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ENERGY EFFICIENCY OF SHIPS

Proposed way forward for the CII review

Submitted by Hong Kong, China; ICS, INTERTANKO, INTERCARGO, IPTA and INTERFERRY

SUMMARY

Executive summary:	This document introduces the Carbon Intensity Indicator (CII) Informal Exchange Group, which has been coordinated by the Indian Register of Shipping (IRCLASS). This document also presents the results of a voluntary survey poll of some of its members. Although the poll reflects a broad cross section of delegates, the co-sponsors of this document acknowledge that it is a limited sample and can only give an indication of opinions at a single point in time. Nevertheless, the co-sponsors hope that the results may assist a working group, if established at MEPC 82, in exploring possible consensus of Member States. The co-sponsors also propose that the CII review should, inter alia, include a gap analysis, whereby a comprehensive list of system weaknesses (i.e. the gaps) could initially be identified, compiled and agreed, paving the way for the development of appropriate solutions by addressing the gaps.
Strategic direction, if applicable:	3
Output:	3.2
Action to be taken:	Paragraph 16
Related document:	MEPC 80/17/Add.1

Background

1 Regulations 25.3 and 28.11 of MARPOL Annex VI require a review of the short-term measures to be completed by 1 January 2026, and annex 13 of document MEPC 80/17/Add.1 defines the review plan as follows:

> "The review should focus, in particular, on the following elements:
>
> .1 effectiveness of the short-term measure in reducing the carbon intensity of international shipping;

.2 experiences with enforcement of the short-term measure by flag and port States, including the review of (plans of) corrective actions, and the use of incentives by relevant stakeholders;

.3 data needs and need for enhancement of the ship fuel oil consumption data collection system (IMO DCS);

.4 impacts on States;

.5 revision of the Z factor and CII_R values as set out in the CII guidelines G3 and G2 to reduce the carbon intensity of international shipping in accordance with regulation 20 of MARPOL Annex VI;

.6 consideration on further amendment to the CII metrics, as set out in the CII guidelines G1;

.7 consideration of further amendments to the correction factors and voyage adjustments for CII (Guidelines G5);

.8 application of the LCA Guidelines; and

.9 any consequential amendments to existing instruments.

Timeline

Considering the timeline of the availability of relevant data and the meeting schedule of the Committee, the timeline for the review of the short-term measure is described as follows:

.1 *Data gathering stage*: from MEPC 80 to MEPC 82 (autumn 2024);

.2 *Data analysis stage*: working group at MEPC 82 to be continued by a correspondence group; and

.3 *Convention and Guidelines review stage*: an intersessional working group between MEPC 82 and MEPC 83 (spring 2025) as well as a working group at MEPC 83."

Introduction to the CII Informal Exchange Group

2 Noting the challenging timeline for the review, the CII Informal Exchange Group (the Group) was initiated by the Indian Register of Shipping (IRCLASS) and first met on 13 May 2024. The Group was established as a forum where interested Member States and international organizations have been sharing opinions, ideas and data in advance of the main discussions at MEPC 82. The objectives of the group were to:

.1 identify weaknesses of the CII system and potential improvements to the system;

.2 explore consensus;

.3 share data and ideas for facilitating the development of improvements to the system; and

.4 propose a way forward for the review of the CII.

3 The diverse Group has grown rapidly and, as at the date of this submission, there were 51 registrants including:

.1 17 Member States;

.2 two environmental NGOs;

.3 24 IMO industry NGOs; and

.4 eight other organizations.

4 The Group will continue to meet beyond MEPC 82 and other Member States and industry partners that may be interested in joining the Group are invited to contact: Sandip.Patil@irclass.org

Survey poll of the Group

5 For the purposes of exploring possible consensus, the Group undertook an online survey poll and responses were provided by the following organizations:

.1 five Member States;

.2 eight IMO industry NGOs;

.3 one class society;

.4 nine other organizations; and

.5 nil environmental NGOs.

N.B: Participation in the Group does not indicate alignment with the survey findings presented and this proposal.

