Briefings of IMO Meeting
MEPC 78 (6 – 10 June 2022)

BRIEFING STATUS

☐ *Flash*

☑ *Final*

Briefings of IMO Meeting are sequentially released by 2 steps as *Flash* - *Final*.

Ref.: IMO-0010-2022

Subject: News Final of MEPC 78

The Marine Environment Protection Committee, its 78th session was held from 6 to 10 June 2022 via remote session. With respect to the decisions made by MEPC 78, we already published the MEPC 78 – News Flash containing information of the main and summarized outcomes from the Committee. Please be informed that News Final of MEPC 78 as 2nd step contains overall outcomes of the session and the recommended measures on those results.

1. Ballast Water Management Convention

1.1 Type approved BWMSs reported to MEPC 78 (total 3 units)

- CleanBallast® – Ocean Barrier System (Norway), Ecochlor® BWMS (Norway) and BIO-SEA® BWTS(France), they were type approved in accordance with BWMS Code adopted by resolution MEPC.300(72).

1.2 Guidance for the application of the BWM Convention to ships operating at ports with challenging water quality

- MEPC 77 had discussed that the ships may intake ballast water bypassing the BWMS when entering into a port area with high level of turbidity/total suspended solids (TSS) and then moving to an area where the BWMS can be operated to exchange ballast water using water treated by BWMS, while the Committee could not reach a consensus on the proposed guidance due to the divergent views raised in terms of regulatory, technical and safety implication of conducting BWE plus BWT.
- But, the Committee agreed upon the elements to be further considered with a view to finalizing the guidance, which include the focus as to identifying situations where water quality inoperable due to TSS and turbidity, the approach similar to the contingency measures in the context of BWM.2/Circ.62 and the consultation with the Administration and/or port Authorities in case of BWE plus BWT, etc.
- MEPC 78 continued its consideration with following proposals and information:

.1 Whether BWE + BWT approach when operating at ports with challenging water quality should be considered as a part of EBP subject to further consideration or not;

.2 Whether this approach should be addressed in the current guidance on contingency measures (BWM.2/Circ.62) or new guidance to be developed; and

.3 Newly proposed ballast water exchange area, i.e., in the waters under the jurisdiction of the port State away from the water area with challenging water quality if BWE according to regulation B-4.1.1, B-4.1.2 and B-4.2 are impossible, etc.

- MEPC 78 generally supported for the BWE+BWT approach, while couldn't reach a consensus as there were divergent views with as to challenging water quality conditions such as BWMS not able to operate due to challenging water quality, aspects of BWE+BWT such as port States determines where ballast water exchange could take place and whether operation in PCWQ and BWE+BWT can be considered as a contingency measure or are part of anticipated operation which should be approved in the BWMP. Thus, it was agreed to further discussion at MEPC 79.

1.3 Experience Building Phase (EBP)

- In accordance with the basic principle that ship owner who have already installed BWMS type approved in accordance with old G8 guidelines onboard should not be required to replace BWMS fitted onboard, for the life of the ship or the system, whichever comes first, due to occasional lack of efficacy for reasons that beyond the control of the ship owner and ship's crew, the purpose of the ballast water experience-building phase is to allow the MEPC to monitor the implementation of the Convention. In accordance with BWM.2/Circ.67/Rev.1 on data gathering and analysis plan for implementing EBP, it is structured as three stages: a data gathering stage, a data analysis stage, and a Convention review stage.

- MEPC 78 noted the key elements in the analysis report of EBP as follows:

.1 Data from 16,199 ships were collected by 21 flag States, and 13,971 ships were subject to D-2 standard (7,329 ships with BWMS, 93.6% used UV or electro-chlorination);

.2 Data from 45,710 surveys conducted from flag States with a total of 512 deficiencies, representing an estimated minimum 98.9% rate of compliance;

.3 The most frequent deficiencies were related to the recording of BWRB (greater than 70%), followed by crew unfamiliar with the BWMS and no valid certificate on board; and

.4 68% compliance with D-2 standard of the 123 detailed sampling and analysis. Failure to meet the D-2 standard were most common for the ≥50 μm organism size class. More than 80% failures were reported by the Administration and test facilities, etc.

- Taking also into account a proposal to develop a Convention Review Plan that could take into account the data analysis report, establish a clear scope for a feasible Convention review, focus attention on priority issues, and update the timeline for

completing the EBP, MEPC 78 agreed to develop a BWM Convention Review Plan (CRP) to identify the overarching issues, inter alia, areas for improving BWMS performance and reliability, including crew training and maintenance. A correspondence group was established to progress this task and its report will be submitted to MEPC 80 (July 2023). This agreement also means that the EBP for the BWM Convention was extended by autumn 2026 and the non-penalization of early-mover was also extended to the end of EBP.

1.4 Temporary storage of treated sewage and grey water in the ballast water tanks under BWM Convention

- Given that many ships in service have a need to store treated sewage or grey water in a ballast water tank due to port State requirements, MEPC 78 considered a proposal asking clarifications as to whether temporary storage of treated sewage or grey water in a ballast water tank is permitted or not, if permitted, as to whether it is to be a guidance as an MEPC Circular or amendments to MARPOL Annex IV and BWM Convention to reflect this permission.
- After consideration, MEPC 78 agreed that ballast water discharges from ballast tanks used also for other purposes should be compliant with the BWM Convention, while other issues should be addressed in the context of MARPOL Annex IV. But, due to the time constraints, the Committee couldn't confirm whether the temporary storage of treated sewage and gray water in the ballast water tanks can be allowed or not. The Committee also invited to submit concrete proposals on additional aspects for guidance on this matter under BWM Convention and MARPOL Annex IV.

