resolve the various fundamental shortcomings regarding NOx abatement now evident in both MARPOL Annex VI and the NOx Technical Code

## ITEM 12: TECHNICAL COOPERATION ACTIVITIES FOR THE PROTECTION OF THE MARINE ENVIRONMENT

The Committee will be invited to consider an update (MEPC 81/12) on the activities for the protection of the marine environment implemented under IMO's Integrated Technical Cooperation Programme (ITCP) in 2023.

**Papers:**

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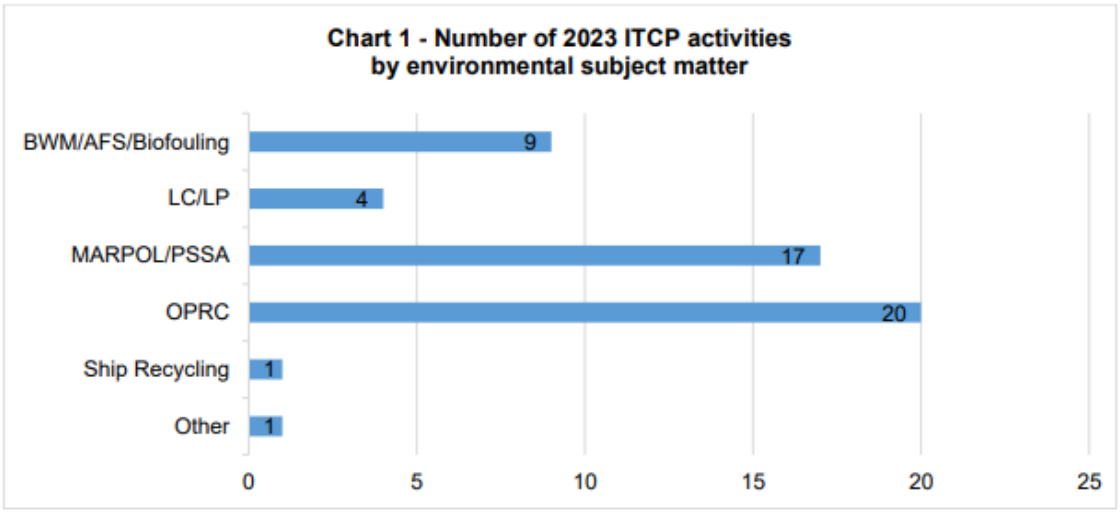
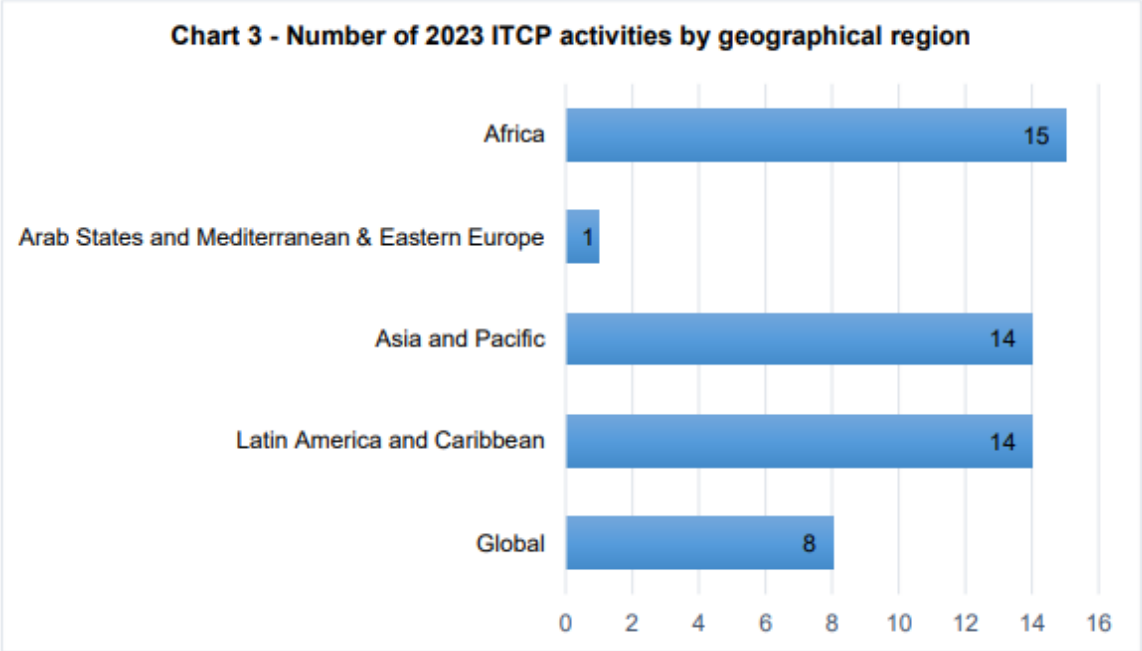
| **12** | **Update on the activities implemented under IMO's Integrated Technical Cooperation Programme (ITCP) from 1 January to 31 December 2023** | **Secretariat** |

