IMO Marine Environment Protection Committee (MEPC 83)

Summary Report

Summary of significant outcomes

Below is a brief overview of some of the significant outcomes from MEPC 83:

- Approval of Mid-term GHG reduction measures as amendments to MARPOL Annex VI, expected to be adopted at the Extraordinary Session of MEPC in October 2025 for entry into force 1 March 2027.
- Completion of Phase 1 of the Short-term GHG reduction measures by agreeing reduction factors for CII through to 2030.
- Approval of regulations to increase data transparency related to fuel oil reporting.
- Adoption of amendments to the NOx Technical Code 2008 related to Substantial modification of a marine diesel engine and engines using multiple operational profiles.
- Approval of draft 2025 *Code on Alerts and Indicators*, and the associated draft Assembly resolution (for subsequent adoption by Assembly 34).
- Adoption of *MEPC.405(83) Amendments to the 2023 Guidelines for the development of the Inventory of Hazardous Materials.*
- Agreement to have an Experience Building Phase for the Hong Kong Convention on the safe and environmentally sound recycling of ships.
- Agreement to develop a new legally binding framework for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species.

For further information on the IMO mid-term GHG measures, please register to join our MEPC 83 webinar.

Introduction

MEPC 83 took place 7 – 11 April 2025 at the IMO in London. This report provides a summary of the outcomes from the meeting which are significant to Lloyd's Register's (LR) work with our customers.

Reduction of GHG Emissions from Ships

Mid-term GHG Reduction Measures

MEPC was preceded by two meetings of the Intersessional Working Group on GHG Reduction from Ships (ISWG-GHG), the 18th session in February and the 19th session the week before MEPC, both of which had developed regulatory text to give effect to the mid-term GHG reduction measures.

During MEPC 83 regulatory text was finalised and 'approved' for the amendments to be circulated to the MARPOL Annex VI parties ahead of their anticipated adoption at the 2nd Extraordinary Session of MEPC (MEPC/ES 2) in Autumn this year (October 2025).

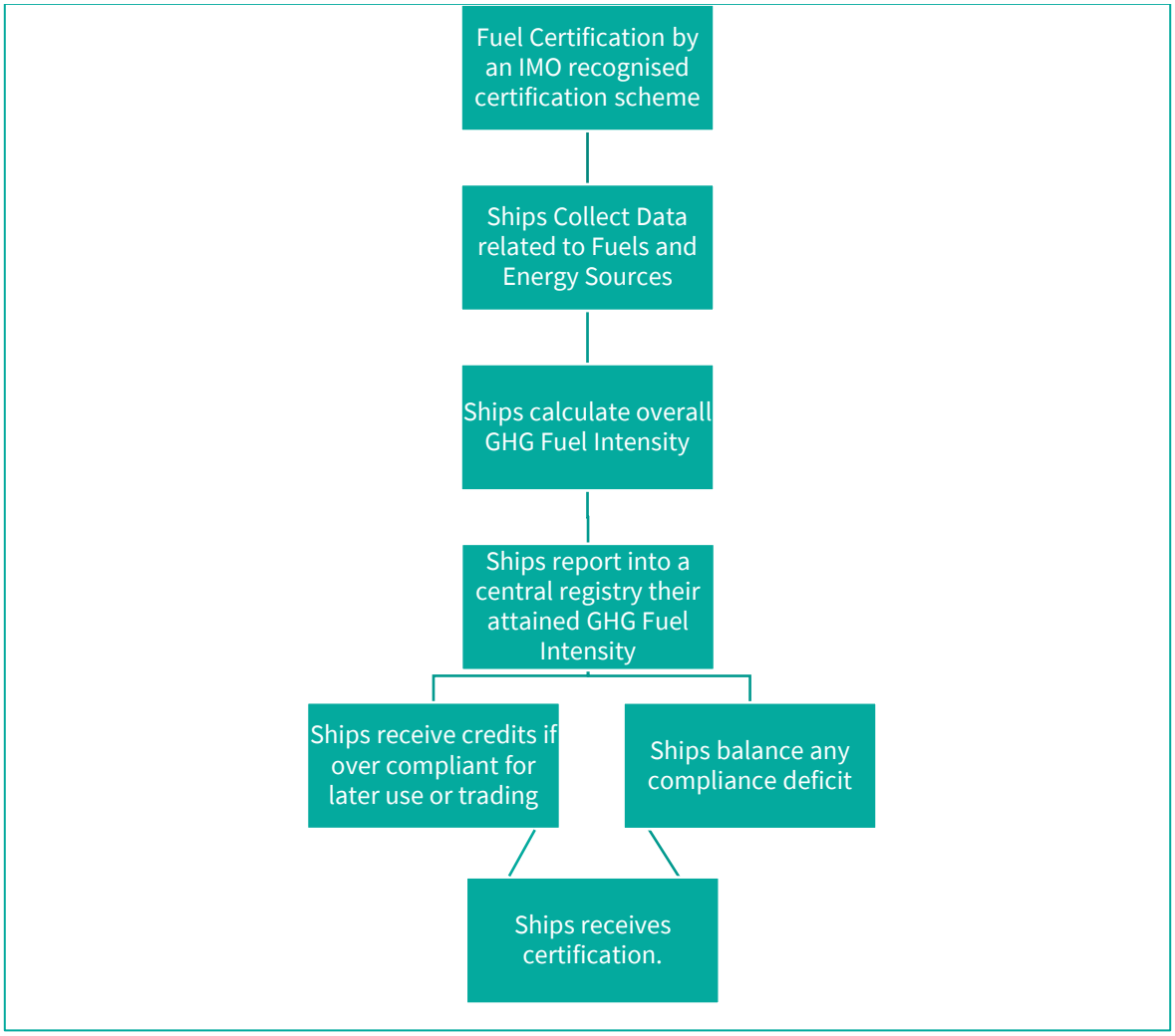
The amendments, if adopted as above will enter force on 1 March 2027 although the dates to which ships and companies must take action are set out below.

However, the regulations have not been 'approved' in the usual way. During the Working Group on GHG Reduction from ships that developed them, a variety of member States declared they reject the regulations and when they were presented to the MEPC plenary a formal vote was called. LR notes that formal votes in IMO are extremely rare. For context the only time a formal vote has taken place for any similar work was during the final stages of the EEDI regulations being bought into force.

The outcome of the vote was 63 member States in favour, 16 opposed leading to a 79% majority in favour. Whilst this outcome means that the draft regulations will be circulated to the MARPOL Annex VI Parties by the Secretary General, it is likely that a second vote will be held at the extraordinary session in October where a 2/3 majority of the MARPOL Annex VI parties will need to vote positively for the regulations to enter into force.

The basic design of the regulatory framework takes inspiration from the Carbon Intensity Indicator (CII) framework in MARPOL Annex VI by which the following workflow is undertaken:

In this way the basic architecture (at a high level) of the regulatory framework is of the form:



Application

The regulations, if bought into force will apply to all ships of 5,000 gross tonnes and above. However, the following exceptions have been included:

- For ships solely engaged in voyages within waters subject to the sovereignty or jurisdiction of the State the flag of which the ship is entitled to fly i.e. ships operating exclusively in the waters of their flag State.
- Ships not propelled by mechanical means, and platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion.
- Semi-submersible vessels until further review of the application of the new chapter to MARPOL Annex VI implementing the new requirements.

GHG Fuel Intensity (GFI)

The GHG Fuel Intensity (GFI) 'Standard' assess the GHG energy intensity of a ship based on the fuel and other energy choices it makes as well as the use of energy from other sources and savings in emissions from technology such as carbon capture.

Each ship will be required to calculate an annual GFI which is a weighted average of the energy sources it uses of the form:

$$\frac{\sum_{j=1}^{J} EI_j \times Energy_j}{Energy_{\ total}}$$

Where EI_j is the GHG intensity of an energy source j, expressed as:

$$EI = \frac{gCO_2eq}{MJ}$$

i.e. the amount of Carbon Dioxide equivalent (the equivalent CO_2 emissions from Methane and Nitrous Oxide as well as CO_2 emissions) in grams per mega joule of energy the fuel or energy source provides. Each energy source is to be assessed and certified by an IMO recognised Sustainable Fuel Certification Scheme to verify the fuel or energy source's Well-to-Wake (WtW) (all emissions associated with the production and transportation of the energy source through to consumption on board) GHG emissions.

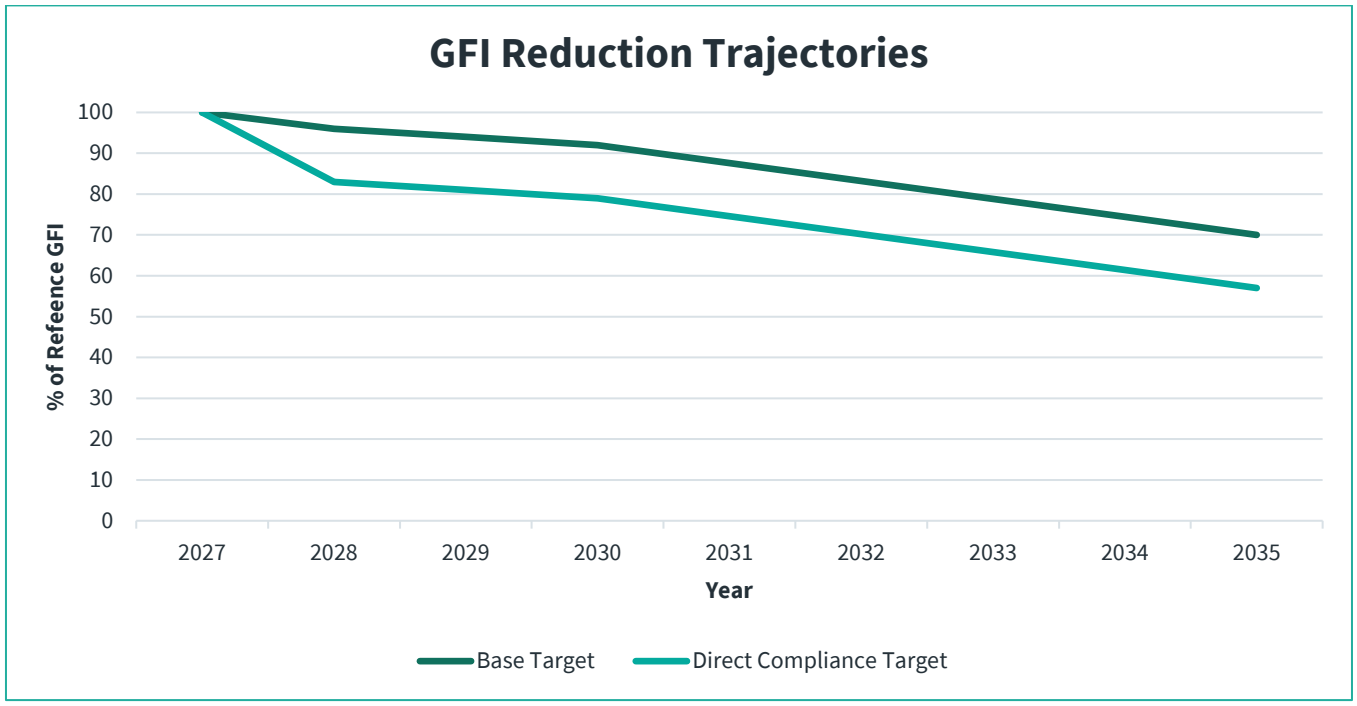
In the formula for attained GFI, $Energy_j$ is the amount of energy used from source j and $Energy_{total}$ is the total amount of energy used by the ship in a reporting period. The GHG intensity of differing fuel sources will be calculated taking into account the IMO's LCA Guidelines and will either use a default emissions factor provided in the LCA Guidelines or will have an actual (superior) emissions factor established, see section on LCA framework below.

This is compared to a target annual GFI, GFI_T as follows:

$$GFI_T = (1 - \frac{Z_T}{100}) \times GFI_{2008}$$

Where 'Z_T' represents a percentage reduction factor to be applied each year to a reference GFI, GFI_{2008} which is the reference GFI of the fleet average in 2008 stated as 93.3 gCO_2eq/MJ.

Two sets of values for Z_T have been included in the regulations from the effective year through to 2035 from the operative year 2028 which can be observed graphically below.



The regulations then set out that by 1 January 2032, MEPC must determine the Z-factors for the years 2036 to 2040 and that the 2040 Z_T for the Base target shall be set at 65.

These trajectories follow a Base target and a Direct Compliance target to determine the degree to which a ship must pay any remidiation for under compliance.

The assessment of compliance is undertaken by comparing the Direct Compliance Target GFI (where Z_T is the value for the Direct Compliance trajectory) as follows:

$$Compliance\ Balance = (Direct\ Compliance\ Target\ annual - Attained\ Annual\ GFI) \times Energy_{total}$$

Where a ship has a positive compliance balance (due to its attained GFI being less than the Direct Compliance Target) the ship is considered compliant and need take no further action to receive certification. Where the ship has a negative compliance balance (due to their attained GFI being greater than the Direct Compliance Target) they will need to 'balance' this compliance deficit.

Where a ship achieves a positive compliance balance it will be issued credits in the form of 'Surplus Units' equal to its compliance balance surplus (calculated above) expressed in tonnes of CO_2eq. These Surplus Units can be either transferred to another ship which has a compliance deficit, banked for later use or voluntarily cancelled. However, the ship must choose what to do with its Surplus Units at the point they are issued and once decided the Unit cannot be further transferred or banked by another ship.

LR understands that the transaction of Surplus Units from an over compliant ship to an under compliant ship will be governed by private contract of the parties involved and that a market will open up for their trading. It is also understood that the cap on the price of a Surplus Unit will be the Remedial Unit price (initially $380/ tonne CO_2eq) discussed below.

The regulations set out compliance approaches for a ship in relation to its attained GFI in a given year as follows:

If a ship has an attained GFI equal or lesser than the Base target but exceeds the Direct Compliance Target GFI it must balance only Tier 1 Compliance Deficit calculated as:

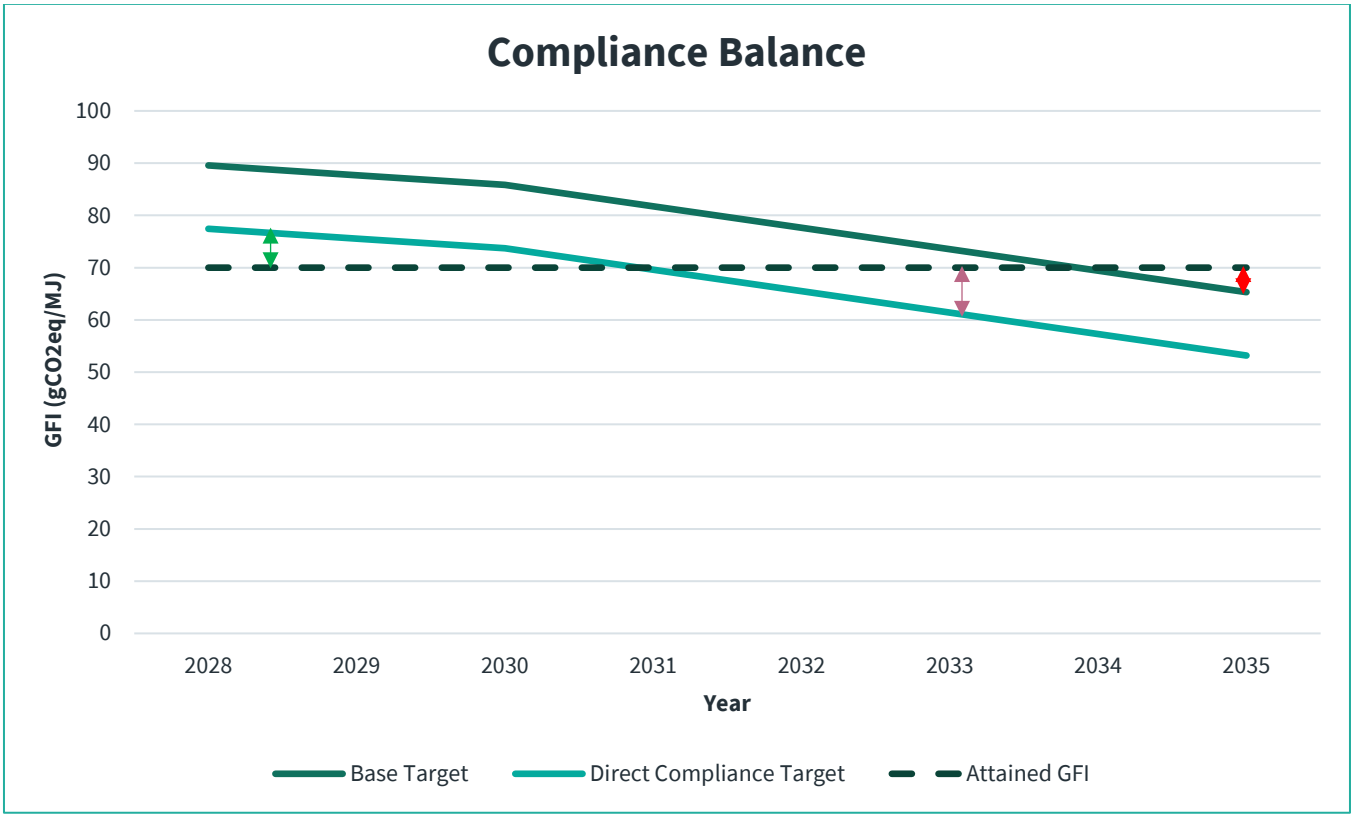
$$Tier\ 1\ Compliance\ Deficit = (Direct\ Compliance\ Target\ annual\ GFI - GFI_{Attained}) \times Energy_{total}$$

If a ship has an attained annual GFI exceeding the Base Target GFI it must balance both Tier 1 and Tier 2 Compliance Deficits calculated as:

$$Tier\ 1\ Compliance\ Deficit = (Direct\ Compliance\ Target\ annual\ GFI - Base\ Target\ annual\ GFI) \times Energy_{total}$$

$$Tier\ 2\ Compliance\ Deficit = (Base\ Target\ annual\ GFI - GFI_{Attained}) \times Energy_{total}$$

This concept can be displayed graphically as below.



In the above illustration, the attained GFI leads to a positive compliance balance until 2031 with the attained GFI lower than the Direct Compliance target GFI and receives Surplus Units equal to its Compliance Surplus (green arrow), from that point through to 2034 the attained GFI is greater than the direct compliance target but less than the Base target and the ship accrues Tier 1 Compliance Deficit (red arrow) for this period of time. Thereafter the GFI is greater than both Direct Compliance and Base targets and the ship accrues both a Tier 1 Compliance Deficit (red arrow) and a Tier 2 Compliance Deficit (bright red arrow).

The regulations stipulate that Tier 1 Compliance Deficit can only be balanced through the purchase of Tier 1 Remedial Units which are initially priced as \$100/ tonne CO_2eq until 2030 when the price of Remedial Units will be reviewed.

Tier 2 Compliance Deficit can be balanced in one of the following methods:

- With the use of Surplus Units it has banked from the previous 2 years.
- With Surplus Units it receives from another ship which had a Compliance Surplus in the same year through private transaction.
- With Remedial Units which can be purchased at the Tier 2 rate which is initially set at \$380 /tonne CO_2eq.

To operate the above compliance balancing a central IMO GFI Register will be established. Ships will be required to register for an account by 1 October 2027 and by 30 June 2028 (and 30 June every subsequent year) pay an administrative fee which is to be determined by the Secretary General taking account of Guidelines that will be developed.

This Register will include each ship's GFI related data, which is obtained from the fuel's 'Fuel Lifecycle Label' (FLL) which may accompany the Bunker Delivery Note after that data has been verified by the Administration or an Recognised Organisation. The registry will then facilitate the issue if Surplus Units, their trading or banking and purchasing of Remedial Units as well as issuing an Account Statement showing the ships transactions and compliance balance.

Incentives for Zero or Near Zero GHG Emissions Fuels and Technologies

Within this regulations there is provision for financial reward for ships using a Zero or Near Zero GHG emissions fuel or technology (ZNZ). The amount of the reward is to be determined, however, a critera has been agreed such that ZNZs include technologies, fuels and energy sources based on their GFI.

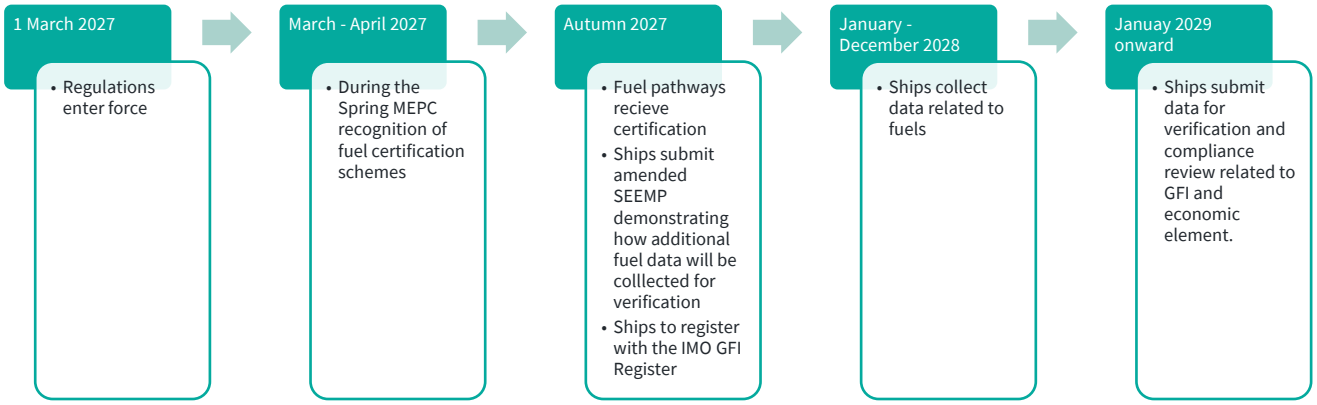
The GFI threshold for ZNZs is initially set at 19.0 gCO_2eq/MJ for an initial period until 31 December 2034 i.e. a fuel with a GFI below this will be initially considered as a ZNZ eligeble for financial reward.

The regulatins state that from 1 January 2035, the threshold will become 14.0 gCO_2eq/MJ.

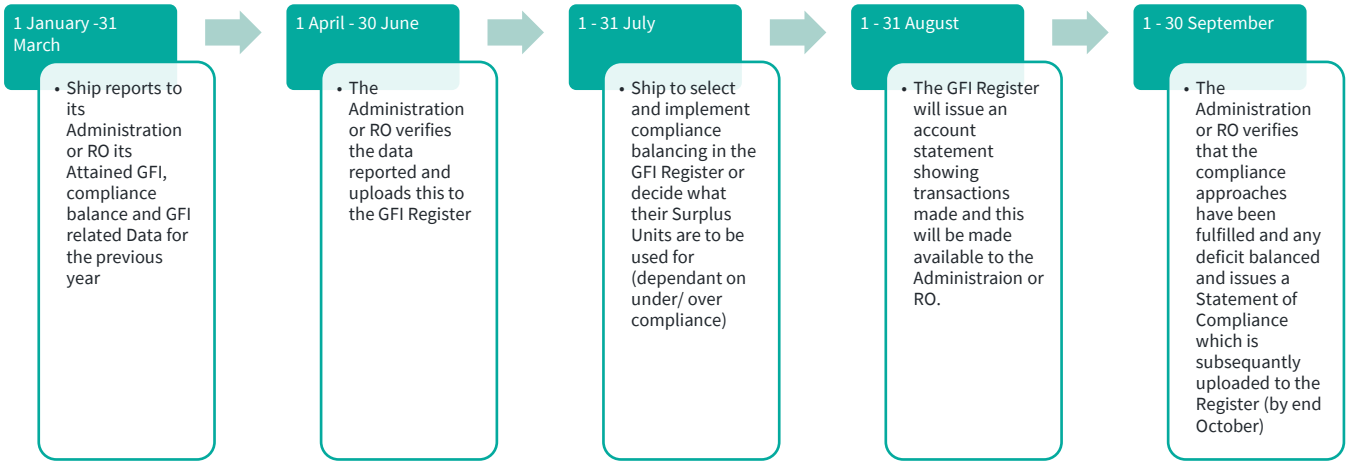
There is however scope for MEPC to agree other ZNZs and a clause calling for MEPC to define the reward no later than 1 March 2027 and every 5 years thereafter

Compliance timeline

The regulations, whilst entering into force on 1 March 2027 do not require immediate action from ships. The requirements are transitioned in as follows:



From 2029, regular annual activity will be required as follows:



Supporting Guidelines and Future Work

Whilst MEPC 'approved' draft amendments to MARPOL Annex VI to be adopted later this year, as discussed above, much of the detail is still to come in supporting guidelines. In total there are 10 sets of Guidelines to be developed to support the regulations and 4 Guidelines require amendment.

In particular, the guidelines that will be most vital to operationalising the regulations are:

Guidelines on requirements and procedures for recognition of certification schemes/standards and reporting of certification activities to the Organisation

These will set out the requirements for a Sustainable Fuel Certification Scheme including the standards Certification Schemes must uphold when certifying fuels as well as the process for obtaining recognition from the IMO.

Further development of the Life Cycle GHG Intensity Guidelines

The existing *2024 Guidelines on Life Cycle GHG Intensity of Marine Fuels (2024 LCA Guidelines) (MEPC.391(81)* will require further development to include fuel pathways and default emissions factors for use in calculating a ship's GFI and total emissions. This will be achieved by submissions for fuel pathways and default emissions factors to MEPC as discussed in the section below on the LCA framework.

Alternatively actual emissions factors demonstrating a superior performance can be assessed using the LCA Guidelines and submitted to a certification scheme for certification, the exact arrangement for this requires further development in the Guidelines.

This will be critical in ensuring biofuels etc are appropriately assessed to ensure sustainability criteria is fulfilled such as indirect land use change.

Further development of the SEEMP Guidelines

The existing 2024 *Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP), adopted by resolution MEPC.388(81)* will required amendment to detail how SEEMPs must be amended to reflect the GFI regulatory framework in particular how the new data is to be collected.

Guidelines on the definition of ZNZs, of ZNZs rewards and the methodology to determine such rewards

These will be required to define the reward that ZNZs can receive.

Guidelines for the opening and management of a ship account in the IMO GFI Registry and on annual administration fee

These will be required to set out how the Secretary General is to define the administrative fee for the GFI Register.

Guidelines for Administration verification of the attained annual GFI, the target annual GFI and the GFI compliance balance of a ship, and reporting of the verified data to the IMO GFI Registry

These will set out the verification methodology that an Administration or their RO must do through the year in various scenarios and to lead to the issuance of a Statement of Compliance.

Noting the above significant future work that will be required to operationalise the IMO Net-Zero Framework discussed above, MEPC agreed that during the Extraordinary Session expected October 2025 a workplan will be developed on preparing for the entry into force of the IMO Net-Zero Framework. Further that two meetings of the ISWG-GHG sessions 20 and 21 will be organised with meeting 20 being the week after the extraordinary session of MEPC in October, and meeting 21 before MEPC 84 in April 2026.

Meeting 20 and 21 of the ISWG-GHG will be tasked to:

- Develop new or revise existing guidelines, provisions, guidance and other documents, to support the uniform and effective implementation of the IMO Net-Zero Framework.
- Consider the development of the IMO Life Cycle GHG Assessment (LCA) framework.

- Finalise the draft terms of references for the 5th GHG Study.

Please click below to access LR's Engine Retrofit Report:

Fifth IMO GHG Study

MEPC received draft terms of reference for the Fifth IMO GHG Study prepared by the IMO Secretariat with the following scope:

- Assess an inventory of GHG emissions from ships of 100GT and above on international voyages.
- GHGs in this context are to include: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).
- Other substances that have a link to climate change are to be included such as: nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOCs), carbon monoxide (CO), particulate matter (PM) and sulphur oxides (SOx), Black Carbon (BC).
- The inventory is to include total annual GHG emission from 2018 to 2025.
- Well-to-Wake emissions according to the method in the LCA Guidelines are to be considered.
- Carbon intensity in terms of CO_2 per transport work is to be considered from 2018 to 2025.
- Carbon intensity for the year 2008 is to be considered and reviewed.
- Modelling of GHG scenarios from 2025 – 2050 are to be considered.

The draft terms of reference set out that, as with previous studies, a steering committee is to be established by MEPC to oversee the work and a tender will be put out for contractors to undertake the study with an aim of appointing the contractor(s) by 30 September 2026.

It is also clarified that the final report of the study will need to be submitted to MEPC 87 in the spring of 2028.

Due to time constraints, MEPC deferred consideration of this matter to the next meeting of the ISWG-GHG (20) expected to take place the week after the extraordinary session of MEPC in October 2025.

Life-Cycle Assessment (LCA) of GHG Emissions

Outcome of GESAMP-LCA

MEPC recalled that it had previously established a GESAMP (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection) working group on Life Cycle GHG Intensity of Marine Fuels (GESAMP-LCA WG) and in considering the report of GESAMP-LCA 1:

- Considered the amendments to the LCA Guidelines highlighted by GESAMP-LCA WG could be incorporated into a future revision of the LCA Guidelines but due to time constraints it was not possible to progress them at this session.
- Approved a methodology for submission of default emissions factors for scientific review by GESAMP-LCA WG (this is discussed below).
- Noted that GESAMP-LCA WG 1 developed an Excel tool to standardise the reporting of parameters and the calculation of proposed default emission factors, based on the 2024 LCA Guidelines, and that the Secretariat would upload the editable Excel file on the IMO website.
- Clarified that existing default emission factors in appendix 2 of the LCA Guidelines may be used for LCA calculations pending their review. However, these values should not be considered as approved by MEPC and should be resubmitted in accordance with the methodology developed by GESAMP-LCA WG.
- Invited member States which submit proposals for default emission factors to make a voluntary financial contribution to the GHG-Trust Fund of at least $10,000 to recover costs incurred by IMO in respect of services provided by GESAMP-LCA WG.
- Endorsed the deadlines for submissions of proposals for default emission factors for review by the GESAMP-LCA WG as 2 May 2025 and 29 August 2025 to coincide with the second and third meeting of the WG respectively.
- Agreed that member States submitting proposed default emission factors for review by GESAMP-LCA WG should simultaneously submit a short document summarising the non-confidential description of their proposal(s) to MEPC.

Methodology for submission of default emissions factors

MEPC approved the *Draft Methodology for Submission, Scientific Review and Recommendation of Proposed Default Emission Factors By GESAMP-LCA WG* (MEPC.1/Circ.916).

This sets out that to obtain default emissions factors (values that any fuel supplier can seek certification to and to which ships can use to calculate their GFI and total emissions) information must be submitted to GESAMP-LCA WG for scientific review which will in turn recommend a default emissions factor for the specific fuel pathway to MEPC for inclusion in in the LCA Guidelines.

At a high level, the process entails:

- Proposal to MEPC containing default emission factor using a standard Excel template which will be available on the IMO's website. This is forwarded to GESAMP-LCA.
- Categorisation by GESAMP-LCA of submissions based on fuel pathway codes.
- Quality review, assessment of the studies and analysis for the fuel pathway by GESAMP-LCA (at least three differing studies/ analysis are required for a default emissions factor to be progressed).
- Analysis of the reliability of the proposed values by GESAMP-LCA and receipt of any necessary complimentary data.
- Recommendations by GESAMP-LCA for default emission factors to MEPC.
- MEPC to consider recommendation and include in the LCA Guidelines.

Noting this agree approach, MEPC had received the following proposals for default emissions factors which were subsequently forwarded to GESAMP-LCA where the proposers were invited to re-submit these using the Excel tool developed by GESAMP-LCA:

- **WtT Ammonia** (60 gCO_2e/MJ Pryolysis process pathway).
- **WtT Ammonia** (121 gCO_2e/MJ steam methane reformation pathway).
- **WtT Ammonia** (46 gCO_2e/MJ steam reformation with CCS pathway).
- **WtT Ammonia** (22 gCO_2e/MJ N_2+H_2 pathway).

- **WtT Ammonia** (117 gCO_2e/MJ H_2 autothermal reforming pathway).
- **WtT Ammonia** (46 gCO_2e/MJ H_2 autothermal reforming with CCS pathway).
- **WtW Corn-based ethanol** (34.9 – 36 gCO_2e/MJ depending on electrical supply and transport).
- **WtW Methanol** (21.3 gCO_2e/MJ, using pre-combustion point source capture of CO_2 from natural gas processing and hydrogen produced from renewable electricity.
- **WtT LNG** (17.4 gCO_2e/MJ, liquefied natural gas (methane), fossil pathway).
- **WtT LNG** (27.95 gCO_2e/MJ as the 75^{th} percentile of various pathways for LNG and 23.78 gCO_2e/MJ as a global weighted average of global pathways).
- **WtW Soybean-based biodiesel** (31 – 31.9 gCO_2e/MJ depending on transport).
- **WtW Soybean-based Renewable Diesel** (36.5 – 37.7 gCO_2e/MJ dependant on electrical supply source).

Sustainability Criteria

MEPC noted the outcome of work of a correspondence group which had been considering principles and objectives for sustainability themes/ aspects in particular that the correspondence group had identified further work would be needed in regard to the 2024 LCA Guidelines to define metrics/indicators to measure the sustainability themes/aspects in section 7.1 of the Guidelines. The group further agreed to principle/objectives for each theme/aspect as follows:

Land use rights: production of sustainable marine fuels should respect formal and customary land rights, including Indigenous and/or customary rights.

Water use rights: production of sustainable marine fuels should respect prior formal or customary water use rights, including Indigenous and/or customary rights.

Local and social development: production of sustainable marine fuels should respect and contribute to social and economic development of local and rural communities.

Human and labour rights: production of sustainable marine fuels should respect human and labour rights.

Food security: production of sustainable marine fuels should promote food security.

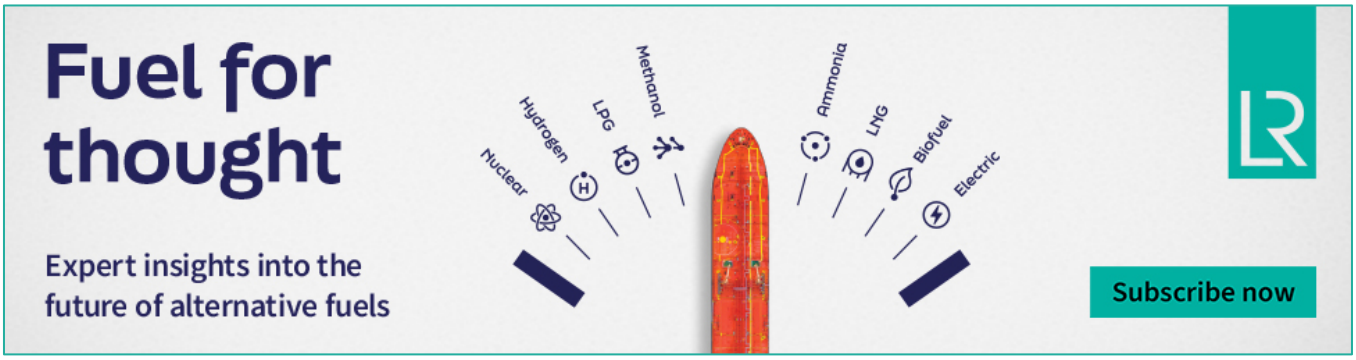
MEPC will continue to refine possible metrics/indicators, with a focus on qualitative assessment, for all five of the above social and economic sustainability themes/aspects which will aim to harmonise social and economic metrics/indicators with existing environmental sustainability themes/aspects set out in the 2024 LCA Guidelines.

Future work on LCA Framework

MEPC considered other matters related to the LCA framework and agreed to forward the following matters to GESAMP-LCA with a view to revising the LCA Guidelines:

- Revision of fuel pathway codes, and improving the precision of pathway definitions by including fuel pathway codes that account for various feedstocks, carbon sources, regions and energy sources, particularly for renewable drop-in fuels, including biofuels.
- Provision of clear and detailed content related to fuels to avoid classification errors and ensure accurate categorisation.
- Reinforcement and inclusion of regional identification related to fuel pathways.
- Disaggregation of default GHG values for the various elements of the WtT portion of a fuel pathway.
- Ensuring all fuels are treated equally under the LCA framework to include fugitive emissions within the WtT portion of a fuel pathway.
- To include in the LCA framework distinct pathways for ethanol.

Please click below to access LR's Fuel for thought series on alternative fuel choices for shipping:



Energy Efficiency of Ships

Fuel oil consumption data reporting and access

MEPC approved amendments to MARPOL Annex VI regulation 27 which will increase access to the DCS data for greater transparency. These amendments which are expected to enter force from 1 March 2027 will give additional access to the DCS database as follows:

- Full data access to the Recognised Organisations acting on behalf of an Administration of the ship.
- Full data access for all ships to the Parties of MARPOL Annex VI with the proviso that this is for analysis purposes.
- Anonymised data to public user accounts i.e. so that the individual ships cannot be identified.

In this respect, MEPC agreed that further work is needed to strengthen anonymisation provisions in the *2022 Guidelines for the development and management of the IMO Ship Fuel Oil Consumption Database* (MEPC.349(78)) and to make sure that incorrect reports are filtered out before the data set can be downloaded in GISIS. Accordingly, MEPC invited concrete proposals to amend these Guidelines.

MEPC.401(83) on Amendments to the 2024 Guidelines for the Development of a Ship Energy Efficiency Management Plan (SEEMP) (Resolution MEPC.395(82))

In relation to data reporting of Fuel Oil Consumption data in the DCS, MEPC adopted amendments to the 2024 SEEMP Guidelines to support the collection of data that will become mandatory for ships entering service on or after 1 August 2025 and for ships already collecting data before that date 1 January 2026 contained in MARPOL Annex VI amendments adopted in MEPC.385(81). Where these amendments give greater granularity, these SEEMP Guidelines amendments:

- Give further editorial improvements related to boilers.
- An explanation of what is 'under way' and what is not in relation to collecting fuel oil data whilst not under way.
- Clarification around distance travelled and hours under way being within the aggregated data to be reported.
- An update to the sample form of data collection plan for the SEEMP Part II.

In relation to defining what is 'under way' and 'not under way', the amendments to the Guidelines set out that 'Under way' is the period between full ahead on passage (FAOP) and end of sea passage (EOSP) as per the *Guidelines for Setting up a Maritime Single Window* (FAL.5/Circ.42/Rev.3).

It is also noted in the amendments to the SEEMP Guidelines that full ahead on passage is more commonly referred to in performance monitoring systems as begin of sea passage, which is also defined in the IMO Compendium on Facilitation and Electronic Business (IMO Compendium) under IMO0 597 (Code EV10).

'Not under way' is therefore the period between end of sea passage and full ahead on passage. The Guidelines further note that canal passage, that is the period between begin canal passage (EV08) and end canal passage (EV09) which are also defined in the IMO Compendium under IMO 0597 should be considered not under way due to frequent manoeuvring, acceleration and deceleration.

Carbon intensity reports

MEPC noted a report from the Secretariat on Carbon Intensity of International Shipping for the period 2019 to 2023 in which it is reported that international shipping has reduced its carbon intensity by 31% compared to 2008, using the same metric that CII is based upon Annual Efficiency Ratio (AER). This is relevant in the context of the Short-term measure review, based on the IMO's target to reach a 40% reduction in carbon intensity by 2030 compared to 2008 set out in the *2023 IMO Strategy on reduction of GHG from ships* (MEPC.377(80)).

It was further noted that for the period 2019 to 2023 that:

- On average, across the fleet, an overall decrease of 9.9% relative to 2019 has been achieved, with annual fluctuations.
- There is an emerging trend after 2021 of a reduced average fleet wide carbon intensity.
- Across the three highest emission emitting ship types (bulk carriers, containerships and oil tankers), there are differences in carbon intensity improvements between the size ranges. While bulk carriers and oil tankers see the greatest improvement in median AER for the larger sizes, mid-range containerships (5,000 to 14,499 TEU) show the greatest improvement in median AER in 2023 when compared with 2019.
- Carbon intensity has shown a greater decrease in 2023 compared to 2019 to 2022 in terms of AER there are many reasons this could be attributed to including the introduction of CII which entered into force in 2023 as well as changes in shipping routes due to geopolitical events.

Review of the IMO short-term GHG measures (EEXI and CII)

MARPOL Annex VI regulation 28 (Operational Carbon Intensity) calls for a review to be completed by 1 January 2026 by the IMO of:

- The effectiveness of the CII in reducing the carbon intensity of international shipping.
- The need for reinforced corrective actions or other means of remedy, including possible additional EEXI requirements.
- The need for enhancement enforcement mechanisms.
- The need for enhancement of the data collection system.
- The revision of the reduction (Z) factors and reference CII.

The IMO is conducting a review of the short-term measures in two phases, a first phase to conclude by 2026 and a second phase continuing past 2026. Various elements of this review are discussed below.

The first meeting of the Intersessional Working Group on Air Pollution and Energy Efficiency (ISWG-APEE 1) met the week before MEPC 83 to continue the review of the short-term GHG measure.

MEPC concluded Phase 1 of the work review (the portion before 2026) which included agreement of Z factors and data access and transparency as discussed below along with a work plan to conduct the work of Phase 2 of the review (beyond 2026).

Z factors

Within the CII regulatory framework, a series of reduction factors compared to reference CII values for 2019 known as 'Z' factors which are communicated in the *2021 Guidelines on the operational carbon intensity reduction factors relative to reference lines (CII reduction factors guidelines, G3)* (MEPC.338(76)) where reduction factors as a percentage reduction compared to 2019 were given for 2023 to 2026 as follows:

Year	Reduction factor relative to 2019
2023	5%
2024	7%
2025	9%
2026	11%

With a place holder for further reduction factors between 2027 and 2030 to be agreed as part of the review process.

MEPC.400(83) on Amendments to the 2021 Guidelines on the Operational Carbon Intensity Reduction Factors Relative to Reference Lines (CII Reduction Factors Guidelines, G3) (Resolution MEPC.338(76))

During the review, MEPC has agreed to complete Z factors through to 2030 in phase 1 and adopted amendments to the *2021 Guidelines on the Operational Intensity Reduction Factors Relative to Reference Lines (CII Reduction Factors Guidelines, G3)* (MEPC.338(76)) with the following Z factors:

Year	Reduction factor relative to 2019
2027	13.625%
2028	16.25%
2029	18.875%
2030	21.5%

Workplan

Within the wider review of the short-term measure MEPC has previously highlighted a variety of challenges and gaps in the regulatory framework. These can be summarised as follows, including possible solutions:

Challenge/ gap #	Description	Possible Solution
1	CII does not allow for robust individual ship-based assessment of operational energy efficiency performance	To consider in Phase 2 (beyond 2026): Require internal reviews with minimum frequency per year. Strengthen the audit requirement by amending the Statement of Compliance (SoC) format to refer

		explicitly to audits having been satisfactorily completed. Change focus from E and D rated ships to continuous improvement based on their previous performance. Introduce an implementation log of evidence of implemented efficiency measures. Develop detailed guidance on company audits including procedures, auditor qualification, reporting format, acceptable audit timeline, follow-up actions, actions following non-conformities. Develop guidance on internal reviews.
2	CII reduction (Z) factor is not defined for the years 2027 to 2030	Discussed in Z factors above.
3	CII calculation might penalise idle time and port waiting time	To consider in Phase 2 (beyond 2026): Analysis of data collected by the enhanced data granularity in IMO DCS (which will be collected from 2026). Consider a new CII metric including scope of fuel consumption (other than during anchor/ port waiting/ at berth times) and the scope of distance travelled corresponding to this. Recalculation of CII reference lines and associated amendments to the CII rating boundaries. Identification of existing correction factors which overlap with fuel consumption removed/ corrected under the new metric. Consideration on what other measures can address emissions removed from the revised CII scope. Consider the need to amend any other IMO instruments.
4	CII calculation might penalise short voyages	To be considered in Phase 2 (beyond 2026) as part of consideration on challenge/ gap 3 above.
5	CII calculation might penalise cruise passenger ships spending significant periods of time in port	To consider Phase 2 (beyond 2026): Amendment to the CII metric to create a Cruise Passenger Ship specific metric based on hours and not miles in transport work termed cgHRS (Capacity Gross Tonne Hours). This is to include:

		Analysis of data collected by the enhanced data granularity in IMO DCS (which will be collected from 2026). Consideration of which inefficiencies contribute to a ship's specific CII rating. Recalculation of CII reference line using the CII reference line (G2) Guidelines resulting from the adoption of the new metric using operating hours per year. Necessary amendments to G1, G4 and G5 guidelines and other IMO instruments, as appropriate, resulting from re-calculation of the CII reference line.
6	CII enforcement mechanism does not provide sufficient incentive to behaviour change	To be kept in abeyance until analysis of revised DCS reporting is carried out and/ or when challenge/ gap 1 is known.
7	CII does not sufficiently incentivise port call efficiency and solutions such as just-in-time (JIT) arrival of ships	To be kept in abeyance pending further proposals.
8	CII ratings and the IMO DCS data are not accessible for analysis beyond Parties to MARPOL, Annex VI	See section on to approved amendments to regulation 27 above.
9	CII calculation might penalise self-unloading bulk carriers	To be kept in abeyance pending further proposals.
10	CII calculation might penalise geared bulk carriers	To consider this within the work of challenge/ gap 3.
11	CII calculation might penalise ships navigating in adverse weather	To be kept in abeyance pending further proposals.
12	CII calculation might penalise ships using bow thrusters	To consider this within the work of challenge/ gap 3.
13	CII calculation might impact ballast voyages	To be kept in abeyance pending further proposals.
14	CII calculation might penalise ships equipped with inert gas generator	To consider this within the work of challenge/ gap 3.
15	CII might penalise ships carrying refrigerated cargo below deck	To consider this within the work of challenge/ gap 3.
16	CII calculation might penalise steam driven LNG carriers compared to engine driven LNG carriers	To be kept in abeyance pending further proposals.
17	CII calculation might penalise ro-ro cargo and ro-ro passenger ships	To be kept in abeyance pending further proposals.
18	CII reference line does not accurately reflect smaller LNG carriers	To consider in phase 2 (beyond 2026): Recalculation of the reference line for LNG carriers.
19	CII might overlap with the basket of mid-term measures	In Phase 2 (beyond 2026):

		Consider the matter once the outcome of the mid-term GHG reduction measures is known.
20	CII does not address fuel emissions on their full lifecycle	To consider within the work of challenge/ gap 19.
21	CII does not allow for pooling	To be kept in abeyance pending further proposals.

In considering the further work required to address challenges and or gaps in the CII regulatory framework, MEPC agreed a workplan for this task as follows.

Year (Meeting)	Task
2026 (MEPC 84)	Finalise development of an enhanced SEEMP framework. Finalise the cgHRS metric for cruise passenger ships which uses hours for the measure of transport work. Consider proposals to ensure synergies between the IMO carbon intensity/energy efficiency framework and the IMO Net-Zero Framework (e.g. energy-based approach) with a view to finalisation as soon as possible.
2026 (MEPC 85)	Consider the development of other CII metrics. Consider proposals to ensure synergies between the IMO carbon intensity/energy efficiency framework and the IMO Net-Zero Framework (e.g. energy-based approach) with a view to finalisation as soon as possible.
2027 (MEPC 86)	Consider the development of other CII metrics. Consider further proposals for CII correction factors and/or reference line adjustments. Consider proposals to ensure synergies between the IMO carbon intensity/energy efficiency framework and the IMO Net-Zero Framework (e.g. energy-based approach) with a view to finalisation as soon as possible.
2028 (MEPC 87)	Conclude consideration of other CII metrics. Finalise the development of revised reference lines, as appropriate. Consider further proposals for CII correction factors and/or reference line adjustments, as appropriate. Finalise Phase 2 of the review. Consider proposals to ensure synergies between the IMO carbon intensity/energy efficiency framework and the IMO Net-Zero Framework and develop a possible way forward for the IMO carbon intensity/energy efficiency framework beyond 2030, as appropriate.

Carbon Capture and Storage

MEPC approved a work plan on the development of a regulatory framework for the use of onboard carbon capture and storage (OCCS) with the exception of matters related to accounting of CO_2 captured on board ships.

This workstream has the goal of developing a regulatory framework for the use of onboard carbon capture and storage (OCCS), in order to reduce net GHG emissions from ships without negatively affecting the environment.

The objectives of this work stream are:

- Avoiding emissions to air and discharges to sea that are harmful to the environment and ensuring traceability of the captured carbon.
- Consideration of legal barriers that may hinder the use of OCCS and transportation and transfer of the captured carbon to safe permanent storage or utilisation.
- Facilitation of access to certified reception facilities for the value chain for permanent storage or utilisation of captured carbon.
- Enabling recording and reporting of relevant data.
- Developing options that take into account GHG emission reductions from onboard carbon capture in the IMO GHG regulatory framework.

This work plan sets out an aim to complete the work in 2028, and priority tasks as soon as possible where tasks associated with its first objective (Avoiding emissions to air and discharges) will be prioritised.

Non-CO_2 GHG Measurement and Monitoring

MEPC adopted MEPC.402(83) on *Guidelines for Test-Bed and Onboard Measurements of Methane (CH4) and/or Nitrous Oxide (N_2O) emissions from marine diesel engines.*

The purpose of these Guidelines is to specify a procedure for test-bed and onboard measurements and reporting of CH_4 and/or N_2O emission values from marine diesel engines as well as documentation and verification of the same.

The measurements, calculations and reporting for CH_4 and N_2O emission values are to be carried out in accordance with the NOx Technical Code 2008 as amended, other than specifically provided for in the Guidelines.

For onboard measurements, the procedures given in these Guidelines is accepted for an individual engine or for an engine group represented by the parent engine, but not for an engine family unless further justified. For test-bed measurements, the procedure may be accepted for an Engine Family.

LR understands that this approach will support the assessment of a fuel and engine combination's Tank-to-Wake CH_4 and N_2O in the context of the *2024 Guidelines on Life Cycle GHG Intensity of Marine Fuels (2024 LCA Guidelines).* This will be further developed in the lead up to the mid-term GHG measures entering force as they recognise the potential for actual emissions factors being calculated for all fuel pathways, that further work was needed to develop procedures to certify Cf_{CH4}, Cf_{N2O} and C_{slip} emission factors, and to take into consideration aftertreatment/abatement systems.

Further work on Measurement and Verification of Non-CO_2 GHG Emissions and Onboard Carbon Capture

Noting further work is needed in relation to Measurement and Verification of Non-CO_2 GHG Emissions and Onboard Carbon Capture, MEPC re-established a correspondence group to:

- Further develop the framework for the measurement and verification of actual tank-to-wake methane (CH_4) and/or nitrous oxide (N_2O) emission factors and C_{slip} value for marine diesel engines.
- Develop a regulatory framework for the use of onboard carbon capture and storage using the Work plan on the development of a regulatory framework for the use of onboard carbon capture and storage (OCCS).

ITTC Procedures Update

MEPC adopted MEPC.403(83) on *Amendments to the 2022 Guidelines on Survey and Certification of the Energy Efficiency Design Index (EEDI) (RESOLUTION MEPC.365(79), as Amended by Resolution MEPC.374(80)* to update references to the ITTC Recommended Procedure 7.5-04-01-01.1 *Preparation, Conduct and Analysis of Speed/Power Trials* to the 2024 version and updated the reference to ISO 15016 to the 2025 edition. The Secretariat was also instructed to issue a consolidated text as MEPC.1/Circ.855/Rev.3

Adoption of Amendments to Mandatory Instruments

MEPC adopted amendments to the NOx Technical Code concerning the use of multiple engine operational profiles of a marine diesel engine, and certification of an engine subject to substantial modification or being certified to a NOx Tier which it was not certified to at time of installation.

Multiple Engine Operational Profiles

The amendments related to Multiple Engine Operational Profiles introduce a new chapter 8 to the NOx Code which allows approval of switching engine operational profiles in the following cases:

- The engine is certified to be in-service switchable between emission tiers;
- The engine is certified to more than one test cycle where the engine operational profile is switchable in-service based on the duty the engine is performing; or
- The engine is certified to the same emission standard, the same rated power, same rated speed and the same test cycle, but is switchable in-service between operational profiles (characteristics influencing NOx emission).

These amendments also introduce clarifying provisions related to Auxiliary Control Devices (ACD) which are not intended to create new requirements but clarify their application where, to date, there have been no explicit provisions in the Code even though ACDs are commonly used. The amendments require that a rational emission control strategy is to be applied to all NOx certified engines. A rational emission control strategy is a strategy at any time an ACD is not active that ensures the emission values at the individual mode points, giving the weighted specific emission value, are representative of the emission values during normal operation of the engine. Further, all ACDs must be declared and their purpose justified, noting an ACD is any device or strategy that will protect the engine against operating conditions that could result in damage to or failure of the engine, or are used in the starting of the engine.

In terms of the application of these amendments, MEPC considered a proposal to clarify the effective dates for these amendments.

MEPC confirmed that the amendments will enter into force on 1 March 2027, however, their implementation will be as follows:

- For new individual or parent engines not previously certified, the new requirements apply from 1 January 2028 based on the date of the EIAPP Certificate.
- For a new member engine to a family or group which the parent engine was certified before 1 January 2028, prior to the certification of the member engine it will need to be shown that the engine family or group meet the new requirements by 1 January 2030 based on the date of the EIAPP for the member engine.
- For existing engines which are already certified the new requirements do not apply unless the engine is subject to substantial modification on or after 1 January 2028 i.e. for installations on board ships constructed before 1 January 2000 this is to engines which undergo a substantial modification, being a modification that increases existing emission characteristics; and for installations on board ships constructed on or after 1 January 2000 this is to engines which undergo a substantial modification if an auxiliary control device is used and/ or the engine has multiple operational profiles.
- In the case of identical replacement of an engine installation on or after 1 January 2028 the version of the Code at the time of the EIAPP issuance continues to apply unless the replaced engine is equipped with multiple operational profiles in which case the new requirements apply.

Associated amendments to MARPOL Annex VI are expected to be adopted at the Second Extraordinary Session of MEPC in October 2025.

Substantial modification or certification to a different NOx Tier

The Amendments related to certification of an existing engine subject to substantial modification or to a Tier to which the engine was not certified at the time of its installation will enter force on 1 September 2026, whilst also including in the covering resolution the option for voluntary early implementation.

These amendments provide the procedure for re-certification and will apply to any substantial modification after the amendments enter into force. The amendments make reference to an ‘Engine Emission Test Plan’ to be prepared by the applicant before the testing commences, which will be supported by Guidelines on its content to be released at the point the amendments enter force.

Harmful aquatic organisms in ballast water

Ballast water management systems (BWMS) that make use of Active Substances

MEPC approved the following BWMS which use active substances:

- ERMA FIRST FLOW BWMS – Final Approval
- OceanGuard® Sim BWMS – Final Approval
- Blue Ocean Shield electrolytic chlorination (EC) BWMS – Basic approval

MEPC also noted the following:

- Approval of BSKY™ Ballast Water Management System by China.
- Verification of the compliance monitoring device BallastWISE based on IMO and ISO test protocols by Denmark.

Review of the Ballast Water Management Convention

MEPC further progressed the review of the BWM Convention. Specifically, the Ballast Water Review Group discussed and concluded on the following issues associated with the ongoing revision:

- Code for approval of ballast water management systems (BWMS Code; resolution MEPC.300(72)), particularly regarding the requirement for:
  - **Operation, Maintenance and Safety Manual (OMSM) amendments** (including if spares should be included in the OMSM and when the OMSM should be approved). It was concluded that a mandatory list of critical spares for each BWMS would not be required in the Code but should instead be provided by manufacturers. Regarding the OMSM timing of approval, it was concluded that this should be done concurrently with the approval of BWMS modifications.
  - **Clarification of major / minor component definitions, in association with modifications to BWMS**. Work remains ongoing on this subject and will be further progressed by correspondence group.
  - The linkage, relative scope and other aspects of objectives addressing **BWMS testing parameters and test conditions**. It was agreed that a new additional test on challenging water quality (CWQ) performance evaluation, which would be mandatory for all BWMS, should be introduced in the BWMS Code.

- Required consequential amendments, resulting from work of the BWM Convention review to date, to:
  - **BWM.2/Circ.62** - *Guidance on contingency measures under the BWM Convention* (in particular paragraph 6 therein), required to enhance the clarity of its application.
  - **Appendix II (Form of BWRB)**, required to develop a template for a BWMS maintenance log (to be used by those ships that do not have an equivalent recording system).
  - **BWM.2/Circ.80/Rev.1** *Guidance on ballast water record-keeping and reporting* required to reflect the amended form of the BWRB, due to the introduction of a BWMS maintenance log.

- Inclusion of the following topics as part of the review of the BWM Convention:
  - Port State Control (PSC) & Flag Inspections associated with ships transitioning from D-4 to D2 standards, establishing unified procedures to facilitate this transition and ensure consistent and effective implementation of the BWM Convention.
  - Amendment to resolution MEPC.252(67) *PSC Guidelines* to include in the initial PSC inspection checklist a review of both BWMS maintenance log (as part of BWRB) and the BWMS operation and alarm logs by to the PSC initial inspection checklist.
  - Standardisation of data logs to account for agreed and consistent use of terminology.
  - Training requirements, finalising amendments to regulation B-6 to reference ship-specific crew familiarisation training requirements.

- Amendment of the framework for flag State inspection and port State control (D-2 related) should not be part of the BWM convention review at this time.

Finally, MEPC decided to re-establish the correspondence group (CG), to finalise draft amendments to mandatory provisions (regulations and appendices in the Annex to the Convention, and BWMS Code), ahead

of submission to MEPC 84 (Spring 2026) for approval, and anticipated adoption by MEPC 85 (Autumn 2026). The revision of existing, and development of new guidelines are expected to be completed after this, but ahead of the entry into force of any mandatory provisions. The CG will, where time permits, consider and potentially delete or modify any regulations (or parts thereof) that may be obsolete, considering the consequential implications of any such deletion or modification.

Control of the discharge of disinfection by-products (DBPs) from BWMS

DBPs in the current BWMS type approval are under-assessed, noting that the current Ballast Water Management System type approval procedures do not report maximum allowable discharge concentrations for DBPs, and very few countries require or conduct monitoring of DBPs. Noting this disparity between DBP levels between type approval and operation, and recognising that this matter is complex requiring extensive technical consideration, MEPC 83 invited interested member States and international organisations to submit data and information on the formation and range of DBPs and other relevant chemicals from BWMS that make use of Active Substances, including filter-less BWMS, to a future session to consider any action required to address this matter.

Exemptions from ballast water management requirements under regulation A-4 of the BWM Convention

In 2017, MEPC adopted the *2017 Guidelines for risk assessment under regulation A-4 of the BWM Convention (G7)* (resolution MEPC.289(71)), noting that regulation A-4 stipulates that a State in waters under their jurisdiction, may grant exemptions to any requirements to apply regulation B-3 or C-1, in addition to those exemptions contained elsewhere in the Convention, but only when they are granted based on the guidelines on risk assessment developed by the Organisation. Understanding that exemptions issued to date have largely not followed the requirements of regulation A-4, MEPC 83 asked interested member States and international organisations to submit concrete proposals to a future session with the aim to improve the consistent granting and reporting of exemptions ensuring that they fully comply with the requirements of regulation A-4.

Operational challenges and implications for ships implementing the Interim guidance on the application of the BWM Convention to ships operating in challenging water quality conditions

MEPC considered operational challenges and implications for ships implementing MEPC.387(81) *Interim guidance on the application of the BWM Convention to ships operating in challenging water quality conditions.* Discussion focussed on:

- The impact on emissions from ships that undertake operational measures, following their decisions to bypass their ballast water management system (BWMS) due to either challenging water quality or the inability to conduct ballast water exchange or treatment owing to physical and/or time limitations.
- The availability of coastal State contact points for obtaining approval for pre-emptive BWMS bypass.

As a result of these discussions MEPC invited interested parties to submit data and proposals relating to the impact of BWMS on emissions to a future session under agenda item 6 (Energy efficiency of ships). Furthermore, member States were encouraged to provide information on up-to-date contact points for obtaining approval for pre-emptive BWMS bypass to the Secretariat with a view to its dissemination.

Air Pollution Prevention

Exhaust Gas Cleaning Systems as an alternative to MARPOL AnnexVI regulation 14

MEPC discussed the ability of Exhaust Gas Cleaning Systems (EGCS) to produce emissions that are equivalent to fuel oil that is compliant with regulation 14 (sulphur oxides and particulate matter). MEPC considered studies which referenced HFO in combination with EGCS not producing equivalent emissions, with higher particulate matter and black carbon emissions, when compared to marine gas oil.

MEPC considered a proposal to develop a Particulate Matter standard under regulation 14 (where only the sulphur content is specifically cited in the regulation at present) and forwarded this proposal to PPR 13 (expected February 2026) for further consideration.

Follow-up work emanating from the Action Plan to Address Marine Plastic Litter from Ships

2025 Action Plan on Marine Plastic Litter from ships

MEPC considered the draft *2025 Action Plan to address marine plastic litter from ships*, and the updated grouping and prioritisation of actions, to update annex 1 of MEPC.341(77) *Strategy to address marine plastic litter from ships*, both of which were agreed by PPR 12.

MEPC adopted resolution MEPC.404(83) *2025 Action Plan to Address Marine Plastic Litter from Ships, on* the understanding that it will be superseded at a future session by single resolution containing a combined strategy and action plan, following additional work to be carried out by PPR 13.

Of note, the 2025 Action Plan aims to:

- Reduce marine plastic litter generated from, and retrieved by, fishing vessels
- Reduce shipping's contribution to marine plastic litter
- Improve the effectiveness of port reception facilities and treatment in reducing marine plastic litter
- Enhance public awareness, education and seafarer training
- Improve understanding of the contribution of ships to marine plastic litter

For more details, please see the LR PPR 12 summary report.

MEPC approved the updated prioritisation and grouping of short-, mid-, and long-term actions. PPR will conduct a review of the MEPC.341(77) *Strategy to address marine plastic litter from ships,* accounting for the updated action groupings, with a view to merging both the action plan and strategy into a single resolution.

MEPC also:

- Invited proposals with comprehensive scopes of work for delivering on the actions in the 2025 Action Plan.
- Requested the secretariat to provide an update, in the form of an information document, to the resumed fifth session of the Intergovernmental Negotiating Committee, for the development of an international legally binding instrument to end plastic pollution.

Reporting the loss and discharge of fishing gear

MEPC noted the work underway by PPR on the data to be collected to report the accidental loss, or discharge of fishing gear under MARPOL Annex V, regulations 7.1.3 and 7.1.4. For more details please see the LR PPR 12 summary report.

Noting that PPR 12 had been unable to finish their discussions on fishing gear due to a lack of time, and in light of the plastic pollution issues and the role that shipping plays in this, and noting that a sub-committee should have clear terms of reference to progress work in the action plan, MEPC invited interested parties to submit proposals for work to be undertaken as part of the 2025 action plan.

Reducing the environmental risk of the maritime transport of plastic pellets

MEPC noted that as part of the review of the Action Plan on Marine Plastic Litter from Ships, a specific action has been agreed concerning the development of mandatory measures to reduce the environmental risks of plastic pellets transported by sea in freight containers. It was further noted that work to consider potential mandatory instruments that could be amended to regulate the carriage of plastic pellets will continue at PPR 13.

Underwater Radiated Noise

Experience-building phase for the reduction of underwater radiated noise from shipping

MEPC considered the outcome of the discussion on underwater radiated noise (URN) undertaken at SDC 11, including the:

- Development of an experience-building phase monitoring framework, which should include information from existing and new URN studies.
- Decision to establish a URN correspondence group, expected to report to SDC 12, with a focus on:
  - developing a framework to assess the progress made on the application and uptake of the revised guidelines;
  - reviewing technical objectives of the action plan and development of next steps; and
  - selecting studies, discuss knowledge gaps and integrating results in the EBP.

Having noted these discussions, MEPC decided to forward the relevant papers submitted to the committee to SDC 12 for further consideration at that session.

Second URN workshop

MEPC noted a second URN Workshop on the relationship between energy efficiency and URN (URN Action Plan, item B.2) has been provisionally scheduled to take place in October 2025. The arrangements for this workshop have not yet been finalised, therefore will be circulated in due course.

Pollution Prevention and Response

Development of In-Water Cleaning Guidelines

MEPC.1/Circ.918 Guidance on the in-water cleaning of ships' biofouling

Paragraph 9.3 of the 2023 Biofouling Guidelines (resolution MEPC.378(80)) noted the need for continued work to develop international standards for the management of in-water cleaning. MEPC approved a new circular *Guidance on the in-water cleaning of ships' biofouling*.

The intent of these guidelines is to support the global availability of safe and environmentally responsible in-water cleaning services to support the universal application of the 2023 Biofouling Guidelines, providing guidance to:

- Shipowners, charterers, operators, crews and in-water cleaning service providers, on safely planning and conducting in-water cleaning operations while addressing risks to the environment and ship coatings.
- Relevant authorities with biofouling management and in water cleaning requirements.
- Manufacturers of in-water cleaning systems (IWCS) on the design, specifications and minimum performance that should be expected of such systems.
- Coating manufacturers, IWCS manufacturers, service providers and ships with respect to determining compatibility between coatings and IWCS.

Interim Guidance on the Carriage of Blends of Biofuels and MARPOL Annex I Cargoes by Conventional Bunker Ships

MEPC approved *Interim Guidance on the carriage of blends of biofuels and MARPOL Annex I cargoes by conventional bunker ships* (MEPC.1/Circ.917). These Interim Guidelines collate relevant IMO instruments concerning the carriage of MARPOL Annex I against Annex II products.

The interim guidelines confirm that the MEPC.2 circular sets out approved biofuels and that, according to the *2019 Guidelines for the Carriage of Blends of Biofuels and MARPOL Annex I Cargoes* (MSC-MEPC.2/Circ.17), when a biofuel blend contains 75% or greater volume of an Annex I product it is considered an Annex I product in its entirety otherwise it is subject to Annex II and the carriage requirements in the IBC Code.

Where the blend contains 75% or greater volume of an energy-rich fuel specified in the *Guidelines for the Carriage of Energy-Rich Fuels and their Blends* (MEPC.1/Circ.879) (such as algae, vegetable oils etc) it may be carried on a conventional bunker ship subject to MARPOL Annex I.

The Interim Guidelines continue by highlighting a Unified Interpretation to MARPOL Annex VI (MEPC.1/Circ.795/Rev.9) which recalls that:

- a fuel oil which is a blend of not more than 30% by volume of biofuel or synthetic fuel, is to meet the requirements of regulation 18.3.1 (Fuel oil quality covering derivation of the fuel oil from petroleum refining, content of inorganic acid or chemical waste);
- the definition of a biofuel is a fuel oil which is derived from biomass and hence includes, but is not limited to, processed used cooking oils, fattyacidmethyl-esters (FAME) or fatty- acid-ethyl-esters (FAEE), straight vegetable oils (SVO), hydrotreated vegetable oils (HVO), glycerol or other biomass to liquid (BTL) type products; and

- the application of NOx requirements to biofuels, synthetic fuel and blends of these fuels is covered in the Annex VI Unified Interpretations.

The interim guidelines recognise a need to develop carriage requirements for the carriage of biofuels on conventional bunker ships certified for the carriage of oil fuels under MARPOL Annex I. It therefore sets out that conventional bunker ships certified for the carriage of oil fuels under MARPOL Annex I may be considered for the transport of blends of not more than 30% by volume of biofuel, providing all residues or tank washings are discharged ashore unless the oil discharge monitoring equipment (ODME) is approved/certified for the biofuel blend(s) being shipped.

The interim guidelines state that an IOPP certificate showing “oil tanker” issued to a conventional bunker ship carrying blends between 25% and 30% biofuel or synthetic fuel does not need to be modified.

Finally, the interim guidelines clarify that in their scope, a 'conventional bunker ship' is an oil tanker defined in regulation 1.5 of MARPOL Annex I, that is engaged in the transport and delivery of fuel oil for use by ships.

Re-Establishment of the GESAMP Task Team on EGCS

MEPC recalled that the *2022 Guidelines for Risk and Impact Assessments of the Discharge Water from Exhaust Gas Cleaning Systems* (MEPC.1/Circ.899) refer to "Emission factors" being the concentration of substances in discharge water from EGCS per the typical flow rate. These are needed for modelling worst case scenarios within the environmental risk assessment, however, figures to be used are not provided within the guidelines.

In this context, MEPC agreed terms of reference for a GESAMP task team on EGCS to develop such emissions factors. These terms of reference recognise that emissions factors are needed for port States to complete environmental risk assessments, and that unified and representative emission factors need to be determined based on a standard method to ensure harmonisation in risk assessment application.

Specifically, the terms of reference set the task team to propose a methodology to develop data sets and calculation for representative and universal emission factors and report any sets of emission factors determined using such methodology.

Subsequently, the Secretariat will liaise with GESAMP to request the re-establishment of the task team. On re-establishment, the task team will be tasked to report to PPR 13.

2025 Guidelines on Selective Catalytic Reduction (SCR) Systems

MEPC.399(83) 2025 Guidelines on Selective Catalytic Reduction (SCR) Systems addressing additional aspects of the NOx Technical Code 2008 with regard to particular requirements related to marine diesel engines with Selective Catalytic Reduction (SCR) systems

MEPC adopted amendments to *the 2017 Guidelines addressing additional aspects of the NOx Technical Code 2008 with regard to particular requirements related to marine diesel engines with Selective Catalytic Reduction (SCR) systems* (Resolution MEPC.291(71)) to remove ambiguities and ensure consistent application. These will be consolidated into the *2025 Guidelines on Selective Catalytic Reduction (SCR) Systems* which will supersede the 2017 Guidelines.

The 2025 Guidelines will apply to marine diesel engines fitted with SCRs for compliance with regulation 13 of MARPOL Annex VI. Administrations are invited to apply the 2025 Guidelines to ships on a variety of dates related to keel laying date of the ship and the delivery of the SCR to the ship.

These are as follows:

- to SCR systems installed on ships the keels of which are laid or which are at a similar stage of construction on or after 1 November 2025; or
- to SCR systems installed on ships the keels of which are laid or which are at a similar stage of construction before 1 November 2025 which have a contractual delivery date of SCR systems to the ship on or after 1 May 2026 or, in the absence of a contractual delivery date, the actual delivery of the SCR system to the ship on or after 1 May 2026.

For detail on the changes in these Guidelines see the LR PPR 12 summary report.

Clarification of the relevant threshold in respect of cybutryne in the MEPC.379(80) 2023 *Guidelines for the development of the Inventory of Hazardous Materials*

Following amendments to the Anti-fouling System (AFS) Convention, which introduced controls on cybutryne from 1 January 2023, MEPC 80 adopted MEPC.379(80) *2023 Guidelines for the development of the Inventory of Hazardous Materials*. However, clarity over the relevant cybutryne threshold values was required, particularly when samples are directly taken from the hull, versus wet paint containers.

MEPC.405(83) Amendments to the 2023 *Guidelines for the development of the Inventory of Hazardous Materials*

Following approval by PPR 12, MEPC adopted amendments to Appendix 6 of the 2023 IHM guidelines reflecting different cybutryne thresholds for wet paints versus hull samples. These amendments will provide clarity to any shipowners compiling or updating an IHM for any vessels of 500GT and above.

Reports of other Sub-Committees

SDC

Draft 2025 *Code on Alerts and Indicators*

Since the adoption of the 2009 Code, many IMO instruments referenced therein have been revised. SDC 11 reviewed the Code and agreed draft updates. MEPC approved (subject to concurrent approval by MSC 110) the draft 2025 *Code on Alerts and Indicators*, and the associated draft Assembly resolution (for subsequent adoption by Assembly 34).

Identification and Protection of Special Areas, ECAs and PSSAs

Emission Control Areas (ECA)

MEPC developed an ECA for both NOx and SOx in the North-East Atlantic surrounding Greenland, Iceland, the

Faroe Islands, the west coast of the UK and Ireland extending south to Spain and Portugal.

The application relevant to NOx Tier III requirements is to ships operating in the ECA which have a building contract placed on or after 1 January 2027, or in absence of contract, keel laying on or after 1 July 2027, or which are delivered on or after 1 January 2031.

Regarding SOx requirements, the application is to require ships operating in the ECA to use fuel oil with sulphur content not exceeding 0.10% m/m. The effective date for these requirements is expected to be 1 March 2028 which is 12 months after the expected entry into force of the MARPOL amendments i.e. to ships operating in the ECA from 1 March 2028.

It is expected that the regulations bringing these requirements into force will be adopted at the extraordinary session of MEPC in October 2025 for entry into force from 1 March 2027.

Particularly Sensitive Sea Areas (PSSAs)

MEPC considered and agreed in principle the designation of the Reserva Nacional Dorsal de Nasca and the Reserva Nacional Mar Tropical de Grau in Peru as Particularly Sensitive Sea Areas, subject to the further development and approval of the proposed associated protective measures.

Both PSSAs, once adopted, will apply to all types and sizes of ship. Any ship navigating through these areas will need to observe the associated protective measures (APMs) to prohibit the discharge of oil, oily mixtures and sewage into the sea; the offloading or dumping of residues, pollutants, waste or garbage and the changing of ballast water while transiting the areas.

Decisions of Other Bodies

Outcome of MSC 109

MEPC concurrently approved (with MSC 109) the draft revision of MSC-MEPC.2/Circ.12/Rev.2 on *Revised guidelines for formal safety assessment (FSA)* for use in the IMO rule-making process, for dissemination as MSC-MEPC.2/Circ.12/Rev.3.

See the LR MSC 109 summary report for further information.

Work Programme

MEPC considered its work programme and that of its subsidiary bodies, for the 2026-2027 biennium as well as items to be included in the agendas for the second extraordinary session (MEPC/ES.2) and MEPC 84. Specifically, the following new outputs were agreed:

- An assessment of the implementation of the Hong Kong Convention, through an experience building phase and development of possible amendments and clarifications as appropriate of the Hong Kong Convention. This will be included in the post biennial agenda of MEPC, with PPR as the sub-committee to complete the work.

- Development of a legally binding framework for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species is to be included in the in post biennial agenda, with PPR as the sub-committee to complete the work.
- Development of amendments to the NOx Technical Code 2008 to also cover the certification of engines using non-carbon-containing fuel or mixtures of carbon-containing and non-carbon-containing fuels, in the post biennial agenda with PPR assigned as the sub-committee.
- Development of management guidelines to protect the marine environment from ammonia effluent generated from ammonia-fuelled ships, in the post biennial agenda with PPR assigned as the sub-committee.

Any Other Business

Shipping and the intersection of climate, biodiversity, ecosystem resilience and pollution

MEPC considered the request to ensure that cross cutting issues at the biodiversity, climate, pollution nexus, and the cumulative impacts of pollution on ecosystems, as per the operationalisation of UNCLOS (UN Convention on the Law of the Sea). As such MEPC invited interested member States and international organisations to submit proposals for outputs to a future session.

Implementation of the Hong Kong Ship Recycling Convention

Following the agreement of HKSRC.2/Circ.1 *Provisional guidance on the implementation of the Hong Kong and Basel Conventions with respect to the transboundary movement of ships intended for recycling*, by MEPC 82, it was agreed that additional work was required to improve the guidance in order to provide further clarity and certainty, and that such work should be carried out in cooperation with the Secretariat of the Basel Convention. MEPC 83 noted that the topic of Ship Recycling and HKSRC.2/Circ.1 will be considered by Basel Convention (BC COP-17) in April. The IMO secretariat will continue to work with the BC secretariat to ensure robust implementation of the HKC and report the outcome of BC discussions back to MEPC 84.

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