1.5 Unified Interpretation of appendix I to the BWM Convention (Form of IBWM Certificate)

- Taking into account that amendments to the BWM Convention on the form of IBWM Certificate were adopted by Res.MEPC.325(75), MEPC 78 considered an outcome from PPR 9 Sub-Committee containing unified interpretations on how to complete the section of "other approach in accordance with regulation XX" in the IBWM Certificate.
- After consideration, MEPC 78 approved BWM.2/Circ.66/Rev.3 providing a unified interpretation which includes how to complete the Certificate for a ship which is occasionally engaged in an international voyage in accordance with BWM.2/Circ.52/Rev.1; granted an exemption in accordance with regulation A-4 of the Convention; fitted with a BWMS but using other methods as contingency measures; and has employed an "other

approach" in accordance with regulation B-3.6 and 3.7. The interpretation also includes a case where the Administration require the ships to carry IBWM Certificate in accordance with regulation A-5 (equivalent).

1.6 Revised Guidance on methodologies that may be used for enumerating viable organisms for type approval of ballast water management systems

- MEPC 78 approved BWM.2/Circ.61/Rev.1 containing a revision to the Guidance on methodologies that may be used for enumerating viable organisms for type approval of BWMS, and it provides the updated reference for examples of 'MPN + Mobility' method's application.

1.7 Revised Guidelines for re-evaluation of BWMS after final approval

- MEPC 78 approved the revised Guidelines for re-evaluation of BWMS after final approval as BWM.2/Circ.13/Rev.5 to provide a new chapter 12 containing guidance for addressing the potential need for re-evaluation of modified BWMSs which had already been granted a final approval. New chapter 12 provides guidelines for determining whether re-evaluation after a modification is required, including identifying all parameters such as changes to the Active Substance, its dose, filtration, neutralization, TRO sensor, etc. for which modifications could influence the outcome of the risk assessment for the environment, human health or ship safety.

1.8 Considerations for ship owners, builders and related stakeholders

- Regarding the guidance for the application of the BWM Convention to ships operating at ports with challenging water quality referred in paragraph 1.2 above, given that there may be some countries or port authorities accepting BWE + BWT as their national legislation and/or port regulations despite no decisions taken from MEPC yet, interested parties are invited to consult with the port authorities to ensure the smooth implementation of the Convention in case of the event. For more detailed instruction, please refer to previous Technical Information (2019-IMO-06, para.6).

- Regarding the temporary storage of treated sewage and grey water in the ballast water tanks referred in paragraph 1.4 above, given that the Committee couldn't confirm whether the temporary storage of treated sewage and gray water in the ballast water tanks can be allowed or not, it is invited to keep the current practices unless expressly provided otherwise by the Administrations and watching the discussion progress in the future on

this matter.

- Regarding the unified interpretation to the form of IBWM Certificate referred in paragraph 1.5 above, it is particularly noted that the Certificate will be notated with 'other approach in accordance with regulation D-1 taking into account BWM.2/Circ.52/Rev.1' for a ship which is occasionally engaged in an international voyage in accordance with BWM.2/Circ.52/Rev.1.

2. Air Pollution and Energy Efficiency Regulation

2.1 Evaluation and harmonization of rules and guidance on the discharge of discharge water from EGCS into the aquatic environment, including conditions and areas

- EGCS discharge water contains various contaminants such as Sulphur oxides, Nitrogen oxides and other mixtures originated from the engine's exhaust gas. It is noted that the mixtures of compounds when discharged overboard were identified to have negative impacts on the marine environment. Accordingly, many countries have been regulating the discharge of wash water from open-loop scrubber in their territorial water and port limits via their national legislation.

- In this context, recognizing the need for uniform and clear regulatory measures to manage the environmental and economic impacts both for the industry and countries, MEPC 77 approved the draft revised title and scope of work on *"Evaluation and harmonization of rules and guidance on the discharge of discharge water from EGCS into the aquatic environment, including conditions and areas"*, with a target completion year of 2022.

- MEPC 78 considered the outcomes from PPR 9, inter alia, draft *Guidelines for risk and impact assessments of the discharge water from EGCS* and draft *Guidance regarding the delivery of EGCS residues and stored discharge water to port reception facilities*, and approved MEPC.1/Circ.899 and MEPC.1/Circ.900, respectively. These guidelines are for flag Administrations which intend to carry out a risk assessment of the discharge of EGCS discharge water and are of a voluntary nature, with following elements:

.1 The former guidelines are for member States when undertaking risk assessments to ascertain whether EGCS discharge water can be discharged in their port limits. The member States that have undertaken risk assessments should notify the Organization of the result of the assessments together with the notification of local regulations on the discharges of discharge water from EGCSs; and

.2 The latter guidance refers that ships fitted with EGCS should keep their discharge water in dedicated holding tanks for delivery to port reception facilities in the port areas where the discharge of EGCS discharge water is prohibited. It also refers that residues generated by the EGCS should also be delivered to the reception facilities, and port States should provide adequate reception facilities for this purpose.

- MEPC 78 further agreed to keep the guidelines under review in light of experience gained, in particular, inclusion of default emission factors of the various compounds for environmental risk assessment and further consideration by GESAMP for the criteria provided in section 7 (Impact Assessment).

2.2 Bio-fuel Blends

- There have been the concerns with the application of regulation 18.3.2.2 of MARPOL Annex VI, which stipulating that fuel oil derived by methods other than petroleum refining shall not cause an engine to exceed the applicable NOx limit set force in regulation 13 of MARPOL Annex VI. This means that onboard NOx verification should be conducted by ships when using a biofuel blends or the use of biofuel blends should be accepted by the Administration on a case by case basis in accordance with regulation 3.2 of MARPOL Annex VI. Moreover, there are difficulties on validating the impact on the original NOx certification process applied by the engine designer.