This document provides an update on the activities related to the protection of the marine environment implemented under IMO's Integrated Technical Cooperation Programme (ITCP) in 2023.

During 2023, the Secretariat successfully coordinated and implemented 521 ITCP-funded activities related to the protection of the marine environment, covering a number of IMO's priority environmental conventions and protocols.

Eleven activities were delivered in coordination with organizations established under the United Nations Environment Programme's (UNEP) Regional Seas Programme, with which IMO has long-standing cooperation arrangements, such as the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), the Regional Marine Pollution Emergency, Information and Training Centre for the Wider Caribbean Region (REMPEITC-Caribe) and the Secretariat of the Pacific Regional Environment Programme (SPREP). In addition, nine OPRC-related activities complemented the technical assistance provided by IMO's thematic long-term projects in the area of the protection of the marine environment, such as the Global Initiative (GI) for oil spill preparedness and response for West, Central and Southern Africa (GI WACAF), or for South-East Asia (GI SEA).






During 2023, IMO, together with the World Maritime University (WMU) made progress on the development of two e-Learning courses on Ballast Water Management (BWM) and the London Protocol (LP).

In December 2023, IMO, in cooperation with the Maritime Just Transition Task Force (MJTTF), Secretariat embarked on a long-term project entitled "Baseline Training Framework for Seafarers in Decarbonization", aimed at developing training materials to help maritime education and training institutions prepare seafarers for zero or near-zero - emissions from ships in line with the IMO 2023 GHG Strategy.

Thus, with a view to helping the global shipping industry decarbonize and ensure that training on decarbonization is available to seafarers who are on the frontline of the shipping industry. The project is funded by the ITCP, with complementary funding from the IMO GHG-TC Trust Fund

**Action requested of the Committee**
The Committee is invited to note the information provided and take action, as appropriate.

## ITEM 13: APPLICATION OF THE COMMITTEE'S METHOD OF WORK

The Committee will be invited to consider any submissions received and matters raised under this agenda item.

**No papers at this time**

## ITEM 14: WORK PROGRAMME OF THE COMMITTEE AND SUBSIDIARY BODIES

The Committee will be invited to consider and agree its work programme and that of its subsidiary bodies and the items to be included in the agenda for MEPC 82.

**No papers at this time**

## ITEM 15: ANY OTHER BUSINESS

The Committee will be invited to consider submissions received and any matters raised under this agenda item.

**Papers:**

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| **15** | **Update on interagency cooperation relating to the protection of the marine environment** | **Secretariat** |

This paper provides updates on the following UN inter-agency processes which IMO is engaged in:

- Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ).
- Convention on Biological Diversity (CBD) and Global Biodiversity Framework.
- UN Decade of Ocean Science for Sustainable Development (2021-2030).
- Development of an international legally binding instrument to end plastic pollution.
- Global Partnership on Plastic Pollution and Marine Litter (GPML)
- Our Ocean conference.
- Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP).

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

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| **15/1** | **Implementation of the Hong Kong Convention** | **Secretariat** |

The Secretariat invites the Committee to consider the development of reporting formats under Article 12 of the Hong Kong Convention and a new GISIS module on ship recycling for Parties to the Convention to fulfil their obligation of communication of information required by the Convention, noting that the entry-into-force conditions of the Hong Kong Convention were met on 26 June 2023 and therefore the Convention will enter into force on 26 June 2025.