6 The poll included questions relating to:

.1 which of the system weaknesses that had been the subject of previous IMO documents were worthy of being addressed by the review;

.2 which of the solutions that had either been submitted to MEPC or had been the subject of published documents were appropriate solutions to the weaknesses identified in .1;

.3 whether the Group considered it appropriate to consider a radical alternative to the CII, and if so, whether this should be done as part of the review, or after the review; and

.4 the appropriate level of enforcement for the CII going forward.

7 The detailed results of the poll are summarized and presented in the annex of this document, and the key findings are as follows:

.1 with regard to the system weaknesses, the clearest consensus lay with port waiting time and short voyages, where 91% of the responses confirmed these should be addressed within the review. Nevertheless, within the Group's discussions there was strong support for addressing all system weaknesses;

.2 similarly, the potential solutions for port waiting time and short voyages received the highest level of support (65% and 75% respectively). During the Group's discussions, there was also agreement that the listed solutions would in some cases not be the only options, or necessarily the preferred options, and the Group should remain open to other proposals, including those that may be introduced as new MEPC documents;

.3 there was no clear consensus on the preferred level of system complexity, with 54% in favour of a simple system and 46% in favour of a complex system;

.4 there was unanimity that a radical alternative to the CII should be considered, with 65% in favour of including consideration of this within the existing review and 35% preferring it to be considered at a later stage. None were in favour of excluding radical alternatives; and

.5 all participants responding to the survey noted their preference in favour of soft enforcement.

8 Although the poll reflects a broad cross section of those who participated in the poll, the co-sponsors acknowledge that it is a limited sample and can only give an indication of opinions at a single point in time. Nevertheless, the co-sponsors hope that the results may assist the chair of a working group, if established at MEPC 82, in identifying where it may be worthwhile to explore consensus within the wider group of the working group participants.

9 Going forward, the poll will remain open, and if sufficient further responses are received, further updates may be submitted to the future sessions of MEPC.

10 Participation in the survey was optional. Its results provided input to the working group's discussions and should not be considered representative of all group members.

Proposed way forward for the CII review

11 The shipping industry comprises a complex array of ship types, sizes, operational modes and regions of operation, and achieving a universally just and fair CII will require a comprehensive and holistic set of improvements. Creating a fit for purpose CII is particularly challenging because there are some operational factors which are dominating the ratings and are outside of the control of a ship owner, such as length of voyage and port waiting time. Having collected a sizeable amount of data of actual ship operating profiles from the shipping industry, the results of data analysis reveal that even for exact sister ships that have been designed to best practice and efficiently operated by the same owner, the achieved ratings under the existing system can deviate widely.

12 In this context it is important for the CII review to follow a robust methodology, and not to lose focus on addressing the full scope of problems that are seen.

13 Therefore, the co-sponsors propose that the review should progress in the form of a gap analysis, whereby a comprehensive list of system weaknesses (the gaps) is initially identified, compiled and agreed. Appropriate solutions can then be considered to address the gaps. Some of these may already have been brought up in previous documents submitted to the Committee. Others may be new proposals that are yet to be tabled.

14 When it is clear how comprehensively we can address the gaps, the appropriate level of enforcement will be apparent. Appropriate level of enforcement should be contemplated when the weaknesses are fully addressed. Otherwise in some sectors, well designed and efficiently operated ships will become unviable, leading to trans-modal shift of cargo to less efficient modes such as road, rail and air; clearly an outcome which is not in the interests of global decarbonization.

15 The Group also acknowledged that it may be necessary to apply different solutions to different ship types, and due to the complexity of the industry a "one size fits all" approach is unlikely to provide the best outcome for the existing CII rating system.

Action requested of the Committee

16 The Committee is invited to consider this document and task a working group, if established, on reviewing the CII to:

.1 take note of the results of the survey poll given in the annex to this document for assisting a working group, if established, in exploring consensus within the wider group of the working group participants; and

.2 take into consideration the way forward proposed in paragraphs 11 to 15, i.e. to establish a gap analysis methodology, thereby ensuring the most comprehensive set of solutions to the apparent system weaknesses.

