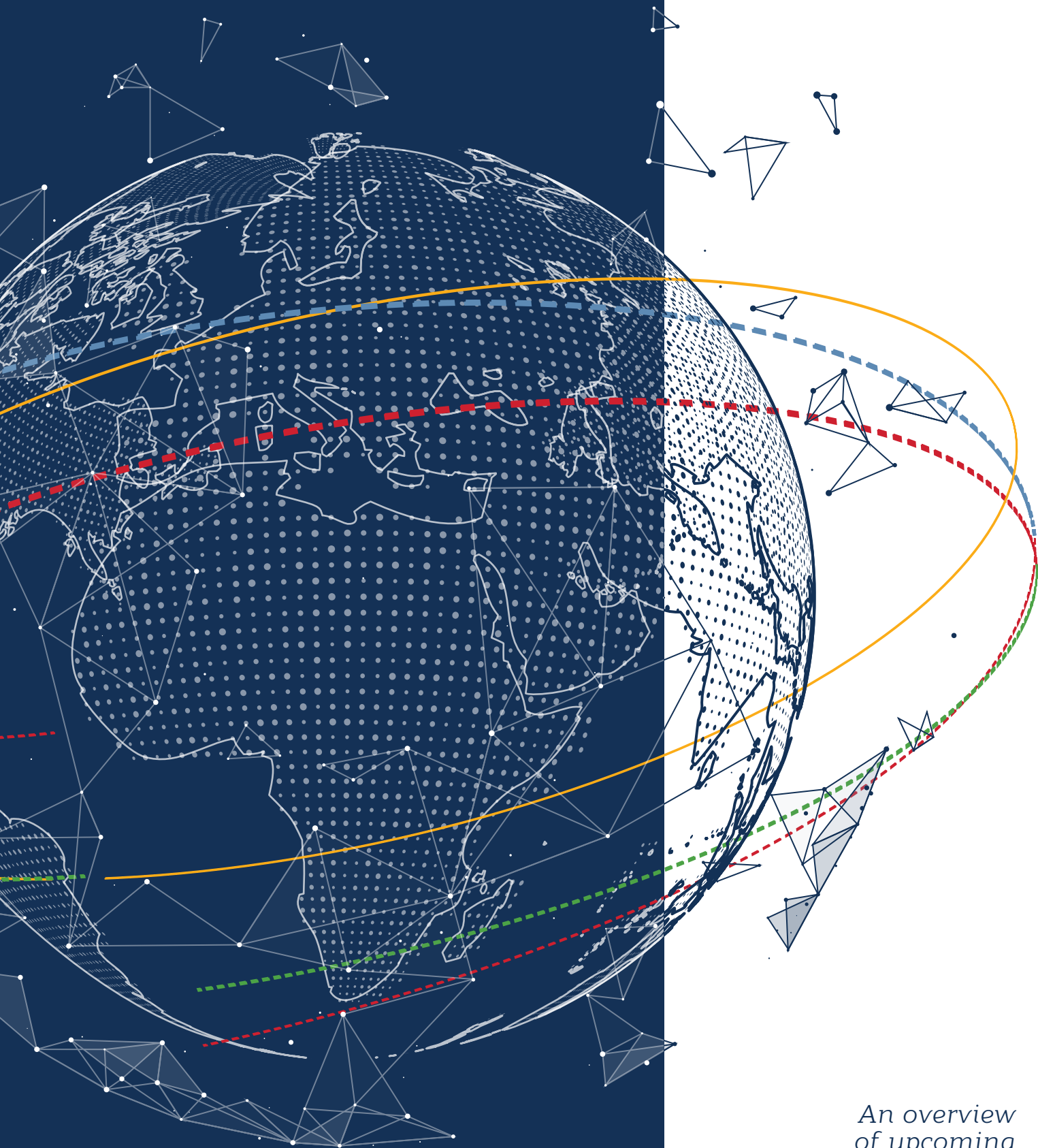


REGULATORY

Trends and Impact

2023



An overview
of upcoming
**INTERNATIONAL
AND REGIONAL**
regulatory
developments





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INTRODUCTION



The expansive reach of the maritime industry has many facets, but it is unified by several beliefs – the safety of seafarers is paramount, vessels should operate safely and efficiently and good stewardship of the environment is a duty belonging to all. Through both international agreements and local governance, the nations of the world come together to give effect to these beliefs in the form of maritime regulations and guidelines. They are created to provide safeguards against the many hazards vessels may encounter at sea, including storms, collisions and groundings.

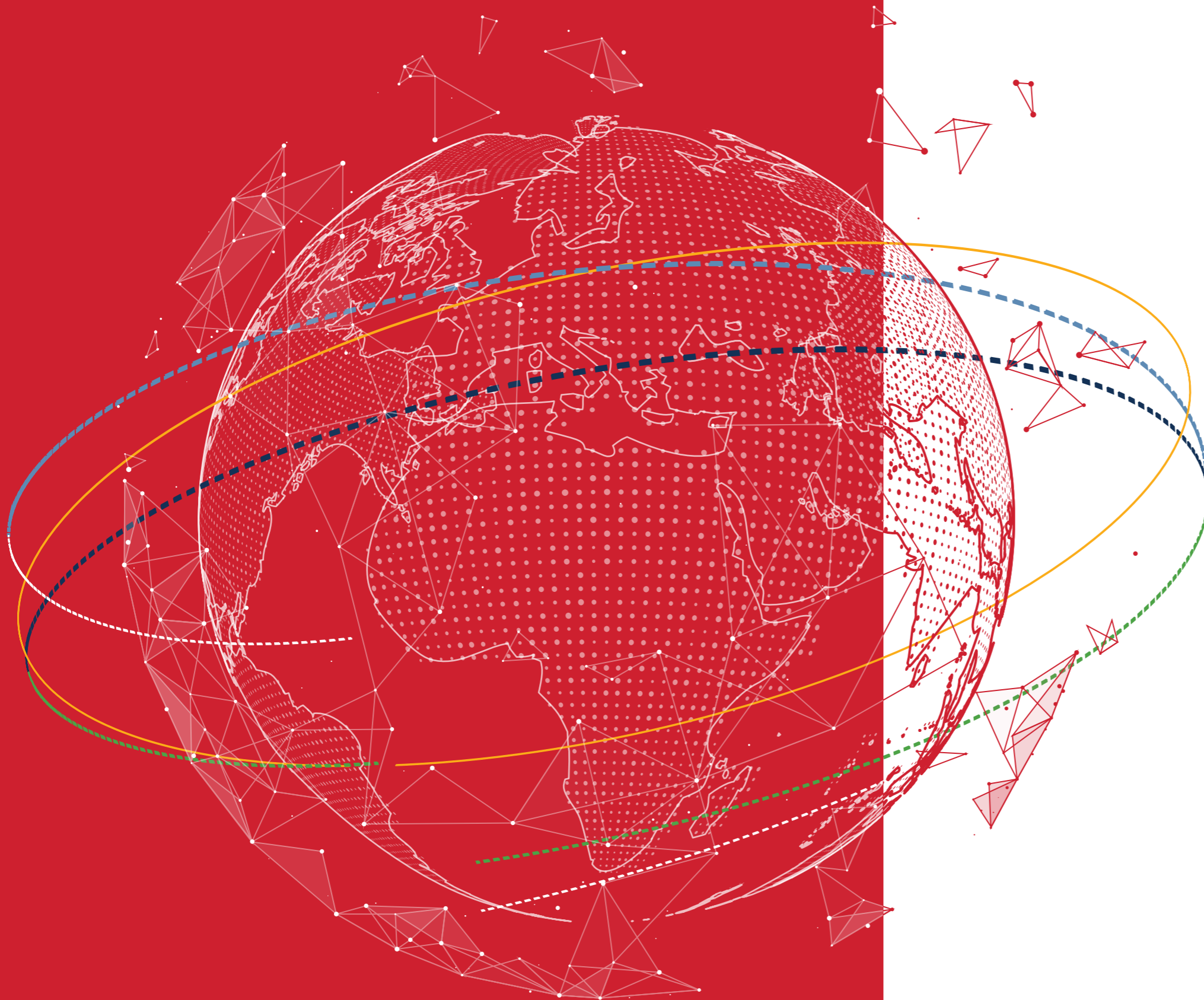
The global landscape of maritime regulation is both broad in scope and nuanced in the detailed technical solutions required to achieve compliance. Failing to comply with regulations can result in fines, sanctions and criminal charges, or in some cases, non-compliance can lead to the detention of vessels and the loss of income for shipping companies. By staying informed on regulations and ensuring compliance, vessel operators can avoid these penalties and keep their businesses running smoothly.

This publication provides a summary of the latest regulatory efforts under development at the International Maritime Organization (IMO), highlighting the key topics championed by the organization to improve the safety, efficiency and technological leadership of the maritime industry. From reductions in the carbon intensity of shipping, to the use of future fuels and autonomous ship capabilities, the IMO continues to pursue a unified consensus on the direction of shipping in the remainder of this century.

This publication also provides a summary of key regulatory developments at the regional level, as countries take steps to support the goals of the IMO or to impose local requirements that support their own national interests. These regional developments are often testbeds for finding solutions that can have global applications in the future but must be accounted for in vessel operations today. These key national and international developments are current as of autumn 2023 and ABS will continue to monitor any changes and provide updated guidance that will help you to navigate the regulatory landscape in the years ahead.

KEY DEVELOPMENTS

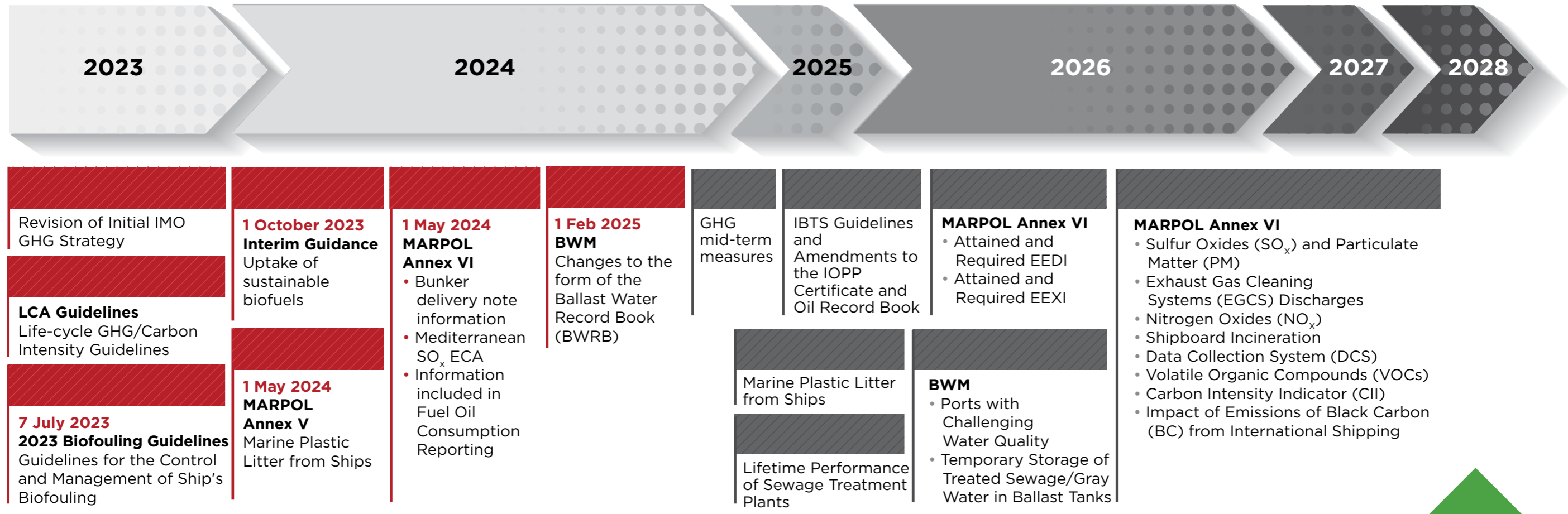
- ✓ Strategy for GHG Reduction and Mid-Term Measures
- ✓ Developing Guidance for Alternative Fuels
- ✓ Regulatory Pathway for Autonomous Shipping
- ✓ EU Fit for 55 – Cap-and-Trade Emissions System
- ✓ U.S. and China Policies on Emissions and Cold-Ironing When at Berth
- ✓ Panama Canal Green Route Plan 2050



Part One
**INTERNATIONAL
DEVELOPMENTS**

IMO Environmental Protection
IMO Maritime Safety

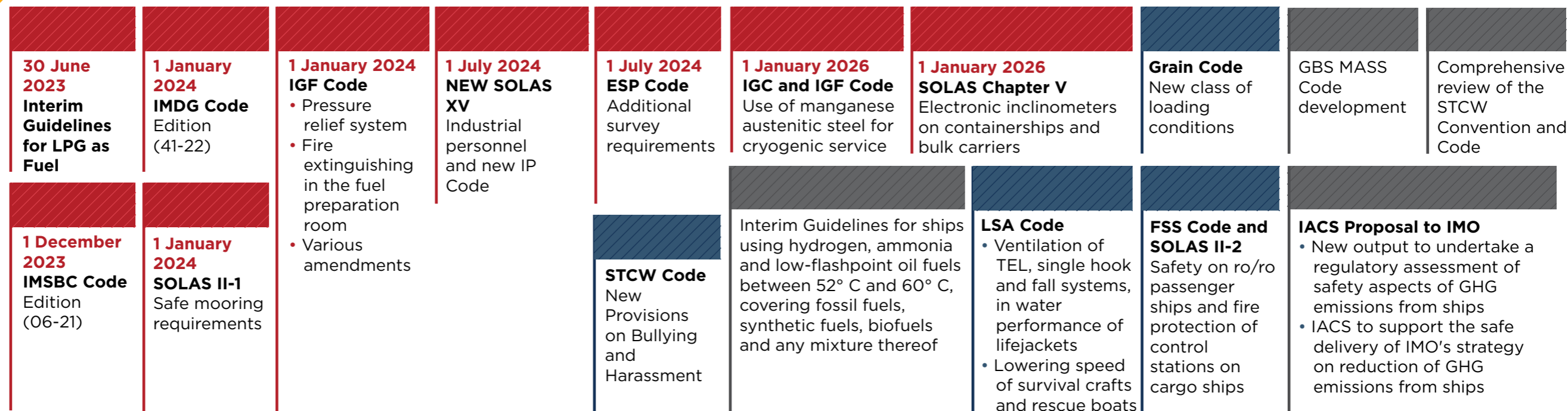
REGULATORY OVERVIEW



ENVIRONMENTAL PROTECTION

■ Adopted by IMO
 ■ Finalized/Soon to be Adopted Anticipated to Enter into Force
 ■ Ongoing Discussion (*Indicative Placement in the Timeline)

MARITIME SAFETY



IMO ENVIRONMENTAL PROTECTION



GREENHOUSE GAS REDUCTION

2023 IMO GHG STRATEGY

ADOPTED BY IMO

Adopted: 7 July 2023 (MEPC 80)

The Initial International Maritime Organization (IMO) Strategy on reduction of greenhouse gas (GHG) emissions from ships, adopted at the 72nd session of the Marine Environment Protection Committee (MEPC), set specific milestones such as reduction of carbon dioxide (CO₂) emissions per transport work, by at least 40 percent by 2030 and by 70 percent by 2050 along with reducing total annual GHG emissions from international shipping by at least 50 percent by 2050. Furthermore, the initial strategy established a road map specifying follow-up actions for revising the strategy in 2023, by setting more ambitious targets along with short-, mid- and long-term measures.

At MEPC 80, the IMO adopted the *2023 Revised IMO Strategy on Reduction of GHG Emissions from Ships*. The *2023 IMO GHG Strategy* increases the levels of ambition compared to the *Initial IMO Strategy on Reduction of GHG Emissions from Ships*. The levels of ambition and indicative checkpoints shall consider the Well-to-Wake (WtW) GHG emissions of marine fuels, as addressed in the Guidelines on life-cycle GHG intensity of marine fuels life-cycle analysis (LCA) Guidelines with the overall objective of reducing GHG emissions of international shipping without a shift to other sectors.

Levels of ambition directing the 2023 IMO GHG Strategy are as follows:

1. Carbon intensity of the ship to decline through further improvement of the energy efficiency for new ships.

To review with the aim of strengthening the energy efficiency design requirements for ships.

2. Carbon intensity of international shipping to decline.

To reduce CO₂ emissions per transport work, as an average across international shipping, by at least 40 percent by 2030, compared to 2008.

3. Uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources to increase.

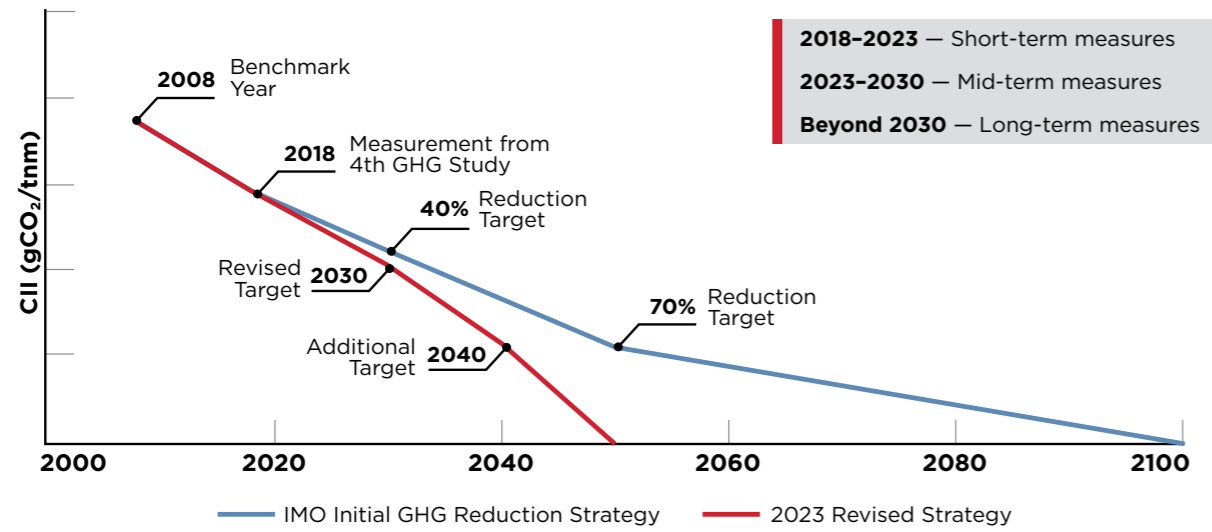
Uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources to represent at least 5 percent, striving for 10 percent, of the energy used by international shipping by 2030.

