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ENERGY EFFICIENCY OF SHIPS

Longer term consideration of a sea passage-based CII methodology or alternative efficiency metrics for ships on short-sea voyages

Submitted by ICS

SUMMARY

Executive summary: Operational data provided by the Singapore Shipping Association (SSA) demonstrates that ships operating on very short international voyages are structurally disadvantaged under the current carbon intensity indicator (CII) methodology. Data from bunker tankers, typically operating below 30 nautical miles, resulted in D/E ratings that do not accurately reflect their actual efficiency. This document proposes longer-term consideration of a sea passage-based CII methodology or alternative efficiency metrics that better reflect the operating conditions and characteristics of short-sea voyages.

*Strategic direction,
if applicable:* 3

Output: 3.2

Action to be taken: Paragraph 28

Related documents: MEPC 80/17/Add.1; MEPC 81/16, MEPC 81/INF.27, MEPC 81/INF.28; MEPC 82/6/9, MEPC 82/6/31; ISWG-APEE 1/2/8 and ISWG-GHG 8/3/1

Introduction

1 MEPC 76 adopted amendments to MARPOL Annex VI introducing the carbon intensity indicator (CII) and annual rating system as part of the short-term GHG reduction measure, effective from 1 January 2023.

2 MEPC 80 approved the Review plan of the short-term GHG reduction measure, including a data gathering stage (MEPC 80 to MEPC 82) followed by a data analysis stage. MEPC 81 acknowledged widespread concerns regarding unintended consequences of the CII mechanism, particularly for ships undertaking short voyages and extended port waiting time (MEPC 81/16, paragraph 6.23.2).

3 The Singapore Shipping Association (SSA) has conducted structured consultations primarily with bunker tanker operators and classification societies operating in the Singapore

regional trades. This document presents findings from that exercise and proposes targeted remedial action.

Operational characteristics of ships such as bunker tankers in Singapore and regional trades – data provided by SSA

4 Ships such as bunker tankers, operating out of Singapore, typically undertake voyage distances of 10 to 30 nautical miles on international routes between Indonesia, Malaysia and Singapore, as well as domestic voyages within Singapore port limits.

5 Ships operate under a distinct operational profile characterized by:

- .1 very short sailing durations (often under five hours at sea);
- .2 high proportion of time at anchorage or alongside, waiting for cargo or port clearance;
- .3 no distinction in voyage distance or fuel consumption between domestic and short international voyages, yet short international voyages trigger full CII applicability;
- .4 a significant proportion of fuel consumption arises from cargo transfer operations, auxiliary machinery and hotel loads rather than propulsion; and
- .5 quick schedule turnaround makes it difficult to segregate fuel use by activity and apply the necessary correction factor for cargo transfer operations.

6 Ships operating solely within Singapore waters fall outside the CII framework, while ships travelling only a few nautical miles across a national boundary become fully subject to CII, despite having substantially similar operations and environmental impact. As a result, even modern, fuel-efficient ships are consistently assigned "D" or "E" ratings under the current CII framework, with no meaningful technical levers available to improve performance.

7 The unique geography of Indonesia, Malaysia and Singapore creates perverse operational incentives as illustrated in figure 1 of the annex to this document.

8 Singapore is situated at the southern tip of the Malay Peninsula, with the nearest international ports in Malaysia (e.g. Pasir Gudang, Tanjung Pelepas) and Indonesia (e.g. Batam, Bintan) located within 10 to 30 nautical miles. Figure 2 of the annex illustrates typical bunker tanker routes, which remain within this region.

9 Under the current CII framework, a ship operating exclusively on such short international voyages will inevitably receive a "D" or "E" rating regardless of its technical efficiency. To improve its CII rating, a ship would need to artificially increase its distance travelled per voyage – for example, by sailing to a more distant port such as Vung Tau (Viet Nam), approximately 700 nautical miles away, before returning to Singapore.