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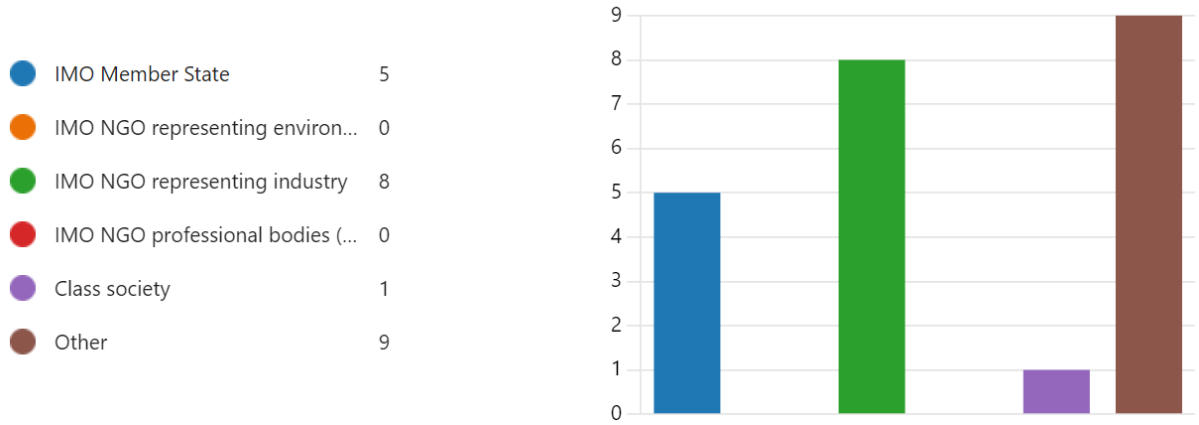
ANNEX

RESULTS OF THE SURVEY POLL

Respondents

The survey poll was completed by representatives of 23 organizations, including five Member States, eight IMO NGO's representing industry, one classification society, and nine other organizations.



N.B.: To maintain confidentiality the respondents did not provide their names. They just confirmed the type of organization they represent, by themselves selecting from the categories listed in the above graph.

CII weaknesses

A list of CII system weaknesses as defined by previous MEPC documents were provided, and the responders were asked to confirm which in their opinion should be addressed with the review:

CII weakness	**Number of responders in favour of addressing within the review**
1. Cargo handling by geared bulk carriers. Under CII, ships that use shore side loading equipment appear more efficient than those with onboard loading equipment, which is not necessarily true. Reference: MEPC 76/7/43 (INTERCARGO) and MEPC 80/6/3 (Liberia)	10
2. Port waiting time. Port waiting time adversely impacts CII ratings because generators continue to consume fuel, but the ship travels no distance. Port waiting time is outside of the control of the ship, and therefore this unfairly impacts the CII rating. Reference: ISWG-GHG 12/2/1 (BIMCO et al), ISWG-GHG 12/2/2 (IPTA et al.), ISWG-GHG 12/2/3 (Malaysia et al.), MEPC 78/7/22 (India), MEPC 79/7/13 (Bahamas et al), , MEPC 81/INF.29 (INTERCARGO) and MEPC 81/INF.30 (INTERCARGO).	21