In view of the approaching entry-into-force date of the Hong Kong Convention, it is advised that the Committee agrees on standard formats for the reporting of the information specified in Article 12 of the Convention, and also agrees to a corresponding new GISIS module being developed, with the aim of facilitating the communication of information required by the Hong Kong Convention. The Secretariat has prepared draft reporting formats, as set out in the annex to this document, for the Committee's consideration and, subject to the Committee's approval, the reporting formats could be issued as an MEPC circular and updated as necessary in the light of experience gained from their use.

**Action requested of the Committee**
The Committee is invited to consider the information and proposals provided in the document and to take the following action:

1. consider the draft formats for the mandatory reporting under Article 12 of the Hong Kong Convention, as set out in the annex, with a view to approval;
2. subject to the approval of the above-mentioned formats for reporting, instruct the Secretariat to prepare and issue an MEPC circular on the approved formats;
3. agree to keep the reporting formats under review, with a view to them being updated as necessary in the light of experience gained from their use
4. instruct the Secretariat to develop a new GISIS module on ship recycling for the Parties to the Hong Kong Convention to fulfil their obligations on the communication of information specified in Article 12 of the Convention;
5. request the Secretariat to submit to MEPC annually, starting in 2026, a document outlining the information reported to the Organization by Parties to the Hong Kong Convention;
6. invite the Parties to the Hong Kong Convention to submit to the Organization, by email (med@imo.org), the information on ship recycling facilities and the two annual lists of ships required to be reported in accordance with sub-paragraphs 1, 4 and 5 of Article 12 of the Hong Kong Convention, until the GISIS ship recycling module has been released; and
7. authorize the Secretariat to publish the information on ship recycling facilities and the lists of ships, as submitted by Parties to the Hong Kong Convention, as a downloadable PDF file on the IMO website for the purposes of dissemination until the GISIS module has been released.

*The Secretariat's proposals should be taken forward by the Committee. Further comments by ICS and others relating on the impact of the Hong Kong Convention's entry into force and the potential for a dual legal regime are provided in document MEPC 81/15/5.*

**15/2 Establishment of Regional Specialized Meteorological Centres (RSMCs) for marine emergency response** **WMO**

This document proposes expanding the marine meteorological support for marine environmental pollution response through the establishment of World Meteorological Organization Regional Specialized Meteorological Centres (RSMCs) for marine emergency response.

The paper identifies that depending on the geographical area, there might be a need to involve multiple National Meteorological and Hydrological Services (NMHSs) in the provision of marine meteorological and specialized services for marine emergency response, including regional and national marine emergency response operations. Therefore, in support of all NMHSs and regional entities in support of marine emergency response, including operations for cleaning up noxious substances (non-nuclear) such as oil spills, WMO is in the process of establishing Regional Specialized Meteorological Centres for Marine Emergency Response (RSMCs-MER).

The Sponsors suggest that establishment of the RSMC-MER via its designation criteria would help IMO and WMO Members to strengthen the operational activities.

**Action requested of the Committee**

The Committee is invited to

.1 review, and propose amendments for subsequent consideration by WMO, to the "Criteria and functions of the RSMCs-MER", as articulated in paragraph 8.1 and set out in the annex;

.2 encourage national marine emergency response authorities to engage with NMHSs/RSMC-MER to support MARPOL related exercises, as articulated in paragraph 8.2;

.3 consider strengthening the engagement between national marine emergency response authorities and the NMHSs/RSMC-MER as articulated in paragraph 8.3; and

.4 take note of the e information provided in general and take any action deemed appropriate.

*Considering the future proliferation of the alternative fuels and the toxicity and high volatility of methanol and ammonia, the improved coordination of meterological support proposed by the Sponsors may have particular benefit to future shipping in the event of significant leakage of these fuels, e.g. due to collision and rupturing of fuel or cargo tanks.*

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| **15/3** | **Importance of developing a database of local/regional regulations within the public area of the Port Reception Facilities in GISIS as a matter of priority** | **India** |

This document invites the Committee to consider the development of a database of local/regional regulations within the public area of the Port Reception Facilities module of the Global Integrated Shipping Information System (GISIS) and accordingly facilitate the usage and reporting under the Port Reception Facilities module of GISIS.