4. GHG emissions from international shipping to reach net zero.

To peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around 2050, considering different national circumstances while pursuing efforts towards phasing them out as called for in the vision consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement.

In addition, the Committee established two indicative checkpoints to reach net-zero GHG emissions from international shipping:

1. To reduce the total annual GHG emissions from international shipping by at least 20 percent, striving for 30 percent in 2030, compared to 2008.
2. To reduce the total annual GHG emissions from international shipping by at least 70 percent, striving for 80 percent by 2040, compared to 2008.



The IMO GHG Strategy is subject to a five-year review, with the next review to happen in 2028.

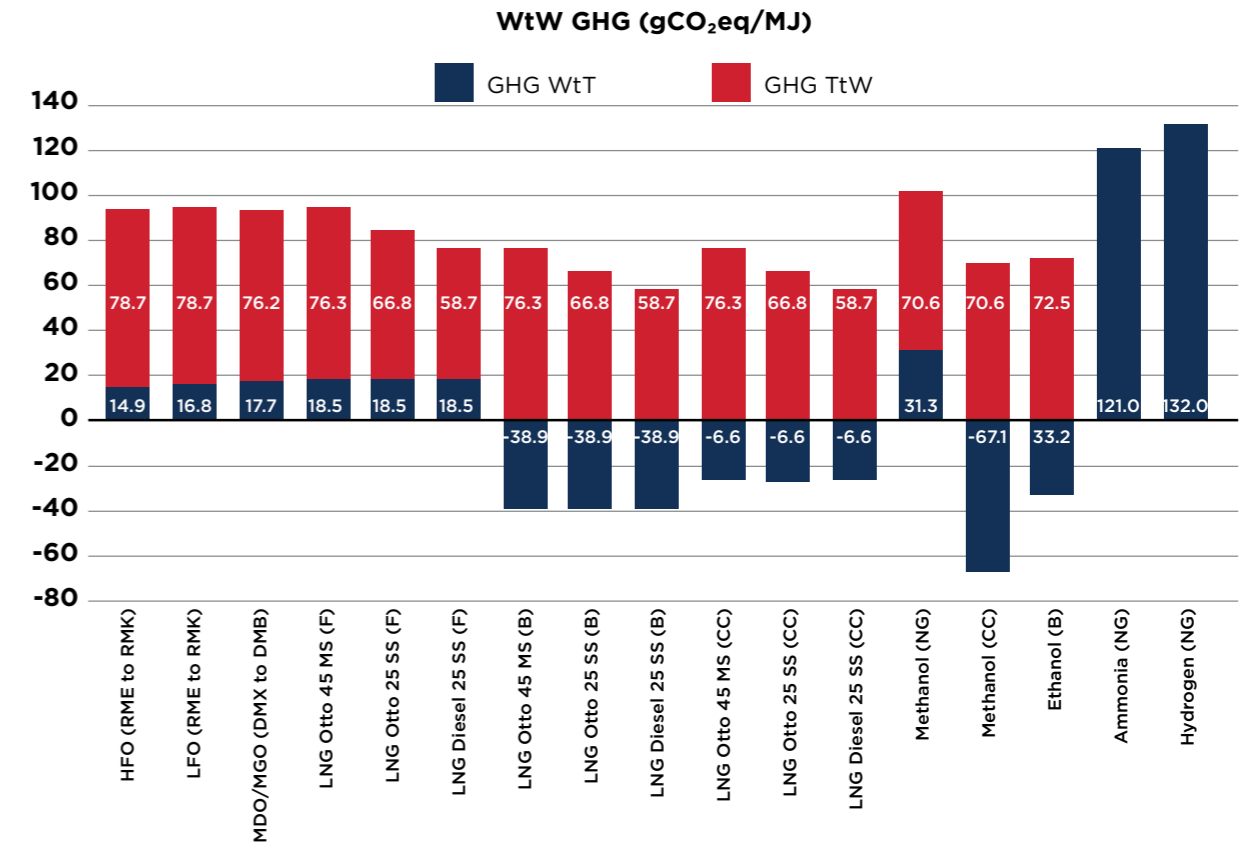
LIFE-CYCLE GHG/CARBON INTENSITY GUIDELINES

Adopted: 7 July 2023 (MEPC 80)

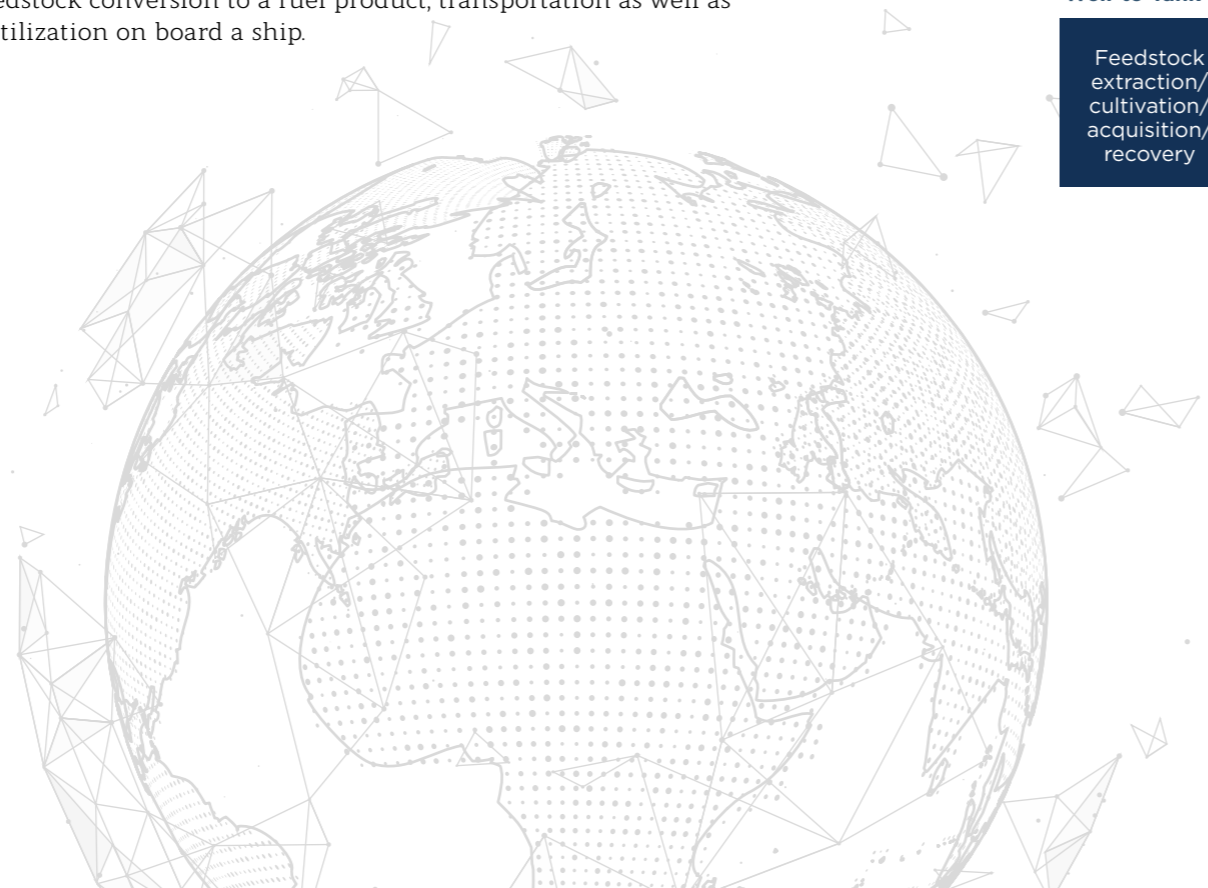
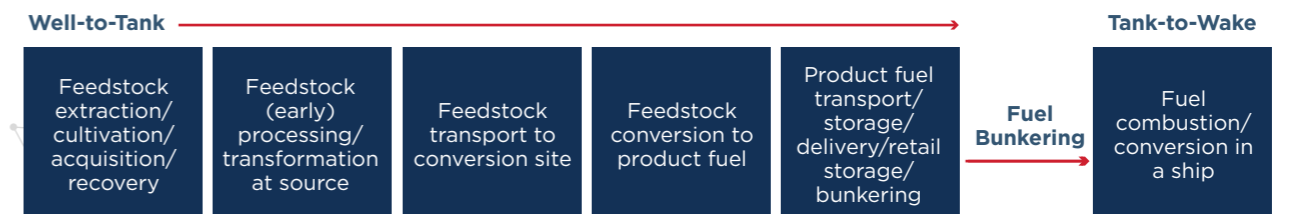
The Committee adopted Resolution MEPC.376(80) containing the marine fuel life-cycle GHG guidelines (LCA Guidelines) and agreed on a work program for further enhancement of the guidelines on specific areas. The scope of these guidelines is to address Well-to-Tank (WtT), Tank-to-Wake (TtW) and WtW GHG intensity and sustainability themes/aspects related to marine fuels/energy carriers (e.g., electricity for shore power) used for ship propulsion and power generation on board. The relevant GHG included are:

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)

The guidelines aim at covering the whole fuel life cycle (with specific boundaries), from feedstock, extraction/cultivation/recovery, feedstock conversion to a fuel product, transportation as well as distribution/bunkering and fuel utilization on board a ship.



In addition, the guidelines will also specify sustainability themes/aspects for marine fuels and define a Fuel Lifecycle Label (FLL), which carries information about fuel type, feedstock (feedstock type and feedstock nature/carbon source), conversion/production process (process type and energy used in the process), GHG emission factors, information on fuel blends and sustainability themes/aspects. The guidelines will specify the elements of FLL subject to verification/certification and include a general procedure on how the certification scheme/standards could be identified.



INTERIM GUIDANCE – UPTAKE OF SUSTAINABLE BIOFUELS

Adopted: Applicable as of 1 October 2023

MEPC 79 offered a unified interpretation on Regulation 18.3 for biofuel and synthetic fuels. Regulation 18.3 states that fuel oils for combustion purposes derived by methods other than petroleum refining shall not cause an engine to exceed the applicable nitrogen oxides (NO_x) emission limits. Biofuels fall into that category and thus it was necessary to demonstrate compliance with the NO_x Technical Code 2008, which requires either onboard emission testing and monitoring, or engine and fuel-specific NO_x emissions validation testing, with the additional complexity of not being able to define a reference biofuel. In that order, the UI adopted at MEPC 79 (published within circular MEPC.1/Circ.795) clarified that a fuel oil blend of not more than 30 percent by volume biofuel or synthetic fuel should be considered to meet the requirements of Regulation 18.3.1 of MARPOL Annex VI, meaning that it is not necessary to prove compliance with NO_x emission limits.

Another regulatory challenge that arises from the increased uptake of certified biofuels, is the reporting of the emission factor under IMO Data Collecting System (DCS). MEPC 80 approved circular MEPC.1/ Circ.905 *Interim Guidance on the Use of Biofuels under Regulations 26, 27 and 28 of MARPOL Annex VI (DCS and CII)* (with application as of 1 October 2023) which provides that properly certified biofuels with a WtW GHG emissions reduction of at least 65 percent compared to fossil MGO of 94 gCO₂e/MJ (i.e., not exceeding 33 gCO₂e/MJ), may be assigned a conversion factor (CF) equal to the value of the WtW GHG emissions of the fuel according to the certificate multiplied by its lower calorific value (LCV).

This allows GHG intensity credit to be given to sustainable biofuels/biofuel blends for the purpose of DCS and Carbon Intensity Indicator (CII), pending the development of the comprehensive method to account for WtW GHG emissions and removals based on the IMO LCA Guidelines. For fuel blends, the CF is to be calculated as a weighted average of the CF for each amount of fuel, biofuel and fossil fuel, by energy. In any case, the CF value of a biofuel cannot be less than zero. The verification of the reported biofuel consumption shall be supported by proof of sustainability or similar documentation from a recognized scheme along with the Bunker Delivery Note (BDN).

CF calculation example

A hypothetical vessel receives 125 MT of B30 fuel oil mix of a Fatty-Acid-Methyl-Ester (FAME) with WtW GHG intensity equal to 23 gCO₂e/MJ and LCV equal to 0.037 MJ/g, and a light fuel oil (LFO) with LCV value of 0.0412 MJ/g and CF equal to 3.151 gCO₂/gfuel in accordance with Resolution MEPC.364(79). Since subject FAME has a WtW GHG intensity less than 33 gCO₂e/MJ and is certified as sustainable, its CF is equal to:

$$C_{FFAME} = WtW \left[\frac{gCO_{2e}}{MJ} \right] \cdot LCV \left[\frac{MJ}{gfuel} \right] = 23 \cdot 0.037 = 0.851 gCO_2/gfuel$$

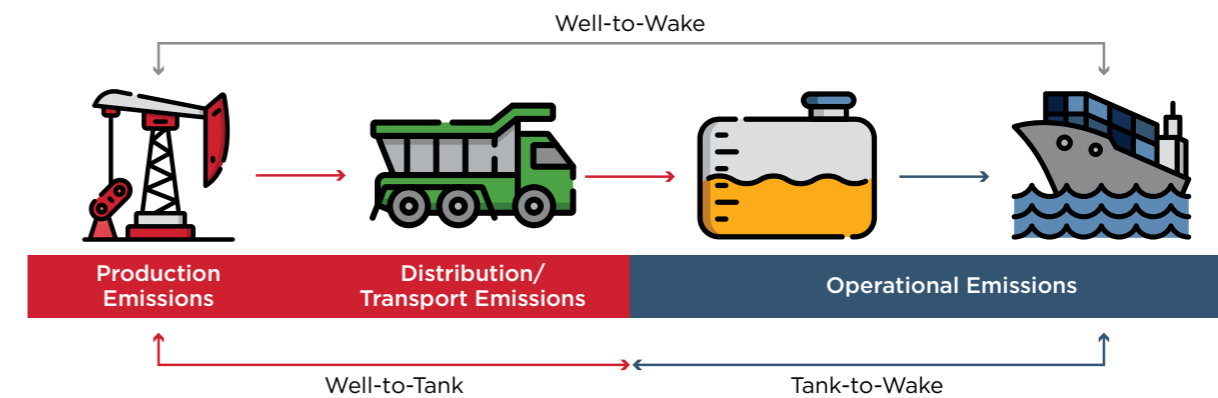
According to the Interim Guidance, its CF shall be calculated as the weighted average for the respective amount of fuel by energy.

Type	LCV [MJ/g]	Fuel [kg]	Energy [MJ]	% Energy	CF [gCO ₂ /gfuel]	Weighted CF [gCO ₂ /gfuel]
FAME	0.037	37,500	1,387,500	27.8	0.851	0.237
LSFO	0.0412	87,500	3,605,000	72.2	3.151	2.275
--	--	125,000	4,992,500	100.0	--	2.512

$$C_{FB30 LSFO} = \frac{27.8}{100} \cdot C_{FFAME} + \frac{72.2}{100} \cdot C_{FLSFO} = 0.278 \cdot 0.851 + 0.722 \cdot 3.151 = 2.512 gCO_2/gfuel$$

Under IMO DCS the relevant consumption of B30 LSFO, shall be reported in the “Other” field by specifying the energy weighted average CF and by referring to MEPC.1/Circ.905.

With the LCA guidelines finalized and approved at MEPC 80, the committee has been asked to also consider and adopt a resolution which will assign to sustainable certified biofuels as per LCA guidelines, a zero CO₂e value in IMO DCS and CII regulations.



MID-TERM MEASURES FOR GHG REDUCTION

ONGOING DISCUSSION

In Development: Anticipating entry into force in 2027

MEPC 76 developed the work plan for the development of mid- and long-term measures for GHG reduction in shipping, which consists of three main phases:

- Phase I: Collation and initial consideration of proposals for measures, from spring 2021 to spring 2022. The purpose of Phase I was to consider all submitted proposals and to understand and compare their main features and implications.
- Phase II: Assessment and selection of measures to further develop, from spring 2022 to spring 2023. Identify candidate measures to develop further as a priority.
- Phase III: Development of a measure or measures to be finalized within an agreed timeline. Develop and adopt the selected measures along with assessment of impacts on member States and a detailed assessment of how the selected measure will meet the long-term levels of ambition.

INTERNATIONAL MARITIME RESEARCH AND DEVELOPMENT BOARD (IMRB)

The establishment of an IMRB would create some type of market-based measure (MBM) placing a price on GHG emissions to support an entity which will be established under the umbrella of the IMO and will include three functional bodies:

- IMRB.
- An IMO supervisory body which will report to MEPC to provide oversight and approve the IMRB budget.
- International Maritime Research Fund (IMRF) that will provide industry financing for the IMRB and the research and development (R&D) programs it will undertake.

Responsibilities of IMRB will include but are not limited to:

- Development, direction, management and administration of an international maritime R&D strategy with the objective to promote the development of low- and zero-carbon technologies and fuels.
- Executing the policy on R&D activities.
- Overseeing the LCA for R&D projects.
- Preparing the road map on R&D activities.

MANDATORY HIGH AMBITION LEVY ON ALL GHG EMISSIONS FROM INTERNATIONAL SHIPPING

A universal MBM that will balance the price difference between current fossil fuels and decarbonized alternatives. The ultimate price that will lead the industry towards decarbonized fuels is not known at the moment, but estimations set it to a range of \$250-300 per metric ton (tonne) CO_{2e}. According to the proposal, it is suggested to introduce an entry level rate of \$100 per tonne CO_{2e} with a revision every five years. The levy can either be applied to the monitored emissions or to the point of bunkering.