- To this end, MEPC 78 approved MEPC.1/Circ.795/Rev.6 containing unified interpretations to regulation 18.3 of MARPOL Annex VI. It stipulates that a marine diesel engine certified for NOx requirements which can use a fuel oil blending of less than 30% by volume of biofuel should be permitted to use such a fuel oil without onboard NOx verification. In case where fuel oils are derived from methods other than petroleum refining or fuel oil blending of more than 30% by volume of biofuel, the onboard simplified measurement method or direct method in accordance with NOx Technical Code 2008 should be conducted.

- MEPC 78 agreed to further consider the remaining issues on biofuel blends, i.e. consequential amendments to MARPOL Annex VI and NOx Technical Code 2008 so as to add the legal clarity on the sustainable use of biofuel blends and to ensure a more straightforward application of these regulations at MEPC 79.

2.3 Unified Interpretation to the NOx Technical Code 2008

- paragraph 4.3.8.2.4 of NOx Technical Code 2008 refers that the number of cylinders is to

be common with the Engine Family of a SCR-fitted engine, while MEPC 76 approved a unified interpretation to MEPC.1/Circ.895 which clarifying that the number of cylinders for engines, which are equipped with SCR in engine group, does not necessarily have to be the same.

- Given that it is possible to include different cylinder numbers within an Engine Family with SCR if the engine manufacturer has provided clear evidence that the number of cylinders gas has no negative impact on the NOx emissions, MEPC 78 approved revised unified interpretation to MEPC.1/Circ.895/Rev.1, which stipulating that different numbers and arrangements of cylinders for Engine Family concept could be allowed where there is clear evidence of no negative impact on the NOx emissions to be provided by applicants.

2.4 Amendments to Appendix V of MARPOL Annex VI (flashpoint in Bunker Delivery Note)

- Given the decision taken from MSC 105 in relation to the approval of draft amendments to SOLAS II-2 on development of further measures to enhance the safety of ships relating to the use of fuel oil, MEPC 78 approved, with a view to adoption by MEPC 79, draft amendments to Appendix V of MARPOL Annex VI to add the flashpoint or a statement that flashpoint has been measured at or above 70ºC to be reported in BDN.

2.5 Considerations for ship owners, builders and related stakeholders

- Regarding the guidance on discharge of discharge water from EGCS referred in paragraph 2.1 above, while the guidance provides IMO member States and industries with the criteria to evaluate its harmfulness in a scientific and objective manner, it is not yet confirmed as to whether each port area currently regulating the discharge of wash water from EGCS eases their regulation or not. Thus, subject to the compliance with each port regulation, readers are invited to particularly note the environmental risk assessment for the EGCS discharge water to be conducted by the port Authorities and its consequential revision or withdrawal of their regulations in the future.

- Regarding the Bio-fuel Blends referred in paragraph 2.2 above, for the use of fuel oil blending of less than 30% by volume of biofuel, it should be noted that onboard engines certified in accordance with the requirements of regulation 13 of MARPOL Annex VI should have no changes to its NOx critical components or settings/operating values outside those as given by that engine's approved Technical File, and those fuel oils should be certified with the bunker delivery note along with the detailed information to identify whether, and to what extent, a biofuel is blended into the product as supplied.

3. Reduction of GHG emission from ships

3.1 Outcome of 11th meeting of the Intersessional Working Group on Reduction of GHG Emissions from Ships (ISWG-GHG 11)

- ISWG-GHG 11 was held via a virtual meeting from 14~18 March 2022 to continue the development of life cycle GHG/Carbon intensity guidelines for all relevant types of fuels.

- The group agreed to consider the following key issues with respect to the scope of the guidelines such as Well-to-Tank(WtT)[1] and Tank-to-Propeller(TtP)[2] GHG emissions related to all fuels used for combustion for propulsion and operation onboard a ship, with a view to providing further guidance for the remaining work, noting also that these issues were different in nature and complexity:

.1 It was agreed that LCA guidelines would be developed as a stand-alone technical tool, which should not prejudge the development of future GHG reduction measure, and it should refrain from suggesting amendments to existing IMO regulations such as, e.g. the Bunker Delivery Note or the Ship Fuel Oil Consumption Data Collection System;

.2 It was agreed to further work on the relevant sustainability criteria and Fuel Lifecycle Label (FLL), while recognizing the needed work on the issues: whether to include sustainability criteria and FLL in a distinct chapter in the guidelines: whether to use qualitative and/or quantitative assessment for identifying sustainability criteria also taking into account existing practice, e.g. CORCIA by ICAO: how to ensure that the sustainability issues are addressed in a scientifically robust manner: and how to deal with documentation and verification aspects;

.3 In considering priority fuels and typical production pathway, while it was concerned that the identification of "priority" fuel should be further considered by experts group in this fields, it was agreed that "initial" feedstocks represented the current and future marine fuels, which substantial information and data was already available, and it would not be considered as "priority" fuels to avoid discriminating against other possible feedstocks and pathways;

[1] **Well-To-Tank** emissions factor, also known as upstream or indirect emissions, is an average of all the GHG emissions released into the atmosphere from the production, processing and delivery of a fuel or energy vector.

[2] **Tank-To-Wake(Propeller)** emissions factor, also known as downstream or direct emissions, is an average of all the GHG emission released into the atmosphere from a fuel consumption to operate a ship.

.4 In considering how to determine default values of emission factors for fuels, it was agreed that draft LCA guidelines should contain default values but further work was needed on the development of relevant methodologies for defining default values by experts group or activity via intersessional work such as correspondence group;

.5 In considering verification and certification scheme for actual GHG emissions, it was agreed that draft LCA guidelines would also benefit from the inclusion of relevant guidance on defining actual GHG emissions since it would allow fuel providers to apply real emission values instead of default emission values; and

.6 Noting the urgent need for further work on the various key issues for LCA guidelines, it was agreed to establish a correspondence group as the most effective way to advance these work as this platform would facilitate the engagement of the relevant experts.

- Give the outcomes from ISWG-GHG 11, MEPC 78 agreed to establish a correspondence group to further develop draft LCA guidelines, and requested the group to submit an interim report to MEPC 79 and a final report to MEPC 80.

- MEPC 78 further agreed that the following proposals are referred to the correspondence group for further consideration:

.1 The measurement of actual methane slip emission from LNG dual fuel engines in terms of Tank-to-Wake (TtW) emission factors by using the relevant procedures specified in the NOx Technical Code 2008; and

.2 How to calculate Well-to-Tank (WtT) carbon dioxide equivalent emissions from marine fuels using both 100-year GWP (Global Warming Potential) and 20-years GWP for comparative purposes as part of the LCA Guideline, as well as the inclusion of "Black Carbon" into the category of GHG substances.

- Recalling that the attained annual operational carbon intensity indicator before any correction factor or voyage adjustment should also be submitted to the IMO DCS Database to track the carbon intensity trends in international shipping, the group further considered a proposal to amend appendix IX of MARPOL Annex VI to include more information on the ship's carbon intensity performance. The group agreed with the proposed amendments to MARPOL Annex VI in principle, further noted that approval of these amendments at MEPC 78 and adoption at MEPC 79 are important so that data could be provided to support the effective implementation of the CII and EEXI requirements and will ensure timely reporting of relevant data in early 2024 (2023 data to be reported in early 2024).

- Give the outcomes from ISWG-GHG 11, MEPC 78 approved draft amendments to Appendix IX of MARPOL Annex VI to include more information on the ship's carbon intensity performance in the IMO DCS Database, with a view to adoption at MEPC 79.

3.2 Outcome of 12th meeting of the Intersessional Working Group on Reduction of GHG Emissions from Ships (ISWG-GHG 12)

- ISWG-GHG 12 was held via a virtual meeting from 16~20 May 2022 to consider the final report of the Correspondence Group in Carbon Intensity Reduction (correction factors and voyage adjustment in relation to the calculation of attained CII values) and the mid- and long-term GHG reduction measures.

- In considering the final report of the Correspondence Group in Carbon Intensity Reduction (correction factors and voyage adjustment in relation to the calculation of attained CII values), the group agreed, in principle, that:

.1 The SEEMP related guidelines, i.e. 2022 Guidelines for the development of a SEEMP (amending Res.MEPC.291(71)) including part III for ship operational carbon intensity as well as the clarifications on speed optimization for LNG Carriers and additional methods for measuring fuel consumption for ships using LNG and or other cargo as fuels, and Guidelines for the verification and company audits by the Administration of the SEEMP Part III including the verification scheme for initial, periodical, additional and company audits were finalized with a view to adoption at MEPC 78;

.2 IMO DCS Database related guidelines, i.e. 2022 Guidelines for Administration verification of ship fuel oil consumption data and operational carbon intensity (amending Res.MEPC.292(71)), 2022 Guidelines for the development and management of the IMO Ship Fuel Oil Consumption Database (amending Res.MEPC.293(71)) and MEPC Circular on the Procedure on Submission of data to the IMO data collection system of fuel oil consumption of ships from a State not Party to MARPOL Annex VI (revising MEPC.1/Circ.871) were finalized with a view adoption at MEPC 78. The updated Guidelines also provide how to verify attained CII values in case of change of ship's DWT and ship owners/flag, and inclusion of more information on the ship's carbon intensity performance;

.3 PSC related Guidelines, the group noted divergent views as to whether it should be regarded as a detainable deficiency if the CII implementation plan and/or the plan of corrective actions for the ships rated as D for 3 consecutive years or rated as E are not implemented at the time of the inspection;

.4 CII related Guidelines, i.e. 2022 interim Guidelines on Correction Factors and Voyage Adjustments for CII Calculation (G5 guidelines), 2022 Guidelines on CII calculation methods (amending Res.MEPC.336(76)), 2022 Guidelines on the Reference Lines for use with CII (amending Res.MEPC.337(76)) and 2022 Guidelines on CII Rating of Ships (amending Res.MEPC.339(76)) were finalized with a view to adoption at MEPC 78. The updated Guidelines provide how to apply correction factors and voyage adjustment against the values calculated in accordance with G1 Guidelines as well as modification of transport work metric for Ro-Ro cargo ship, and reference line values and *dd* vector for Ro-Ro cargo and passenger ships;

.5 EEXI related Guidelines to updates on in-service performance measurements to determine a reference speed (V_{ref}) in the EEXI framework, i.e. 2022 Guidelines on the method of calculation of the attained EEXI (amending Res.MEPC.332(76)), 2022 Guidelines on Survey and Certification of the attained EEXI (amending Res.MEPC.333(76)) and MEPC Circular on Guidance on methods, procedures and verification of in-service performance measurements were finalized with a view to adoption at MEPC 78;

- Given the outcomes from ISWG-GHG 12, MEPC 78 adopted revised SEEMP, EEXI and CII related guidelines as follows:

.1 SEEMP related Guidelines

Resolution	Title	Remark
Res.MEPC.346(78)	2022 Guidelines for the Development of a Ship Energy Efficiency Management Plan (SEEMP)	All affected ships should update their SEEMP to include Part III to establish the Ship Operational Carbon Intensity Plan and receive a Confirmation of Compliance (CoC) by the end of 2022. A new SEEMP format and CoC were also provided in the Guidelines.
Res.MEPC.347(78)	2022 Guidelines for the Verification and Company Audits by the Administrations for Part III of the Ship Energy Efficiency Plan (SEEMP)	

.2 IMO DCS related Guidelines

Resolution	Title	Remark
Res.MEPC.348(78)	2022 Guidelines for Administration Verification of Ship Fuel Oil Consumption Data and Operational Carbon Intensity	On an annual basis, the attained annual operational Carbon Intensity Indicators should be documented and verified against the required annual operational CII to determine the operational carbon intensity rating for each ship. All relevant information on the implementation of CII requirements should also be reported to IMO DCS Data in addition to the current reporting of fuel
Res.MEPC.349(78)	2022 Guidelines for the Development and Management of the IMO Ship Fuel Oil Consumption Database	
MEPC.1/Circ.901	Guidance for submission of data to the IMO data collection system of fuel oil consumption of ships from a State not	

	Party to MARPOL Annex VI	oil consumption data.

.3 EEXI and CII related Guidelines

Resolution	Title	Remark
Res.MEPC.350(78)	Guidelines on the Method of Calculation of the Attained Energy Efficiency Existing Ship Index (EEXI)	For cases where the speed-power curve is not available or the sea trial report does not contain the EEDI or design load draught condition, the ship speed (V_{ref}) can be obtained from the in-service performance measurement method for the purpose of EEXI calculation. Further detailed methods and procedures are provided in the associated guidance.
Res.MEPC.351(78)	2022 Guidelines on Survey and Certification of the Attained Energy Efficiency Existing Ship Index (EEXI)	
MEPC.1/Circ.902	Guidance on methods, procedures and verification of in-service performance measurements	
Res.MEPC.352(78)	2022 Guidelines on Operational Carbon Intensity Indicators and the Calculation Methods (CII Calculation, G1)	The updated Guidelines specify that GT instead of DWT as a Capacity for Ro-Ro Cargo ships, revised reference lines values (combination carrier, Ro-Ro Cargo Ship, Ro-Ro Vehicle Carrier and Ro-Ro Passenger Ship), new reference line for High-Speed Craft, and revised rating boundaries for Ro-Ro cargo and passenger ships.
Res.MEPC.353(78)	2022 Guidelines on the Reference Lines for use with Operational Carbon Intensity Indicators (CII Reference Lines, G2)	
Res.MEPC.354(78)	2022 Guidelines on the Operational Carbon Intensity Rating of Ships (CII Rating, G4)	
Res.MEPC.355(78)	2022 Interim Guidelines on Correction factors and Voyage Adjustments for CII Calculation (CII guidelines, G5)	It clarifies how to apply voyage adjustment subject to regulation 3.1 of MARPOL Annex VI, corrections relating to shuttle tanker or STS voyages for tankers, electrical power, boiler fuel consumption, and EEDI/EEXI correction factors.

- In considering the concrete proposals for mid- and long-term measures and associated impact assessments in the context of Phase I of the Work plan as well as the proposal to establish an International Maritime Research Board (IMRB), the group agreed that:

.1 Recalling that the phase of collation and initial consideration of proposals for mid-term measures is due to be completed by spring 2022 before giving way to the assessment and selection of measure to further develop (Phase II) in accordance with the work plan for development of mid- and long-term measures as a follow-up action of the initial IMO Strategy on reduction of GHG emissions from ships approved at MEPC 76, the group considered, inter alia, the pros and cons of the proposed measures as follows:

Ref.: IMO-0010-2022

Proposal	Concept	Advantage	Disadvantage
GFS (GHG Fuel Standard)	Limitation of ship's average Well to Wake GHG emission intensity(MJ/gCO_{2eq}) based on the annual fuel oil use with phased reinforcement	It is possible to confirm GHG reduction targets and project supply and costs of low and zero carbon fuel	It is difficult to procure funds for supporting developing countries and development of zero carbon technologies as it is not a fund based measure, and there is no incentives for first mover
ETS (Emission Cap and Trade)	Each ship will be given emission allowances by IMO, and the ship purchases the allowances in the carbon emission market if emitting in excess of the allocation	By regulating total amount of GHG from ships, it is possible to monitor whether clear reduction targets are achieved. The incentives for First Mover and facilitating the funds such as auction are possible	It is difficult to predict carbon price as its price is determined by the market, and unstable carbon prices cause uncertainty in investment (new builds and technology development) and administrative burden
GHG Levy	A system in which a certain amount (carbon price) per GHG emission is imposed to the ships, and managing the funds established by this way	It is easier to implement than emission trading system, generate substantial amount of funds depending on carbon prices, promote the transition to strengthen the market competitiveness of low and zero carbon fuels, and expand investment by industry due to constant and predictable carbon prices	It is difficult to confirm whether the reduction target is achieved (no direct correlation with reduction of GHG from shipping), and the agreement on carbon prices may be difficult since the IMO determines the carbon prices through the discussion in a policy and political manner
ZEV (Zero Emission Vessel) incentive	A certain amount per emission (carbon price) is imposed to the ships, and direct incentives by offering (rebate) some of funds raised to the shipping companies purchasing zero carbon fuels	It is possible to compensate for gap in fuel price at carbon prices lower than GHG levy. It is possible to revitalize investment (new builds and R&D) in the industries as carbon prices are low	Its definition (ZEV) should be provided, and it is difficult to confirm whether GHG reduction target has been achieved
IMSR (International Maritime Sustainability Funding and Reward)	Revenues are collected from the ships rated as D and E by using the CII rating system, and contributions are provided to ships rated as A and B. 5% incentives are further provided to ships	By imposing contributions on the ships rated as D and E, uncertainty about ship's sustainable operation can be mitigated, and CII mechanism can be utilized in the medium and long term	The applicability is limited to the ships to which CII requirements apply, and operational efficiency can be improved by low-speed operation rather than fuel conversion, which may delay

	entering and leaving the ports located at developing countries that are negatively impacted in terms of GHG reduction measures		the introduction of zero carbon ships
Basket of Measures	To compensate for the flaws of each measure, technical measure (GFS) and market based measure (GHG Levy or ETS) are combined together	The flaws of the carbon levy, which is difficult to confirm whether the reduction target has been achieved, can be supplemented by GFS. There's less administrative burden compared to ETS	The flaws of the ETS, which is difficult to invest due to unstable carbon prices, cannot be compensated. There's more administrative burden compared to carbon levy
IMRB (International Maritime Research and Development Board)	Ships charge 2 dollars per ton of fuel oil purchased, and the funds collected will be used for the development of technologies related to zero carbon ships, fuels and infrastructure	Continuous discussion and improvement make it more complete in terms of implementation of the system, and process for managing the funds raised is possible	It is unlikely to be adopted as a single measure and is likely to be considered as a way to use the funds raised for market based measures (ETS and GHG Levy)

.2 After in-depth consideration, the group agreed that all of these proposals contain valuable elements to be further considered and analyzed under Phase II of the work plan and support, in general, the further development of a "basket of candidate mid-term measures", integrating both various technical and carbon pricing elements while recognizing the necessary flexibility mechanisms.

- Given the outcomes from ISWG-GHG 12 in relation to mid- and long-term measures, MEPC 78 agreed to advance to Phase II of the work plan for further development of a "basket of candidate mid-term measure" and invited proponents of measure to submit new documents to 13th meeting of ISWG-GHG with a view to exploring how different of these proposals could be combined in the context of a basket of mid-term measures.

3.3 Revision of the Initial IMO GHG Strategy and 2050 level of ambition

- Recalling that MEPC 77 agreed to initiate the revision of the Initial IMO Strategy on Reduction of GHG Emissions from ships in accordance with the timeline described in the Programme of follow-up actions of the Initial IMO Strategy on Reduction of GHG Emissions from Ships and agreed that a final draft of the Revised Strategy should be adopted at MEPC 80 during Spring 2023, MEPC 78 considered several proposals and information to revise the Initial IMO GHG Strategy and 2050 level of ambition as follows:

.1 Amending the current Strategy to reflect a higher ambition of net-zero emissions from

international shipping to encourage the uptake of various zero carbon fuels and technologies with a view to achieving the 1.5°C temperature goals which are aligned with the Paris Agreement and the Glasgow Climate Pact[3] reached at COP 26;

.2 Consideration on a thorough impact assessment on developing countries, particularly SIDS and LDCs, and mitigation of any potential negative impacts on international shipping;

.3 Revision to 2030 target and additional 2040 target to steer the shipping sector on a 1.5°C aligned pathway to zero-emission as well as new formulations for the levels of ambition, such as percentage share of the deep-sea fleet that runs on zero-emission fuels (e.g. 5% in 2030 and 50% in 2040);

.4 The Sixth Assessment Report of the IPCC (Intergovernmental Panel on Climate Change) suggests that a higher ambition from the current IMO initial strategy should be introduced in order to not exceed 1.5°C above pre-industrial levels;

.5 The ship type-wise approach according to the "polluter pays" principle to ensure that some ship types which emit more GHGs than other ship types reach to net-zero; and

.6 Holding an exclusive intersessional working group between MEPC 78 and MEPC 79 to develop a revised Strategy using the Initial IMO Strategy on reduction of GHG from ships (Res.MEPC.304(72)) as a basis;

- MEPC 78 couldn't reach a consensus on the proposals above, while the Committee extensively considered the views with respect to the inclusion of a specific date of no later than 2050 to phase out GHG emissions from international shipping, the revisions of other parts of the Initial Strategy such as the possible strengthening of the level of ambition for 2030 and new introduction of an additional progress checkpoint in 2040, and thorough impact assessment on developing countries, particularly Small Island Developing Countries (SIDC) and Least Developed Countries (LDCs) as well as mitigation against any potential negative impacts of global shipping. In particular, there were split views between those calling for full decarbonization by 2050 and those calling for further assessments on feasibility and impacts on states prior to any decisions on the revision of IMO Strategy.

- Thus, MEPC 78 agreed to continue its discussion at 13th ISWG-GHG with a view to continuing the consideration of how to pursue efforts to phase out GHG emissions from international shipping with more concrete proposals on the revision of IMO Initial GHG

[3] The **Glasgow Climate Pact** which is an agreement reached at the 2021 United Nations Climate Change Conference (COP 26) is the first climate agreement explicitly planning to reduce unabated coal usage as well as a commitment to climate finance for developing countries. During COP 26, some declarations and pledges that would lead the shipping industry towards net zero emissions in 2050 such as Clydebank declaration, Declaration on zero emission shipping by 2050, CVF (Climate Vulnerable Forum) Dhaka-Glasgow declaration, etc. were presented.

Strategy.

3.4 Onboard CO_2 capture (CO_2 removal)

- MEPC 76 considered a proposal to reflect CO_2 capture in the Guidelines for CII calculations as one of GHG emissions reduction technologies, while the Committee agreed not to reflect it since the technology was not deeded mature enough to be integrated in the CII framework.
- In this connection, MEPC 78 considered a proposal suggesting options to reflect CO_2 emission reduction by onboard CO_2 capture system by amending the current EEDI and EEXI calculation formulas.
- Due to time constraints, MEPC 78 briefly considered this proposal and noted the views that, in particular, further work and more data from onboard CO_2 capture technologies are needed with a view to incorporating the effect of this technology into the framework of EEDI, EEXI and CII, while this technology should be addressed by operational measures such as IMO DCS and LCA guidelines rather than EEDI/EEXI that are design related.
- MEPC 78 couldn't reach a consensus on the proposal, and invited interested member States and organizations to submit more information and concrete proposals to future session for further consideration.

3.5 Considerations for ship owners, builders and related stakeholders

- Taking into account that the discussions on development of life cycle GHG/Carbon intensity guidelines for all relevant types of fuels, mid- and long-term GHG reduction measures, and revision of the Initial IMO GHG Strategy and 2050 level of ambition will be continued by future ISWG-GHG and MEPC meeting, readers are invited to note future discussion progress with following terms of references and agendas of ISWG-GHG:

ISWG-GHG 13 (scheduled from 5 to 9 December 2022)

.1 Completion of lesson-learned exercise of the comprehensive impact assessment of the short-term measure;

.2 Revision of the Initial IMO GHG Strategy and 2050 level of ambition;

.3 Consideration of concrete proposals for mid- and long-term measures, as well as the proposal to establish an International Maritime Research Board (IMRB);

.4 Further consideration of concrete proposals on how to keep the impacts of the short-term measure under review;

.5 Development of draft lifecycle GHG and carbon intensity guidelines for maritime fuels;

.6 Consideration of proposals for the revision of the ship fuel oil consumption Data Collection System (DCS).

- Above all, taking into account that the EEXI and CII requirements will effective in January 2023, the previous technical information titled 'Guidelines for the implementation of EEXI regulation' and 'Preparation for implementation of SEEMP Part III development and verification' is attached. Thus, readers are invited to make best efforts to prepare for the implementation of the relevant requirements in due courses.

4. Adoption and Amendments to MARPOL Convention

4.1 MEPC 78 adopted Res.MEPC.343(78) and Res.MEPC.345(78) containing draft amendments to MARPOL Annex I and IBC Code in relation to the watertight door for oil and chemical tankers, and these amendments will enter into force on 1 January 2024 (MARPOL Annex I) and 1 July 2024 (IBC Code), respectively.

- It has been revised to align the SOLAS and MSC.1/Circ.1572/Rev.1, taking into account the types of watertight doors (Remotely operated sliding door, Sliding door, Hinged door) fitted on watertight bulkhead for cargo ships depend on the frequency of use while at sea (Used, Normally closed, Permanently closed), but regulation 28.3.1 of MARPOL Annex I for oil tankers and regulation 2.9.2 of IBC Code for chemical tankers only stated as to remotely operated sliding door as used while at sea. In addition, it was decided to apply it to all ships (new and existing ship) taking into account the amendments will have no impact on existing ships.

4.2 MEPC 78 adopted Res.MEPC.344(78) containing draft amendments to MARPOL Annex II in relation to the GESAMP hazard evaluation procedure, and these amendments will enter into force on 1 November 2023.

- This was to reflect two changes in the GESAMP Hazard Profile, namely sub-categorization of column C3 and the reassignment of column E1, in accordance with the finalized GESAMP Reports and Studies No.102.

5. Marine Plastic Litter from ships

5.1 MEPC 73 adopted Res.MEPC.310(73) containing an action plan for preventing marine plastic litter entering the oceans through ship-based activities, and the action plan

includes various aspects such as reduction of marine plastic litter generated from fishing vessels, reduction of shipping's contribution to marine plastic litter and improvement of the effectiveness of port reception facilities and treatment in reducing marine plastic litter, etc. Under this plan, IMO will undertake a review of the Action Plan to assess the need for updating actions and/or incorporating new actions to the plan annually and a comprehensive review to assess the effectiveness of the actions after five years.

- For the purpose of continuing the discussion, MEPC 78 noted following information for reinforcement of the measures to prevent and minimize marine plastic litter as follows:

.1 Potential engagement of an external expert to review the terms of references for the IMO Study on Marine Plastic Litter; and

.2 Experience on the phased reduction on usage and carriage of materials made of single-use plastics and findings which are relevant to particular short-, mid- and long-term actions in accordance with Res.MEPC.341(77).

5.2 Marking of fishing gear

- There have been divergent views on the marking of fishing gear. Some delegations were in support of making this approach mandatory, while others expressing reservations from a technical and legal perspective of doing so since fishing gear in use was not classed as garbage and hence MARPOL Annex V was not the appropriate instrument to regulate fishing gear. Moreover, there were also the views that voluntary IMO instruments such as guidelines could act as alternative means to address this issue.

- In this regard, having noted that PPR 9 agreed to develop an MEPC Circular as a short-term measure to promote the implementation of fishing gear marking systems and the technical manual on marking of fishing gear is being developed by FAO, MEPC 78 agreed to instruct PPR Sub-Committee to develop draft amendments to MARPOL Annex V and associated Guidelines to make marking of fishing gear mandatory and an MEPC Circular to promote the implementation of fishing gear marking as a short-term measure.

5.3 Draft amendments to MARPOL Annex V making Garbage Record Book mandatory for ships of 100 GT and above

- MEPC 78 approved draft amendments to MARPOL Annex V making Garbage Record Book mandatory for ships of 100 GT and above, so as to further reduce shipping's contribution to marine plastic litter and ensure the enhanced implementation of garbage management, with a view to adoption at MEPC 79.

5.4 Plastic pellets transported by ships

- An incident of MV X-Press Pearl off the coast of Sri Lanka which created 11,000 tonnes of plastic pellets spills and raised a consequential need to establish international guidelines and requirements for loading, unloading and clear labelling of containers carrying plastic pellets.
- MEPC 78 noted that PPR 9 invited member States and international organization to submit proposals on best practices related to response to and the clean-up of plastic pellet spills to future session of PPR Sub-Committee and agreed to establish a correspondence group to further consider all possible options to how to reduce the environmental risk of plastic pellets transported by ships.

6. Reports of Sub-Committees

6.1 Draft amendments to MARPOL Annex I and the draft 2020 IBTS (Integrated Bilge Water Treatment System) Guidelines

- PPR 7 developed draft MEPC Circular on the 2020 Guidelines for systems for handling oily wastes in machinery spaces of ships incorporating guidance notes for an integrated bilge water treatment system (IBTS), draft amendments to appendix II (Form of the IOPP certificate and Supplement), appendix III (Form of Oil Record Book) of MARPOL Annex I and draft revised Oil Record Book recording guidance.
- But, there were remaining concerns over the management of oily bilge water by evaporation and its acceptability from a legal perspective. Some expressed that specifying permitted methods of disposal of oily bilge water by evaporation and the resultant amendments to the Form of IOPP Certificate and Oil Record Book was inconsistent with the purpose of MARPOL Annex I, while others expressed that it can ensure transparency and accuracy in recording details on the management of oily bilge water on ships. Moreover, there was a view that the acceptance or prohibition of bilge water management by evaporation should clearly be provided in the MARPOL Annex I.
- After consideration, MEPC 78 agreed, in principle, that forced evaporation by heating of oily bilge water is acceptable as a means for the disposal of oily bilge water and invited proposals to 10th session of PPR Sub-Committee to add an appropriate regulation in MARPOL Annex I to reflect this understanding accordingly.

6.2 Guidelines for the implementation of amendments to IAFS Convention (Cybutryne)

- Given that MEPC 76 adopted Res.MEPC.331(76) providing draft amendments to the IAFS Convention for regulating Cybutryne contents contained in the anti-fouling system to be applied to the hull side of ships and PPR 9 finalized the development of its associated guidelines for supporting the implementation of those amendments to the Convention, MEPC 78 adopted updated guidelines as follows:

.1 Res.MEPC.356(78): 2022 Guidelines for brief sampling of anti-fouling systems on ships;

.2 Res.MEPC.357(78): 2022 Guidelines for inspection of anti-fouling systems on ships; and

.3 Res.MEPC.358(78): 2022 Guidelines for survey and certification of anti-fouling systems.

6.3 Draft amendments to MARPOL Annex I, II, IV, V and VI for port reception facilities in the Arctic region

- MEPC 78 approved draft amendments to MARPOL Annex I, II, IV, V and VI for port reception facilities in the Arctic region and consequential amendments to the 2012 Guidelines for the development of a regional reception facility plan (Res.MEPC.221(63)) with a view to adoption at MEPC 79. These amendments were based on that regional arrangements only between ports within Arctic waters may not be practical due to the various environmental, geographical and infrastructure limitations relevant to the region, and thus, more feasible solutions for Regional Ships Waste Reception Centers (RSWRC) could be in the form of larger more industrialized ports in the surrounding coastlines which would cause ships to take a different route purely for accessing port reception facilities.

6.4 Considerations for ship owners, builders and related stakeholders

- Regarding the guidelines for the implementation of amendments to IAFS Convention EGCS referred in paragraph 6.2 above, taking into account that ships shall not apply or re-apply anti-fouling system containing Cybutryne as of 1 January 2023 and the ships bearing anti-fouling system containing Cybutryne applied before 1 January 2023 are required to remove the system or apply sealer coating no later than 60 months following the last application of the system, ship owners, builders and related stakeholders are recommended to scrutinize whether an anti-fouling system applied previously to the ships are containing Cybutryne or not, contacting to the anti-fouling system manufacturers, etc.

- According to paragraph 4.2 of 2022 Guidelines for survey and certification of anti-fouling systems on ships (Res.MEPC.358(78)), it is noted that surveys for Cybutryne may

also be complemented by a declaration and supporting information from the anti-fouling system manufacturer, confirming that the anti-fouling system applied, or intended to be applied to the ship is in compliance with the requirements of the Convention.

- Readers are invited to note that a further technical information will be published to support the implementation of revised IAFS Convention.

7. Designation of the Mediterranean Sea as an Emission Control Area for Sulphur Oxides

7.1 MEPC 78 considered a proposal to designate the Mediterranean Sea as an Emission Control Area for Sulphur Oxides under the MARPOL Annex VI. Given that the sea area proposed is recognized to an area of significant shipping activities which pose a risk to the diverse natural marine habitat as well as large marine mammals, a feasibility study conducted in accordance with criteria in Appendix III of MARPOL Annex VI was submitted to the Committee by a group of member States surrounding this area.

- During consideration, there were divergent views exchanged as to whether or not data sets used for investigations which were based on two year (2016 and 2017) are the latest data; the modelling employed is conservative; availability and safety of using compliant fuel (0.1% in ECA) would be an issue; and non-Parties to MARPOL Annex VI can propose their sea area as an ECA under MARPOL Annex VI from a legal perspective, etc.

- After consideration, MEPC 78 approved draft amendments to MARPOL Annex VI designating Mediterranean Sea as an Emission Control Area for Sulphur Oxides with a view to adoption at MEPC 79. Bearing also in mind that the effective date of Emission Control Area was proposed to 1 January 2025, but the earliest possible effective date would be in the middle of 2025 in accordance with amendment procedures of MARPOL Convention and 1 year grace period for Emission Control Area in accordance with regulation 14.7, the effective date will be revisited at MEPC 79.

8. New Work Programme

8.1 MEPC 78 approved a new output on the development of a practical guide on the development of local-level marine spill contingency plans to support key Authorities to effectively implement the OPRC Convention, assigning the PPR Sub-Committee as the associated organ.

8.2 MEPC 78 agreed to amend the title of the existing output 1.26 to "Revision of MARPOL Annex IV and associate guidelines" and expand the scope to amend the definition of "person" as provided in MARPOL Annex IV, taking into account persons other than crew and passengers. It is noted that the definition of "person" in MARPOL Annex IV would be closely relating to the total capacity of sewage treatment plant or sewage holding tank.

8.3 MEPC 78 considered a proposal to expand the scope of the existing output 7.11 on Development of measure to reduce risks of use and carriage of heavy fuel oil as fuel by ships in Arctic waters, to include an upper pour point limit HFO in regulation 43.1.2 of MARPOL Annex I. Having considered technical views that the introduction of a pour point limit might affect the availability of distillate fuels, black carbon emissions, and might increase leakage of fuel oil in the event of a ship sinking or sustaining damage to its hull, MEPC 78 forwarded to PPR 10 to further consider this proposal with a view to advising the Committee on how best to proceed. - The end –

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