India highlights the gap which exists because of local/regional regulations which are at variance with the IMO-mandated regulations. There is a lack of clear information about the existence of these prohibitions as in many cases, these restrictions are imposed on a port basis and thus, not available in any IMO mandated database. Amongst other such restrictions this is also being seen with regard to discharge of treated sewage and grey water.

Presently, the work on the guidelines to deal with treated sewage and grey water if stored in a ballast tank which is resorted to by ships, is also work in progress at MEPC. Thus, to ensure compliance, it is essential that Port Reception Facilities (PRFs) are available where there are local regulations which place restrictions on discharge of treated sewage and grey water.

The sponsors suggest that if the Organization should make publicly available the list of the sea areas, including ports, harbours and estuaries, subject to local regulations on the discharges of treated sewage and grey water along with the availability, or inadequacy, of port reception facilities, it would facilitate operational

planning and reduce the administrative burden caused to administrations when ships encounter such situations.

This would require that a Party notify the Organization of national regulations for circulation to the Members of the Organization when the Party regulates discharges of treated sewage or grey water from a ship in its territorial sea and this should be available in the GISIS module on Port reception facilities. Such an approach would help GISIS continue to evolve as the reporting platform and information hub for the Organization and also facilitate implementation of the regulations.

Hence, the sponsors propose:

- Parties should be required to notify the Organization of their national regulations for circulation to the Members of the Organization when they regulate discharges of treated sewage/grey water discharge from ships.

- The Organization should develop a database of local/regional regulations on treated sewage/grey water discharges within the public area of the port reception facilities as a matter of priority.

**Action requested of the Committee**
The Committee is invited to consider the proposal given in paragraphs 17 and 18 and take action, as appropriate.

**15/4 Clarification regarding carriage of cargo oil in the slop tank(s) of a tanker** **India**

The document seeks clarification regarding carriage of cargo oil in the slop tank(s) of an oil tanker.

The sponsors note some inconsistencies in the regulations which define the permissible usage of slop tanks, i.e. with respect to the occasional use of such tanks to carry cargo.

The sponsors are of the opinion that for ships meeting MARPOL Annex I requirements, the slop tank(s) may be allowed to carry cargo oil in bulk when not being used for carriage of slops provided that:

.1 for a crude oil tanker, the crude oil washing arrangement in accordance with MARPOL Annex I, regulation 33, is provided for the slop tank(s);

.2 any discharge of the oil or oily mixture, as permitted by regulation 34 of MARPOL Annex I, is processed through the slop tank and oil discharge monitoring and control system. Shipboard procedures are to clearly address this;

.3 stability calculations having approved condition for carriage of the cargo oil in slop tank; and

.4 the capacity of the slop tank(s) is calculated solely on the basis of the total cargo tank capacity (exclusive of the slop tank(s)).

**Action requested of the Committee**
The Committee is invited to consider the proposals in paragraph 8 of this document and take action as appropriate.

**15/5 Comments on document MEPC 81/15/1 on implementation of the Hong Kong Convention**

**Bangladesh, India, Norway, Pakistan, ICS and BIMCO**

The co-sponsors comment on document MEPC 81/15/1 and invite the Committee to consider the legal inconsistencies that may arise between the requirements of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (HKC) and those under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (BC). It calls for legal certainty and assurance that any data reported as presented in document MEPC 81/15/1 serves the purpose identified in the HKC and that operating in compliance with the HKC will not be sanctioned as a violation of the BC.

It is noted that on entry into force of the HKC, States that are parties to the Convention will be required to report relevant information to the Organization for dissemination to the Members of the Organization. Such information will included, for each ship flying the State's flag destined for recycling under the auspices of HKC, the ship's name and IMO number, the names and addresses of the shipowner and of the recycling facility and the Competent Authority which has issued the Statement of Completion.

