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Shipping Guidance Notice 118 (a)

IMO carbon reduction measures

(Supersedes SGN 118 to include REG UI 003 Amendment 01)

To: Ship Owners, Operators, Master's, Classification Societies and Recognised Organisations

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References:

- MARPOL Annex VI (as amended):
  - Energy Efficiency Design Index (EEDI);
  - Energy Efficiency Existing Ship Index (EEXI);
  - Ship Energy Efficiency Management Plan (SEEMP);
  - International Energy Efficiency Certificate (IEEC);
  - Carbon Intensity Indicator (CII).
- MEPC.1/Circ.795/Rev.7 – Unified Interpretations to MARPOL ANNEX VI (as amended)
- MEPC.347(78) - Guidelines for the verification and company audits by the Administration of part III of the Ship Energy Efficiency Management Plan (SEEMP) (as amended)
- Red Ensign Group Unified Interpretation (REG-UI- 003) - Cruise Passenger Vessels fitted with Gas Turbines (as amended)
- Red Ensign Group Unified Interpretation (REG-UI 004) - The use of Shaft Power Limitation (SHaPoLi) Systems (as amended)
- IMO Resolution MEPC.335(76) – Guidelines on the shaft/engine power limitation system to comply with the EEXI requirements and use of power reserve (as amended)
- IACS Recommendation No.172 - EEXI Implementation Guidelines (as amended)
- Gibraltar Merchant Shipping (Prevention of Pollution from Ships) Regulations 2009

1. Summary

This notice provides an overview of technical and operational measures to reduce greenhouse gas (GHG) emissions from ships introduced through amendments to Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL Convention) which establishes a mandatory energy efficiency regime for international shipping. This guidance covers the following aspects:

- Energy Efficiency Design Index (EEDI);
- Energy Efficiency Existing Ship Index (EEXI);
- Ship Energy Efficiency Management Plan (SEEMP);
- International Energy Efficiency Certificate (IEEC);
- Carbon Intensity Indicator (CII).

2. Introduction/background

2.1 In 2013, a framework was developed by the IMO to promote energy efficient design and operation of ships to reduce emissions of greenhouse gases (GHGs). The EEDI concept was implemented to target new ships, while the requirement to develop a SEEMP covered both new and existing ships. The rules applied to ships of 400GT or above and which met other relevant conditions.

2.2 In 2019 new rules were introduced for certain ships of 5,000GT and above to collect fuel oil consumption data. Compliance with this obligation is confirmed by the issue of a Statement of Compliance and the data is transferred to the IMO Ship Fuel Oil Consumption Database. The IMO produces an annual report to the Marine Environment Protection Committee (MEPC), summarizing the data collected.

2.3 In June 2021, the IMO adopted two further sets of amendments to Annex VI of the MARPOL Convention, the main IMO Convention which combats air pollution from ships: EEXI and the CII.

2.4 The amendments introduced new carbon intensity measures developed under the framework of the Initial IMO Strategy on Reduction of GHG Emissions from Ships agreed in 2018 and are aimed at improving the operational and technical energy efficiency of ships.

2.5 The technical measure, EEXI, tightens energy efficiency improvements on existing ships while the operational measure, the CII rating, grades ships “A - E” on their carbon intensity outcomes.

2.6 These new measures entered into force internationally on 1 November 2022 and took effect from 1 January 2023.

2.7 The requirements of Annex VI are applicable internationally and vessels are reminded that Port State Control in other states which are parties to the MARPOL Convention will expect Gibraltar registered vessels to comply with the requirements of Annex VI when they call at the ports of other contracting states.

2.8 EEXI and CII are part of the IMO’s short-term measures. Their effectiveness will be reviewed before 1 January 2026 and will aid in the development of further ambition in decarbonisation and progress on mid-term measures.

2.9 The EEDI, EEXI and CII regimes generally apply to the following ship types:

I. bulk carriers;
II. combination carriers;
III. containerships;
IV. cruise passenger ships;
V. gas carriers;
VI. general cargo ships;
VII. LNG carriers;
VIII. refrigerated cargo carriers;
IX. ro-ro cargo ships;
X. ro-ro cargo ships (vehicle carriers);
XI. ro-ro passenger ships;
XII. tankers.