10 Such a practice would:

- .1 increase absolute CO₂ emissions substantially, contrary to the objectives of the 2023 IMO GHG Strategy;
- .2 impose significant additional fuel and operating costs on shipowners, without any corresponding environmental benefit;

- .3 distort normal trading patterns and reduce the availability of bunker ships for legitimate shortsea shipping services; and
- .4 undermine the integrity of the CII as a measure of genuine operational efficiency.

11 ICS submits that requiring ships to undertake artificially long voyages solely to improve a CII rating cannot be the intended outcome of an internationally binding instrument. This perverse incentive demonstrates that the current CII methodology is fundamentally misaligned with the operational reality of geographically constrained trades.

Summary of data collection exercise provided by SSA

12 Between May and June 2026, the SSA conducted a voluntary data collection exercise among bunker tanker operators/owners operating in the Singapore region. Participation was open to SSA members, with an option for anonymization.

13 A simplified data template was developed and circulated, comprising verified IMO Data Collection System (DCS) parameters already submitted to recognized organizations, including:

- .1 ship particulars (IMO number) and EEXI;
- .2 total annual distance travelled (nm);
- .3 total annual steaming time (including movements within anchorage);
- .4 total annual fuel consumption (tonnes); and
- .5 attained CII, required CII, and final rating (A to E).

14 Data was captured on an annual, aggregated basis rather than voyage by voyage, consistent with verified IMO DCS submissions. Ships with mixed domestic and international operations submitted data both segregated and combined, demonstrating consistent trends irrespective of voyage classification.

15 The exercise, compiled under table 1 of the annex, confirmed that most participating bunker tankers recorded "D" or "E" ratings under the current CII methodology. Two ships recorded "A" and "B" ratings only because a one-off delivery voyage from China to Singapore materially increased their annual distance sailed; members advised that, under their normal regional operating profile, these ships would also be expected to receive an "E" rating in the following reporting year. This demonstrates that the ratings are strongly influenced by voyage distance rather than the ships' underlying technical or operational efficiency. The majority recorded "D" or "E" ratings, consistent with the findings in document MEPC 82/6/9 (IBIA).

Analysis: Impact of short voyage duration on attained CII

16 The two key variables in CII calculation are CO₂ emissions (fuel consumption) and distance travelled (or voyage duration). For bunker vessels, the operational duty consists predominantly of voyages lasting less than 10 to 20 hours at sea, which the regression analysis in document MEPC 81/INF.28 (INTERCARGO) identified as the region where attained CII rises sharply as voyage duration decreases.

17 Bunker tankers operating regional trades (e.g. Singapore to Batam or Pasir Gudang) routinely record voyage durations of two to five hours, placing them in the steepest part of the curve. Such ships cannot achieve a "C" rating under current requirements, nor under the strengthened Z reduction factors introduced for 2026 to 2030.

International precedent and comparators

18 The SSA reviewed international examples that support tailored treatment:

- .1 Europe (ARA region): Most bunker barges are classified as Inland Waterways (IWW) ships and are not subject to IMO CII requirements (EUR-Lex summary on inland waterways ships); and
- .2 Canada (Great Lakes): A domestic "CII-style" framework applies, with locally defined baselines and adjusted comparisons for ships operating exclusively within the Great Lakes – St. Lawrence Seaway system (Transport Canada Ship Safety Bulletin No.05 2025).

19 These examples demonstrate the feasibility of alternative or modified CII treatment for geographically constrained operations. Singapore's bunker tankers operate in an analogous manner yet remain fully subject to CII without any correction or exemption.

Supporting evidence from SSA data and visualizations

20 The following supporting materials, prepared from SSA's data and operational insights, are attached to the annex to this document:

- .1 Figure 1 of the annex: Regional map of Singapore, Malaysia and Indonesia, showing key ports and the confined geographic area of operation (Singapore Strait, Johor and Riau Islands); and
- .2 Figure 2 of the annex: Map of typical bunker tanker trading routes, demonstrating that ships operate within a 10 to 30 nautical mile radius from Singapore.

21 Additional route maps, voyage comparisons and AIS data further demonstrate short-sea passages, similar voyage distances and fuel consumption, and significant anchorage time.

22 These materials collectively demonstrate that CII penalties arise from operational profile, not ship inefficiency.

Recommended regulatory options

23 The Working Group on Air Pollution and Energy Efficiency considered whether a short-voyage correction factor should be pursued. While existing correction factors may be appropriate for the specific operational circumstances for which they were developed, members concluded that they would not adequately address the normal operating profile of regional harbour craft and bunker tankers undertaking frequent, very short international voyages. The issue is therefore not an exceptional operational event requiring a correction, but a fundamental mismatch between the present CII methodology and this category of ship. Data provided by SSA indicates that vessels undertaking such short international voyages are structurally disadvantaged under the current CII framework.

Recognition of very short international voyages and refocusing CII on the sea passage

24 It is recommended to recognize that the environmental impact and operational characteristics of these vessels are essentially comparable to similar ships operating domestically within the same geographical area, and that crossing an international boundary alone should not automatically result in the full application of CII where the ship's underlying operating profile remains unchanged.

25 The unique geography of the Indonesia-Malaysia-Singapore region results in frequent short international voyages that are operationally distinct from conventional international sea passages. Similar concepts under other IMO instruments, including the Ballast Water Management Convention, also provide precedent for recognizing geographically constrained operations and applying differentiated regulatory treatment where appropriate.

26 ICS supports further consideration of refocusing the CII calculation on the sea passage, as previously proposed in documents MEPC 82/6/31 (Brazil et al.) and ISWG-APEE 1/2/8 (RINA). For regional ships, this would better distinguish navigation efficiency from fuel consumed during cargo transfer, waiting, anchorage and other non-propulsion activities. Within ICS' most recent submission (MEPC 85/6/3) it is recognized that this is a long-term option, as IMO is presently collecting the relevant data and has not yet amended the CII calculation methodology.

Other possible mitigation measures

27 Due to the exceptionally short duration of these voyages, refocusing CII solely on the sea passage may be insufficient to fully address the structural disadvantage faced by regional ships and bunker tankers. Even during the sea passage, these ships are required to undertake frequent manoeuvring and operate in congested waters, which can materially affect fuel consumption despite the limited distance travelled. Therefore, if necessary, ICS may consider further submissions proposing additional or alternative measures that more accurately reflect the carbon efficiency of such ships. Such approaches could be further assessed using operational data to determine whether they provide a more representative measure of carbon efficiency for regional ships.

Action requested of the Committee

28 The Committee is invited to note the information for ships submitted under the data collection exercise done by SSA and specifically consider the proposed options in paragraphs 23 and 27 and take action as appropriate.

ANNEX

REGIONAL MAP AND OPERATING ROUTES (INDONESIA, MALAYSIA, SINGAPORE)

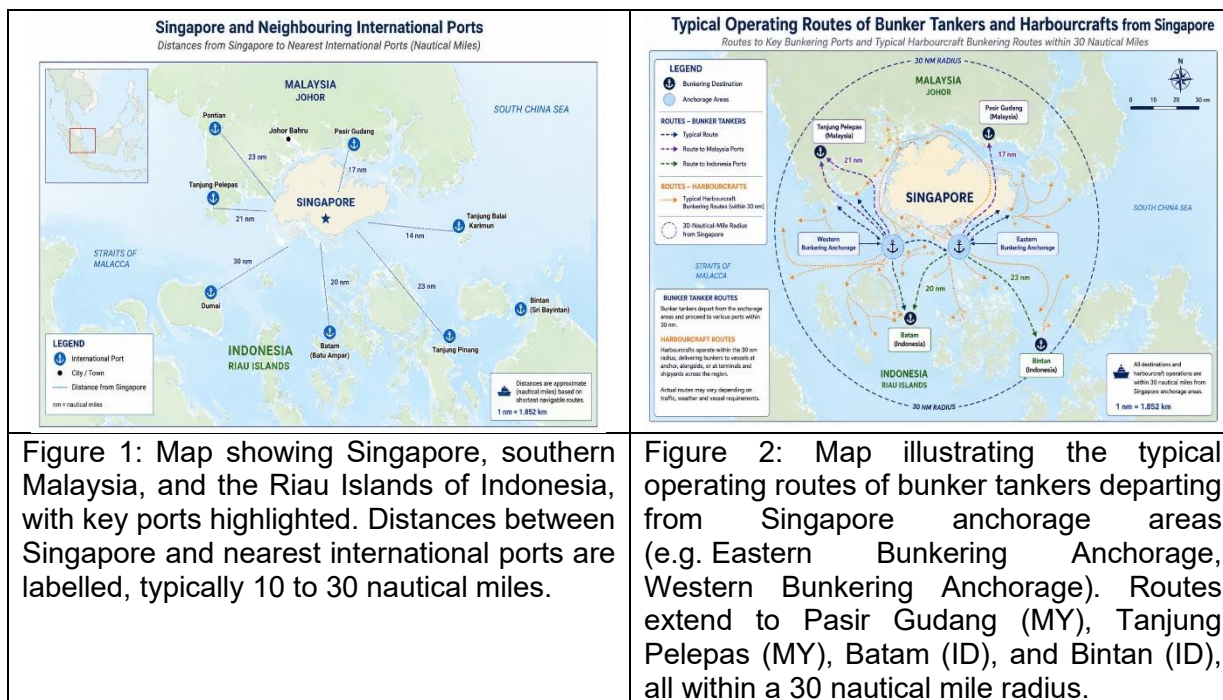


Table 1: Consolidated ship CII performance and operational data

Vessel Name	IMO Number	Attained CII	Required CII	CII Rating	EEXI (gCO ₂ /t·nm)	Distance Travelled (nm)	Distance Ballast (nm)	Steaming Time (hours)	Berth Time (hours)	Company
SEA UNITY	9561411	26.259	18.355	E	13.3	10,244.5	Not provided	2,328.3	Not provided	Equatorial Marine Fuel Management Services Pte Ltd
EM NATASHA	1027122	24.933	19.866	D	11.9	9,066.9	Not provided	1,799.98	Not provided	Equatorial Marine Fuel Management Services Pte Ltd
EM NIKITA	1027134	26.454	19.866	E	12.0	7,239.9	Not provided	1,375.98	Not provided	Equatorial Marine Fuel Management Services Pte Ltd
EM SHONA	1072660	18.096	19.866	B	12.0	2,668.5	Not provided	376.1	Not provided	Equatorial Marine Fuel Management Services Pte Ltd
EM SHARLOTE	1072672	12.451	19.866	A	12.0	2,209	Not provided	213.1	Not provided	Equatorial Marine Fuel Management Services Pte Ltd
EMMA COSULICH	9825049	37.303	19.869	E	13.6	6,756.97	Not provided	1,547.33	Not provided	Fratelli Cosulich Bunkers (S) Pte Ltd
EAGER	9378694	36.964	17.910	E	12.9	3,584.5	Not provided	1,529.01	Not provided	Fratelli Cosulich Bunkers (S) Pte Ltd
ORACLE	9525819	21.306	18.487	D	13.1	9,387.34	Not provided	1,633.5	Not provided	Hong Lam Marine Pte Ltd
EPITOME	9910973	26.798	18.969	E	12.1	7,792.8	Not provided	1,690	Not provided	Hong Lam Marine Pte Ltd
ESSENCE	9910997	26.184	18.989	E	11.9	7,431.1	Not provided	1,948.3	Not provided	Hong Lam Marine Pte Ltd
MAESTRO	9908554	28.181	18.925	E	12.1	6,621.3	Not provided	1,377.2	Not provided	Hong Lam Marine Pte Ltd
MAJESTY	9908566	30.142	18.976	E	12.1	6,824.63	Not provided	1,529.3	Not provided	Hong Lam Marine Pte Ltd

Note: Distance Ballast and Berth Time data were not provided.

Data verified by RO.

Ships **EM SHONA** and **EM SHARLOTE** were delivered from China and undertook a single international voyage from China to Singapore, resulting in ratings of "B" and "A", respectively. Under their normal regional operating profile, they would be expected to receive an "E" rating in the following reporting year.

Note: Without correction, this ship would remain at a D or E rating indefinitely. With correction, it achieves a C rating.