The paper notes that in some jurisdictions the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* (BC) is applied to ship recycling and has resulted in sanctions against shipowners and masters. However, the entry into force of the HKC will change the global legal framework for ship recycling and consequently should lead to a change in what will be legally compliant practices. Once a ship has received an International Ready for Recycling Certificate (IRRC) under the HKC, it may at the same time be considered a hazardous waste under the provisions of the BC. During the entire validity period of the IRRC (up to three months), the ship could therefore be at risk of being arrested for being in breach of the BC requirements while still trading. the co-sponsors highlight the need to consider and tackle the legal uncertainty facing the shipping and ship recycling industries, owing to the possible conflicting requirements of the HKC and the BC.

It is noted that the 7th Conference of the Parties to the Basel Convention in 2004 invited IMO to continue work aimed at the establishment of mandatory requirements to ensure the environmentally sound management of ship dismantling, and that following the successful adoption of the HKC, the 10th Basel

COP encouraged parties to ratify the HKC to enable its early entry into force. It is also noted that Article 30 of the Viena Convention on the Law of Treaties allows States to give preference to the requirements of the most recent convention and the international regulation governing a specific subject matter, which could see the HKC take precedence over the BC.

The paper provides three scenarios that are likely to occur after the entry into force of the HKC, involving a ship for which the flag State has issued the International Ready for Recycling Certificate. Two of the scenarios highlight how a ship fully in compliance with the HKC could be considered in contravention of the BC.

The co-sponsors state that there is a clear need to respond to the legal uncertainty and the potential severe consequences for the industry which would make it difficult for the world fleet to comply on a level playing field. It is also noted that recycling States have made tremendous efforts to become parties to the HKC, but would still face uncertainty as to whether they may receive ships that have been issued and IRRC by a competent flag State.

It is proposed that the Committee consider how best to ensure that possible uncertainties can be clarified prior to the entry into force of the HKC, and that the Secretariat continue and strengthen the cooperation with the Secretariat of the BC to cater for any information and assistance needed to ensure clear and robust implementation of the HKC.

**Action requested of the Committee**
The Committee is invited to consider the information and proposals of this document and take action as appropriate.

*Ensuring legal certainty on the entry into force of the Hong Kong Convention is essential if the instrument is to be implemented effectively, and unnecessary confusion avoided in the sales of ships for recycling under its auspices. The existence of a dual legal regime will only cause confusion and do nothing to promote safe and environmentally sound ship recycling as enforced through the Hong Kong Convention. As such, it is essential that the proposed actions in the paper are taken forward by the Committee and cooperation with the Basel Convention Secretariat is established as soon as possible by the Organization.*

**15/INF.14 Information on digital initiatives by India for marine environment protection and sustainability** — **India**

The document provides information on various digital initiatives taken by India through its Swachh Sagar portal to enhance implementation of environment regulations in the maritime sector.

In an era where sustainability is paramount, India has taken various efforts at digitalization to enhance the implementation of environmental regulations in the maritime sector. This information document sheds light on the multifaceted digital portal known as Swachh Sagar (meaning clean seas in Hindi, the Indian national language).

Advantages of the Swachh Sagar portal for Bunker supplier information:

.1 The portal enables certified suppliers verified by the Administration to generate and issue electronic bunker delivery note (e-BDNs) with a company logo.

.2 Unique serial numbers and Swachh Sagar watermark which validates the authenticity of the BDN.

.3 BDNs are electronically stored for three years, facilitating easy retrieval and validation for auditing purposes.

Advantages of the Swachh Sagar portal for port reception facilities:

.1 Advanced notification of requirement for port reception facilities can be raised through the portal.

.2 The portal then facilitates negotiations between relevant parties for suitable vendors, and help finalize the proposed date, and time for waste disposal.

Advantages of the Swachh Sagar portal for ballast water reporting:

.1 Ships submit comprehensive details on arrival, including ship particulars, ballast water system details, and unmanaged ballast water information.

.2 Departure details regarding managed ballast water are submitted and then tracked via the ship's provided email address.

Advantages of the Swachh Sagar portal for single-use plastic reporting:

.1 Records single plastic usage and disposal details upon arrival at Indian ports.

.2 Encourages the transition to recyclable alternatives for each single-use plastic category.

.3 Provides management reports to enable ports to facilitate proper disposal facilities.

Advantages of the Swachh Sagar portal for fuel consumption reporting:

.1 Acts as a data collection platform to facilitate data based decision making.

.2 Allows for inputs towards improving operations of the Indian shipping and port management

N.B. Although IMO DCS requirements are applicable to international ships of 5000 GT and above; the Indian Directorate General of Shipping, with a view to have a national maritime emissions inventory, prescribed the data collection requirements for all vessels registered under the Indian flag, irrespective of the tonnage.

**Action requested of the Committee**
The Committee is invited to note the information provided in this document.

**15/INF.35 Information about the best practice of in-water-cleaning with capture in the Kingdom of the Netherlands** — **Netherlands**

Netherlands share experiences about in-water-cleaning (IWC) with capture. The document explains the guiding principle used in the Kingdom of the Netherlands to assess IWC devices and what is considered by the Kingdom of the Netherlands to be the best available technique for IWC with capture. It is reported that in the Netherlands, companies that perform in-water cleaning need a permit issued by an authorizing body responsible for upholding a certain water quality in Dutch territorial waters. The effect the cleaning method has on water quality is assessed through a holistic approach so that the authorizing body not only assesses the effectiveness of preventing invasive species entering the surface water, but also prevention of discharges of metals and biocides. Only in-water cleaning with capture is allowed, an water needs to be filtered over a series of filters ending with a pore size of 1-0.5µ. The annexes to the document elaborate on the guiding principle and assessment by the authorizing authority, and Dutch best practice for in-water cleaning at the moment.

**Action requested of the Committee**
The Committee is invited to note the information provided.

*(Serbest Çeviridir)*

# MEPC 81 GÜNDEM MADDELERİ

Ek-2

## Zorunlu Belgelere İlişkin Değişikliklerin Değerlendirilmesi ve Kabul Edilmesi

Komite, Balast Suyu Yönetimi (Ballast Water Management-BWM) Sözleşmesi'nin 19(2)(c) maddesi uyarınca, MEPC 80'de onaylanan elektronik kayıt defterlerinin kullanımına ilişkin Sözleşmedeki taslak değişikliklerin kabul edilmesini değerlendirecektir.

Ayrıca Komite, MARPOL Sözleşmesi Kural 16(2) uyarınca;

- MARPOL 1'inci Protokolü ile ilgili konteynerlerin kaybı söz konusu olduğunda raporlama prosedürleri,
- MARPOL Ek-VI'ya yönelik; düşük parlama noktalı yakıtlar, buhar sisteminin yerini alan dizel deniz makinaları, verilere erişilebilirlik ve deniz taşımacılığı çalışmalarına ilişkin verilerin dahil edilmesi ile IMO Gemi Yakıt Tüketimi Veri Tabanında (IMO Ship Fuel Consumption Database-IMO DCS) geliştirilmesi ile ilgili taslak değişiklikleri ele alacaktır.

## Balast Sularında Zararlı Sucul Organizmalar

Komite, Yazışma Grubunun BWM Sözleşmesi'nin İncelenmesine ilişkin raporunu değerlendirecektir. Bu kapsamda; BWM Sözleşmesi'nin zorlu su kalitesinde işletilen gemilerde uygulanması, balast suyu yönetim sistemleri için tip onay süreci ve arıtılmış pis suların ve/veya gri suyun BWM Sözleşmesi kapsamında balast tanklarında geçici olarak depolanması konuları ele alınacaktır.

## Hava Kirliliğinin Önlenmesi

Hava kirliliğinin önlenmesi gündem maddesi kapsamında, ozon tabakasına zarar veren bileşenler, Egzoz Gazı Temizleme Sistemleri (Exhaust Gas Cleaning Systems-EGCS) rehberleri, MARPOL Ek-VI kapsamında NOx emisyonu kaynaklı hava kirliliğinin azaltılması, kutup bölgelerinde Siyah Karbon emisyonlarının azaltılması gibi başlıklarda Komiteye iletilen tüm önerileri değerlendirecek olup iletilen konuların ele alınması üzerine konuyla ilgili bir çalışma grubunun oluşturulması öngörülmektedir.

