Supplementary materials for May 2025

Contents

➢ International Maritime News

I. ABS explores alternative fuel options for vessels

May 2, 2025. SAFETY4SEA News/Fuels
https://safety4sea.com/abs-explores-alternative-fuels-options-for-vessels/

The maritime industry has been highly concerned about the alternative fuel with its low carbon emission potential. The American Bureau of Shipping (ABS) released a report on *Dual Fuel Solutions for newbuild vessels*, which examines alternative fuels and dual-fuel propulsion options, focused on hydrocarbon-based fuel coupled with liquefied natural gas (LNG), methanol, and ammonia.

Source: SAFETY4SEA.

➢ **Basic design considerations for the vessels:**

- **Safety considerations:** the fuel design should focus on the safety systems associated with each fuel, such as gas detection, fire suppression, and emergency shutdown systems.

  Particularly, the design of machinery spaces, bunkering stations, and ventilation systems to comply with t*he International Code of Safety for Ships Using Gases or other Low-Flashpoint Fuels (IGF Code)* and *the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).*

- **Corrosion and material compatibility:** Marine fuel such as methanol and ammonia, all materials in contact with these fuels are to be resistant to corrosion. Consider with anti-corrosion materials such as stainless steel, special coatings, or compatible non-metallic materials where necessary.

- **Machinery space concept:** The design of the vessel should facilitate efficient operation, taking into consideration the vapor return systems, pressure control, and compatibility with bunker vessels. Also, suggest evaluating the implications of bunkering on operational schedules and routes as well.

➢ **Need for further assessment and observation:**

- **Regulatory compliance:** The vessel's design and fuel systems should meet the latest IMO and EU regulatory requirements, particularly regarding GHG emissions and safety. An important element is the gradual shift to Well-to-Wake (WtW) emissions, which highlights the need to consider the selection of the fuel under the life-cycle perspective.

- **Operational impact:** Assess the impact of the selected Dual-Fuel (DF) system on the vessel's operational efficiency, including fuel availability, infrastructure readiness, availability of skilled crew, and the potential for reduced cargo capacity due to larger fuel tanks.

- **Technology maturity:** Examine the technological readiness level of each fuel option. For now, **liquefied natural gas** is the most mature; using **methanol** in main engines,

Fuel supply systems (FSS), and tanks are mature as well, while **ammonia** presents emerging but less proven alternatives. The first ammonia-fueled oceangoing ship will go into service around the beginning of 2026. **Still suggest to keep evaluating the reliability and service experience of engines and FSS for each fuel.**

Recently, IMO established an alternative fuel work plan schedule (see **Figure 1**). The Subcommittee on Carriage of Cargoes and Containers CCC 10 (Oct 2024), for the development of several standards for other alternative fuels. The scope of the remaining work extends to 2026 and includes the development of standards for low-flashpoint oil fuels, hydrogen, ammonia, fuel cells, and methyl/ethyl alcohol fuel standards. Other Interim Guidelines:

- MSC.1/Circ.1687 of Interim guidelines for the safety of ships using ammonia as fuel.
- MSC.1/Circ.1666 of Interim guidelines for the safety of ships using LPG fuels.
- MSC.1/Circ.1621 of Interim guidelines for the safety of ships using methyl/ethyl alcohol as fuel.

Meeting	Objectives	Year
ISWG-AF 1	• Further develop/finalize guidelines for ships using hydrogen as fuel • Further develop/finalize guidelines for ships using ammonia as fuel	9-13 September 2024
CCC 10	• Prepare amendments to the IGF Code on natural gas • Finalize guidelines for ships using hydrogen as fuel • Finalize guidelines for ships using ammonia as fuel • If time permits, further develop guidelines for low-flashpoint oil fuels • If time permits, begin the discussion on the development of mandatory instruments regarding methyl/ethyl alcohols	16-20 September 2024
MSC 109	• Approval of the guidelines for ships using hydrogen as fuel • Approval of the guidelines for ships using ammonia as fuel	2-6 December 2024
CCC 11	• Further develop/finalize guidelines for low-flashpoint oil fuels • If time permits, develop mandatory instruments regarding methyl/ethyl alcohols • If time permits, begin the discussion on the development of mandatory instruments regarding fuel cells	September 2025
MSC 111	• Approval of the guidelines for low-flashpoint oil fuels	May 2026
CCC 12	• Further develop/finalize mandatory instruments regarding methyl/ethyl alcohols • Further consider the development of mandatory instruments regarding fuel cells	September 2026

Table 2: CCC 9 work plan for the development of safety provisions for alternative fuels.

Figure 1: IMO meetings and alternative fuel work plan schedule.
(Source: ABS. 2025. *Dual Fuel Solutions for newbuild Vessel* (P.24: Table2))

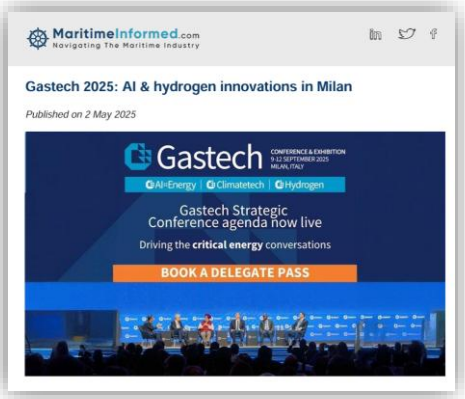
II. Gastech 2025: AI & hydrogen innovations in Milan

Feb 28, 2025. Maritime Informed/ Event News.

Article: https://www.maritimeinformed.com/news/gastech-2025-ai-hydrogen-innovations-milan-co-1638425137-ga-co-1692707940-ga.1746184237.html?ref=nav

Gastech, the world's largest conference and exhibition for natural gas, LNG, hydrogen, climate technologies, and AI-powered solutions. Gastech 2025 will take place in Milan from 9th to 12th September.

While navigating with uncertainty in the energy industry, evolving with the complication of the geopolitical and economic landscape, this event may possible gathered over 50,000 energy pioneers and leaders around the world.



Source: Maritime Informed.

- **New industry partnerships**

  There will be a platform for the energy value chain to address urgent challenges and seize promising opportunities, from decarbonization and renewable intermittency to emerging AI solutions and sustainable technologies.

  Cutting-edge solutions included AI-driven methane emission reduction tools, modular hydrogen electrolyzers, blockchain-based carbon trading platforms, and AI-enhanced carbon capture, utilization, and storage (CCUS) systems.

- **Four Main programmes**

  The Conference's four programmes - Strategic Leadership, AI::Energy, Climatetech, and Hydrogen, along with challenges like market instability and global supply chain pressures, Gastech is still hoping to find solutions for securing energy supply amid geopolitical volatility, accelerating AI-driven decarbonization, and scaling low-carbon infrastructure. There will be over 20 international country pavilions for cross-border energy sector collaboration and policy engagement, with the goal of creating a globally integrated energy eco-system.

- **New industry partnerships**

  With a 53-year legacy of convening top decision makers and enabling groundbreaking innovation, Gastech 2025 will serve as a pivotal platform for the energy value chain to address urgent challenges and seize promising opportunities, from decarbonization and renewable intermittency to emerging AI solutions and sustainable technologies.

  Gastech 2025 will gather stakeholders—including financial institutions, policymakers, and technology innovators—to coordinate the potential of emerging technological solutions. The event aims to address cost barriers and supply chain bottlenecks, transforming breakthroughs into commercially viable products. This collaborative approach is designed to enhance energy security and facilitate large-scale decarbonization.

- **Confirmed speakers:**
  - H.E. Adolfo Urso, Minister for Enterprises & Made in Italy
  - Mr. Patrick Pouyanné, Chairman and CEO of TotalEnergies
  - Mr. Horacio Marín, CEO of YPF
  - Mr. Jack Fusco, Director, President & CEO of Cheniere Energy
  - Mr. Lorenzo Simonelli, Chairman, President & CEO of Baker Hughes
- **Future of energy with clarity**

  The global energy industry is facing the historic task of balancing urgent climate imperatives with the growing demand for secure and affordable power, and Gastech 2025 certainly stands as the definitive platform for unified action.

  Under an ambitious energy initiative set by Italy and Europe's rapid transformation, the 53rd edition of Gastech will convene the global energy value chain—including AI innovators, hydrogen pioneers, policymakers, and investors—to collaboratively shape the future of energy with clarity and purpose.

- Gastech is a premier international event in the energy sector, bringing together global industry leaders and policymakers to collaboratively shape the future of energy. Its core mission lies under the Strategic Conference, which addresses the most pressing energy priorities of 2025: ensuring energy supply amid geopolitical instability, accelerating AI-driven decarbonization, and expanding low-carbon infrastructure to meet COP30 accountability requirements.

  To encounter the challenges such as market instability and the global supply chain pressures, the conference's four key agendas—Strategic Leadership, AI in Energy, Climate Technology, and Hydrogen—will advocate for the indispensable role of natural gas and innovation in developing a resilient energy system capable of withstanding market shocks and driving global economic growth.

References:

1. ABS. 2025. *Dual Fuel Solutions for newbuild Vessel*. https://ww2.eagle.org/en/publication-flip/dual-fuel-advisory.html (May 2025)
2. SAFETY4SEA. 2025. ABS explores alternative fuels options for vessels. https://safety4sea.com/abs-explores-alternative-fuels-options-for-vessels/ (May 02, 2025)
3. Maritime Informed (2025). Gastech 2025: AI & hydrogen innovations in Milan. **https://www.maritimeinformed.com/news/gastech-2025-ai-hydrogen-innovations-milan-co-1638425137-ga-co-1692707940-ga.1746184237.html?ref=nav** (May 02, 2025)
4. EIN Presswire. Gastech 2025 in Milan: Accelerating Global Energy Security and Innovation. https://www.einpresswire.com/article/807685020/gastech-2025-in-milan-accelerating-global-energy-security-and-innovation?utm_source=chatgpt.com (April 29, 2025)

➢ International Maritime Organization Meeting Highlights

I. The Legal Committee, 112th session (LEG 112)

1. About LEG[1]

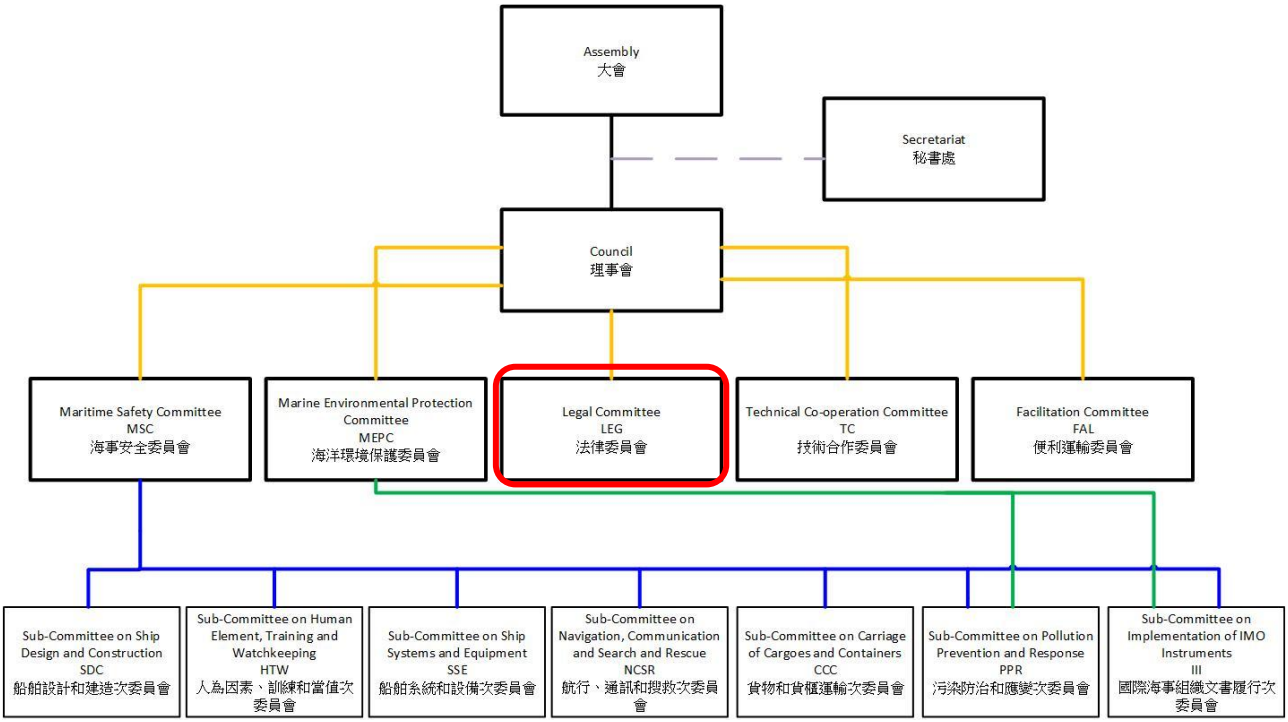


Figure 1 Organization Structure of IMO (LEG)

The Legal Committee (LEG) is one of the 5 Committees of IMO. LEG mainly deals with all the legal matters within the IMO's scope. This included liability and compensation issues related to the operation of ships, including damage, pollution, passenger claims, and wreck removal. LEG also addresses seafarer matters, including the fair treatment of seafarers, and issues concerning unlawful activities at sea which affect the safety of navigation.

2. LEG 112 Highlights

(1) Adopted the Guidelines on fair treatment of seafarers detained concerning alleged crimes;

(2) Addressing the seafarer abandonment issue;

[1] IMO. Legal Committee (LEG). https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/LEG-Default.aspx

(3) Progress towards the 2010 HNS Protocol;

(4) Revised the Maritime Autonomous Surface Ships (MASS) roadmap;

(5) Substandard shipping – new output approved for regulatory scoping exercise;

(6) Development of guidelines or best practices on ship registration (new output approved);

(7) Liability and compensation regimes for alternative fuels (new output approved);

(8) Maritime security threats (new output approved).

3. LEG 112 Agenda

Table 1 LEG 112 Agenda

Item No.	Agenda
1	Adoption of the agenda
2	Report of the Secretary-General on credentials
3	Facilitation of the entry into force and harmonized interpretation of the 2010 HNS Protocol
4	Fair treatment of seafarers (a) Provision of financial security in case of abandonment of seafarers, and shipowners' responsibilities in respect of contractual claims for personal injury to, or death of seafarers, in light of the progress of amendments to the ILO Maritime Labour Convention, 2006 (b) Fair treatment of seafarers in the event of a maritime accident (c) Fair treatment of seafarers detained on suspicion of committing crimes.
5	Advice and guidance in connection with the implementation of IMO instruments (a) Impact on shipping and seafarers of the situation in the Black Sea and the Sea of Azov
6	Measures to prevent unlawful practices associated with the fraudulent registration and fraudulent registries of ships
7	Piracy and armed robbery against ships
8	Guidance for the proper implementation and application of IMO liability and compensation conventions
9	Measures to address maritime autonomous surface ships (MASS) in instruments under the purview of the Legal Committee
10	Work of other IMO bodies

11	Technical cooperation activities related to maritime legislation
12	Review of the status of conventions and other treaty instruments emanating from the Legal Committee
13	Work programme
14	Election of officers
15	Any other business
16	Consideration of the report of the Committee on its 112th session

(Source: IMO/ LEG 112/1/1)

4. LEG 112 Meeting Summaries[2]

LEG 112th session held at the IMO Headquarters in London from March 24th to 28th, 2025. There are no Working Groups formed at LEG 112.

(1) Facilitation of the entry into force and harmonized interpretation of the 2010 HNS Protocol

The 2010 HNS Protocol is making progress toward entry into force. The HNS Convention was adopted by an international conference in 1996, superseded by the 2010 Protocol in April 2010, but has not yet entered into force. It aims to ensure adequate, prompt, and effective compensation for those affected by incidents involving hazardous and noxious substances (HNS) carried on ships. This is particularly relevant given the increasing amounts of chemicals and new fuels transported in bulk in ships.

Currently, there are eight Contracting States to the 2010 Protocol to the HNS Convention, five of which have more than 2 million units of gross tonnage each. Which means there are only four more ratifications with the required contributing cargo to meet the entry-into-force requirements of the Protocol[3].

[2] IMO. Legal Committee, 112th session (LEG 112), 24 - 28 March 2025. https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/LEG-112-Press-Briefing.aspx

[3] Once the 2010 HNS Protocol enters into force, the 1996 Convention, as amended by the 2010 Protocol, will be called: 'the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 2010 (2010 HNS Convention)'.

The 2010 HNS Convention will enter into force in 18 months right after the conditions meet with following requirements: (1) ratified at lease by 12 state, including four States each have a registered ship's tonnage 2 million GT, and (2) having received during the preceding calendar year a total quantity of at least 40 million tonnes of cargo that would be contributing to the general account.

For further information may visit the IOPC Funds official Website: https://www.hnsconvention.org/the-

Belgium, Germany, the Kingdom of the Netherlands, Sweden, and Finland have provided information about their progress towards ratification in a coordinated manner. Once those ratifications are complete, the requirements of the entry-into-force would be met. IMO encouraged more Member States to ratify and bring into force the 2010 HNS Protocol as well.

(2) Adopted the *Guidelines on fair treatment of seafarers detained concerning alleged crimes*

IMO adopted the Guidelines to protect seafarers from unfair treatment when detained in foreign jurisdictions concerning alleged crimes committed at sea.

The Guidelines aim to protect seafarers' rights and ensure they are treated fairly in all jurisdictions. It covered issues related to due process, protection from arbitrary detention, coercion, or intimidation, and ensuring that wages, medical care, and repatriation rights remain intact during any legal proceedings. It also urged the improvement of coordination among countries, including port States, flag States, coastal States, States of which the seafarer is a national, as well as shipowners and seafarers.

(3) Addressing the seafarer abandonment issue

IMO and the International Labour Organization (ILO) had set up a database (IMO/ILO joint database) on Abandonment of Seafarers, a collaborative effort to tackle the urgent problem of seafarers being abandoned in ports worldwide. According to the database, 310 new cases were reported in 2024, more than double the 142 cases recorded in 2023.

LEG 112 also urged Member States and stakeholders to implement the "Guidelines on how to deal with seafarer abandonment cases" (Resolution LEG.6(110)), emphasizing the development of national Standard Operating Procedures (SOPs) for flag States, port States, and countries of seafarers' nationality or residence.

(4) Approved the development of guidelines or best practices on ship registration

LEG 112 reaffirmed the importance of due diligence, transparency, and

convention/. The Texts of the Convention: 2010 HNS Convention Consolidated Text.

international cooperation to prevent fraudulent registries and false flags. From the report of the Correspondence Group established at LEG 110, the concerns were raised regarding the " Due Diligence" processes in the ship registration issues.

Most Member States confirmed that they review paper documents and verify information during ship registration, utilizing technical platforms for cross-verification to prevent the misuse of IMO identification numbers. However, systemic issues such as insufficient manpower, delays in information sharing, and complex ownership structures can be exploited by malicious actors to commit fraudulent registrations. To address these challenges, the Legal Committee agreed to continue its work on preventing fraudulent ship registrations and the misuse of IMO identification number schemes.

(5) Substandard shipping issue– new output approved for regulatory scoping exercises

LEG 112 had discussed the need to address the issue of substandard shipping regulatory scoping exercise (RSE), for the rise of cases on unlawful operations, which distort the global playing field and increase risks to safety, security, and the environment. Approved the proposal to conduct a regulatory scoping exercise to review IMO conventions and other tools available to Member States, with the aim of developing actions to prevent unlawful operations, including substandard shipping.

A correspondence group was established to start working on this new output, following approval of the IMO Council in July 2025.

(6) Revised the Maritime Autonomous Surface Ships (MASS) roadmap

LEG 112 continues to examine legal issues, particularly with the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which would be relevant, such as search and rescue obligations, jurisdiction over remote operations centers, workforce impacts, regulatory standardization, and liability frameworks.

LEG approved the report of the third meeting of the Joint MSC-LEG-FAL Working Group on MASS (MASS-JWG 3), held in May 2024. LEG also revised the Mass Road Map to comply with the MASS Road Map plan of the MSC 109, and extended the goal to 2027 (see Table 1):

Table 2 LEG 112 MASS Code Roadmap Working Plan

Meeting Date	Working Plan
LEG 112 (Spring, 2025)	1. Assess the finalized non-mandatory MASS Code and consider the need for amendments to, or interpretations of, treaties under the purview of the Legal Committee based on the outcomes of the MASS-JWG, MSC, and FAL; 2. Consider proposals to develop guidelines on the implementation of LEG instruments by MASS 3. Updated the Roadmap considering the need.
LEG 113 (Spring, 2026)	1. Assess the approved mandatory MASS Code and consider the need for amendments to, or interpretations of, treaties under the purview of the Legal Committee 2. Updated the Roadmap considering the need.
LEG 114 (Spring, 2027)	Adopt or approve amendments to, or interpretations of, treaties under the purview of the Legal Committee.

(Source: IMO LEG 112 meeting document: LEG 112/9/2 Annex.)

(7) Liability and compensation regimes for alternative fuels

The proposal received strong support, with members agreeing to include it in the 2026-2027 agenda. LEG 112 approved a new output on the Title: “Suitability of IMO liability and compensation regimes with respect to alternative fuels”. LEG will conduct a gap analysis to determine whether new legal instruments are necessary or if amendments to existing frameworks are sufficient, with a target completion year of 2027.

The new output will consider the continuing and widespread uptake of alternative fuels, including ammonia, methanol, hydrogen, biofuels, and liquified natural gas (LNG), which present different risks to those posed by traditional hydrocarbon mineral fuels, such as oil. The aim is to assess whether existing liability and compensation frameworks remain adequate.

5. Recommendations for LEG 112

- **On the Issues of the Substandard Ships, Illegal Activities, and Fraudulent Registrations:**

In response to address measurements to substandard ships, illegal activities, and

fraudulent ship registrations, the IMO Legal Committee decided to conduct a comprehensive review of the existing IMO conventions and regulations to identify potential loopholes within the current legal framework.

This review aims to develop feasible action plans to prevent unlawful maritime practices, such as vessels using false flags, fraudulent registrations, and evasion of safety and environmental requirements. Moreover, during the meeting, LEG 112 decided to develop guidelines or best practices on the registration of ships from 2026 to 2027.

Keep following the updates of the conventions and regulations and proposed countermeasures to effectively address the safety risks posed by substandard ships operating in the domestic area.

- **Liability and Compensation Issues Relevant to Alternative Fuels**

To achieve net-zero emissions by 2050, the maritime industry is making progress to adopt alternative fuels gradually and to ensure greenhouse gas (GHG) emissions reductions. Once the number of ships using alternative fuels grows, new problems and risks of maritime incidents may also increase, such as the fuel leak issue.

LEG 112 has addressed liability and compensation issues associated with alternative fuels, noting that the Hazardous and Noxious Substances (HNS) Convention encompasses compensation for damages resulting from spills of hazardous and noxious substances, including alternative fuels when transported as cargo.

For now, we should keep on following the updated progress and status of the 2010 HNS Convention. Once the HNS Convention entered into force, all ships carrying HNS, including alternative fuels, must possess mandatory insurance certificates.

At the same time, our authority should take concern with certain scenarios when they happen in the future. Once we do operate ships using alternative fuels, we will find a way to utilize new implementation, or add these types of vessels within the scope of mandatory insurance regulations.

6. Next Meeting Schedule

LEG 113 will take place in 2026; the date is still under confirmation.

7. References

- IMO, Legal Committee, 112th session (LEG 112), 24- 28 March 2025. https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/LEG-112th-session.aspx
- IMODOCS, LEG 112/WP.1/Rev.1.
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II. The Marine Environmental Protection Committee 83rd session (MEPC 83)

1. About MEPC[4]

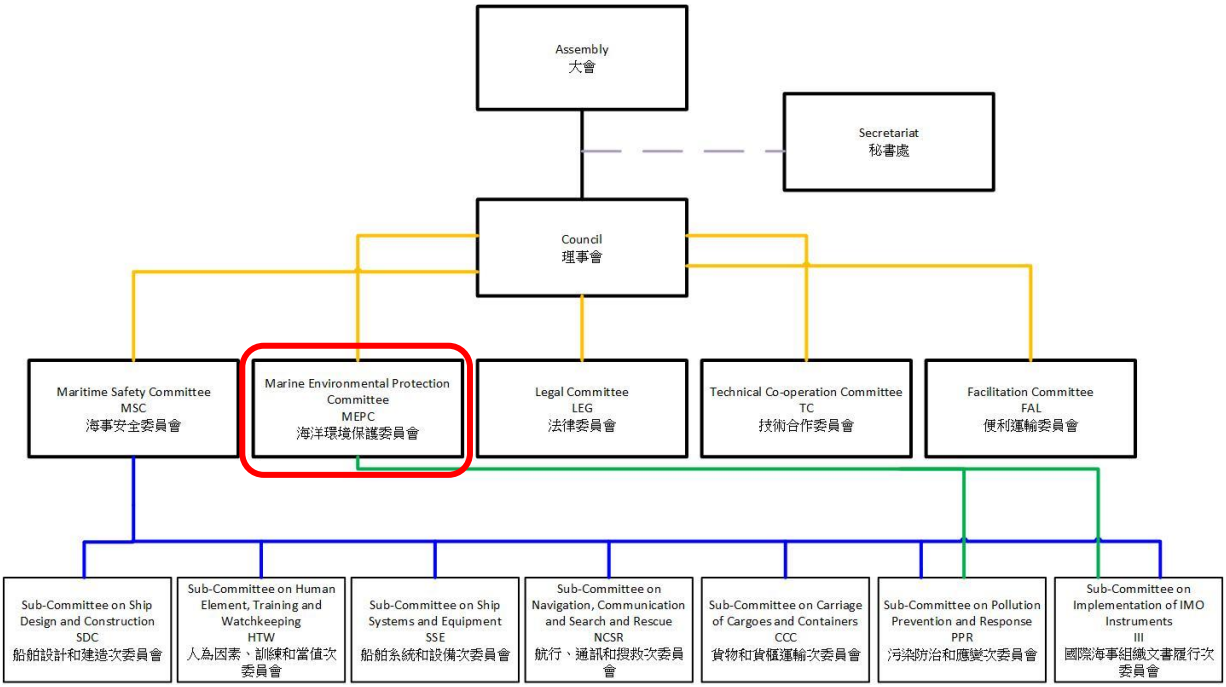

Figure 2 Organization Structure of IMO (FAL)

The Marine Environment Protection Committee (MEPC) is one of the 5 Committees of the IMO. MEPC mainly deals with matters related to the marine environmental issues, such as the control and prevention of ship-source pollution covered by the International Convention for the Prevention of Pollution from Ship (MARPOL) treaty, including oil, chemicals carried in bulk, sewage, garbage, and emissions from ships, including air pollutants and greenhouse gas emissions. Other matters covered include ballast water management, anti-fouling systems, ship recycling, pollution preparedness and response, and identification of special areas and particularly sensitive sea areas (PSSA)[5].

[4] IMO. Marine Environment Protection Committee (MEPC). https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/MEPC-default.aspx

[5] The Particularly Sensitive Sea Area (PSSA) is an area that needs special protection through action by IMO because of its significance for recognized ecological or socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities. The standards for the identification of particularly sensitive sea areas and the criteria for the designation of special areas are not mutually exclusive. In many cases a Particularly Sensitive Sea Area may be identified within a Special Area and vice versa.

2. MEPC 83 Highlights

(1) Approved the Mid-term measures draft legal text as a new chapter in Annex VI to the MARPOL Convention with a view to adoption at an extraordinary session of MEPC in October 2025 (MEPC/ES.2), and expected entry into force on 1 March 2027.

(2) Finalized Phase 1 of the Short-term measures for reducing GHG emissions from international shipping, amendments to the Carbon intensity (CII) reduction factors for 2027-2030 adopted;

(3) Agreed to update the data in the IMO data collection system (DCS) on ship fuel consumption;

(4) Adopted amendments to MARPOL Annex VI and the NOx Technical Code to allow for the use of multiple engine operational profiles;

(5) Guidelines for the development of the Inventory of Hazardous Materials (IHM);

(6) Agreed to an experience-building phase for the Hong Kong Convention on ship recycling

(7) Approved the including the development of a legally binding instrument on biofouling Convention on Biofouling

3. MEPC 83 Agenda

Table 3 MEPC 83 Agenda

Item No.	Agenda
1	Adoption of the agenda
2	Decisions of other IMO bodies
3	Consideration and adoption of proposed amendments to the Convention
4	Harmful aquatic organisms in ballast water
5	Air pollution prevention
6	Energy efficiency of ships
7	Reduction of GHG emissions from ships

8	Follow-up work emanating from the Action Plan to Address Marine Plastic Litter from Ships
9	Experience-building phase for the reduction of underwater radiated noise from shipping
10	Pollution prevention and response
11	Reports of other sub-committees
12	Identification and protection of Special Areas, ECAs and PSSAs
13	Application of the Committees' method of work
14	Work programme of the Committee and subsidiary bodies
15	Election of the Chair and Vice-Chair for 2026
16	Any other business
17	Consideration of the report of the Committee

(Source: IMO document MEPC 83/1/1)

4. MEPC 83 Meeting Summaries[6]

MEPC 83 was held at the IMO Headquarters in London from April 7 to 11, 2025, with a hybrid function (both online and in-person) meeting. During the meeting, there are 2 Working Groups (WG 1, WG 2) and 1 Drafting Group (DG 1), a Technical Group (TG 1), and a Review Group (RG 1) established as follows:

- Working Group on Air Pollution and Energy Efficiency (WG 1);
- Working Group on Reduction of GHG Emissions from Ships (WG 2);
- Drafting Group on Amendments to Mandatory Instruments (DG 1);
- Technical Group on the Designation of PSSA and ECAs (TG 1) and Ballast Water Review Group (RG 1)。

(1) Amendments to NOx Technical Code

MEPC 83 adopted the amendments to the *NOx Technical Code 2008* related to the following:

[6] IMO. Marine Environment Protection Committee (MEPC 83), 7 to 11 April 2025 https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/MEPC-83rd-session.aspx

①. allowed the use of multiple engine operational profiles for a marine diesel engine, including clarifying engine test cycles (expected entry into force 1 March 2027);

②. related to the certification of an engine subject to substantial modification or being certified to a tier to which the engine had not been certified at the time of its installation (expected entry into force 1 September 2026).

The amendments will allow ships to optimize fuel consumption based on their operational profile, thus improving energy efficiency, while ensuring compliance with NOx emission requirements.

(2) Ballast Water Management (BWM) Convention

MEPC 83 has continued its ongoing review of the Ballast Water Management (BWM) Conventions, which included stocktaking of the progress made and consideration of the way forward regarding the overall plan for completion of the review. Some high-level decisions are needed to facilitate the achievement of the review targets.

MEPC 83 had re-established the Correspondence Group on Review of the BWM Convention to finalize draft amendments to mandatory provisions of the Convention (including the regulations and appendices in the Annex to the Convention, and BWMs Code) for submission to MEPC 84 for approval, and be adopted by MEPC 85. The revision of existing and the development of new guidelines are expected to be completed before the amendments enter into force.

(3) Air pollution prevention

MEPC 83 discussed the outcomes of the Sub-Committee on Pollution Prevention and Response 12th session (PPR 12), particularly on the Exhaust Gas Cleaning Systems (EGCS), NOx emission, and Black Carbon emission.

①. Exhaust Gas Cleaning Systems (scrubbers)

MEPC 83 noted an update from the Sub-Committee on Pollution Prevention and Response (PPR) meeting on regulating the discharge from EGCS or "scrubbers". Interested Member States and international organizations were invited to submit new proposals on regulatory measures addressing the matter to PPR 13 in early

2026.

MEPC 83 re-established the Group of Experts on the Scientific Aspects of Maritime Environmental Protection (GESAMP) Task Team on EGCS to develop a standard methodology for the development of data sets and calculation of emission factors for use in the environmental risk assessment of the discharge water from EGCS. Its findings will be reported to PPR 13.

②. **Black Carbon emissions**

MEPC 83 noted the ongoing work on the concept of "polar fuels" (refer to the fuels that are most suitable for use in the Arctic to minimize environmental impact) and extended the target completion year to 2027 for further development of the concept for this output.

③. **Nitrogen Oxide (NOx) emissions**

MEPC 83 adopted the 2025 Guidelines on Selective Catalytic Reduction (SCR) Systems which are active emission control technology systems to reduce NOx emissions.

(4) Onboard Carbon Capture and Storage (OCCS) and other energy efficiency matters

MEPC 83 adopted new Guidelines for testbed and onboard measurements of methane (CH4) and/or nitrous oxide (N2O) emissions from marine diesel engines.

On the other hand, MEPC 83 re-established the Correspondence Group on Measurement and Verification, which will further develop the framework for the measurement and verification of actual methane (CH4) and nitrous oxide (N2O) emission factors and fuel slippage values for marine diesel fuels; and develop a regulatory framework for the use of onboard carbon capture and storage using the approved work plan. The outcomes of the Group will be reported to MEPC 84.

(5) Report on the annual carbon intensity and efficiency of the fleet

MEPC 83 noted the report by the IMO Secretariat on the carbon intensity of the international shipping fleet for the year 2023 (both in the aspect of demand and supply-based), including a summary of carbon intensity developments of the fleet from 2019 to 2023. The report showed reductions in the carbon intensity of shipping ranging from 4.8% to 9.9% (depending on the method of calculation) from 2019 to 2023, and a decrease in total fuel consumption from 213 million tonnes in 2019 to 211 million tonnes in 2023 (see Figure 3).

Table 1: Average annual carbon intensity and percentage change compared to 2019

	Annual average carbon intensity and percentage change in carbon intensity compared to 2019						IMO DCS Fuel Consumption Report to Committee	
Year	AER		cgDIST		Estimated EEOI		Report to Committee	Total fuel consumption (tonnes)
2019	5.90	0.0%	8.44	0.0%	10.94	0.0%	MEPC 76/6/1	213 million
2020	5.83	-1.2%	8.24	-2.3%	10.92	-0.2%	MEPC 77/6/1	203 million
2021	5.89	-0.1%	8.34	-1.2%	10.90	-0.4%	MEPC 79/6/1	212 million
2022	5.66	-4.1%	8.05	-4.6%	10.89	-0.5%	MEPC 81/6	213 million
2023	5.32	-9.7%	7.60	-9.9%	10.42	-4.8%	MEPC 82/6/38	211 million

Figure 4 Average annual carbon intensity and percentage change compared to 2019

(Source: IMO document MEPC 83/6)

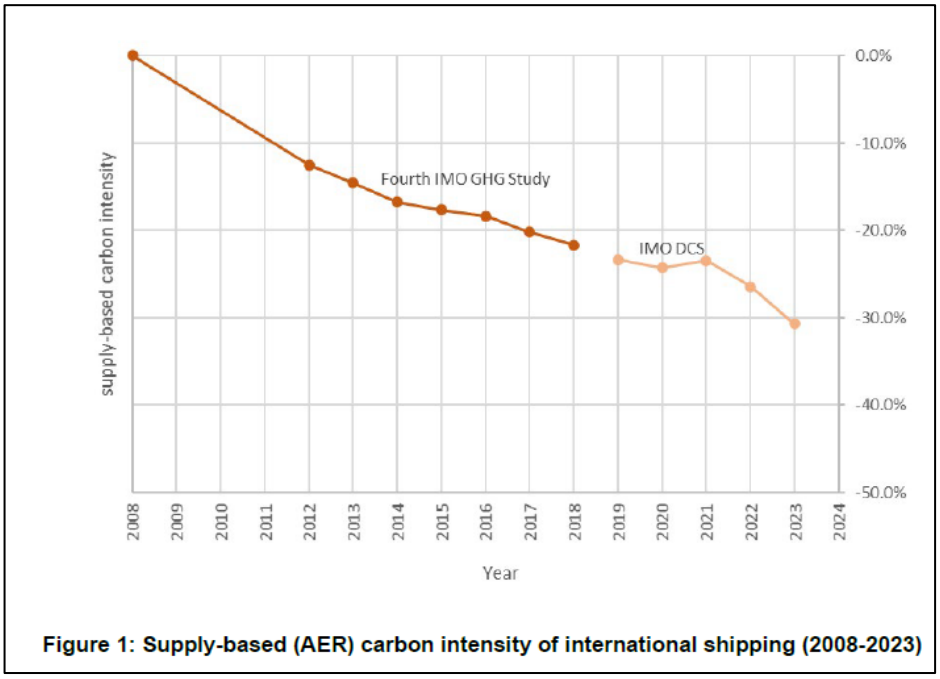

Figure 3 Supply-based carbon intensity of international shipping.

(Source: IMO document MEPC 83/6)

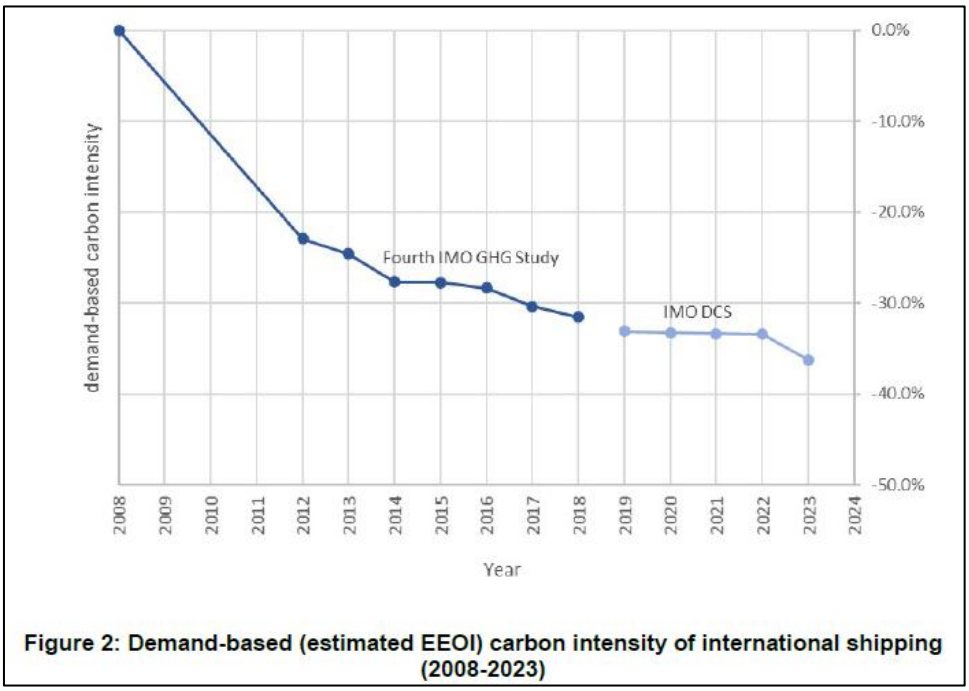

Figure 5 Demand-based carbon intensity of international shipping.

(Source: IMO document MEPC 83/6)

The report also revealed the average carbon intensity of shipping in 2023, comparing to the level in 2008; which depend on the method of the calculation, in the Supply-based carbon intensity of shipping has declined to 31% (Figure 4); and in Demand-based calculation, the shipping has fallen by 36.5% (see Figure 5).

(6) Addressed to climate change - Mid-term measures to reduce GHG emissions

In 2023, to reduce the greenhouse gas (GHG) emissions from international shipping and to reach the reduction targets set out in the 2023 IMO GHG Strategy, the IMO set out a Net-Zero Framework, which included a set of “Mid-term measures. ”

The measures consist of two elements:

①. a technical element: a goal-based marine fuel standard designed to gradually lower the GHG intensity of marine fuels; and

②. an economic element: a pricing mechanism for the shipping GHG emissions.

MEPC 83 had finalized and approved the draft legal text for the "IMO Net-Zero Framework", to be included as a new chapter in Annex VI to the International

Convention for the Prevention of Pollution from Ships (MARPOL). The amendments will be viewed and adopted by the MEPC extraordinary session meeting (MEPC/ES.2) in October.

After the adoption, the measures are expected to enter into force after 16 months under the "tacit acceptance" procedure, in accordance with the amendment provisions in MARPOL.

On the other hand, MEPC 83 had come to a consensus while in the period of time between the adoption of the Net-Zero Framework, and its entry into force, MEPC will keep on following and considering further assessment (as appropriate with both the qualitative and quantitative analysis) of the potential impact from the new marine fuels on food security.

(7) Review of the short-term measure to reduce GHG emissions

MEPC 83 had finalized Phase 1 of the review of IMO's short-term GHG reduction measures, which were adopted in 2021 and entered into force in 2022. The key elements in the short-term measures include:

- Energy Efficiency Existing Ship Index (EEXI);
- enhanced Ship Energy Efficiency Management Plan (SEEMP); and
- Carbon Intensity Indicator (CII) rating scheme.

These measures are based on improving ship energy efficiency and reducing carbon intensity by at least 40% by 2030 compared to 2008.

At MEPC 83, the further actions taken are as follows:

①. Carbon intensity (CII) reduction factors for 2027-2030

Adopted the amendments to the 2021 Guidelines on the operational carbon intensity reduction factors relative to reference lines (the CII reduction factors guidelines, G3). The guidelines had outlined the methods for determining the annual operational carbon intensity reduction factors and their values from 2023 to 2030, as referred to in Regulation 28 of MARPOL Annex VI. The new amendments had included the newly defined CII factors.

②. Access to the IMO Data Collection System for ship fuel consumption

MEPC 83 had approved draft amendments to Regulation 27 of MARPOL Annex VI to make the IMO's data collection system (IMO DCS) on ship fuel consumption more accessible to the public. The IMO DCS required ships to provide their report on fuel oil consumption for calculating ships' operational carbon intensity (CII).

The new amendment will ensure that all reported data in the IMO DCS is accessible to Parties to MARPOL Annex VI in a non-anonymized form, and the database will also allow the public to access it.

③. Agreed Workplan for Phase 2 of the review of short-term GHG reduction measures

MEPC 83 agreed on a work plan for Phase 2 of the review of the short-term GHG reduction measures, starting from Spring 2026 to Spring 2028. Phase 2 will look at enhancing the SEEMP framework, further developing CII metrics, as well as ensuring compliance with the IMO carbon intensity and energy efficiency framework and the IMO Net-Zero Framework.

④. Adopted amendments to the Ship Energy Efficiency Management Plan (SEEMP) framework

MEPC 83 adopted Amendments to the 2024 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP) (Res. MEPC.395(82)). Considering the possible demand for the development of other CII metrics in future MEPC meeting sessions.

(8) Addressing marine plastic litter from ships

MEPC 83 had adopted the 2025 Action Plan to Address Marine Plastic Litter from Ships (2025 Action Plan), which was agreed by PPR 12 (January 2025), and approved updated groupings of short-, mid and long-term actions under this plan.

The 2025 Action Plan may combine with the Strategy to Address Marine Plastic Litter from Ships in a single resolution in the future, once the Strategy has been reviewed and updated by the PPR subcommittee.

On the issue of the carriage of plastic pellets in freight containers by sea, MEPC noted

that PPR 12 included a dedicated action for the development of mandatory measures to reduce the environmental risks of plastic pellets transported by sea in freight containers in the above 2025 Action Plan.

(9) Pollution prevention and response

MEPC 83 reviewed and approved the report of the PPR12 (January 2025) and took the following actions:

①. approved the *Interim guidance on the carriage of blends of biofuels and MARPOL Annex I cargoes by conventional bunker ships*;

②. approved the *Guidance on in-water cleaning of ships' biofouling*; and

③. adopted amendments to the *2023 Guidelines for the development of the Inventory of Hazardous Materials*, clarifying the relevant threshold in respect to cybutryne when samples are taken from the wet paint containers. The material list is also a key requirement under the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (Hong Kong Convention).

(10) Reports of other Sub-Committees

MEPC 83 also reviewed and approved the reports from other Sub-Committees, including the Sub-Committees on Carriage of Cargoes and Containers (CCC 10) and Implementation of IMO Instruments (III 10), and considered action requested of it by the Sub-Committee on Ship Design and Construction (SDC 11). Specific actions are taken as follows:

①. Casualty analysis reports and derived statistics

MECP 83 agreed with the decision of MSC 109, endorsed the issuance of III.3/Circ.13 on Casualty analysis and statistics – observations on the quality of investigation reports.

②. *2025 Draft Code on Alerts and Indicators*

Approved the *draft Code on Alerts and Indicators, 2025*, but still needs a concurrent decision by MSC 110, *the draft 2025 Code*, and the associated draft

Assembly resolution, developed by SDC 11, for subsequent adoption by the IMO Assembly at its next session (A 34).

The new draft Code provides updated general design guidance and promotes uniformity for alerts and indicators required by *the International Convention for the Safety of Life at Sea* (1974 SOLAS Convention). It will include updated instruments and new developments in the industry since the 2009 Code on Alerts and Indicators (which was adopted by Res. A. 1021(26)).

(11) Emissions Control Area approved and Particularly Sensitive Sea Areas

The proposal of designating the North-East Atlantic Ocean as an Emissions Control Area for Sulphur oxide emissions (SOX), particulate matter (PM), and nitrogen oxide emissions (NOX) is approved. The draft amendments relevant to MARPOL Annex VI will be submitted to the extraordinary MEPC session (October 2025), with a view to being adopted as part of the revised MARPOL Annex VI.

MEPC 83 also agreed in principle to the designation of the “Reserva Nacional Dorsal de Nasca” and the "Reserva Nacional Mar Tropical de Grau" as Particularly Sensitive Sea Areas (PSSAs). MEPC also had invited Peru government to further develop the proposed associated protective measures and submit them to MEPC for further discussion.

(12) New outputs approved

①. Approved the assessment of the implementation of the Hong Kong Convention through an experience-building phase and development of clarifications and amendments to the Convention;

②. Developed a legally binding framework to regulate and manage the biofouling issue from ships, and to minimize the transfer of invasive aquatic species (IAS)

③. Review and amendment to the *NOx Technical Code 2008* to provide a means for certification of engines that operate on non-carbon-containing fuel or mixtures of carbon-containing and non-carbon-containing fuels; and

④. Development of Guidelines for managing the issue of ammonia effluent generated

by ships using ammonia as fuel.

5. Recommendations for MEPC 83

- Recalling that **the draft "IMO Net-Zero Framework**" has been approved by MEPC 83 and will be formally adopted during the upcoming extraordinary MEPC session (MEPC/ES.2) in October 2025, and is expected to enter into force in 2027. The amendments to MARPOL Annex VI will be included as a new chapter in which will introduce the "Mid-term measures", including technical and economic measures as well, aligning with the objectives set out in the 2023 IMO Strategy on Reduction of GHG Emissions from Ships.

  These measures will be mandatory for all ships over 5,000 gross tonnage (GT) engaged in international shipping routes, which collectively account for approximately 85% of total CO_2 emissions from international shipping. The detailed implementation guidelines are anticipated to be approved at MEPC 84 in 2026.

  Recommendations for our authorities:

  For regulatory review, assess and, if necessary, revise national regulations related to ship design, inspection, and operation to ensure alignment with the new IMO standards.

  For the carbon emission monitoring issue, evaluate the feasibility of establishing or enhancing systems for reporting and monitoring carbon emissions to maintain competitiveness in the maritime sector.

- **On the Marin Plastic issue**, this session MEPC had approved the draft *2025 Action Plan to Address Marine Plastic Litter from Ships*. This plan is expected to be integrated with the existing *Strategy to Address Marine Plastic Litter from Ships* into a single resolution in the future. The 2025 Action Plan will include a dedicated action aimed at addressing the issue of plastic pellets transported in shipping containers. This initiative seeks to develop mandatory measures to mitigate the environmental risks associated with the accidental release of plastic pellets into the marine environment.

  So far, Taiwan does not have specific regulations or penalties for shipping containers to address certain incidents, such as the leakage of plastic pellets, that happen during transport. However, some relevant existing laws that may still apply include *the Marine Pollution Control Act*, *the Regulations on the Carriage of Dangerous Goods Code by Ships*,

and *the Regulations on the Carriage of Solid Bulk Cargoes by Ships*.

Whether to set up new standards or certain regulations to prevent the issue of the leakage of plastic pellets, the authority should consider the issue with relevant government departments and agencies, and continue to follow the development of these mandatory measures from IMO, and make further decisions to take part in Taiwan's legal framework.

6. Next Meeting Schedule

The extraordinary meeting MEPC/ES.2 will be held from October 14 to 17; while the MEPC 84 will take place in April 2026, from 27th to 1st May.

7. References

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- Lloyd's Register (LR), MEPC 83 Summary Report. https://maritime.lr.org/MEPC-83-Summary-Report
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