3. Short Voyages. Short voyages involve a higher proportion of manoeuvring, accelerating and decelerating etc. and thereby consume more fuel than long voyages. This effect is not related to the design of the ship, or how efficiently it is operated. Therefore this represents an unfair penalty on the rating of ships undertaking short voyages. Reference: ISWG-GHG 12/2/3 (Malaysia et al.), ISWG-GHG-12/2/6 (Liberia), MEPC 79/7/13 (Bahamas et al.), MEPC 79/INF.19 (INTERCARGO) and MEPC 81/INF.28 (INTERCARGO).	21
4. Adverse weather. Adverse weather significantly increases fuel consumption. Therefore ships that undertake voyages within harsh metocean environments are unfairly rated by CII. Reference: ISWG-GHG 12/2/2 (IPTA et al.), ISWG-GHG 12/2/3 (Malaysia et al.), ISWG-GHG 12/2/4 (Malaysia et al.).	14
5. AER and cgDIST cargo proxies. Use of cargo proxies within the AER and cgDIST metrics provides perverse incentives to minimize the carriage of cargo. Reference: MEPC 77/7/14 (Norway), MEPC 80/INF.28 (Republic of Korea), MEPC 81/INF.31(INTERCARGO) and MEPC 81/INF.32 (INTERCARGO).	7
6. Inappropriate reference line for self unloading bulk carriers. Self unloading bulk carriers are different in design and operation to bulk carriers, and therefore their energy needs are different to bulk carriers. During the Correspondence Group that developed the G5 guidelines, there was consensus for the assignment of a dedicated reference line for this type of ship. Reference: ISWG-GHG 12/2/5 (ICS) and MEPC 79/7/27 (ICS and INTERCARGO).	6
7. Cruise ship port time. Cruise ships spend significant periods of time in port, where they use less fuel than when they are in transit. However, because no distance is covered whilst they are in port, this is detrimental to their CII rating. Reference: ISWG-GHG 12/2/7 (CLIA), MEPC 78/7/23 (Panama et al.), MEPC 79/7/21 (Marshall Islands et al.) and MEPC 80/INF.34 (CLIA).	11
8. Fuel tank sludge. Fuel received by ships often contains small amounts of water and sludge, which although recorded within the fuel quantity on the bunker delivery note is not burned and does not produce CO_2. Therefore, these contaminants unfairly influence the CII rating. Reference: MEPC 77/7/9.	5
9. Energy consumed by LNG carrier cargo transfer pumps and compressors. The fuel used by LNG carriers for cargo transfer pumps and compressors, is not adequately accounted for within the CII rating system. Ref: MEPC 78/7/16 (India).	9
10. Steam driven LNG carriers. Steam driven LNG carriers are of different design to engine driven LNG carriers . Including both types within the same reference line will result in inaccurate CII ratings. There are also operational factors relating to the boil off-gas which adversely affect the CII rating. Reference: MEPC 79/7/1 (INTERTANKO) and MEPC 79/7/2 (INTERTANKO).	10
11. Refrigerated cargo ships. Although ships carrying refrigerated containers can utilize the FC electrical correction factor, it is not possible for ships carrying refrigerated cargo to utilize the same correction factor. Therefore, ships carrying refrigerated cargo will be unfairly rated. Reference: MEPC 79/7/15 (Bahamas and ICS)	11
12. Operational factors affecting fuel consumption in the chemical/parcel tanker sector. The diverse nature of chemical/parcel tanker trade and the differing operational demands placed on fuel consumption, can result in efficient ships being penalized. Reference: MEPC 75/7/8 (IPTA) and MEPC 76/7/36 (IPTA).	13
13. Inappropriate cgDIST metric utilized for RoRos. Document MEPC 81/6/15 (INTERFERRY) details why cgDIST is an inappropriate metric for RoRos.	7