2.10 The IMO has developed a package of guidance associated with the measures that supports the implementation of the Energy Efficiency chapter of Annex VI including:

- Resolution MEPC.212(63) – Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships;
- Resolution MEPC.346(78) - 2022 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP);
- Resolution MEPC.365(79) – 2022 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI);
- Resolution MEPC.231(65)– 2013 Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI);
- Resolution MEPC.364(79) – 2022 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships;
- Resolution MEPC.350(78) – 2022 Guidelines on the method of calculation of the attained Energy Efficiency Existing Ship Index (EEXI);
- Resolution MEPC.351(78) - 2022 Guidelines on survey and certification of the Energy Efficiency Existing Ship Index (EEXI);
- Resolution MEPC.335(76) 2021 Guidelines on the shaft / engine power limitation system to comply with the EEXI requirements and use of a power reserve;
- Resolution MEPC.352(78) - 2022 Guidelines on operational Carbon Intensity Indicators and the calculation methods (CII Guidelines, G1);
- Resolution MEPC.353(78) - 2022 Guidelines on the reference lines for use with Operational Carbon Intensity Indicators (CII Reference Lines Guidelines, G2);
- Resolution MEPC.338(76) - 2021 Guidelines on the Operational Carbon Intensity reduction factors relative to reference lines (CII Reduction Factors Guidelines, G3);
- Resolution MEPC.354(78) - 2022 Guidelines on the Operational Carbon Intensity Rating of ships (CII Rating Guidelines, G4);

- Resolution MEPC.355(78) - 2022 Interim Guidelines on correction factors and voyage adjustments for CII calculation (CII Guidelines, G5);
- Resolution MEPC.348(78) – 2022 Guidelines for administration verification of ship Fuel Oil Consumption Data and Operational Carbon Intensity.

3. Energy Efficiency Design Index

3.1 The Energy Efficiency Design Index (EEDI) regime is intended to provide a framework for newbuild vessels to gradually improve energy efficiency. It was developed in response to growing concerns about GHG emissions associated with the sector.

3.2 The EEDI is intended as a goal based, technology neutral measure that allows industry to determine the appropriate route to compliance for a newbuild ship.

3.3 As per MARPOL Annex VI, a "new" ship is defined as a vessel:

I. for which the building contract is placed on or after 1 January 2013; or

II. in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 1 July 2013; or

III. the delivery of which is on or after 1 July 2015.

3.4 The EEDI requirements are generally applicable to all new ships of 400GT and above, of the relevant types, as well as existing ships which have undergone a major conversion that is so extensive that the ship is regarded by the Administration as a newly constructed ship.

3.5 Reference should be made to Regulation 19 of Annex VI for other relevant conditions of application, and to Regulations 22 and 24 of the revised MARPOL Annex VI for the method of calculation of the attained EEDI and required EEDI values, together with the Guidelines referred to in paragraph 2.10 above.

3.6 The requirements are being phased in from 2013 to 2025 with increasingly stringent reductions required for new builds in later phases, Unified Interpretations can be found in MEPC.1/Circ.795/Rev.7.

3.7 The EEDI can be simplified and expressed as a measure of the CO2 emissions of a vessel. The intention of the calculation is to encourage designers to deliver vessels with lower overall emissions.

4. Actions required under EEDI

4.1 When considering a newbuild, due attention should be given to the requirements of the EEDI. In particular, consideration should be given to the application of Regulations 22 and 24 of the revised Annex VI.

4.2 A newbuild covered by the EEDI regime will need to be designed to comply with the appropriate EEDI phase.

4.3 Some exceptions exist to the application of EEDI, notably relating to vessels with diesel-electric, turbine or hybrid propulsion; further information on these exceptions can be found in Regulation 19 of the revised Annex VI.

5. Energy Efficiency Existing Ship Index

5.1 The Energy Efficiency Existing Ship Index (EEXI) is a technical design measure aimed at improving the energy efficiency of a ship's design by tightening energy efficiency improvements on existing ships.

5.2 The EEXI is determined by CO2 emissions per tonne mile (grams-CO2/tonne-nautical mile) and the main factors in its calculation are the vessel's installed power and cargo-carrying capacity.

5.3 The EEXI regime applies to existing ships of 400GT and above, of the same type as for the EEDI regime (as listed at paragraph 2.9), subject to the exemptions set out in Regulation 19 of the revised Annex VI.

5.4 The EEXI is a one-time test completed at the first annual, intermediate, renewal or initial survey (taking place after 1 January 2023). The "attained EEXI" will demonstrate the ship's energy efficiency in comparison to a baseline. The attained EEXI will then be compared to a "required EEXI" for that particular ship type. If the attained EEXI is greater than the required EEXI, measures to ensure compliance will be required.

5.5 Use of Shaft Power Limitation (SHaPoLi) and Engine Power Limitation(EPL) Systems:

5.5.1 SHaPoLi (Shaft Power Limitation) and EPL (Engine Power Limitation) are systems designed to limit engine power to keep ship's carbon emissions at a controlled level.

5.5.2 Gibraltar registered ships intending to make use of such systems in relation to compliance with EEXI requirements, should in addition to the guidelines of IMO Resolution MEPC.335(76), and the International Association of Class Societies (IACS) Recommendation No.172 - EEXI Implementation Guidelines, note the contents of the Red Ensign Group (REG) Unified Interpretation (REG-UI 004), appended to this notice.

5.5.3 The Gibraltar Maritime Administration (GMA) deems as acceptable to provide EEXI verification to ships classed by another of the Administration's Recognised Organisations (RO) upon request of the ship owner, except that:

I. Verification would be limited to reviewing the EEXI Technical File and the estimated speedpower curve obtained from the tank test and/or numerical calculations and/or the sea trial results calibrated by the tank test in accordance with MEPC.333(76), and;

II. Where a SHaPoLi / EPL system is installed, the verification would not confirm that the system is appropriately installed and sealed on board in accordance with MEPC.334(76), or, that a verified Onboard Management Manual (OMM) for SHaPoLi / EPL system is on board the ship. This on-board verification tasks would be performed by the RO that Classes the vessel.

5.6 Cruise Passenger Vessels fitted with Gas Turbines:

5.6.1 The REG has taken the decision to exclude gas turbines fitted on cruise passenger ships from the EEXI calculations. Red Ensign Group Unified Interpretation (REG-UI- 003) has been published to advice of the exclusion and is appended to this notice.

6. International Energy Efficiency Certificate

6.1 All relevant ships of 400GT and above and engaged in international voyages will require an International Energy Efficiency (IEE) Certificate which certifies that the ship complies with the EEDI and/or EEXI requirements and has attached to it a record of the ship's attained and required EEDI values and/or the attained and required EEXI values. Owners/Operators should ensure that an IEE Certificate is in place at the initial survey or the first annual, intermediate or renewal survey after 1 January 2023. The GMA RO's issue these certificates on behalf of the Administration.

7. Carbon Intensity Indicator

7.1 The Carbon Intensity Indicator (CII) regime applies to all relevant ships 5,000GT and above of the same type as listed in paragraph 2.9.

7.2 The CII will measure how efficiently a ship transports goods or passengers, in grams of CO2 emitted per cargo carrying capacity and nautical mile terms. The aim of CII is it will ensure continuous improvements to ship's energy efficiency by enforcing increasingly stricter emission targets, year on year. The CII is an annual review of a ship's actual carbon emission performance over the past year, with such monitoring starting from January 2023. From 1 January 2023 for ships of 5000 GT and above, the SEEMP will need to contain additional CII related details. Ships shall amend their SEEMP by developing a new part III to include details relating to the vessel's operational CII. Ships will need to have an approved SEEMP (Part III) in place showing how CII targets will be achieved. On satisfactory assessment of the SEEMP (Part III), the RO issues a Statement of Compliance. *See MEPC.347(78) for further information.*

7.3 The owner or relevant RO of a ship must use the data collected under the existing annual fuel oil consumption data collection requirements (MARPOL Annex VI Regulation 27) to calculate the attained annual operational CII of the ship for each 12-month reporting period beginning on 1 January and ending on 31 December.

7.4 The attained annual operational CII must be reported to an RO by 31 March of the following year to which the data relates. The RO will document and verify the attained annual operational CII against the required annual operational CII to determine their operational carbon intensity rating (A-E), taking into account the IMO Guidelines, and verification of DCS data. A Statement of Compliance with a rating, related to fuel oil consumption reporting and operational CII, is then issued to a ship.

7.5 Where a ship is rated by the RO as D for three consecutive years, or as "E" for any year, the owner of the ship must review the SEEMP and include in it a plan of correction actions to achieve the required annual operational CII and submit the revised SEEMP to the RO. Once the RO is satisfied with the plan of corrective actions, it will issue the Statement of Compliance. The SEEMP Part III and its Statement of Compliance must be readily available onboard at all times for inspection.

8. Ship Energy Efficiency Management Plan

8.1 The Ship Energy Efficiency Management Plan (SEEMP) is the element of the revised Annex VI that establishes a mechanism for operators to improve the energy efficiency of ships during their operations.

8.2 The SEEMP should be developed in such a way as to empower the vessels crew to improve energy efficiency where possible, noting that the safe operation of the vessel must remain paramount at all times.

8.3 All ships of 400GT and above engaged in international voyages are required, by Regulation 26 of Annex VI of MARPOL, to keep a vessel specific SEEMP on board and this is a requirement for the issue of the IEEC. The SEEMP should be developed in line with the IMO guidelines, as referred to in paragraph 2.10 above. The SEEMP is intended to be a living document that considers how a vessel's energy efficiency can be maintained and improved throughout the vessel's operating life.

8.4 In addition, relevant ships of 5000GT and above must include a description of the methodology that will be used to calculate the ships annual operational CII in accordance with regulation 28 of Annex VI of the MARPOL Convention. The SEEMP (Part III) shall include the required annual operational CII, as specified in regulation 26 of MARPOL Annex VI, for the next three years, and an implementation plan documenting how the required annual operational CII will be achieved during the next three years. SEEMP (Part III) is subject to periodic verification and surveys, as per Resolution MEPC.347(78).

8.5 For CII, a ship rated as D for three consecutive years or rated as E in any year, a corrective action plan is required, *please see 7.5*

9. Domestic Vessels

9.1 Gibraltar registered ships to which ordinarily the individual international requirements may apply, but are engaged solely on domestic voyages within British Gibraltar Territorial Waters (BGTW), are not via the provision of MARPOL Annex VI, Chapter IV, Regulation 19 2.1 currently required to comply with the requirements of the EEDI, EEXI, CII and SEEMP. Notwithstanding this, the Annex VI rules are to be reviewed, and therefore it is recommended that such vessels operate in a manner consistent with the SEEMP concept, and that new-builds are constructed to comply with the EEDI, EEXI and CII regimes.

9.2 Notwithstanding 9.1, a Gibraltar registered ship that intends to undertake an international voyage, will be subject to the requirements.

10. Regulations

10.1 Gibraltar Merchant Shipping (Prevention of Pollution from Ships) Regulations 2009 (as amended) transpose MARPOL and subsequently the EEDI, EEXI, CII and SEEMP regimes into Gibraltar law. The Regulations generally apply to Gibraltar ships wherever they may be, and to non-Gibraltar ships while in Gibraltar waters. It is anticipated for IMO to review the international requirements in 2026. The requirements of Annex VI are applicable internationally, and owners/operators are reminded that the Gibraltar is via extension by the United Kingdom a party to Annex VI of the MARPOL Convention, and Port State Control in other states party to Annex VI will expect Gibraltar registered vessels to comply.

Steve Gomez – Chief Surveyor (Ag)
For & on behalf of the Maritime Administrator

Issue date: 22 September 2023

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Red Ensign Group

Unified Interpretation

REG-UI 003
Amendment 01

REG Cruise Passenger Vessels fitted with Gas Turbines

Notice to all Recognised Organisations, Ship Owners, Ship Operators, Ship Managers, Ships' Officers and Surveyors.

This Unified Interpretation should be read in conjunction with Regulations 23 and 25 of MARPOL Annex VI as amended.

REG -UI 003 is now being withdrawn. This REG-UI Amendment remains extant until rescinded.

Summary

This Red Ensign Group Unified Interpretation (REG-UI) has been published to advise of the REG decision regarding the exclusion of gas turbines from the EEXI calculations for REG Cruise Passenger Ships.

1. Introduction

1.1 The new MARPOL Annex VI regulations (23 and 25) introduce the Energy Efficiency Existing Ship Index (EEXI) and require ships' emissions to be calculated using the installed power of the main engines. Gas turbines, which have a high installed power rating, cause ships which are fitted with a diesel engine / gas turbine combination to be very poorly rated under the new regulations. So much so that owners must consider removing the gas turbines from the ship to improve the EEXI rating.

2. Benefits of retaining Gas Turbines on Passenger Ships

2.1 The installation of the gas turbine plant as an additional source of power on board these ships improve the operational safety of these vessels by enabling a reserve increase in speed to be used when sick passengers and crew need to be transferred ashore urgently. Crucially they provide an additional power source located in a space away from the main diesel plant to be used in case of loss of these spaces in an emergency. On vessels with thousands of people on board these gas turbines could potentially save many lives in some emergency situations.

2.2 Compliance with the MARPOL Convention was never intended to make ships less safe. Indeed Regulation 3.1.1 of MARPOL Annex VI says that 'Regulations of this Annex

shall not apply to: any emission necessary for the purpose of securing the safety of a ship or saving life at sea'.

3. Conditions

3.1 REG cruise passenger vessels fitted with gas turbine plant as part of a diesel engine / gas turbine installation will be allowed to exclude the gas turbines from the power-weighted average calculation of the specific fuel consumption used in the EEXI calculations for these ships.

3.2 This is conditional on the gas turbines only being used for emergency situations to secure the safety of the ship or saving life at sea.

3.3 When a Gas Turbine, which has been excluded from the ship's EEXI rating, is used in an emergency situation it will be considered a use of the power reserve. Examples of this include operating in, or the avoidance of, adverse weather and ice-infested waters, participation in search and rescue operations, when sick passengers or crew need to be transferred ashore urgently, avoidance of pirates and for engine maintenance. Details must be recorded in the Onboard Management Manual (OMM) as described in MEPC.335(76) section 3.2. Use of the power reserve must be reported to the Recognised Organisation (RO) and the port of destination. The flag administration will report all cases of the use of power reserve to the IMO on an annual basis.

3.4 If an operator wishes to continue to use gas turbines during the routine operation of the vessel, then the gas turbines must be taken into account when calculating the EEXI rating for the ship.

3.5 This applies to cruise passenger ships only.

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Red Ensign Group

Unified Interpretation

REG-UI 004

The use of Shaft Power Limitation (SHaPoLi) Systems on REG Ships

Notice to all Recognised Organisations, Ship Owners, Ship Operators, Ship Managers, Ships' Officers and Surveyors.

This Unified Interpretation should be read in conjunction with MEPC.335(76), 2021 Guidelines on the shaft / engine power limitation system to comply with the EEXI requirements and use of a power reserve.

This REG-UI remains extant until rescinded.

Summary

This Red Ensign Group Unified Interpretation (REG-UI) has been published to advise of the REG decision regarding the fitting of Shaft Power Limitation (SHaPoLi) systems on REG Ships.

1. Introduction

1.1 SHaPoLi (Shaft Power Limitation) and EPL (Engine Power Limitation) are systems designed to limit engine power to keep ship's carbon emissions at a controlled level. Resolution MEPC.335(76), '2021 Guidelines on the shaft / power limitation system to comply with EEXI requirements and use of a power reserve' is the IMO document which describes the requirements.

1.2 Notable points from MEPC.335(76):

.1 Power reserve is the shaft / engine power above the limited power which cannot be used in normal operation – only for the purpose of securing the ship's safety. (1.5) If used the ship should notify its Administration and Administrations should report uses of power reserve to the IMO. (3.4).

.2 An Onboard Management Manual (OMM) must describe how the power 'can be limited'. (4.3.1.7).

2. IACS Recommendation No.172 (June 2022)

2.1 IACS has produced an interpretation, referenced above, which confirms that a Shaft Power Limitation system, independent from the engine automation, fulfils the IMO requirements contained within MEPC resolution 335(76).

3. Requirements for REG Ships

3.1 The REG accepts the IACS interpretation provided SHaPoLi systems fitted to REG ships comply with the following requirements:

.1 The SHaPoLi system should be fitted with a visual and audible indication arrangement at the control position on the bridge which indicates when the power output is approaching the power limit and when it has exceeded the power limit.

In addition to the above an alarm is to be fitted to indicate system malfunction, as required by MEPC 335(76) Para 2.2.2.

.2 The use of power reserve must require a positive action from the Master or the Officer in Charge of the navigation watch; this should be via the use of a key switch or similar.

.3 Deliberate use of the power reserve shall cause automatic data recording to begin immediately.

.4 If the power limit is exceeded inadvertently – because of a change in sea or tidal conditions, for instance – the indication system referred to above should indicate immediately and automatic data recording of this event shall begin 180 seconds after the limit is exceeded. This time delay is intended to allow the operator to modify the input if the use of reserve power is not necessary.

.5 Any use of the power reserve or inadvertent exceedance of the power limit (beyond the 180s time limit) must be recorded in the Onboard Management Manual (OMM) as described in MEPC.335 (76) section 3.2.

.6 Use of the power reserve must be reported without delay to the Recognised Organisation (RO) and the port of destination. The flag Administration will report all cases of the use of power reserve to the IMO on an annual basis.

4. The use of power reserve

4.1 The use of a power reserve is only allowed for the purpose of securing the safety of a ship or saving life at sea. Once the emergency situation is resolved the shaft power limitation system must be reactivated and the ship operated within the limited power conditions again in accordance with the OMM.

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