The application of the universal levy will generate significant revenue. This revenue will be divided into:

1. A fund that will support climate change mitigation and adaptation efforts in sustainable countries, regulated under the United Nations Framework Convention on Climate Change (UNFCCC), or the existing Green Climate Fund (GCF).
2. A different fund that will support R&D of alternative technologies and fuels, regulated under IMO.

INTERNATIONAL MARITIME SUSTAINABILITY FUNDING AND REWARD (IMSF&R) MECHANISM

A MBM which will be based on annually reported IMO DCS and CII mechanism. For each vessel an upper and lower benchmark CO₂ emissions level will be set based on its upper and lower "C" rating boundaries according to the CII Rating Guidelines (G4 Guidelines). Ships with verified CO₂ emissions (according to DCS data) above the upper benchmark level will have to pay a "funding contribution" to an established fund mechanism.

Part of the fundings will be used to reward ships with CII ratings less than the lower benchmark level and to economically support investments in alternative technologies and fuels and mitigate potential negative impacts in developing countries. Based on the proposal, the funding contributions will be divided as follows:

- 40 percent will be used to reward the superior operators, with actual carbon emissions below the reward benchmark level.
- 30 percent will be used to support capacity building and negative impact mitigation in developing countries.
- 20 percent to support R&D and technology transfer.
- 10 percent to cover administrative costs.

INTERNATIONAL MARITIME SUSTAINABLE FUELS AND FUND (IMSF&F)

This proposal has not been developed to replace or withdraw the original IMSF&R mechanism (ISWG-GHG 12/3/9). Instead, it is intended to be a step forward to design a combination of a basket of mid-term measures, consisting of both technical and economic elements.

The IMSF&F mechanism is developed based on the original IMSF&R mechanism (ISWG-GHG 12/3/9) and has incorporated other compatible technical and economic elements from various proposals like the Global GHG Fuel Standard (GFS), incentives for first movers and revenue raising/disbursement issues. The CII metric has been replaced by the GHG intensity of fuels/energy in the updated version, which is also a compromise to bridge the divergence between different proposals.

In addition, a sustainability framework is introduced to set quantitative and/or qualitative thresholds, where appropriate, for the life-cycle GHG emissions and other sustainability aspects of sustainable marine fuels/energy. The IMSF&F mechanism will be implemented on an annual basis. The basic idea of the IMSF&F is to first set up a limit to the GHG intensity indicator of fuels/energy used on board ships (required GFI, in g CO_{2e}/MJ). The benchmark of the GHG emissions level (in t CO_{2e}) for a ship can be calculated by multiplying the required GFI with its actual annual fuels/energy consumption (in TJ). The actual GHG emissions of a ship can be calculated by multiplying the actual GFI with the actual annual fuels/energy consumption (in TJ). In the case that actual GHG emissions are above the benchmark, a vessel would receive Deficit Units (DUs) that would need to be offset by either acquiring Remedial Units (RUs) from the Sustainable Shipping Fund or Surplus Reward Units (SRUs) from vessels with actual GHG emissions below the reference.

ZERO-EMISSION SHIPPING INCENTIVE SCHEME (ZESIS)

This proposal is another MBM that aims to provide clear incentives for zero emission vessels (ZEVs) by using revenues raised by carbon levy as rebates for zero-emission fuels. ZESIS is based on the proposal for a universal fuel levy but differs in the way of calculating the amount of that levy. On the one hand, a universal fuel levy will have to fill the gap between zero-emission fuels and carbon fuels, which initially will be high. On the other hand, initially the share of ZEVs will be limited thus the rebate level for zero-emission fuels will be set at a low level (since the adoption of zero-emission fuels will be limited) which will result also in a low levy rate. Therefore, the levy rate will be determined based on the amount of revenues required for the rebate mechanism to provide sufficient incentives to ZEVs. A preliminary analysis on the levy rate estimates that initially a price range between \$56-73 per tonne of CO₂ will be enough to incentivize first movers. Revenues will be divided within the sector, the larger percentage will be used to support investments in ZEVs and alternative fuels and the remaining amount shall be allocated to IMO's Integrated Technical Cooperation Program (ITCP) to assist maritime GHG reduction efforts in vulnerable states, to least developed countries (LDCs) and small island developing states (SIDS).

EMISSION CAP-AND-TRADE SYSTEM (ECTS)

This proposal is an absolute emissions reduction mechanism which will be based on two principles:

- Setting an absolute emissions annual cap which will determine the total amount of ship emission units (SEUs).
- Acquiring of SEUs via an auction mechanism along with the obligation to surrender the equivalent amount to a ship's verified GHG emissions reported through DCS.

Each year the total amount of SEUs to be auctioned will be dictated from the annual emissions cap. A SEU will be valid for one year without the possibility to bank it for future use. ECTS will have two markets, a primary one for the initial distribution of a ship and a secondary in which SEUs will be freely traded between ships, both markets will be oversighted to avoid fraud and manipulation. The initial distribution of SEUs to ships will be done with various mechanisms:

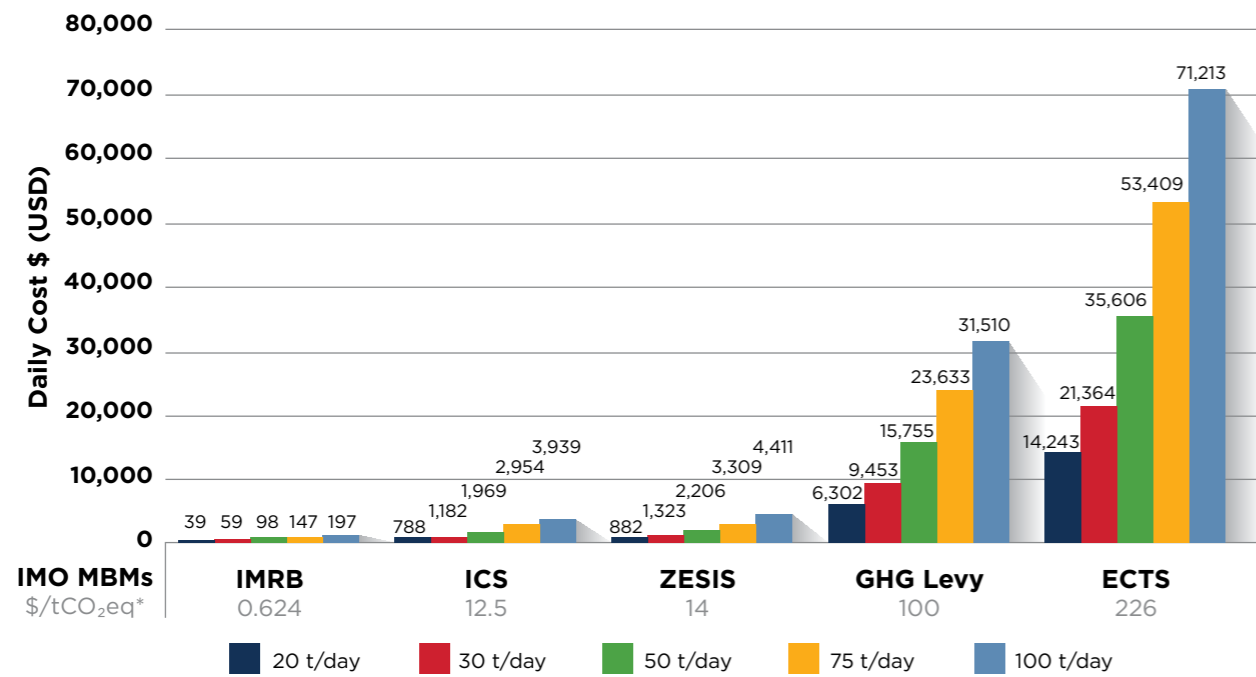
- Full auctioning without mechanisms to control the price fluctuation.
- Full auctioning with mechanisms to avoid price fluctuations, for instance setting an upper and lower limit.
- Partial auctioning.
- Free allocation of allowances.

The proposed mechanism also provides a phase-in period for the industry to adapt, where ships will have to surrender a percentage of verified emissions or will be granted with free SEUs.

MARITIME SUSTAINABILITY FUND AND REWARD (F&R)

This proposal is an MBM that combines features from IMSF&R, the feebate mechanism from ZESIS and the global levy on all GHG emissions. The key points are:

- The establishment of an IMSF&R mechanism.
- All applicable ships will make an annual contribution per tonne of CO₂ to an IMSF, calculated on a Tank-to-Wake (TtW) or Well-to-Wake (WtW) basis based on the factors provided in the finalized LCA guidelines. The amount of contribution will be revised every five years, considering the availability of alternative fuels, their price gap with the conventional fossil fuels and the impacts on states.
 - Ships combusting fuels with lower CO₂ emission factors will make a smaller contribution, and alternative fuels with zero-carbon factor will be eligible for no contribution.
 - Ships that operate on alternative fuels, will receive rewards from IMSF based on the amount of CO₂ emissions that were prevented by the use of these fuels.
 - The calculation of the ship's contribution will be based on the IMO Fuel Oil DCS which will be amended to also include the different types of the alternative fuels.
 - Contributions to the IMSF will be distributed to support the development and uptake of alternative fuels, capacity-building and negative impact mitigation in developing countries, funding of R&D programs for alternative fuels and innovative technologies and administrative costs of IMSF.



*Assuming use of LSFO – Only CO₂ emissions, not CH₄ and N₂O

Daily compliance cost based on daily fuel consumption and indicative CO₂e pricing.

PROPOSAL FOR A GHG FUEL STANDARD (GFS)

GFS, a goal-based technical measure aimed at reducing overtime the GHG intensity of the fuels, will likely be implemented along with an MBM. The purpose of GFS is to reduce over time the GHG intensity of the energy used on board without favoring the selection of a specific fuel. Compliance with the standard can be met by blending fossil fuels with biofuels or the uptake of alternative low carbon fuels. Furthermore, to set an equitable field for all fuels, the GHG intensity will be calculated on WtW, while taking into consideration not only CO₂ but also other GHG emissions such as CH₄ and N₂O. GFS will be strengthened over time, being aligned with the trajectory of the revised IMO GHG strategy. GFS will have two main mechanisms to reward the overachievers and offer the possibility to underachievers to be compliant. For the former, the surplus units can be banked to be used over the following year or to be transferred to non-compliant ships whereas for the latter, an option to pay a defined GHG contribution to an IMO GHG fund which will be based on the difference between the actual GHG intensity and the required standard.



AIR POLLUTION

ADOPTED BY IMO

AMENDMENTS TO MARPOL ANNEX VI: MEDITERRANEAN ECA

Adopted: Enters into force 1 May 2024

MEPC 79 adopted Resolution MEPC.361(79) that establishes a new Emission Control Area (ECA) for the Mediterranean Sea as a whole. Ships operating anywhere within the Mediterranean Sea must utilize fuel oil of maximum 0.10 percent m/m sulfur content. Furthermore, this resolution provides amendments to MARPOL Annex VI, acknowledging the Mediterranean Sea alongside other existing ECAs by specifying a formal description by coordinates. These amendments will enter into force on 1 May 2024, but ships operating in this ECA will be exempt from compliance during the first 12 months immediately following entry into force of that amendment.



UPDATED GUIDELINES ON SHIPBOARD INCINERATION

Adopted: 7 July 2023 (MEPC 80)

MEPC 80 adopted the 2023 Guidelines for Thermal Waste Treatment Devices (TWTd), which are developed based on a technology-neutral, goal-based approach that can be applied to any TWTd, such as gasification, hydrothermal carbonization, pyrolysis or other thermal means for the disposal of permitted garbage during a ship's normal service. These guidelines follow a goal-based approach that requires the in-service monitoring and recordkeeping of specified emissions, the identification of functional objectives for such devices and development of a TWTd Technical Report that demonstrates resolution of each functional objective. The guidelines also set maximum emission limits, with respect to air discharges – Performance Level 1 and tighter Performance Level 2, water discharge to sea and treatment of TWTd residues. The TWTd Technical Report shall cover at least the specified functional objectives to achieve the in-service Performance Level 1 emission limit requirements and, if applicable, those of Performance Level 2. Certification of TWTd is divided into two parts, approval of the proposed TWTd under Regulation 4 of MARPOL Annex VI and secondly approval of individual units of TWTd.

AMENDMENTS TO MARPOL ANNEX VI: NO_x

Finalized: To be adopted at MEPC 81 (March 2024)

Under Regulation 13.2.2 of MARPOL Annex VI, the replacement of a marine diesel engine by a non-identical marine diesel engine or the installation of an additional marine diesel engine is considered a major conversion, and the NO_x Technical Standards at the time of the replacement or addition of the engine shall apply. Furthermore, Regulation 13.2.2 contains an exemption clause for the replacement of a marine diesel engine with a non-identical one which states that when it is not possible for such replacement engine to meet the Tier III standard, it shall meet the Tier II standard.

The IMO approved an amendment to Regulation 13.2.2 to clarify that the replacement of “steam system” by a marine diesel engine shall be considered a “replacement engine” (relying on the fact that a marine diesel engine is more efficient compared to old auxiliary boilers) and the Party shall notify the Organization accordingly when clause 13.2.2 is applied to a replacement of a “steam system” with a marine diesel engine. This amendment is scheduled to be adopted at MEPC 81 (March 2024).

The IMO also approved in principle the draft *2023 Guidelines as Required by Regulation 13.2.2 in Respect of Non-Identical Replacement Engines Not Required to Meet the Tier III Limit*, to include the case where a marine diesel engine is to be installed to replace a steam system, in which case that engine is to be considered a replacement engine. This is expected to be adopted at MEPC 81 along with the previously mentioned MARPOL Annex VI amendment.

REGULATION 27: DATA COLLECTION SYSTEM (DCS)

Finalized: To be adopted at MEPC 81 (March 2024)

The IMO approved draft amendments to Appendix IX of MARPOL Annex VI, Information to be submitted to the IMO Ship Fuel Oil Consumption Database (Regulation 27). These amendments make mandatory the reporting of the:

- Fuel oil consumption when the ship is not under way.
- Total amount of onshore power supplied expressed in kWh.
- The fuel oil consumption per combustion system (main engine(s), auxiliary engine(s), oil-fired boilers and others).

In addition, there is a new entry to report the laden distance travelled – on a voluntary basis – and the installation of any innovative technology according to the *2021 Guidance on treatment of innovative energy efficiency technologies for calculation and verification of the attained EEDI and EEXI* (MEPC.1/Circ.896).

Ships to which Regulation 28 of MARPOL Annex VI applies, shall also report the transport work using tonne-mile, TEU-mile and/or passenger-mile data, whereas containerships especially must report both tonne-mile and TEU-mile data.

EGCS DISCHARGES

In Development: 2025

MEPC 78 agreed to extend the target completion year for the PPR work item 1.23 “Evaluation and harmonization of rules and guidance on the discharge of discharge water from exhaust gas cleaning systems (EGCS) into the aquatic environment, including conditions and areas” to 2025 and instructed PPR 9 to continue the work on Part 3 (Regulatory matters) and Part 4 (Database of substances).

- MEPC 78 decided to reinstate output of PPR 1.23 in the provisional agenda of a future session of the PPR Sub-Committee (after PPR 10) and continue work on Part 3 Regulatory Matters: Assess the state of technology for EGCS discharge water treatment and control.
- Identify and develop as appropriate regulatory measures and instruments.
- Develop a database containing local/regional restrictions/conditions on the discharge water from EGCS.

For Part 4 Database of substances, the target is to establish a database of substances identified in EGCS discharge water, covering physicochemical data, ecotoxicological data and toxicological data, leading to relevant endpoints for risk assessment purposes.

REGULATIONS 23 AND 25: ATTAINED AND REQUIRED EEXI

In Development: 2026

According to Regulation 25.3 of MARPOL Annex VI, the Committee shall review by 1 January 2026 the effectiveness of Energy Efficiency Existing Ship Index (EEXI). Currently, several delegations have proposed to include CO₂ reduction from the use of Onboard Carbon Capture and Storage (OCCS). Furthermore, a significant percentage of steam-driven liquefied natural gas (LNG) carriers face challenges trying to comply with the EEXI limit, since Engine Power Limitation (EPL) is not adequate to steam driven LNG carriers.

REGULATION 28: CARBON INTENSITY INDICATOR (CII)

In Development: 2026

During MEPC 78, the MEPC adopted Resolution MEPC.355(78) *2022 Interim Guidelines on Correction Factors and Voyage Adjustments for CII calculations (CII Guidelines, G5)*. These guidelines introduced correction factors in the CII formula such as:

- FC_{voyage}¹ may be used to deduct the total mass of fuel consumption during scenarios specified in Regulation 31 of MARPOL Annex VI, that may endanger safe navigation of a ship and sailing in ice conditions, meaning sailing an ice-classed ship in a sea area within the ice edge.
- AF_{tanker}² correction factor applied to shuttle tankers or tankers engaged in STS voyages.
- FC_{electrical}³ mass of fuel to be deducted from CII calculations related to electrical power for cases such as the electrical consumption of refrigerated containers, electrical consumption of cargo cooling/reliquefaction systems on gas carriers and LNG carriers, electrical consumption of discharge pumps on tankers.
- FC_{Boiler}⁴ mass of fuel to be deducted for the purposes of cargo heating and cargo discharge on tankers.
- FC_{others}⁵ mass of fuel to be deducted consumed by standalone engine driven cargo pumps during discharge operations on tankers.

These guidelines are interim, and the committee has invited states to submit additional proposals with the view of finalizing the operational measure to reduce carbon intensity of international shipping by 2026.

REDUCTION OF VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS

In Development: Early Stages

With the aim of investigating how the reduction of VOC emissions could contribute to the implementation of the IMO GHG Strategy, PPR 10 finalized a draft scope of work for developing means of reducing VOC emissions from ships. The draft scope of work includes:

1. Involvement of terminals in the reduction of VOC.
2. Consideration of new and existing regulations and guidance documents on VOC, including the application of a revised Regulation 15 of MARPOL Annex VI, considering ship design safety and effectiveness along with safety of ship operations.
3. Requesting input from Ship Systems and Equipment (SSE) Sub-Committee with a view to advising the PPR Sub-Committee.
4. Giving recommendations to the committee on how to proceed with an improved framework for the reduction of VOC emissions.