Solutions to address the weaknesses

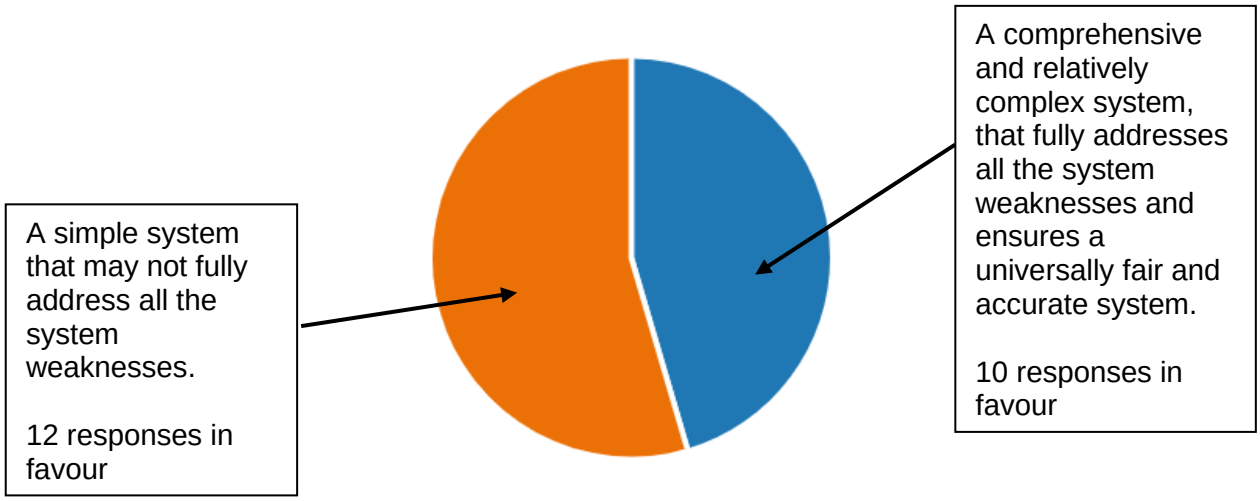
A list of CII system improvements as defined by previous MEPC documents was provided, and the responders were asked to confirm which in their opinion are potential solutions that should be considered within the review:

CII improvements	**Number of responders who agree this is a potential solution and should be considered within the review**
1. Cargo handling by geared bulk carriers. MEPC 76/7/43 (INTERCARGO) and MEPC 80/6/3 (Liberia) proposed a correction factor for the fuel used by geared bulk carriers as a result of cargo handling operations.	7
2. Port waiting time. MEPC 78/7/22 (India) proposed a correction factor to address the impact of port waiting time on CII.	15
3. Short Voyages. ISWG-GHG 12/2/6 (Liberia) proposed a correction factor to address the impact of short voyages on CII.	16
4. Adverse weather. ISWG-GHG 12/2/4 (Malaysia et al.) proposed that ships should have the option of installing onboard wave height measuring equipment that would enable Administrations to verify the actual seastates experienced hour by hour by a ship, thereby enabling the application of the adverse weather voyage adjustment that was considered by the Correspondence Group on Carbon Intensity Reduction.	9
5.1 AER and cgDIST cargo proxies. To address the perverse incentives provided by AER, MEPC 80/INF.28 (Republic of Korea) proposed the alternative metric EEOI.	4
5.2 AER and cgDIST cargo proxies. To address the perverse incentives provided by AER, MEPC 77/7/14 (Norway) proposed a cargo utilization fuel consumption correction factor "fladen" to be included within the CII formula.	3
5.3 AER and cgDIST cargo proxies. To address the perverse incentives provided by AER, ISWG-GHG 6/2/10 (China) proposed an alternative operational indicator for the tramp segments, named the Energy Efficiency performance Indicator (EEPI). EEPI is similar to AER, but the total distance travelled in the denominator of AER has been replaced by the distance travelled whilst laden.	4
6. Inappropriate reference line for self unloading bulk carriers. ISWG-GHG 12/2/5 (ICS and INTERCARGO) and MEPC 79/7/27 (ICS and INTERCARGO) proposed a dedicated reference line for this type of ship.	7
7. Cruise ship port time. MEPC 80/INF.34 proposed an alternative metric for cruise ships.	8
8. Fuel tank sludge. MEPC 77/7/9 (India) proposed either a fixed correction factor of [0.5%] [1.0%] of total quantity of fuel consumed, or deduction of 50% of total sludge landed ashore.	5