## Gemilerin Enerji Verimliliği

Bu gündem maddesi kapsamında;

- IMO DCS'e sunulan yakıt tüketim verilerinin 2022 Raporu ve mevcut filonun yıllık karbon yoğunluğu ve verimliliğine ilişkin Rapor.
- Kısa vadeli tedbirlerin gözden geçirilmesi ve uygulanması,
- Enerji Verimliliği Dizayn İndeksi (Energy Efficiency Design Index-EEDI), Mevcut Gemilerin Enerji Verimliliği İndeksi (Energy Efficiency Existing Ship Index-EEXI), Gemi Enerji Verimliliği Yönetim Planı(Ship Energy Efficiency Management Plan-SEEMP) ve IMO Gemi Yakıt Tüketimi Veri Tabanında (IMO Ship Fuel Consumption Database-IMO DCS) ile ilgili başlıklar,
- Deniz yakıtı olarak kullanılması amaçlanan biyoyakıtların taşıma gereksinimlerine ilişkin deniz yakıt ikmali yapan gemilere yönelik rehberlerin geliştirilmesine ilişkin öneriler değerlendirilecektir.

**Gemilerden Kaynaklanan Sera Gazı Emisyonlarının Azaltılması**

Komite, Gemilerden Kaynaklanan Sera Gazı (Green House Gases-GHG) Emisyonlarının Azaltılmasına Yönelik Oturumlararası Çalışma Grubunun elde ettiği ilerlemeleri de göz önünde bulundurarak;

- Orta ve uzun vadeli tedbirlerin geliştirilmesine yönelik Çalışma Planı III. Aşaması kapsamında aday orta vadeli tedbirlere ilişkin öneriler,
- Aday orta vadeli tedbirler paketinin kapsamlı etki değerlendirmesinin yürütülmesine ilişkin Yürütme Komitesinin ara raporu,
- Sera gazı yoğunluğu Yaşam Döngüsü Değerlendirmesi (Life Cycle Assessment-LCA) çerçevesinin daha detaylı geliştirilmesine ilişkin başlıkları değerlendirecektir.

**Gemilerden Kaynaklanan Plastik Deniz Çöplerinin Ele Alınmasına Yönelik Eylem Planının Takip Çalışmaları**

Bu gündem maddesi kapsamında deniz ortamındaki plastik kirliliğiyle mücadeleye yönelik Komiteye sunulan tüm öneriler değerlendirilecektir.

**Kirliliği Önleme ve Müdahale**

Kirliliği Önleme ve Müdahale Alt Komisyonu'nun 11'inci Dönem Toplantısı (Pollution Prevention and Response-PPR 11) sonuçlarında yer alan acil konular da göz önünde bulundurularak egzoz gazı temizleme sistemlerine yönelik tavsiyeleri içeren öneri ile ilgili hususlar değerlendirilecektir.

**Diğer Alt Komitelerin Raporları**

Komite tarafından IMO Belgelerinin Uygulanması Alt Komitesi'nin 9'uncu Toplantısı (Sub-Committee on Implemention of IMO Instruments-III 9) ve Yük ve Konteyner Taşımacılığı Alt Komitesi Alt Komitesi'nin 9'uncu Toplantısı (Sub-Committee on Carriage of Cargoes and Container-CCC 9) çıktıları değerlendirilecektir.

**Özel alanların, ECA'ların ve PSSA'ların Belirlenmesi ve Korunması**

Bu gündem maddesi altında;

- Kanada Arktik Sularının Azot Oksitler, Kükürt Oksitler ve Partikül Maddeler için Emisyon Kontrol Alanı (Emission Control Area-ECA) olarak belirlenmesi,
- Norveç Denizi'nin Azot Oksitler ve Kükürt Oksitler için ECA olarak belirlenmesi konuları değerlendirilecektir.

Yukarıdaki konulara ilişkin müzakerelerin sonucuna bağlı olarak, Komite tarafından kendisine aktarılan konuları daha ayrıntılı değerlendirmek üzere bir teknik grup oluşturması öngörülmektedir.

**Deniz Çevresinin Korunmasına Yönelik Teknik İşbirliği Faaliyetleri**

IMO'nun Entegre Teknik İşbirliği Programı (IMO's Integrated Technical Cooperation Programme-ITCP) kapsamında, 2023 yılında uygulanan deniz ortamının korunmasına yönelik faaliyetler hakkında değerlendirme yapılacaktır.