With the draft scope of work approved at MEPC 80, consideration of this subject will continue at the next meeting of the PPR sub-committee.

REGULATIONS 22 AND 24: ATTAINED AND REQUIRED EEDI

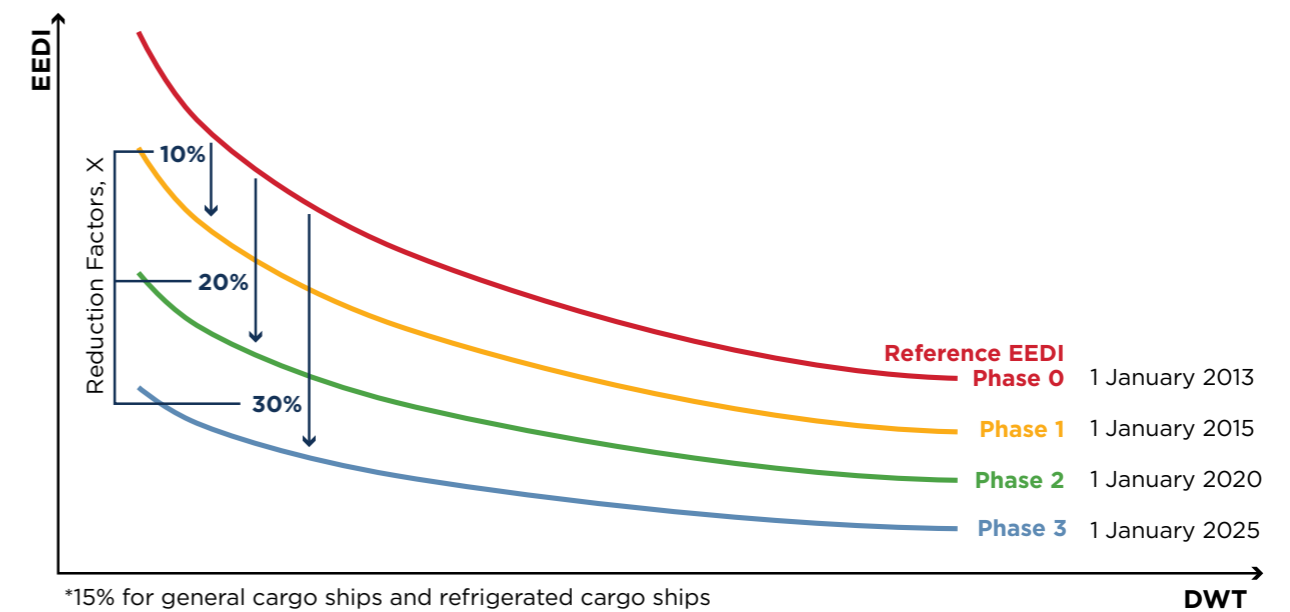
In Development: Early Stages

MEPC 79 adopted Resolution MEPC.364(79) containing the *2022 Guidelines on the Method of Calculation of Attained Energy Efficiency Design Index (EEDI) for New Ships*, superseding the previous version of these guidelines. Revision to these guidelines includes the addition of ethane into the list of fuels providing a CF to use in calculations, clarification of the maximum allowable deduction due to the shaft generator and a clarification to provide a consistent approach for treatment of multiple load lines.

Furthermore, MEPC 79 also adopted Resolution MEPC.365(79) containing the *2022 Guidelines on Survey and Certification of the Energy Efficiency Design Index (EEDI)*, superseding the previous version. The revised guidelines refer to the latest version of the International Towing Tank Conference (ITTC) Recommended Procedure Regarding the Conduct and Evaluation of Speed/Power Trials.

Discussion on the introduction of EEDI phase 4 is still ongoing. Several delegations have proposed to include all GHG emissions in future phases of EEDI, based on a Tank-to-Wake equivalents on a 20-year basis, to also reflect the benefits from electric batteries and fuel cells and to consider changing the EEDI in phase 4 to an energy-based index.

In addition, at MEPC 79 two proposals were submitted on the inclusion of OCCS technologies in the EEDI formula. The first submission was proposing to add an additional term in the numerator of the formula that shall deduct the CO₂ captured and stored on board per hour of operation, at the EEDI shaft power, multiplied with a coefficient that considers the total quantity of CO₂ tanks along with half of the capacity of ship's storage fuel tanks, like an availability factor. The second submission was proposing also to deduct the captured and stored CO₂ emissions along with including an additional term in the numerator which considers the additional emissions that come from the operation of the OCCS. Discussions on this are taking place intersessionally leading up to MEPC 81 (March 2024).



REDUCTION OF THE IMPACT OF EMISSIONS OF BC FROM INTERNATIONAL SHIPPING

In Development: Early Stages

PPR 10 continued work from previous sessions on development of draft guidelines on goal-based control measures to reduce the impact on the Arctic of black carbon (BC) emissions from international shipping. After extensive discussion, the sub-committee agreed to establish a Correspondence Group that will seek to finalize draft guidelines on recommendatory BC emission data collection and reporting, as well as draft guidelines on recommendatory goal-based control measures to reduce the impact on the Arctic of BC emissions from international shipping. The sub-committee also discussed a list of potential BC control measures and invited member States and international organizations to further develop proposals on potential BC control measures and submit those to the next session. Subsequently, the sub-committee will also recommend to the committee the extension of the target completion year of this work to 2025, to allow for further work on potential control measures.

MARINE BIOSAFETY

ADOPTED BY IMO

CHANGES TO THE FORM OF THE BALLAST WATER RECORD BOOK (BWRB)

Adopted: Enters into force 1 February 2025

The IMO approved amendments to Appendix II of the Annex to the Ballast Water Management (BWM) Convention that introduce changes to the form of the Ballast Water Record Book (BWRB). These changes are intended to make the form of the record book comparable to that of the Oil Record Book and require more detailed and standardized reporting of ballast water operations. The reformatted BWRB provides a more detailed list of codes (by letter) and items (by number) which should be used to codify entries made in the BWRB. The codes by which ballast activities will be categorized are:

- A. Ballast water taken on board from the aquatic environment (ballasting operation).
- B. Ballast water is discharged into the aquatic environment (deballasting operation).
- C. Ballast water is exchanged, circulated, or treated for ballast water management purposes.
- D. Update or discharge of ballast water from/to a port-based or reception facility.
- E. Accidental discharge/ingress or other exceptional uptake or discharge of ballast water.
- F. Failures and inoperabilities of the ballast water management system (BWMS).
- G. Ballast tank cleaning/flushing, removal and disposal of sediments.
- H. Additional operational procedures and general remarks.

UPDATED GUIDELINES FOR THE CONTROL AND MANAGEMENT OF SHIP'S BIOFOULING**Adopted: Revokes resolution MEPC.207(62)**

The IMO adopted the *2023 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species*. Replacing the 2011 edition of these guidelines, the 2023 guidelines will include a new chapter on contingency action plans that will be followed if the monitoring of biofouling risk parameters during ship operation identifies an increased risk of biofouling accumulation. Such plans can include proactive actions to lower the risk of biofouling accumulation, corrective actions to operating profile and maintenance, or inspection to determine biofouling accumulation by the ship's crew (provided it is qualified to use relevant inspection equipment) or an independent inspection organization.

Additionally, member States and international organizations will be working intersessionally to develop concrete proposals on guidance related to in-water hull cleaning, with the intention of developing new guidance on biological controls for in-water hull cleaning by 2025.

ONGOING DISCUSSION**PORTS WITH CHALLENGING WATER QUALITY****In Development: Early Stage**

MEPC 79 considered several proposals regarding how compliance with the BWM Convention shall be addressed for ships operating at ports where properties of the water quality do not allow for the successful operation of the BWMS installed on board. During discussion, it was not possible to reach a consensus on whether such situations should be treated under contingency measures, or as an operational matter to be addressed through new guidance. Furthermore, it is necessary to define "challenging water quality" situations and whether proactive measures shall be required for ships that plan to attend ports of water quality that are known to be challenging for their specific BWMS to treat. It shall be noted that it was emphasized that the BWMS bypass shall only be considered as a last resort. Work will progress toward finalizing guidance on this subject at MEPC 81, as any further delay might force individual states to take relevant action at the national level.

TEMPORARY STORAGE OF TREATED SEWAGE/GRAY WATER IN BALLAST TANKS**In Development: Early Stage**

MEPC 79 discussed several proposals related to the development of guidance on the use of ballast tanks for temporary storage of gray water and treated sewage in the context of the BWM Convention. In discussion, it was generally supported that this practice is not prohibited by the BWM Convention or MARPOL Annex VI and can be considered as an option utilized under certain situations. Therefore, it was agreed that it is necessary to develop guidelines for this practice to ensure that this is undertaken in an environmentally sound manner, in compliance with D-2 biological standards when ballast tanks are returned to ballast water storage. Proposals on this subject are expected at MEPC 81 (March 2024).

POLLUTION PREVENTION**FINALIZED/SOON TO BE ADOPTED
ANTICIPATED TO ENTER INTO FORCE****STATUS OF THE HONG KONG CONVENTION ON
SHIP RECYCLING****Ratified: Enters into force 26 June 2025**

Fourteen years after the IMO's initial adoption of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, a sufficient number of contracting states have ratified the Convention and reached requirements for entry into force. Entry into force of this Convention required that the combined merchant fleets of the contracting states constitute not less than 40 percent of the gross tonnage (gt) of the world's merchant shipping and the combined maximum annual ship recycling volume of these states during the preceding 10 years constitutes not less than three percent of the gt of the combined merchant shipping of the same states.

As of 26 June 2023, there are 22 Contracting States to the Convention, representing approximately 45.81 percent of the gt of the world's merchant shipping. The combined annual ship recycling volume of the Contracting States during the preceding 10 years amounts to 23,848,453 gt (3.31 percent of the required recycling volume).

MARINE PLASTIC LITTER FROM SHIPS**In Development: 2024 to 2026**

MEPC 79 saw the adoption of Resolution MEPC.360(79) containing amendments to MARPOL Annex V to expand the requirement for a garbage record book by lowering the threshold down to ships of 100 gt and above (from the current threshold 400 gt and above). This has been done to expand tracking and reporting of accidental discharges to the sea that may involve plastics and will enter into force on 1 May 2024.

Future developments to address marine plastic litter will include the planned IMO Study on Marine Plastic Litter from Ships and proposals to reduce the loss of fishing gear at sea by means of developing a Fishing Gear Management Plan (FGMP).

Additionally, work is in progress to target the shipment of plastic pellets and prevent the loss of such cargoes at sea. Guidelines for reducing losses of plastic pellets at sea when carried in freight containers have been developed for approval by the MEPC in 2024 and discussions have been initiated for the prohibition of shipment of plastic pellets in bulk.

REVIEW OF THE IBTS GUIDELINES AND AMENDMENTS TO THE IOPP CERTIFICATE AND OIL RECORD BOOK**In Development: 2025**

The MEPC continues development of revisions to the *2008 Revised Guidelines for Systems for Handling Oily Wastes in Machinery Spaces of Ships Incorporating Guidance Notes for an Integrated Bilge Water Treatment System (IBTS)*. This revision will consolidate several amendments made to the previous guidelines and goes further to address definitions for "clean drains" and "bilge separation unit", as well as addressing the use of forced evaporation for removing water in oil residues. The committee has agreed in principle that forced evaporation is acceptable as a means for the disposal of oily bilge water and is awaiting proposals to amend MARPOL Annex I accordingly.

Related amendments to MARPOL Annex I appendix II (Form of the International Oil Pollution Prevention [IOPP] Certificate/Supplements) and appendix III (Form of the Oil Record Book) are being progressed alongside the proposed modifications to the IBTS Guidelines. The development of MARPOL amendments and supporting guidelines is expected to be completed by 2025.

LIFETIME PERFORMANCE OF SEWAGE TREATMENT PLANTS (STPS)**In Development: 2025**

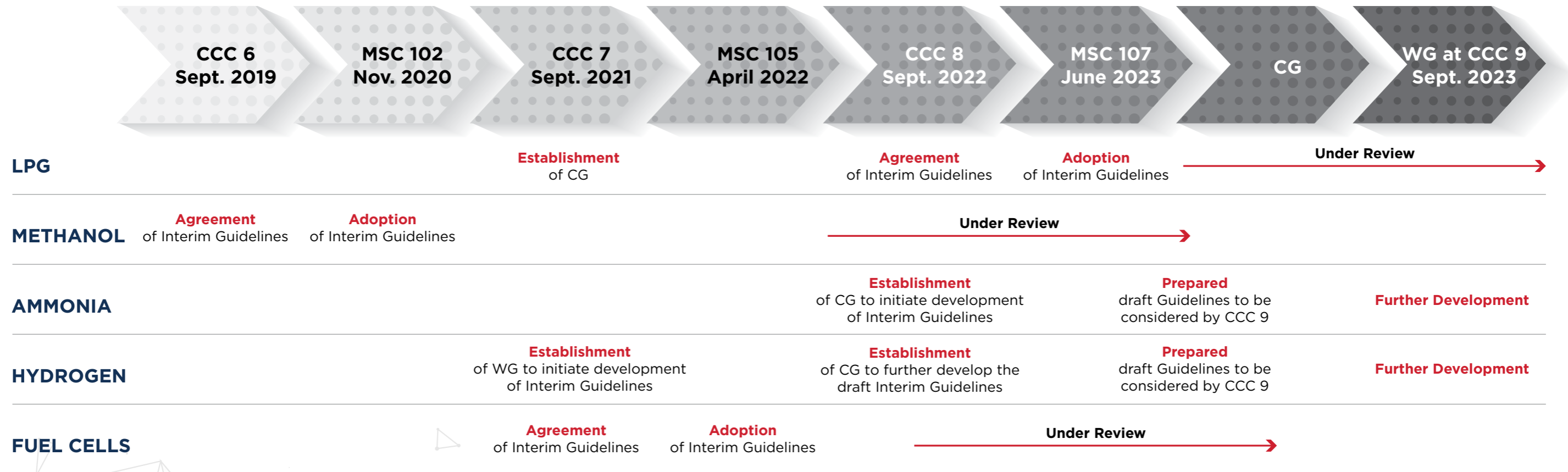
The MEPC continues to pursue development of enhanced standards to measure the ongoing performance of sewage treatment plants (STPs) on board ships, to quantify the properties of treated sewage and confirm the acceptability to discharge overboard the effluent of such systems.

Planned amendments to MARPOL Annex IV will include requirements for an STP installation survey, a commissioning survey requirement (tentatively 12-months after the installation) and a periodic performance evaluation (tentatively every five years as a renewal survey) requiring sampling and testing. New regulations would also require ships equipped with STPs to maintain on board a sewage management plan and a sewage record-keeping book for recording all discharges, incinerations and sampling related to the STP. Sampling points for the STP effluent would also be required to be fitted to facilitate performance monitoring. A new Appendix III to MARPOL Annex IV would provide testing standards for effluent parameters (including turbidity, total suspended solids, biochemical and chemical oxygen demand, pH and total residual oxidant) for new STPs and, retroactively, to existing STPs. A new Appendix IV would provide a format of the Sewage Record Book for recording related operations. There is also general agreement among member States that fitting of comminuting and disinfecting systems (CDS) should not be allowed as a replacement for an existing STP or of a holding tank on existing ships.

Consideration remains to be finalized regarding application provisions for existing ships, the adequacy of supporting STP standards and implementation guidance and concerns of inadequacy at port reception facilities. The development of MARPOL amendments and supporting guidelines is expected to be completed by 2025.

ONGOING DISCUSSION

REGULATORY FRAMEWORK FOR ALTERNATIVE FUELS



INTERNATIONAL CODE OF SAFETY FOR SHIPS USING GASES OR OTHER LOW-FLASHPOINT FUELS – IGF CODE


- ✓ Adopted on June 2015 – MSC.391(95), Enter into force 1 Jan 2017
- ✓ Contains detailed requirements for methane (LNG) only
- ✓ Other Low-Flashpoint fuels by "Alternative Design" under 2.3
- ✓ Meet the goals and functional requirements of the IGF Code and provide an equivalent level of safety

INTERIM GUIDELINES FOR THE SAFETY OF SHIPS USING ALTERNATIVE FUELS

- ✓ Subject to flag, the "Alternative Design" approach shall not be necessary where fuel specific guidelines exist

ADDITIONAL GUIDANCE ON ALTERNATIVE FUELS

Get more information and guidance on alternative fuels by visiting www.eagle.org. Download our documentation on the following:

-  **Requirements for Ammonia Fueled Vessels**
-  **Requirements for Methanol and Ethanol Fueled Vessels**
-  **Requirements for Hydrogen Fueled Vessels**
-  **Requirements for Liquefied Hydrogen Carriers**
-  **Requirements for Fuel Cell Power Systems for Marine and Offshore Applications**



IMO MARITIME SAFETY



SAFETY AND CONSTRUCTION

ADOPTED BY IMO

AMENDMENTS TO IMSBC CODE (06-21)

Adopted: Enters into force 1 December 2023

The International Maritime Organization (IMO) adopted Resolution MSC.500(105) contains several amendments to the International Maritime Solid Bulk Cargoes (IMSBC) Code. This set of amendments (06-21 Amendments) includes the following:

1. Reclassification of ammonium nitrate-based fertilizer (non-hazardous).
2. Amendments to section 7 addressing "Cargoes which may liquefy or undergo dynamic separation."
3. Addition of new definitions relating to the phenomenon of "dynamic separation," including deliberations regarding the definition of "group A" cargoes.
4. Addition of new schedules for lead concentrate and leach residue containing lead.
5. Substance identification number for bulk cargoes.

These amendments may be applied by administrations on a voluntary basis beginning 1 January 2023.

SOLAS CHAPTER II-1: MOORING REQUIREMENTS, EMERGENCY TOWING, LIFTING APPLIANCES AND ANCHOR HANDLING WINCHES

Adopted: Enters into force 1 January 2024

The design of mooring systems has not kept pace with the optimization and increasing complexity of new ship designs. Despite improvements in the planning and execution of mooring operations, there continues to be a high number of accidents. To address this issue, SOLAS Regulation II-1/3-8 has been amended to include new requirements for mooring arrangements and equipment, which will be in effect for ships constructed on or after January 1, 2024. The amendments aim to recognize the importance of proper design and selection of mooring equipment and fittings for safe mooring operations.

Changes to Regulation II-1/3-8 relate to updating *Revised Guidance on Shipboard Towing and Mooring Equipment* (MSC.1/Circ.1175/Rev.1) and introducing two new guidelines:

- MSC.1/Circ.1619, which applies to ships constructed on or after 1 January 2024, provides an approach to the design of mooring arrangements and selection of appropriate equipment and fittings.
- MSC.1/Circ.1620 applies to all ships and provides guidance on in-service inspections and maintenance of mooring equipment, including lines and tails, selection of replacement mooring lines, and criteria for identifying worn-out lines for removal before failure.

AMENDMENTS TO THE IGF CODE (VARIOUS AMENDMENTS)

Adopted: Enters into force 1 January 2024

Revisions to the Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels (IGF Code), which will apply to new cargo ships greater than or equal to 500 gross tons (gt) and passenger ships using low-flashpoint fuels were adopted by Resolution MSC.458(101) and apply to new ships meeting any of the following criteria:

- A building contract placed on or after 1 January 2024.
- 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 2024.
- Regardless of the building contract or keel laying date, the delivery is on or after 1 January 2028.

The revisions include the following provisions:

- Where cargo tank insulation and location make the probability for the tank contents to be heated up due to an external fire very small, higher loading limits than calculated using the reference temperature may be permitted, but not more than 95 percent.
- Gaseous fuel pipes, except fully welded fuel gas vent pipes led through mechanically ventilated spaces, which pass through enclosed spaces, except piping in fuel preparation rooms or spaces surrounding all tank connections and valves, shall be protected by a secondary enclosure which may be a ventilated duct or a double wall piping system.

- Exhaust systems of internal combustion engines of piston type shall be equipped with explosion relief systems unless designed to accommodate the worst-case overpressure due to ignited gas leaks or justified by the safety concept for the engine.
- Crediting the use of fuel storage hold spaces as a cofferdam for Type C tanks that are not located directly above category A machinery spaces or other rooms with high fire risk.
- Paragraph 6.7.1.1 of the IGF Code requires that all fuel storage tanks are equipped with a pressure relief system that is appropriate for the fuel containment system design and the specific fuel being carried. However, recent amendments to the code have resulted in the removal of tank cofferdams from the list of spaces that must have a pressure relief system. As a result, it will no longer be necessary to fit tank cofferdams with a pressure relief system.
- It has been identified that fuel preparation rooms are possible sources of ignition. To comply with SOLAS Regulation II-2/10.4.11, a new amendment has been introduced which requires the installation of fixed fire extinguishing systems in fuel preparation rooms that contain pumps, compressors or other potential ignition sources. The system should consider the required concentrations/application rate needed for the gas fires to be extinguished. As a result of this amendment, shipyards and owners will be required to ensure the fulfillment of these new requirements in fuel preparation rooms containing pumps, compressors or other potential ignition sources.

AMENDMENTS TO IMDG CODE (41-22)

Adopted: Enters into force 1 January 2024

Resolution MSC.501(105) containing several amendments to the International Maritime Dangerous Goods (IMDG) Code, was adopted by IMO. This set of amendments (41-22 Amendments) is intended to align with the amendments to the United Nations (U.N.) Recommendations on the Transport of Dangerous Goods, 21st Revised Edition. In addition to the regular review of new and existing substances, these amendments include the following:

1. New definition for "pressure receptacle shell" in 1.2.1 of the IMDG Code.
2. Guidance on marking refillable U.N. pressure receptacles; and
3. Guidance on portable tanks with shells made of fiber-reinforced plastic (FRP) materials.

These amendments may be applied by administrations voluntarily beginning 1 January 2023.

NEW SOLAS CHAPTER XV AND IP CODE: SAFE CARRIAGE OF INDUSTRIAL PERSONNEL

Adopted: Enters into force 1 July 2024

A new SOLAS Chapter XV that regulates the safe carriage of industrial personnel is established and applies to cargo ships and high-speed cargo craft that carry more than 12 industrial personnel. Chapter XV defines industrial personnel as persons transported or accommodated on board to perform offshore industrial activities. Scheduled for entry into force on 1 July 2024, this amendment to SOLAS will coincide with the adoption of the Code of Safety for Ships Carrying Industrial Personnel (IP Code). Wherever the number of industrial personnel on board appears as a parameter for the application of a regulation, it shall be taken to mean the aggregate number of industrial personnel, special personnel and passengers carried on board (where the number of passengers shall not exceed 12 persons). The new SOLAS chapter governs the application of mandatory provisions in the IP Code to vessels certified under SOLAS and the High-Speed Craft (HSC) Code.



For existing ships constructed before entry into force of SOLAS Chapter XV that comply with the *Interim Recommendations on the Safe Carriage of More Than 12 Industrial Personnel on Vessels Engaged on International Voyages* (MSC.418(97), adopted 25 November 2016), a grace period will be given before selected regulations in the IP Code enter into force for these ships.

Moreover, Resolution MSC.527(106) containing the IP Code, is adopted. In support of expanding maritime offshore and energy sectors, the IP Code is intended to supplement existing IMO instruments to provide international safety standards for the carriage of industrial personnel on board cargo ships and high-speed cargo craft.

The supplemental regulations of the IP Code address the safe transfer of personnel, subdivision and stability, machinery installations, electrical installations, periodically unattended machinery spaces, fire safety, life-saving appliances and dangerous goods. Administrations and Recognized Organizations (ROs) will document compliance with the IP Code through the issuance of an Industrial Personnel Safety Certificate.

AMENDMENTS TO ESP CODE: ADDITIONAL SURVEY REQUIREMENTS

Adopted: Enters into force 1 July 2024

Based on the findings of a recent marine safety investigation, Resolution MSC.525(106) was adopted containing amendments to the 2011 ESP Code that are intended to align the requirements for inspections of void spaces bounding cargo holds with the existing requirements for inspections of water ballast tanks.

For water ballast tanks and void spaces on bulk carriers, additional amendments would require such tanks and other spaces to be subject to annual examinations if the tank structure has been subjected to major conversion and where a hard protective coating is found to be in "less than GOOD" condition. The proposed amendments will apply to bulk carriers of single-side skin construction and double-side skin construction.

Several additional clarifying amendments to the 2011 ESP Code were also finalized:

1. Clarification that the ESP Code does not apply to oil tankers carrying oil in independent tanks not part of the ship's hull.
2. Clarification of requirement for examination of ballast tanks at annual surveys.

AMENDMENTS TO THE IGC CODE: HIGH MANGANESE AUSTENITIC STEEL

Adopted: Enters into force 1 January 2026

The IGC Code has recently undergone amendments related to the application of high manganese austenitic steel for cryogenic service, as specified in MSC.1/Circ.1599/Rev.2. The amendments impact Table 6.3 of the IGC Code, which now includes a new entry for high manganese austenitic steel. As a result of these amendments, high manganese austenitic steel can now be utilized, subject to the required conditions mentioned in MSC.1/Circ.1599/Rev.2, for constructing plates, sections and forgings for cargo tanks, secondary barriers and process pressure vessels.

AMENDMENTS TO THE IGF CODE: HIGH MANGANESE AUSTENITIC STEEL

Adopted: Enters into force 1 January 2026

Amendments to the IGF Code for the introduction of the high manganese austenitic steel have been adopted and high manganese austenitic steel has been added as a new construction material into the IGF Code. To this scope, Table 7.3 has been updated to include a new entry for high manganese austenitic steel in response to these changes. High manganese austenitic steel can now be used to construct fuel containment and piping systems, subject to requirements specified in MSC.1/Circ.1599/Rev.2.

SOLAS CHAPTER V: ELECTRONIC INCLINOMETERS ON CONTAINERSHIPS AND BULK CARRIERS

Adopted: Enters into force 1 January 2026

The IMO adopted amendments to SOLAS Chapter V requiring the carriage of an electronic inclinometer on board newly constructed containerships and bulk carriers of 3,000 gt upwards. The provision of this device will allow the voyage data recorder (VDR) to record roll motion information for the purpose of incident investigation. It will additionally provide critical stability information to the navigational officer on board each ship, which may help to prevent shifting or loss of cargo in heavy weather.

This new regulation will not apply to cargo ships occasionally carrying cargoes in bulk and general cargo ships carrying containers on deck. It was also determined that electronic or mechanical back-up systems for inclinometers would not be needed, as they were not considered as critical equipment for the safety of navigation, but rather as operational equipment.

AMENDMENTS TO LSA CODE AND MSC.81(70): VENTILATION OF TOTALLY ENCLOSED LIFEBOATS

Adopted: Enters into force 1 January 2026

The IMO adopted amendments to the LSA Code and *Recommendation on testing of life-saving appliances* (MSC.81(70)) related to the ventilation of totally enclosed lifeboats, requiring them to provide a means of ventilation operable from the inside at a rate of not less than five cubic meters (m³) an hour per person and for a period of 24 hours. The new ventilation requirements will apply to totally enclosed lifeboats installed on or after 1 January 2029. Discussions about amendments related to partially enclosed lifeboats and rafts are not yet approved at this time but will remain ongoing.

REVISION OF WATER LEVEL DETECTORS PERFORMANCE STANDARDS ON BULK CARRIERS AND SINGLE HOLD CARGO SHIPS OTHER THAN BULK CARRIERS (RESOLUTION MSC.188(79))

Adopted: Enters into force 1 January 2024

Amendments to paragraph 2.2.2 of the *Revised Performance Standards for Water Level Detectors on Bulk Carriers and Single Hold Cargo Ships Other than Bulk Carriers* (Resolution MSC.188(79)/Rev.1) were adopted to clearly distinguish installation heights of detectors between requirements of applicable SOLAS regulations:

- The installation heights of sensors at pre-alarm and main-alarm levels, as required by SOLAS regulations III/25.3, II-1/25-1.2 and XII/12.1, should be measured from the upper surface of the inner bottom.
- The installation heights of bilge level sensors (an alternative permitted by SOLAS regulation II-1/25-1.3) should be measured from the bottom of the bilge well if the bottom of the bilge well is below the upper surface of the inner bottom.

Additionally, the performance standard was amended to clarify its application to ships constructed on or after 1 January 2024 as well as ships constructed prior to that date if water level detectors are installed on or after 1 January 2024, with the word “installed” meaning the contractual delivery date or actual delivery date of the equipment to the ship.

<p>IGF Code</p> <p>High manganese austenitic steel has been added as a new construction material into the IGF Code</p> <p>Various amendments</p>	<p>LSA Code</p> <p>Several amendments about the ventilation of TEL, single hook and fall systems, in water performance of LJ</p> <p>Lowering speed of survival crafts and rescue boats</p>	<p>IMDG Code (41-22)</p> <p>Amendments to the new definition for “pressure receptacle shell” in 1.2.1 of the IMDG Code</p> <p>Guidance on marking refillable U.N. pressure receptacles</p> <p>Guidance on portable tanks with shells made of fiber-reinforced plastic (FRP) materials</p>	<p>FSS Code</p> <p>Amendments to improve fire safety requirements on ro/ro passenger ships</p>
<p>IGC Code</p> <p>High manganese austenitic steel</p>	<p>IMSBC Code (06-21)</p> <p>Several amendments including the reclassification of ammonium nitrate-based fertilizer (non-hazardous), substance identification number for bulk cargoes, etc.</p>	<p>ESP Code</p> <p>Clarification that the ESP Code does not apply to oil tankers carrying oil in independent tanks not part of the ship’s hull</p> <p>Clarification of requirement for examination of ballast tanks at annual surveys</p>	<p>Grain Code</p> <p>Amendments which introduce a new class of loading conditions for special compartments, which are defined as “specially suitable compartments, partly filled in way of the hatch opening, with ends untrimmed”</p>

NEW SOLAS REGULATIONS FOR ONBOARD LIFTING APPLIANCES AND ANCHOR HANDLING WINCHES (OLAW)

Adopted: Entry into force 1 January 2026

The IMO adopted Resolution MSC.532(107) amending the SOLAS Convention to introduce new requirements for OLAW, including a new SOLAS regulation II-1/3-13, which were approved in principle by MSC 102 and were pending formal adoption. These regulations apply to both new and existing ships.

The new regulations prescribe requirements for the design, construction and installation of lifting appliances and anchor handling winches.

- Lifting appliances are defined as all load-handling equipment on board ships which are used to handle cargo, stores, hold hatch covers or moveable bulkheads, engine-room equipment, cargo hoses, tender boats and personnel (via cranes).
- Anchor handling winches are defined as any winch for the purpose of deploying, recovering and repositioning anchors and mooring lines in subsea operations. This is not to be confused with a ship’s windlasses.

All lifting appliances and anchor handling winches, regardless of the installation date and all loose gear utilized with any lifting appliances and anchor handling winches, are required to be operationally tested, thoroughly examined, inspected, operated and maintained based on the guidelines referenced below. New installations of lifting appliances will be required to meet the requirements of a classification society and new installations of anchor handling winches to be to the satisfaction of the administration, considering guidelines for each which have been developed (detailed below). New definitions and terminologies have been added to SOLAS Regulation II-1/2. The new Regulation II-1/3-13 will not apply to lifting appliances used on mobile offshore drilling units (MODUs) and offshore construction ships (i.e., pipe/cable laying, offshore installation vessels) and will not apply to lifesaving launching appliances complying with the LSA Code. Existing lifting appliances and anchor handling winches must undergo a test and thorough examination based on the below guidelines by the first renewal survey after entry into force of these amendments.

Circular	Title
MSC.1/Circ.1663	<i>Guidelines for Lifting Appliances</i>
	<ul style="list-style-type: none"> • Recommendations for design and testing. • Guidance on operations and record-keeping through a register of lifting appliances to be kept on board. • Also addresses loose gear utilized with lifting appliances and recommends a proof test and thorough annual examination of this equipment.
	<i>Guidelines for Anchor Handling Winches</i>
MSC.1/Circ.1662	<ul style="list-style-type: none"> • Provides design, testing and maintenance recommendations. • Addresses both anchor handling winches and associated loose gear.

GUIDELINES FOR LIQUEFIED PETROLEUM GAS (LPG) AS FUEL

Adopted: Effective from June 2023)

The IMO approved circular MSC.1/Circ.1666 containing the *Interim Guidelines for the Safety of Ships Using LPG Fuels*. These guidelines provide an international standard like the IGF Code for the design, construction and operation of ships using LPG as fuel. The guidelines aim to minimize the risks and ensure the safe use of LPG as fuel for the ship, the crew and the environment. As with the IGF Code, risk assessments will be the basis for designing ships using LPG as fuel safely. The Interim Guidelines contain requirements for several risk assessments beyond those required by the IGF Code. Ventilation safety requirements unique to LPG fuel were introduced in recognition that LPG gas may accumulate at the bottom of rooms or even open deck due to its density. These Interim Guidelines will apply to ships using LPG as fuel to which Part G (Ships using low-flashpoint fuels) of SOLAS Chapter II-1 is applicable and requires compliance with the IGF Code.

AMENDMENTS TO FSS CODE AND CHAPTER II-2: SAFETY ON RO/RO PASSENGER SHIPS AND FIRE PROTECTION OF CONTROL STATIONS ON CARGO SHIPS

Finalized/To Be Adopted: Expected entry into force 1 January 2026

Amendments to SOLAS Chapter II-2 and associated codes have been developed to improve fire safety requirements on roll on/roll off passenger (ro/pax) ships. The amendments apply to enclosed roll on/roll off (ro/ro) spaces and weather decks intended for the carriage of vehicles on ro/pax ships and will introduce several key features intended to improve fire safety, including a safety distance for openings in ro/ro and special category spaces on new ro/pax ships, safety distance between vehicle lanes and certain structures, the water monitors for protection of weather deck on an existing ro/pax ship and requirements for linear heat detectors in SOLAS and the FSS Code.

The implementation date for the draft amendments is agreed to be 1 January 2026 for new ships and 1 January 2028 for existing ships. These approved amendments are scheduled for adoption at MSC 108 (May 2024).

SINGLE FALL AND HOOK SYSTEMS WITH ON-LOAD RELEASE CAPABILITY

Finalized/To Be Adopted: Expected entry into force 1 January 2026

Lifeboats and rescue boats equipped with a single fall and hook system have a similar risk of accidental release during recovery operations as those with twin fall and hook systems. Therefore, they should have similar safety standards since they are used and tested in the same way. In 2020, paragraph 4.4.76.17 of the LSA Code was modified to address this issue. However, it was discovered that deleting a reference to paragraph 4.4.76.8 would result in applying it to off-load hooks, which is inappropriate for some mechanically simple off-load hooks with few moving parts.

To resolve this issue, the IMO approved draft amendments to Chapter IV of the LSA Code regarding single fall and hook systems. The revised text would retain the agreed-upon amendments to paragraph 4.4.76.17 while amending paragraph 4.4.76.8 of the LSA Code for clarity. These approved amendments are scheduled for adoption at MSC 108 in May 2024.

AMENDMENTS TO GRAIN CODE: NEW CLASS OF LOADING CONDITIONS

Finalized/To Be Adopted: Expected entry into force 1 January 2026

IMO finalized the development of draft amendments to the International Code for the Safe Carriage of Grain in Bulk (Grain Code) which introduce a new class of loading conditions for special compartments which are defined as "especially suitable compartment, partly filled in way of the hatch opening, with ends untrimmed." This definition refers to a compartment which is not filled to the maximum extent possible in way of the hatch opening but is filled to a level equal with or above the bottom edge of the hatch end beams and has not been trimmed outside the periphery of the hatch opening by the provisions of regulation A/104 of the Grain Code.



In such compartments, the bulk grain shall be filled to a level equal with or above the bottom edge of the hatch end beams but may be at its natural angle of repose outside the periphery of the hatch opening. After loading, only the free grain surface in way of the hatch opening shall be level. A compartment may qualify for this classification if it is "especially suitable" as defined in regulation A/2.7 of the Grain Code, in which case dispensation may be granted from trimming the ends of that compartment. Additional amendments in Part B of the Grain Code addressing calculation assumptions have also been made to provide guidance on the assumed slope of the cargo when partly filled in way of the hatch opening with ends untrimmed, for the purpose of determining the assumed volumetric heeling moment.

The amendments will be applicable to new and existing ships, and the stability booklet should include relevant information before the first time a ship is loaded in accordance with the newly specified loading conditions on or after the date of entry into force. The amendments are scheduled for adoption at MSC 108 (May 2024).

ONGOING DISCUSSION

INTERIM GUIDELINES FOR SHIPS USING HYDROGEN, AMMONIA AND LOW-FLASHPOINT OIL FUELS BETWEEN 52° C AND 60° C, COVERING FOSSIL FUELS, SYNTHETIC FUELS, BIOFUELS, AND ANY MIXTURE THEREOF

In Development: 2023 to 2025

Interim Guidelines		
Hydrogen	Ammonia	Low-flashpoint Oil Fuels (52° - 60° C) covering fossil fuels, synthetic fuels, biofuels and any mixture thereof

The IMO is developing interim guidelines for ships using low-flashpoint oil fuels with a flashpoint between 52° C and 60° C, including fossil fuels, synthetic fuels, biofuels and any mixtures thereof. The guidelines cover the use of hydrogen and ammonia as fuels for shipping, as well as low-flashpoint oil fuels. IMO's commitment to reducing greenhouse gas (GHG) emissions from shipping has set ambitious targets to achieve this goal. To this scope, a work plan is agreed upon which envisages that:

- The draft interim guidelines for ships using hydrogen will be finalized in 2023.
- The guidelines for ships using ammonia as fuel will be finalized in 2024.
- Any methyl/ethyl alcohols mandatory instruments will be finalized in 2025.

These guidelines aim to ensure that the use of alternative fuels is safe and sustainable and to promote the decarbonization of the global shipping industry.

IACS PROPOSAL TO IMO: REGULATORY ASSESSMENT OF SAFETY ASPECTS ASSOCIATED WITH REDUCING GHG EMISSIONS FROM SHIPS IN LINE WITH THE GHG REDUCTION STRATEGY, AS REVISED AND TO DEVELOP A ROAD MAP TO SUPPORT THE SAFE DELIVERY OF IMO'S STRATEGY ON REDUCTION OF GHG EMISSIONS FROM SHIPS.

In Development: Early Stage

The use of new or adapted technologies for fuels other than fossil fuels in the maritime industry poses safety risks due to lack of experience and internationally accepted regulations. The International Association of Classification Societies (IACS) supports the use of goal-based regulations with clear objectives and will provide technical support to ensure new regulations are feasible and consistent with existing frameworks.

IACS is developing classification safety requirements for ships as part of its "safe decarbonization" program. A regulatory assessment is needed to determine the feasibility and risks of using new technologies/fuels, considering the results of trials and projects and distinguishing between energy storage, converters and abatement technologies. Delegations from member States, Intergovernmental Organizations (IGOs) and Non-Governmental Organizations (NGOs) should provide relevant information to assist this assessment.

IACS will offer technical support to ensure that new regulations are technically feasible, globally applicable and consistent, while also considering safety and existing IMO frameworks. IACS will monitor proposals raised to the IMO so that such proposals and relevant guidelines will not affect the existing framework of the IMO instruments such as SOLAS and MARPOL from a viewpoint of safety and pollution prevention, excluding GHG emissions.



- Consideration of the proposed new output with a view to establishing a working group at MSC 108, and establishment of a correspondence group to report to MSC 108
- Finalize a road map per fuel/technology
- Assign work based on priority
- Consider barrier to deployment and regulatory framework amendments
- Instruments to be amended/developed keeping in mind a distinction between
 - Energy storage (fuels)
 - Converters (ex: engines, fuel cells, reactors)
 - Abatement technologies (ex: carbon capture and storage)
- MSC 110 to receive reports of sub-committees with relevant draft regulatory changes for approval and subsequent adoption, as necessary

OPERATIONS

ELECTRONIC CERTIFICATES OF SEAFARERS

Finalized: Enters into force 1 January 2025

The IMO adopted Resolution MSC.540(107) amending regulations I/1 and I/2 of the Standards of Training and Certification of Watchkeeping (STCW) Convention to incorporate a new definition for "original form of any certificate required by the Convention" to recognize that seafarers' certificates may be issued in paper or electronic form and to broadly support the trend of digitalization in marine operations.

In relation to these STCW Convention amendments, Resolution MSC.541(107) was also adopted to amend section A-I/2 of the STCW Code and clarify the application of existing terms and terminologies found within the Code to certificates and endorsements produced in electronic form. The amendments clarify that terms such as "front," "back" and "overleaf" will not be applicable to electronic certificates. Similarly, an official seal as well as a photograph and signature of the seafarer are not necessary for certificates and endorsements in electronic form.

In support of these amendments, circular MSC.1/Circ.1665 was approved containing the associated *Guidelines on the Use of Electronic Certificates of Seafarers* to clarify the responsibilities of parties involved in cases of recognition of certificates. Administrations issuing electronic certificates or endorsements should also provide for the verification of such credentials for all parties involved. It is further specified that verification of the authenticity of an electronic certificate should be undertaken via an internet connection that should be available on the ship. The seafarer should hold the minimum required data on board, which should be defined by the administration and would be necessary to initiate a verification procedure. Verification may be obtained through an application, approved stored data, approved unique tracking number, approved seafarer identification number, quick response (QR) code, any combination of the above items, or whatever is deemed suitable for this purpose and approved by the administration.

**FINALIZED/SOON TO BE ADOPTED
ANTICIPATED TO ENTER INTO FORCE**

NEW STCW CODE PROVISIONS ON BULLYING AND HARASSMENT

Finalized: To be adopted at MSC 108 (May 2024)

Amendments to the STCW Code have been approved that include new provisions on the prevention and response to bullying and harassment, including sexual assault and sexual harassment (SASH). This training will become a part of the basic training requirements and individuals will be required to demonstrate competence in preventing bullying and harassment. The Maritime Labour Convention (MLC), 2006 already has provisions on bullying and harassment and the IMO plans to add a reference to these provisions in the next update of Model Course 1.21, Personal Safety and Social Responsibility. The amendments are scheduled for adoption at MSC 108 (May 2024).

COMPREHENSIVE REVIEW OF THE STCW CONVENTION AND CODE

In Development: 2026

IMO has established aims and principles to guide a comprehensive review of the STCW Convention and Code. The objective of the review is to identify new and outdated seafarer competencies and proficiency requirements to better adapt to technological, regulatory, operational and industry developments. The review will also look for opportunities to improve the clarity and consistent application of the STCW Convention and Code. Several items have been identified for development in the review, including a new competence in psychological safety, further consideration on requirements for maintaining the standard of competence for preventing bullying and harassment and introducing cultural and generational gap awareness. A target completion year of 2026 has been set, and a correspondence group will be established to finalize the scope of work for the comprehensive review.

TECHNOLOGY AND AUTOMATION

GUIDANCE ON THE VALIDITY OF RADIOCOMMUNICATIONS EQUIPMENT INSTALLED AND USED ON SHIPS

Approved: Effective from January 2024

The committee approved circular MSC.1/Circ.1676 addressing concerns of a reported lack of availability of radio equipment complying with the following revised performance standards which are scheduled to enter into force on 1 January 2024:

Resolution	Title
MSC.511(105)	<i>Performance Standards for Shipborne VHF Radio Installations Capable of Voice Communication and Digital Selective Calling</i> (revising resolution A.803(19), as amended)
MSC.512(105)	<i>Performance Standards for Shipborne MF and MF/HF Radio Installations Capable of Voice Communication, Digital Selective Calling and Reception of Maritime Safety Information and Search and Rescue Related Information</i> (revising and consolidating resolutions A.804(19), as amended, and A.806(19), as amended)
MSC.513(105)	<i>Performance Standards for Inmarsat-C Ship Earth Stations Capable of Transmitting and Receiving Direct-Printing Communications</i> (revising resolution A.807(19), as amended)

Noting also that the International Electrotechnical Commission (IEC) was expected to complete development of the relevant testing standards by 1 January 2026 at the earliest, the committee agreed that it was unrealistic for new shipborne VHF radio installations, shipborne MF and MF/HF radio installations or Inmarsat-C ship earth stations to be available for installation from 1 January 2024. This will be problematic for both new and existing vessels certificated under the SOLAS Convention, HSC Code and MODU Code, which were recently amended to incorporate these new performance standards. Therefore, member States may allow continued installation of radio equipment complying with the existing standards (i.e., resolutions A.803(19) as amended, A.804(19) as amended, A.806(19) as amended and A.807 as amended) until 1 January 2028.

Related to the performance standards for various GMDSS equipment, IMO considered the need for revision of MSC.1/Circ.1460/Rev.3 which contained guidance that VHF radiocommunication equipment should be updated so that following the first radio survey after 1 January 2024, at the earliest, it meets the arrangements which will be in force by then. This circular was updated to extend the deadline for updating VHF radiocommunication equipment to 1 January 2028.

DEVELOPMENT OF GOAL-BASED MASS CODE

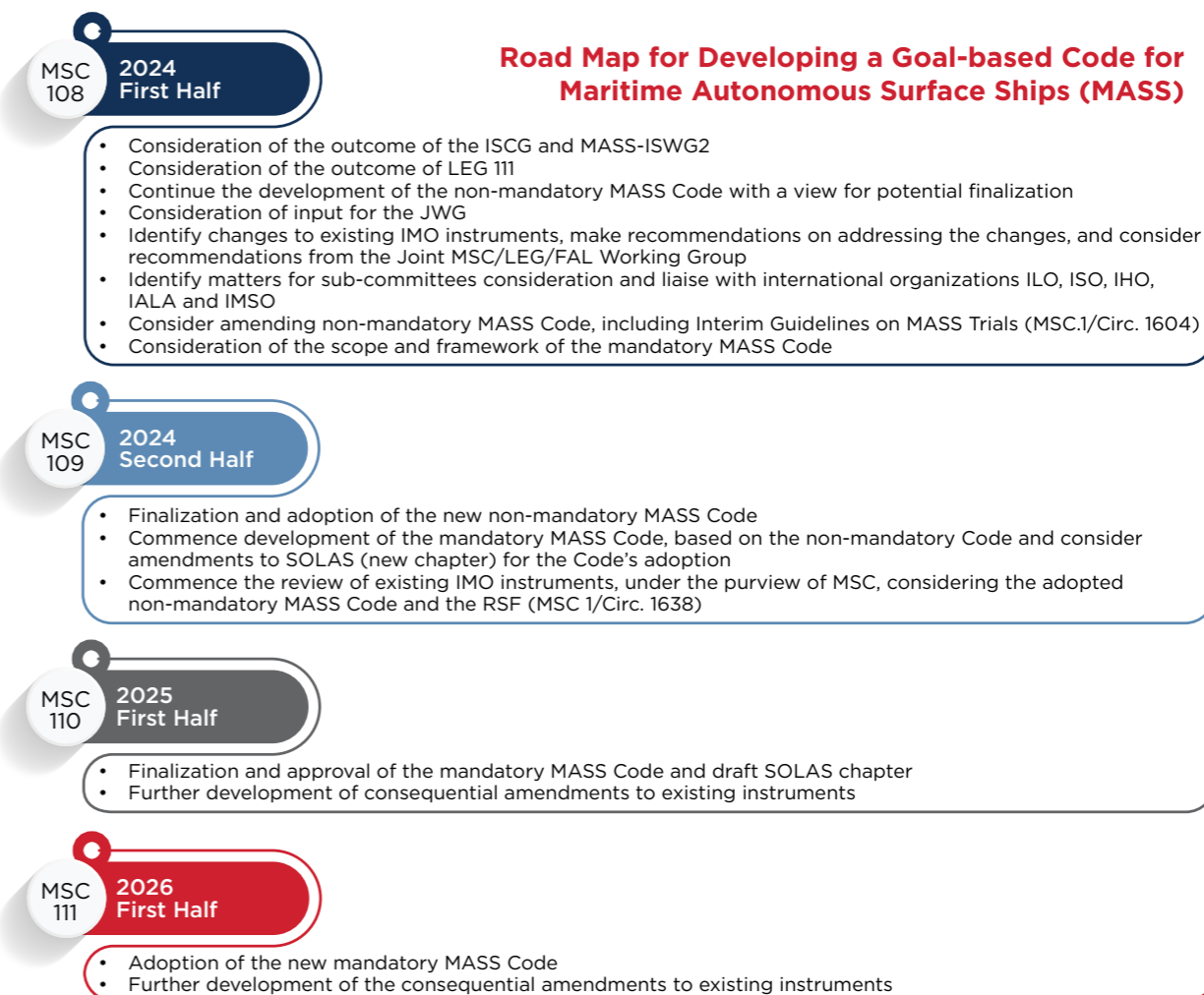
ONGOING DISCUSSION

In Development: 2025

The IMO is taking steps to regulate the use of Maritime Autonomous Surface Ships (MASS) and has completed a Regulatory Scoping Exercise (RSE) to assess how its existing instruments could be adapted for ships with varying degrees of autonomy. For the scope of the RSE work, four degrees of autonomy were identified:

- Degree One: Ship with automated processes and decision support.
- Degree Two: Remotely controlled ship with seafarers on board.
- Degree Three: Remotely controlled ship without seafarers on board.
- Degree Four: Fully autonomous ship.

To address these issues, IMO has agreed to develop a non-mandatory goal-based MASS Code, which is expected to be effective from 1 July 2024, and a mandatory MASS Code, which is expected to enter into force on 1 January 2028. The scope of application for the mandatory Code is yet to be agreed but it is expected to apply initially to cargo vessels and eventually to passenger ships once finalized and made mandatory.



NAVIGATION AND COMMUNICATIONS

DESIGNATION OF THE NORTH-WESTERN MEDITERRANEAN SEA AS A PARTICULARLY SENSITIVE SEA AREA

Adopted: Effective from July 2023

The MEPC has approved the designation of the North-West Mediterranean Sea as a Particularly Sensitive Sea Area (PSSA) to protect cetaceans from ship collisions and pollution and to raise awareness of the area's importance for fin whale and sperm whale populations. The new PSSA includes areas under coastal state jurisdiction in France, Italy, Monaco and Spain, although several national and international protective measures already exist in this area.

Associated protective measures (APMs) have been agreed for implementation for ships within the PSSA, including measures such as limiting speed to between 10 and 13 knots as a voluntary speed reduction and reporting and broadcasting of navigational warnings related to cetaceans.

IMPROVING SAFETY OF PILOT TRANSFER ARRANGEMENTS

ONGOING DISCUSSION

In Development

IMO received proposals for amendments to requirements for pilot transfer arrangements, with the aim of improving safety practices and reducing accidents relating to pilot transfers. The proposals focus on amendments to the pilot transfer regulations within SOLAS Chapter V Regulation 23, as well as supporting documents Resolution A.1045(27) and MSC.1/Circ.1428, to enhance maintenance and inspection practices and clarify requirements for pilot ladders used in combination with accommodation ladders. This work aims to produce SOLAS amendments to be adopted before 1 July 2026, for entry into force on 1 January 2028.

NEW VHF DATA EXCHANGE SYSTEM (VDES)

In Development: Early Stages

IMO considered a proposal for inclusion of the VHF Data Exchange System within the scope of SOLAS Chapter V and the Global Maritime Distress and Safety System (GMDSS). VDES is a two-way high-speed data exchange system that can provide an alternative to the current Automatic Identification System (AIS) on board vessels. The proposal includes allowing for possible substitution of the mandatory carriage requirement of AIS by the AIS component of VDES. VDES has many advantages that may facilitate IMO goals related to e-navigation and efficient global ship-to-shore and ship-to-ship communication. However, the current discussion is limited to the initial introduction of VDES into SOLAS Chapter V and as a permissible substitute for AIS, with supporting performance standards for this equipment type.

DEVELOPMENT OF PERFORMANCE STANDARDS FOR A DIGITAL NAVIGATIONAL DATA SYSTEM (NAVDAT)

In Development: Early Stages

IMO considered a proposal regarding the performance standards for the reception of maritime safety information and search and rescue-related information using MF and HF digital navigational data system (NAVDAT). Additionally, draft amendments to resolution MSC.509(105) on the Provision of Radio Services for the GMDSS are discussed to establish criteria for NAVDAT service providers. NAVDAT offers more comprehensive information delivered quicker to ships in a flexible way and a more user-friendly display compared to NAVTEX. The international NAVDAT system allows the broadcast of messages in the form of texts, pictures, or data with different broadcasting modes. The frequencies indicated for the draft NAVDAT performance standards were to be discussed at a meeting of the ITU World Radiocommunication Conference later in 2023 and IMO agreed to continue discussions on this subject for further development.

MEPC.380(80)

PSSA

Resolution A.1045(27) and MSC.1/Circ.1428, SOLAS Chapter V

SOLAS Chapter V

FINALIZED/SOON TO BE ADOPTED ANTICIPATED TO ENTER INTO FORCE

AMENDMENTS TO ECDIS PERFORMANCE STANDARDS TO FACILITATE A STANDARDIZED DIGITAL EXCHANGE OF SHIPS' ROUTE PLANS

Finalized: To be approved at MSC 108 (May 2024)

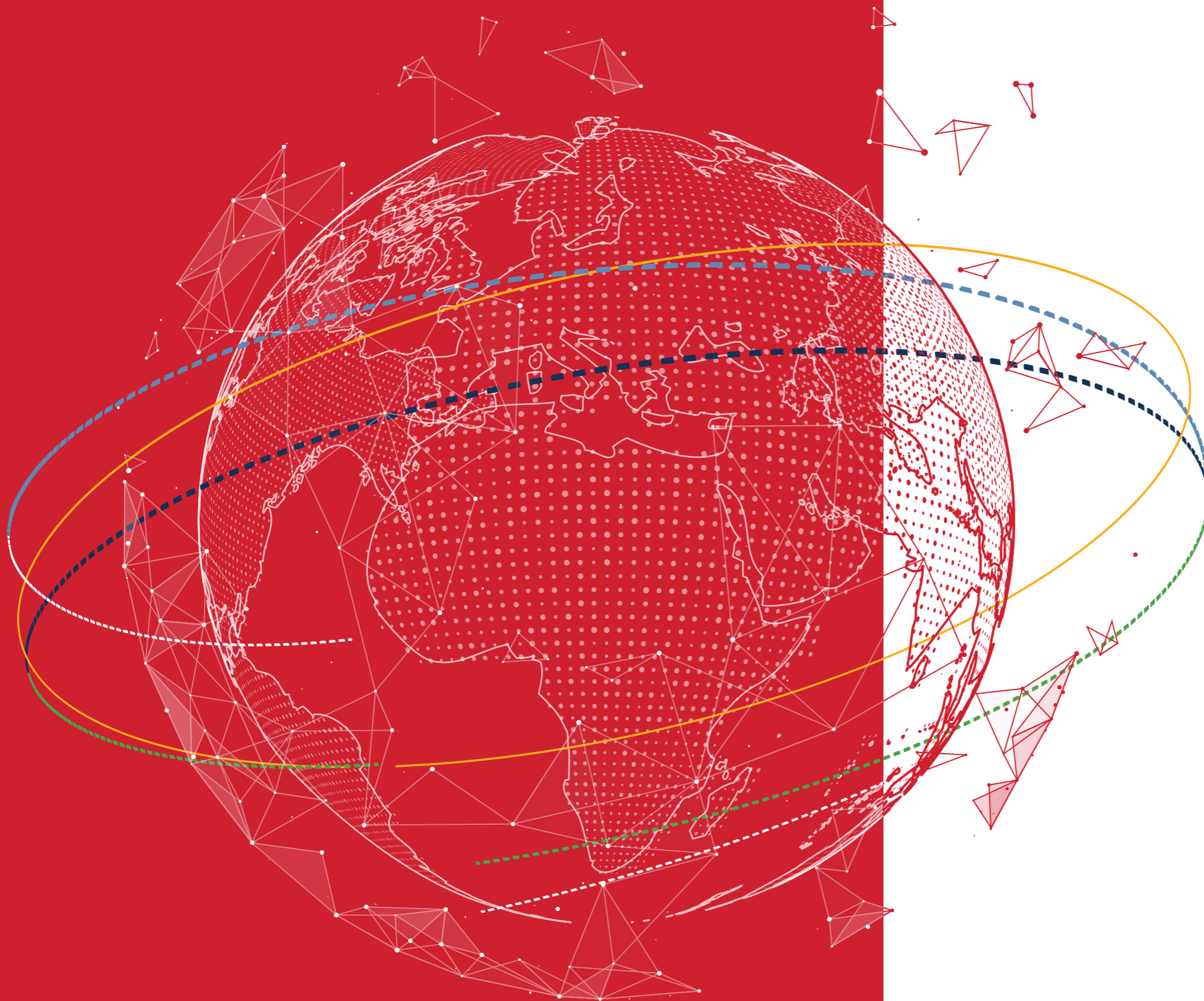
The IMO's Sub-Committee on the Navigation, Communications and Search and Rescue (NCSR) has drafted amendments to the *Performance Standards for Electronic Chart Display and Information Systems (ECDIS)* (Resolution MSC.530(106)).

The amendments aim to reduce the workload of crew members while enhancing the safety of navigation. A standardized and secure approach for exchanging ship-to-shore and shore-to-ship routes would also increase the efficiency of ports, enable slow-steaming, allow for Just In Time Arrival (JIT) and ultimately diminish turnaround times. These changes align with the IMO Initial GHG Strategy and are environmentally and cost-effective. Moreover, such standardized routes may facilitate automated or autonomous (MASS) operations in the future. To achieve this, modifications were made to the ECDIS performance standards, calling for the capacity to send and receive route plans in a uniform format (conforming to IEC 61174/ IEC 63173-1) and promote secure machine-machine communication (conforming with IEC 63173-2). The route plan contains a timetable with estimated times of departure and arrival as soon as they can be determined with reasonable accuracy. The amendments will be presented to MSC 108 for further consideration and approval.

Amendments to Res.MSC.530 (106)

Amendments to Res. MSC.509(105)





Part Two
**REGIONAL
DEVELOPMENTS**

European Union
United Kingdom
United States
China
Australia
Southeast Asia
Latin America



EUROPEAN UNION

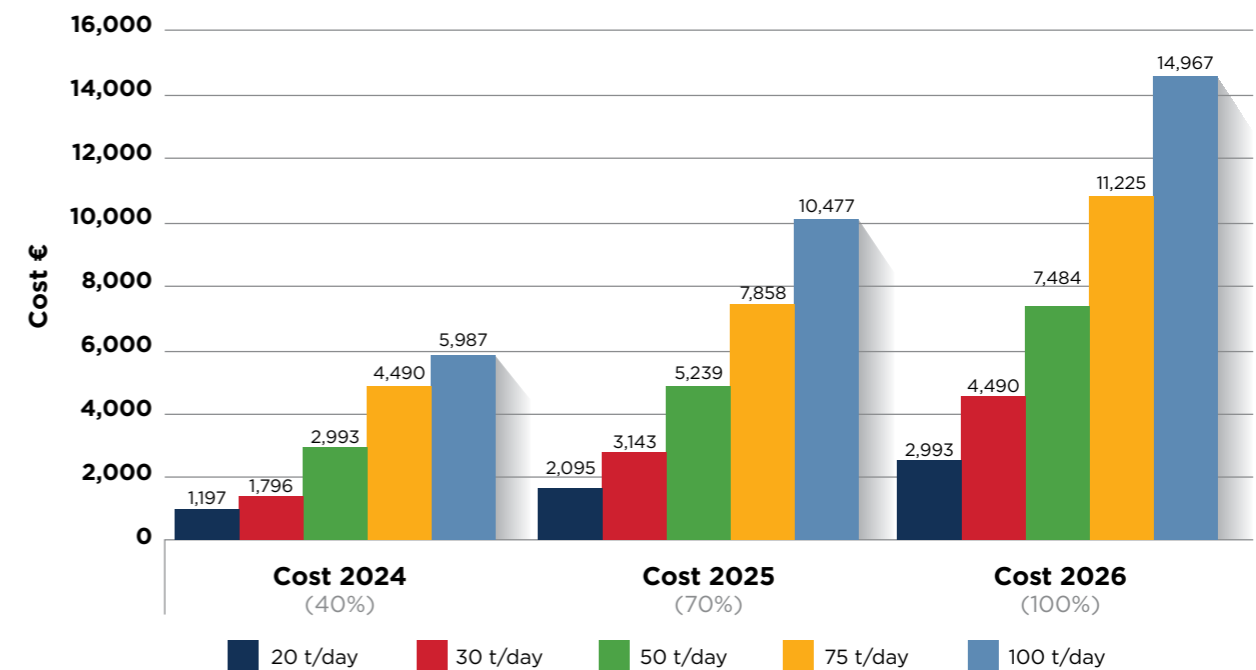
EU FIT FOR 55: SUMMARY

EU EMISSION TRADING SYSTEM (ETS)

ETS is a cap-and-trade regulation aiming to put a cap on yearly generated greenhouse gas (GHG) emissions. It has two principles: setting a ceiling on the yearly maximum amount of GHG emissions and the trading of EU emission allowances (EUAs). Regulated shipping companies will be required to purchase and surrender at the end of each period an EUA for each tonne of carbon-dioxide equivalent (CO₂e) they emitted for that period. Starting in 2025, shipping companies operating in European territorial waters will have to surrender EUAs for ships over 5,000 gross tons (gt) based on their verified emissions of the previous year as quantified by Regulation (EU) 2015/757 as amended by Regulation (EU) 2023/957 (MRV). On 1 January 2026, EU ETS will be extended to include methane (CH₄) and nitrous oxide (N₂O) emissions. On 1 January 2027, the regulation will become applicable to offshore vessels of over 5,000 gt. More information may be found in the ABS Regulatory News brief – *Revision of the EU ETS Directive - Timeline for Compliance*.



Daily Compliance Cost (€) EU ETS

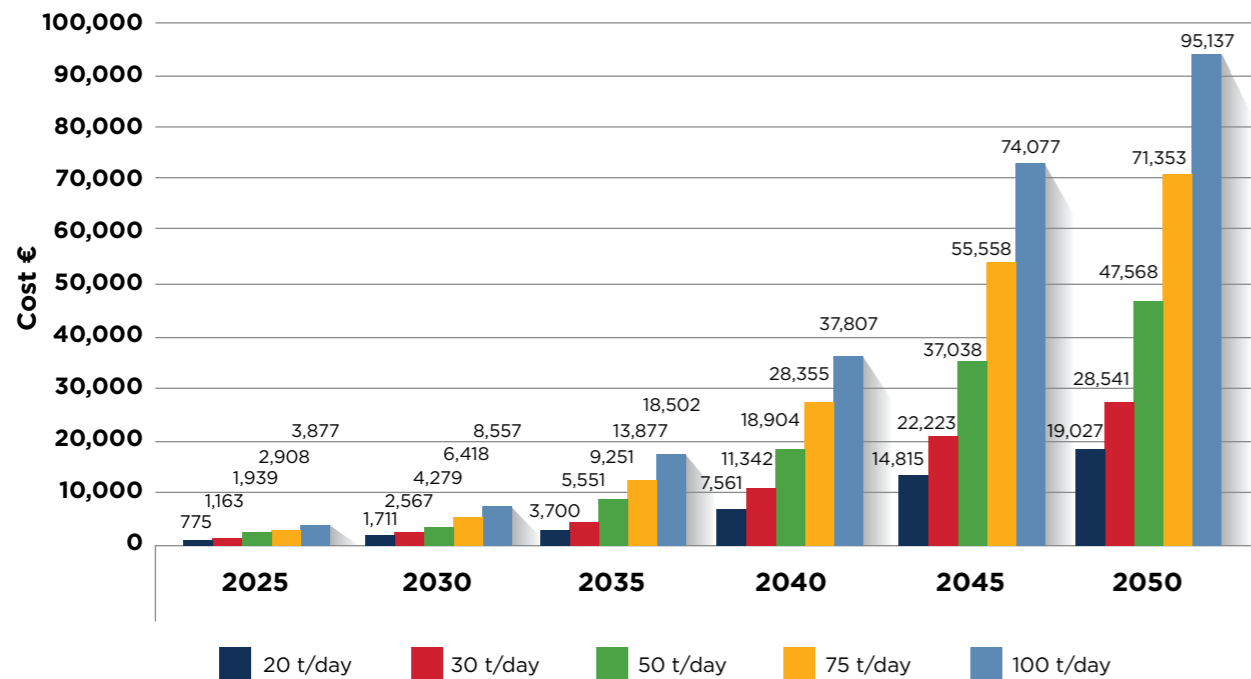


*Assuming 95 Euros/ton CO₂ – Half EU emissions – Only CO₂ emissions, not CH₄ and N₂O

FUELEU MARITIME REGULATION

Fuel EU Maritime incentivizes the production and uptake of sustainable low carbon and renewable fuels for ships over 5,000 gt operating in European territorial waters. Starting on 1 January 2025, the GHG intensity of energy consumed by vessels on European voyages will be evaluated on a Well-to-Wake (WtW) basis. The upper limit of GHG intensity is calculated based on the EU MRV data from 2020. This upper limit will be incrementally decreased every five years from two percent in 2025 to 80 percent in 2050. This progressive reduction is designed to incentivize the development and uptake of biofuels and renewable fuels of non-biological origin (RFNBOs). Additionally, from 1 January 2030, container ships and passenger ships will be required to connect to onshore power supply (OPS) and use it for all energy needs while at berth in a port of call under the jurisdiction of a member State. More information may be found in the ABS Regulatory News brief – *EU Fit for 55: Maritime FuelEU Regulation*.

Daily Compliance Cost (€) FuelEU



91.16 grCO₂/MJ reference value. Vessels will continue to use LSFO.
 Following GWP values: GWPCO₂ – 1.0 | GWPCH₄ – 25.0 | GWPN₂O – 298.0

ALTERNATIVE FUEL INFRASTRUCTURE REGULATION (AFIR)

While not specific to the maritime sector, AFIR has been revised to support the objectives of the FuelEU Maritime legislation by requiring EU member States to speed up the provision of liquefied natural gas (LNG) bunkering terminals and OPS in major ports as follows:

- Containerships and passenger ship terminals are to have provisions by 1 January 2030 for OPS which meet 90 percent of the expected demand of those ports for containerships and passenger ships over 5,000 gt, where there are a certain number of port calls by those ship.
- Sets targets from 1 January 2025 for the supply of liquid methane through an appropriate number of refueling points (as determined by the member States) in maritime ports.

These targets are aligned and consistent with the FuelEU Maritime regulation.

RENEWABLE ENERGY DIRECTIVE (RED II)

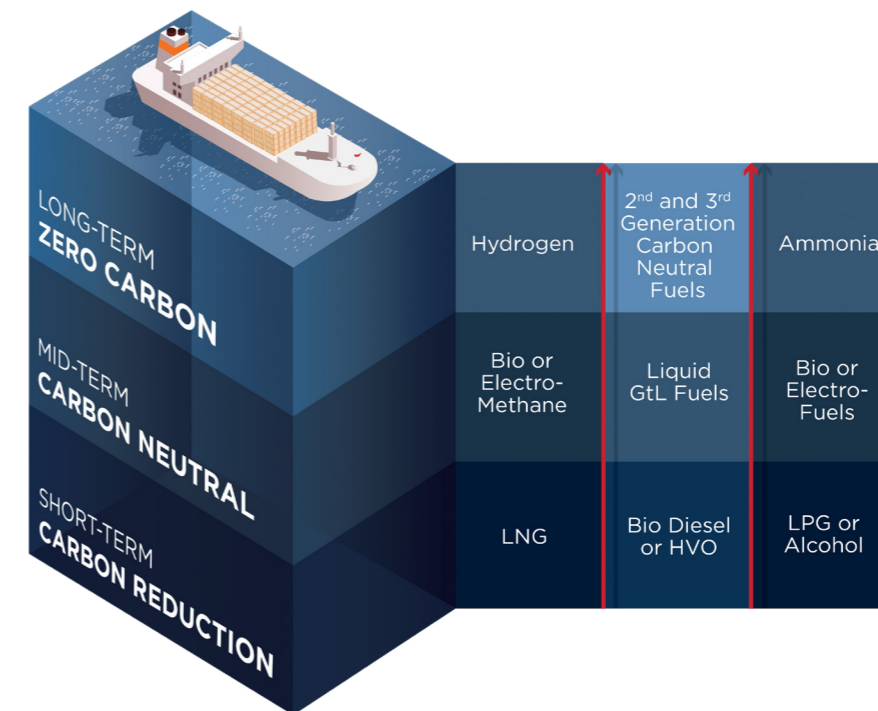
RED sets renewable energy targets for member States, energy content of fuels, GHG emissions, savings calculations and values for various renewable fuels, etc. for the transport sector. The RED may be revised to set more ambitious goals on the share of energy derived from renewable sources for the EU’s gross final consumption by 2030 and to set the sustainability criteria for biofuels, biogas and renewable fuels of non-biological origin. This proposal sets binding combined sub-targets for advanced biofuels and RFNBOs in the share of renewable energies supplied to transport sector by 2030. Additionally, the proposal includes a revision that renewable energy sources are to include domestic and international marine bunkers.

ENERGY TAXATION DIRECTIVE

A revision of the Energy Taxation Directive has been proposed to align the taxation of energy products and electricity with the EU’s energy, environment and climate policies. This will be done by taxing fuels that pollute at higher rates than those of less polluting and more sustainable alternative fuels. A specific provision of the proposal affecting the maritime transport sector is to remove tax exemption from conventional fuels used between EU ports and incentivize the uptake of alternative fuels by keeping them tax exempt for a transitional period of ten years. Member States can also apply a tax exemption to shore-side electricity to incentivize its use.

EU TAXONOMY REGULATION

The EU Taxonomy is a green classification system that translates the EU’s climate and environmental objectives into criteria for specific economic activities for investment purposes. It establishes a transparency tool that will introduce mandatory disclosure obligations on some companies and investors (by means of the Corporate Sustainability Reporting Directive – CSRD), requiring them to disclose their share of Taxonomy-aligned activities. These are based on clear criteria established by delegated acts of what is considered “environmentally sustainable.” This disclosure will allow for the comparison of companies and investment portfolios and may be used as a guide for market participants in their investment decisions.



UNITED KINGDOM

UK EMISSION TRADING SCHEME (ETS)

The United Kingdom (U.K.) ETS, which has been in place since 2021, puts a limit on the total amount of GHG aviation, power and other energy intensive industries can emit. This incentivizes industries away from costly fossil fuels and encourages them to cut their carbon footprint by investing in energy efficiency and cleaner, or renewable technologies, which in turn can boost energy security.



Changes announced on 3 July 2023 confirm that the scheme will expand to cover the domestic maritime transport sector from 2026, as well as waste incineration and waste from energy sectors from 2028. U.K. ETS requirements will apply to large maritime vessels (5,000 gt and above) and will be subject to further consultation on the details of implementation and an initial reporting period for waste sectors. Expanding the U.K. ETS to include domestic maritime transport will require maritime participants to monitor their emissions from eligible journeys, report their emissions from these journeys and surrender sufficient allowances to cover their emissions. This would apply to domestic journeys only, which would be defined as a journey starting and finishing at a port located in the United Kingdom U.K. ETS is intended to apply to the entity responsible for a vessel’s compliance with the International Safety Management (ISM) Code, and to exempt government non-commercial activity.



UNITED STATES

CARB OCEAN-GOING VESSELS AT BERTH REGULATION

The goal of the California Air Resource Board (CARB) Ocean-Going Vessels at Berth Regulation is to reduce diesel particulate matter (PM) and nitrogen oxides (NO_x) from ocean-going vessels auxiliary engines while they are docked at California ports. This is done using CARB Approved Emission Control Strategies (CAECS) while vessels are at berth. Shore power is considered the “gold standard”

by CARB in reducing emissions from ocean-going vessels. Other CAECS include emission capture systems and onboard power generating systems which meet the emissions standards of the regulation. Ships visiting regulated terminals will be required to comply by the compliance start date for their ship type. The compliance start date for containerships, refrigerated cargo vessels and passenger vessels began on 1 January 2023. All roll on/roll off (ro/ro) vessels will need to comply by 1 January 2025 along with tanker vessels visiting the ports of Los Angeles and Long Beach. The compliance date for all other tanker vessels is 1 January 2027. Opacity requirements and additional reporting requirements for all vessels started on 1 January 2023. Further details may be found in the ABS Regulatory News brief – [CARB at Berth Regulation](#).

VESSEL INCIDENTAL DISCHARGE ACT (VIDA)

The Vessel Incidental Discharge Act (VIDA) was signed into U.S. law in December 2018, intending to replace the Vessel General Permit (VGP) scheme and streamline the patchwork of federal, state and local requirements for commercial vessels. The Environmental Protection Agency (EPA) and the United States Coast Guard (USCG) have been tasked with developing the emission standards and how these standards will be implemented and enforced respectively. It is expected that the EPA will publish their final rule on the standards of VIDA by the end of 2023 at which time the USCG will have two years to publish their final rule detailing the implementation and enforcement activities in support of those standards. VIDA specifies that the provisions of the 2013 VGP will continue to apply until EPA and the USCG publish their final regulations, regardless of how long that takes and that the VGP cannot be modified during that time.

EPA is developing a Supplemental Notice to the Vessel Incidental Discharge National Standards of Performance proposed rule. EPA anticipates that the Supplemental Notice will provide clarification on the proposed rule, share new ballast water data that EPA is receiving from the USCG, and discuss additional regulatory options EPA is considering for the final rule. EPA intends to sign the Supplemental Notice in the Fall of 2023 and make it available for public comment in the *Federal Register* shortly thereafter. During the comment period, EPA will solicit comments specific to the issues identified in the Supplemental Notice. EPA anticipates that the final rule addressing public comments received on both the proposed rule and the Supplemental Notice will be signed for publication in the autumn of 2024. If the USCG spends the full two years allotted to finalize the corresponding enforcement standards, the current 2013 VGP scheme will remain in force until 2026.

US CLEAN SHIPPING ACT OF 2023

The Clean Shipping Act of 2022 was proposed to the U.S. Congress in June of 2023 and has been referred to the House Committee on Energy and Commerce. The bill proposes to require all ships at berth or anchorage to eliminate the emissions of GHG and other air pollutants and impose carbon intensity standards for fuels used by ships. As proposed, these standards would incrementally reduce the allowable GHG emissions by 20 percent from 1 January 2027 (relative to the 2024 baseline) to 100 percent from 1 January 2040.

US INTERNATIONAL MARITIME POLLUTION ACCOUNTABILITY ACT OF 2023

The International Maritime Pollution Accountability Act was proposed to the U.S. Congress on 8 June 2023, with a stated goal of decarbonizing shipping and ports.

The legislation consists of two parts:

1. The first section of the bill applies to vessels over 10,000 gt that are moving between an initial port and a “final port of call,” defined as a port in the U.S. where cargo is offloaded or the most recent port of call in the U.S. prior to offloading the last of the cargo of the vessel that is bound for the U.S. The proposed legislation calls for imposing a \$150 per ton fee on the CO₂ emissions of the fuel burned, as well as fees for the NO_x (\$6.30/lb.), sulfur dioxide (\$18/lb.), and particle pollution (PM_{2.5}) (\$38.90/lb.). The proposed legislation also has provisions for a possible 50 percent reduction in the fee if a ship is subject to a pollution-based fee by the country of the port of origin (e.g., EU ETS). If the fees are not paid within 30 days, the USCG is instructed to prevent that operator from operating within U.S. waters or the vessels of that operator from docking in the U.S.
2. The second section of the bill addresses the Jones Act fleet specifically, and also instructs how the fees collected under the first section should be distributed to decarbonize various parts of the U.S. fleet. The pollution fees are estimated to raise approximately \$250 billion over 10 years, providing critical funding for decarbonization efforts in the maritime economy as follows:
 - 25 percent to MARAD to award grants, rebates, and low-interest loans to replace existing Jones Act vessels that use marine fuel oil or to retrofit existing vessels that use fuel oil (modeled after DERA). Operators are allowed to compete for the funding, and priority would be given to those who are replacing or retrofitting vessels with batteries or low-carbon fuels.
 - 25 percent would provide research and development (R&D) money for low-carbon maritime fuels and low-emission maritime technologies.
 - 10 percent would go to EPA to electrifying harbor craft.
 - 10 percent would go to EPA to electrifying ferries.
 - 5 percent would go to EPA for workforce development.
 - 3 percent would go to monitoring air pollution in ports.
 - 22 percent would go towards funding existing programs (PDIP etc.).

It is unlikely that this legislation will move forward at the present time of its initial proposal, but it is a precursor of what may come if the political majority changes in the U.S. Congress.

CHINA

NATIONAL COLD IRONING REQUIREMENTS

China has legislated the transition of its domestic fleet and terminals toward shore power capability. New terminals and domestic new construction vessels (including those undergoing major modifications) are required to install shore power systems. All vessels, except tankers with shore power capability visiting terminals with shore power systems will be required to connect to shore power if the vessel is at berth more than two hours. This includes foreign flagged vessels. Vessels employing alternative equivalent measures may not be required to use shore power.



DATA COLLECTION FOR ENERGY CONSUMPTION OF SHIPS CALLING AT CHINESE PORTS

All ships are required to report energy consumption data to China MSA for voyages calling at a Chinese port. Only the voyage from the last port before arriving at a Chinese port is to be reported. The outbound voyage departing a Chinese port need not be reported. The report is to be included with the documents which are required to be submitted upon departure of a Chinese port.

NATIONAL EMISSION TRADING SYSTEM

China has implemented the first phase of a national ETS on 16 July 2021. This initial phase includes 2,225 companies in the power sector which comprise of four billion metric tons of CO₂ emissions annually or 40 percent of China's total national CO₂ emissions. Further plans are being developed to include seven additional industrial sectors by 2025; petrochemicals, chemicals, building materials, steel, nonferrous metals, paper and domestic aviation. Beijing will be evaluating the success of the EU's ETS, when contemplating including such measures for the shipping and shipbuilding industries.



AUSTRALIA

MANAGING BIOFOULING IN AUSTRALIA

The Australian biofouling management requirements set out vessel operator obligations for the management of biofouling when operating vessels under biosecurity control within Australian territorial seas. Operators of all vessels subject to biosecurity control will be required to provide information on how biofouling has been managed prior to arriving in Australian territorial seas. This information will need to be reported through the department's Maritime Arrivals Reporting System (MARS). Vessel operators will receive less intervention for biofouling if they comply with one

of the following three accepted biofouling management practices; implementation of an effective biofouling management plan; or cleaned all biofouling within 30 days prior to arriving in Australian territory; or implementation of an alternative biofouling management method pre-approved by the department. A vessel operator that has not applied one of the three accepted biofouling management practices will be subject to further questions and assessment of the biosecurity risk associated with biofouling on the vessel.



CANADA

CANADIAN ARCTIC EMISSION CONTROL AREA

Canada proposed to the IMO to establish a Canadian Arctic Emission Control Area (ECA) in accordance with MARPOL Annex VI regulations. The ECA would require ships operating in Canadian Arctic waters to comply with stricter emission standards for NO_x, sulfur oxides (SO_x) and PM. The designation of the ECA is necessary to protect public health and ecologically sensitive Arctic ecosystems by reducing harmful air pollution and emissions. The proposal highlights the significant impact of ship emissions on the Arctic

environment, including climate change, ecosystem impairment and health risks. The establishment of the Canadian Arctic ECA would provide consistent air pollution protections, improve air quality and contribute to the overall reduction of emissions in the marine sector. Adoption of the Canadian Arctic ECA under MARPOL Annex VI could take place as soon as spring of 2025, with entry into force as soon as winter of 2027.



SOUTHEAST ASIA

SINGAPORE

MARITIME SINGAPORE GREEN INITIATIVE

The Maritime Singapore Green Initiative seeks to reduce the environmental impact of shipping and related activities and to promote clean and green shipping in Singapore. In 2019, the initiative was extended until 31 December 2024 and enhanced to promote decarbonization of shipping. Two pillars of the program are the Green Port Program and the Green Energy and Technology Program. The Green Port Program provides incentives to encourage environmental sustainability amongst ocean-going vessels calling at the Port of Singapore and MPA (Maritime and Port Authority) licensed harbor craft by providing up to 30 percent port dues reduction for vessels calling the Port of Singapore that meet the applicable criteria. The Green Energy and Technology Program aims to encourage Singapore-based maritime companies to develop/conduct pilot trials for green technologies that can help vessels meet Maritime Singapore Decarbonization Blueprint: Working Towards 2050 targets. Ocean going vessels registered under the SRS and harbor crafts licensed to operate within the Port of Singapore are eligible to apply.



MARITIME SINGAPORE DECARBONIZATION BLUEPRINT: WORKING TOWARDS 2050

The Maritime Singapore Decarbonization Blueprint: Working Towards 2050 charts ambitious and concrete long-term strategies to build a sustainable Maritime Singapore. Developed by the Maritime and Port Authority of Singapore (MPA) in consultation with industry partners, the Blueprint will contribute to Singapore's commitments under the United Nations' 2030 Sustainable Development Agenda, Paris Agreement and the IMO Strategy on reduction of GHG emissions from ships. The Blueprint outlines seven focus areas to support the MPA's decarbonization efforts in the maritime industry: Port terminals, Domestic harbor craft, Future marine fuels, bunkering standards and infrastructure, Singapore Registry of Ships, Efforts at IMO and other international platforms, R&D and talent and carbon awareness, carbon accounting and green financing.

DESIGN AND DEVELOP ELECTRIC HARBOUR CRAFT IN SINGAPORE (2030)

In support of Singapore's 2050 national target, the harbor craft sector, including pleasure craft and tugboats, will correspondingly need to achieve net-zero emissions by 2050. Operators of new harbor crafts are encouraged to inform MPA early of their plans, so that provisions to designs can be adjusted if necessary. Plans for harbor craft entering from 2030 should be highlighted to MPA from 1 January 2027. As of 2023, there are about 1,600 propelled harbor craft currently licensed by MPA. From 2030, all new harbor craft operating in our port waters can choose one or more of these pathways – be fully electric, be capable of using B100 biofuels, or be compatible with net-zero fuels such as hydrogen. The existing harbor craft are also expected to transit to net-zero emission types progressively.

INDIA

BAN ON VESSELS OVER CERTAIN AGE PROFILES

India has implemented a policy to ban all tankers, bulkers and general cargo vessels older than 25 years. The limit is 30 years for all other vessels except dredges, which will be banned at the age of 40. Vessels older than 20 years will not be allowed to apply for Indian registry. This applies to commercial ships both foreign and domestic operating within the Exclusive Economic Zone of India. Existing vessels will be allowed to continue to operate for up to three years from the date of the order, 24 February 2023.





LATIN AMERICA

PANAMA

PANAMA CANAL GREEN ROUTE PLAN 2050

The Panama Canal Green Route Plan 2050 is a long-term strategy to reduce the canal's carbon footprint and promote sustainable practices. Aspects of the plan include initiatives to reduce emissions from vessels transiting the canal, the development of renewable energy sources, improving water management practices and carbon neutrality. The Panama Canal Authority has made a commitment to be carbon neutral by 2030 through the purchase carbon credits or other measures, if necessary, with a goal of complete carbon neutrality by 2050.

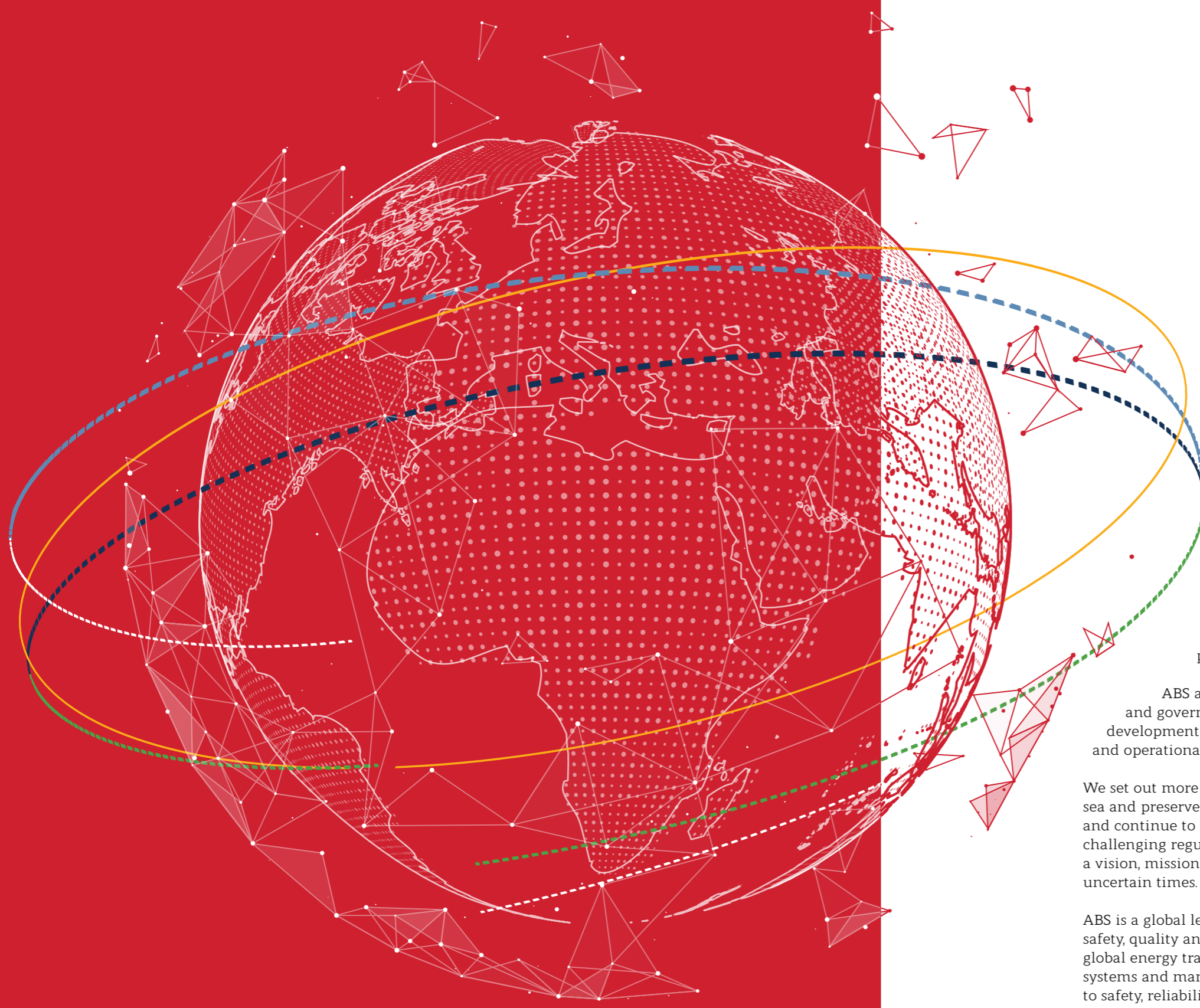
In support of their efforts to reduce emissions from vessels transiting the canal, the Panama Canal Authorities has started a Green Vessel Classification System. The initial stages of this require additional vessel particulars and a fuel declaration to be provided prior to each transit of the canal. This information will be used to create a database that will allow the Panama Canal to assess the technical, environmental and technological characteristics of transiting vessels. The database will allow the Panama Canal Authority to evaluate ship characteristics that enable a greener transit of the canal.

NON-PORTABLE PILOTING UNIT FOR VESSELS WHEN PASSING THROUGH PANAMA CANAL

Effective 1 October 2023, all vessels with a beam of 109 feet (33.22 meters) or more transiting the Panama Canal must have a fixed (non-portable) piloting unit with Real Time Kinematics (RTK).

A non-portable unit installed on the bridge of the vessel and external antennas provide Global Navigation Satellite System (GNSS) based position with centimeter precision, speed, course, heading, rate of turn and Automatic Identification System (AIS) targets data. All data must be real time. All data must be shared via Wi-Fi to the tablet and application used by the Panama Canal personnel. The unit must receive GNSS corrections via Ultra High Frequency (UHF) and cellular data from the Panama Canal Differential Global Navigation Satellite System (DGNSS) base stations and servers. The system should be able to operate autonomous for at least five hours without power from the vessel in case of a blackout. All units must be preapproved by the Panama Canal.





Conclusion

NAVIGATING THE REGULATORY LANDSCAPE

The regulatory landscape is complex and ever-changing, making a focus on regulatory compliance essential to smooth vessel operations. In ways both great and small, some regulatory developments must be understood simply to maintain compliance, while other developments stand to transform vessel operations in the decades ahead.

From the International Maritime Organization's (IMO's) 2050 targets for greenhouse gas (GHG) reduction to national policies for emissions at berth, ABS is monitoring developments around the globe to advise clients on solutions that will minimize operational disruptions and find the clearest path to regulatory compliance.

ABS and its affiliated companies work with clients in the marine, energy and government sectors to create a safer, cleaner future at sea. We support the development of practical solutions for the industry's most daunting technical and operational challenges.

We set out more than 160 years ago to promote the security of life and property at sea and preserve the natural environment. Today, we remain true to our mission and continue to support organizations facing a rapidly evolving seascape of challenging regulations and new technologies. Through it all, we are anchored by a vision, mission and core traits that help our members and clients find clarity in uncertain times.

ABS is a global leader in marine and offshore classification and other innovative safety, quality and environmental services. We're at the forefront of supporting the global energy transition at sea, the application of remote and autonomous marine systems and many more exciting technological advancements. Our commitment to safety, reliability and efficiency is ever-present, guiding our members and clients to safer and more efficient operations. We support the maritime industry's digitalization, clean energy transition and application of new technologies through several joint development projects and research initiatives. Asset owners and operators seeking compliance solutions for regulations discussed in this publication can contact our specialists to learn more about how ABS can help.

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