CII improvements	**Number of responders who agree this is a potential solution and should be considered within the review**
9. Energy consumed by LNG carrier cargo transfer pumps and compressors. MEPC 78/7/16 (ICS and INTERTANKO) proposed a correction factor which corrects the CII calculation by the amount of fuel consumption of cargo transfer pumps and compressors.	6
10. Steam driven LNG carriers. MEPC 79/7/1 (INTERTANKO) and MEPC 79/7/2 (INTERTANKO) proposed a correction factor which would discount the amount of gas/fuel consumption used for cargo maintenance but not for transport work. The documents also proposed a fleet compliance option.	7
11. Refrigerated cargo ships. MEPC 79/7/15 (Bahamas and ICS) proposed to add refrigerated cargo carriers to the scope of application of the FC electrical,j correction factor.	9
12. Operational factors affecting fuel consumption in the chemical/parcel tanker sector. MEPC 75/7/8 (IPTA) and MEPC 76/7/36 (IPTA) proposed that a correction factor should apply for boiler fuel, and this has already been incorporated in to the G5 guidelines for tankers. However, the documents do not suggest specific solutions to address the identified operational factors that will impact the CII rating of this ship type.	11
13. Inappropriate cgDIST metric utilized for RoRos. MEPC 81/6/15 (INTERFERRY) proposed to approach RoRo carbon efficiency on a per ship basis, which would enable targeted interventions specific to a route or a ship with a specific operational profile.	6
Weaknesses 1 to 7, and 9 to 13. The document "Improvement to CII metric based on equivalent transport work principle" was presented by the Indian Register of Shipping (IRCLASS) at RINA's CII Conference that was held at IMO from 16 to 17 January 2024. The document offers a holistic solution which seeks to address most of the above listed weaknesses and anomalies. The document may be downloaded here	7

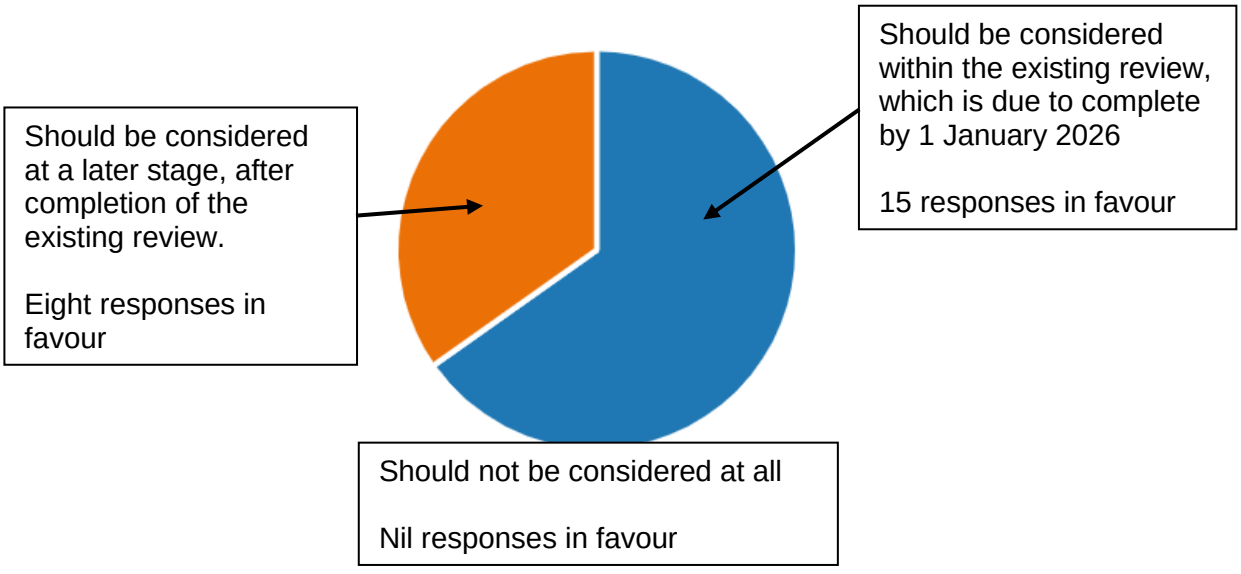
Level of complexity of the CII rating system

With regard to the preferred level of complexity of the CII rating system, the poll confirmed as follows:



Potential radical changes to the CII rating system

With regard to the prospect of a radical change to the CII rating system (as opposed to improvements to the existing system) the poll confirmed:



Level of enforcement

With regard to the preferred level of enforcement going forward, the poll confirmed: