



International Maritime Bureau



CIRCULAR

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To: Ship-owners and surveyors

New amendments to MARPOL Annex VI

Below are presented the new amendments

Regulation 26 Ship Energy Efficiency Management Plan (SEEMP)

- 3 In the case of a ship of 5,000 gross tonnage and above, which falls into one or more of the categories in regulation 2.2.5, 2.2.7, 2.2.9, 2.2.11, 2.2.14 to 2.2.16, 2.2.22, and 2.2.26 to 2.2.29 (See note page 3, 4) of this Annex:
 - .1 On or before 1 January 2023 the SEEMP shall include:
 - .1 a description of the methodology that will be used to calculate the ship's attained annual operational CII required by regulation 28 of this Annex and the processes that will be used to report this value to the ship's Administration;
 - .2 the required annual operational CII, as specified in regulation 28 of this Annex, for the next three years;
 - .3 an implementation plan documenting how the required annual operational CII will be achieved during the next three years; and
 - .4 a procedure for self-evaluation and improvement.
 - .2 For a ship rated as D for three consecutive years or rated as E in accordance with regulation 28 of this Annex, the SEEMP shall be reviewed in accordance with regulation 28.8 of this Annex to include a plan of corrective actions to achieve the required annual operational CII.
 - .3 The SEEMP shall be subject to verification and company audits taking into account the guidelines to be developed by the Organization.

Regulation 28 Operational carbon intensity

Attained annual operational carbon intensity indicator (attained annual operational CII)

- 1 After the end of calendar year 2023 and after the end of each following calendar year, each ship of 5,000 gross tonnage and above which falls into one or more of the categories in regulation 2.2.5, 2.2.7, 2.2.9, 2.2.11, 2.2.14 to 2.2.16, 2.2.22, and 2.2.26 to 2.2.29 (See note page 3, 4) of this Annex shall calculate the attained annual operational CII over a 12-month period from 1 January to 31 December for the preceding calendar year, using the data collected in accordance with regulation 27 of this Annex, taking into account the guidelines to be developed by the Organization.
- 2 Within three months after the end of each calendar year, the ship shall report to its Administration, or any organization duly authorized by it, the attained annual operational CII via electronic communication and using a standardized format to be developed by the Organization.
- 3 Notwithstanding 1 and 2 of this regulation, in the event of any transfer of a ship addressed in regulations 27.4, 27.5 or 27.6 completed after 1 January 2023, a ship



shall, after the end of the calendar year in which the transfer takes place, calculate and report the attained annual operational CII for the full 12-month period from 1 January to 31 December in the calendar year during which the transfer took place, in accordance with regulations 28.1 and 28.2, for verification in accordance with regulation 6.6 of this Annex, taking into account guidelines to be developed by the Organization. Nothing in this regulation relieves any ship of its reporting obligations under regulation 27 or this regulation of this Annex.

Required annual operational carbon intensity indicator (required annual operational CII)

- 4 For each ship of 5,000 gross tonnage and above which falls into one or more of the categories in regulation 2.2.5, 2.2.7, 2.2.9, 2.2.11, 2.2.14 to 2.2.16, 2.2.22, and 2.2.26 to 2.2.29 (See note page 3, 4) of this Annex, the required annual operational CII shall be determined as follows:

$$\text{Required annual operational CII} = \left(1 - \frac{Z}{100}\right) \cdot \text{CII}_R$$

where,

Z is the annual reduction factor to ensure continuous improvement of the ship's operational carbon intensity within a specific rating level; and
CII_R is the reference value.

- 5 The annual reduction factor Z⁴⁴ and the reference value CII_R shall be the values defined taking into account the guidelines to be developed by the Organization.

⁴⁴ The annual reduction factor is specific to each category of ship. This factor is defined to increase progressively to meet the objectives of the *Initial IMO Strategy on reduction of GHG emissions from ships* (resolution MEPC.304(72)).

Operational carbon intensity rating

- 6 The *attained annual operational CII* shall be documented and verified against the required annual operational CII to determine operational carbon intensity rating A, B, C, D or E, indicating a major superior, minor superior, moderate, minor inferior, or inferior performance level, either by the Administration or by any organization duly authorized by it, taking into account the guidelines developed by the Organization. The middle point of rating level C shall be the value equivalent to the required annual operational CII set out in paragraph 4 of this regulation.

Corrective actions and incentives

- 7 A ship rated as D for three consecutive years or rated as E shall develop a plan of corrective actions to achieve the required annual operational CII.
- 8 The SEEMP shall be reviewed to include the plan of corrective actions accordingly, taking into account the guidelines to be developed by the Organization. The revised SEEMP shall be submitted to the Administration or any organization duly authorized by it for verification, preferably together with, but in no case later than 1 month after reporting the attained annual operational CII in accordance with paragraph 2 of this regulation.
- 9 A ship rated as D for three consecutive years or rated as E shall duly undertake the planned corrective actions in accordance with the revised SEEMP.
- 10 Administrations, port authorities and other stakeholders as appropriate, are encouraged to provide incentives to ships rated as A or B.



Review

- 11 A review shall be completed by 1 January 2026 by the Organization to assess:
- .1 the effectiveness of this regulation in reducing the carbon intensity of international shipping;
 - .2 the need for reinforced corrective actions or other means of remedy, including possible additional EEXI requirements;
 - .3 the need for enhancement of the enforcement mechanism;
 - .4 the need for enhancement of the data collection system; and
 - .5 the revision of the Z factor and CII_R values.

If based on the review the Parties decide to adopt amendments to this regulation, such amendments shall be adopted and brought into force in accordance with the provisions of article 16 of the present Convention.

Regulation 23 Attained Energy Efficiency Existing Ship Index (attained EEXI)

- 1 The attained EEXI shall be calculated for:
- .1 each ship; and
 - .2 each ship which has undergone a major conversion, which falls into one or more of the categories in regulation 2.2.5, 2.2.7, 2.2.9, 2.2.11, 2.2.14 to 2.2.16, 2.2.22, and 2.2.26 to 2.2.29 (See note page 3, 4) of this Annex. The attained EEXI shall be specific to each ship and shall indicate the estimated performance of the ship in terms of energy efficiency, and be accompanied by the EEXI technical file which contains the information necessary for the calculation of the attained EEXI and which shows the process of the calculation. The attained EEXI shall be verified, based on the EEXI technical file, either by the Administration or by any organization duly authorized by it.
- 2 The attained EEXI shall be calculated taking into account the guidelines developed by the Organization.
- 3 Notwithstanding paragraph 1 of this regulation, for each ship to which regulation 22 of this Annex applies, the attained EEDI verified by the Administration or by any organization duly authorized by it in accordance with regulation 22.1 of this Annex may be taken as the attained EEXI if the value of the attained EEDI is equal to or less than that of the required EEXI as required by regulation 25 of this Annex. In this case, the attained EEXI shall be verified based on the EEDI technical file.

Note:

- 2.2.5 *Bulk carrier* means a ship which is intended primarily to carry dry cargo in bulk, including such types as ore carriers as defined in regulation of chapter XII of the International Convention for the Safety of Life at Sea (SOLAS), 1974, (as amended) but excluding combination carriers.
- 2.2.7 *Combination carrier* means a ship designed to load 100% deadweight with both liquid and dry cargo in bulk.
- 2.2.9 *Containership* means a ship designed exclusively for the carriage of containers in holds and on deck.
- 2.2.11 *Cruise passenger ship* means a passenger ship not having a cargo deck, designed exclusively for commercial transportation of passengers in overnight accommodations on a sea voyage.
- 2.2.14 *Gas carrier* means a cargo ship, other than an LNG carrier as defined in paragraph 2.16 of this regulation, constructed or adapted and used for the carriage in bulk of any liquefied gas.
- 2.2.15 *General cargo ship* means a ship with a multi-deck or single deck hull designed primarily for the carriage of general cargo. This definition **excludes** specialized dry cargo ships, which are not included in the calculation of reference lines for general cargo ships, namely livestock carrier, barge carrier, heavy load carrier, yacht carrier, nuclear fuel carrier.



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- 2.2.16 *LNG carrier* means a cargo ship constructed or adapted and used for the carriage in bulk of liquefied natural gas (LNG).
- 2.2.22 *Refrigerated cargo carrier* means a ship designed exclusively for the carriage of refrigerated cargoes in holds.
- 2.2.26 *Ro-ro cargo ship* means a ship designed for the carriage of roll-on-roll-off cargo transportation units.
- 2.2.27 *Ro-ro cargo ship (vehicle carrier)* means a multi-deck roll-on-roll-off cargo ship designed for the carriage of empty cars and trucks.
- 2.2.28 *Ro-ro passenger ship* means a passenger ship with roll-on-roll-off cargo spaces.
- 2.2.29 *Tanker* means an oil tanker as defined in regulation 1 of Annex I of the present Convention or a chemical tanker or an NLS tanker as defined in regulation 1 of Annex II to the present Convention.



Comments and clarification for the above regulations:

a. SEEMP Part III - Regulation 26

The SEEMP Part III which is mandatory for ship of 5,000 gross tonnages and above assist companies in the calculation of the required CII (Carbon Intensity Indicator) (see regulation 28.4 above). Related to this annual rating (see par. c. below), the SEEMP Part III is a mandatory, ship-specific document that lays out the plan to improve the CII, and therefore the vessel's operational energy efficiency, for the next three years.

The SEEMP Part III is subject to regular updates and revisions, reflecting changing performance and required measures. It must be verified and kept on board the respective vessel from **1 January 2023**.

A Confirmation of Compliance (CoC) has to be issued with the CoC.

Verification of SEEMP Part III

As a Recognized Organization, IMB is able to verify the SEEMP Part III.

The following must be included in the SEEMP Part III:

- The required CII for the next three years, calculated based on the individual vessel's particulars
- The target CII for the next three years, calculated based on the vessel's operational data
- An implementation plan documenting how the required CII will be achieved during the next three years, with yearly targets
- Procedures for self-evaluation and improvement
- Possibly corrective action plan (in case of inferior rating)

b. SEEMP Part III, DCS and CII

The CII must be calculated and reported to the Data Collection System (DCS) verifier from 2024 together with the aggregated DCS data for the previous year, including any correction factors and voyage adjustments. The attained CII and the environmental rating (A to E) will be noted on the DCS Statement of Compliance (SoC), which will be required to be kept on board for five years.

In case of a D rating for three consecutive years or one E rating, the SEEMP Part III must be updated with a corrective action plan and verified before the SoC can be issued. The corrective action plan should consist of an analysis of why the required CII was not achieved and include a revised implementation plan.

Environmental rating (A to E)

Based on a ship's CII, its carbon intensity will be rated A, B, C, D or E (where A is the best). The rating indicates a major superior, minor superior, moderate, minor inferior, or inferior performance level. The performance level will be recorded in a "Statement of Compliance" to be further elaborated in the ship's Ship Energy Efficiency Management Plan (SEEMP).

A ship rated D for three consecutive years, or E for one year, will have to submit a corrective action plan to show how the required index of C or above will be achieved. Administrations, port authorities and other stakeholders as appropriate,



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are encouraged to provide incentives to ships rated as A or B.

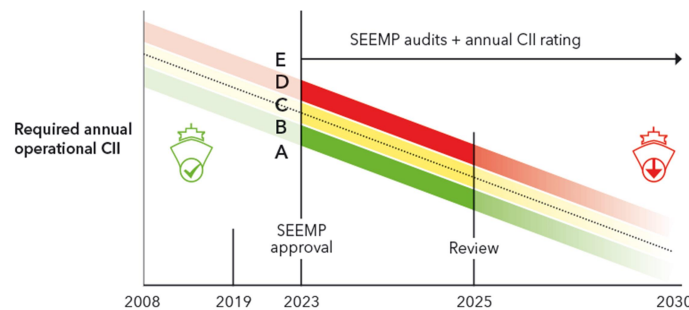
Improvement of rating

A ship can run on a low-carbon fuel clearly to get a higher rating than one running on fossil fuel, but there are many things a ship can do to improve its rating, for instance through measures, such as:

- hull cleaning to reduce drag;
- speed and routeing optimization;
- installation of low energy light bulbs; and
- installation of solar/wind auxiliary power for accommodation services.

c. The CII

The CII (Carbon Intensity Indicator) measures how efficiently a vessel above 5,000 GT transports goods or passengers and is given in grams of CO2 emitted per cargo-carrying capacity and nautical mile.



The first reporting of the CII based on 2023 data is due no later than 31 March 2024. Vessels will receive a rating of A (major superior), B (minor superior), C (moderate), D (minor inferior) or E (inferior performance level). The rating thresholds will become increasingly stringent towards 2030. A vessel rated D for three consecutive years or rated as E, will need to develop a plan of corrective actions.

CII – Carbon Intensity Indicator

The CII unit is “grams of CO2 emitted per cargo-carrying capacity and nautical mile”, whereby cargo capacity is either deadweight or gross tons depending on ship type. In addition, to cater for special design and operational circumstances, the correction factors and voyage adjustments can be applied to the basic CII calculations for the purposes of determining the rating.

Calculation of annual CII:

$$\text{CII} = \frac{\text{Annual fuel consumption} \cdot \text{CO}_2 \text{ factor}}{\text{Annual distance travelled} \cdot \text{Capacity}} \cdot \text{Correction factors}$$

To be developed



d. Energy Efficiency Existing Ship Index (EEXI)

EEXI overview and implementation

The **required EEXI** value is determined by the ship type, the ship's capacity and principle of propulsion and is the maximum acceptable attained EEXI value.

The **attained EEXI** must be calculated for the individual ship, which falls under the regulation.

EEXI compliance shall be verified and documented at the **first periodical IAPP survey completed on or after 1 January 2023** for vessels obliged to comply with the EEXI requirements. Two key parts must be taken into consideration and will require follow-up action, as appropriate:

a) **Statutory scope**, where IMB acts on behalf of the flag state administration:

- Verification of Attained EEXI is less than Required EEX.
- Approval of Technical File.
- Approval of Onboard Management Manual (OMM) – when measures involve engine power limitation (EPL) or shaft power limitation (SHAPOLI).
- Verification of implementation of measures by IMB.

b) **Class scope** according to IMB Rules for Classification of Ships to accept alterations if any have been carried out (EPL, energy efficiency devices, etc.):

- Approval where required
- Verification and testing of the installation by DNV surveyor

Upon satisfactory verification of the applicable statutory and class scope by the surveyor, a new IEEC will be issued for the respective vessels. Please note that the verification of the SEEMP kept on board is also a pre-requisite for issuance of the new IEEC.

It is important that the EEXI Technical File and OMM are approved, and the mitigating actions/alterations have been carried out at the latest by the time of the first periodical survey for the IAPP Certificate, on or after 1 January 2023. In all cases of non-compliance, IMB (acting on-behalf of flag state administrations) and ship owners/managers must seek advice from the administration concerning the issuance of an IEEC. In the worst case, the vessel might be faced with a Condition of Authority.



Guidelines for Development of a Ship Energy Efficiency Management Plan

Resolution	Title
MEPC.346(78)	2022 Guidelines for the Development of a Ship Energy Efficiency Management Plan (SEEMP) (revokes MEPC.282(70))
MEPC.347(78)	Guidelines for the Verification and Company Audits by the Administration of Part III of the Ship Energy Efficiency Management Plan (SEEMP)

Guidelines Concerning Ship Fuel Oil Consumption Data

Resolution	Title
MEPC.348(78)	2022 Guidelines for Administration Verification of Ship Fuel Oil Consumption Data and Operational Carbon Intensity (revokes MEPC.292(71))
MEPC.349(78)	2022 Guidelines for the Development and Management of the IMO Ship Fuel Oil Consumption Database (revokes MEPC.293(71))
MEPC.1/Circ.901	Guidance for Submission of Data to the IMO Data Collection System of Fuel Oil Consumption of Ships from a State Not Party to MARPOL Annex VI (revokes MEPC.Circ.871)

Revised Guidance on EEXI and CII Calculations

Resolution	Title
MEPC.350(78)	2022 Guidelines on the Method of Calculation of the Attained Energy Efficiency Existing Ship Index (EEXI) (revokes MEPC.333(76))
MEPC.351(78)	2022 Guidelines on Survey and Certification of the Attained Energy Efficiency Existing Ship Index (EEXI) (revokes MEPC.334(76))
MEPC.352(78)	2022 Guidelines on Operational Carbon Intensity Indicators and the Calculation Methods (CII Guidelines, G1) (revokes MEPC.336(76))
MEPC.353(78)	2022 Guidelines on the Reference Lines for Use with Operational Carbon Intensity Indicators (CII Reference Lines Guidelines, G2) (revokes MEPC.337(76))
MEPC.354(78)	2022 Guidelines on the Operational Carbon Intensity Rating of Ships (CII Rating Guidelines, G4) (revokes MEPC.339(76))
MEPC.355(78)	2022 Interim Guidelines on Correction Factors and Voyage Adjustments for CII Calculations (CII Guidelines, G5)

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