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REDUCTION OF GHG EMISSIONS FROM SHIPS

Supporting information on the calculation of annual GHG levy/contributions and rewards with regard to decisions requested with respect to draft guidelines for the administration of the maritime GHG emissions pricing mechanism

Submitted by Bahamas, Liberia and ICS

SUMMARY

Executive summary:	The co-sponsors provide comments on the calculation of annual GHG levy/contributions and rewards for different fuel types in support of the decisions requested of MEPC 83, as set out by the co-sponsors in document MEPC 83/7/6, with respect to the draft Guidelines for the administration of the maritime GHG emissions pricing mechanism by the IMO GHG Strategy Implementation Fund, and for determining the annual GHG levy/contribution and rewards for the use of eligible ZNZ fuels, energy sources and technologies as set out by the co-sponsors in document MEPC 83/7/5.
Strategic direction, if applicable:	3
Output:	3.2
Action to be taken:	Paragraph 29
Related documents:	MEPC 83/7/5, MEPC 83/7/6, MEPC 83/7/7; ISWG-GHG 18/2/5, ISWG-GHG 18/2/7; ISWG-GHG 17/2/5 and ISWG-GHG 17/2/12

Introduction

1 In document ISWG-GHG 18/2/5 (Austria et al.), the co-sponsors of that document (which include Bahamas, Liberia and ICS) set out a consolidated proposal, inter alia, for a maritime GHG emissions pricing mechanism, with the annex to the document containing draft amendments to MARPOL Annex VI requiring an annual GHG levy/contribution to be made by ships per tonne of CO_2e, emitted via an IMO GHG Strategy Implementation Fund.

2 The annex to document MEPC 83/7/5 (Bahamas et al.) sets out suggested draft Guidelines for the administration of the maritime GHG emissions pricing mechanism by the IMO GHG Strategy Implementation Fund, and for determining the annual GHG levy/contribution and rewards for the use of eligible ZNZ fuels, energy sources and

technologies, for adoption at MEPC/ES.2 concurrently with the amendments to MARPOL Annex VI. To demonstrate how these draft guidelines could be implemented, the Committee is invited to explore an updated prototype of the web-based GHG levy/contribution and reward system, submitted in document ISWG-GHG 18/2/7 (ICS), and presented here.

3 The co-sponsors suggest that the Committee should focus on finalizing the text of the draft amendments to MARPOL Annex VI for approval. The implementation guidelines, such as those suggested in the annex to document MEPC 83/7/5, do not need to be finalized until MEPC/ES.2. Nevertheless, as set out in document MEPC 83/7/6 (Bahamas et al.), the co-sponsors request MEPC 83 to make some important decisions about the content of the guidelines - to support the approval of the amendments to MARPOL Annex VI at MEPC 83 and the finalization of the guidelines at MEPC/ES.2, and to help ensure, when the amendments to MARPOL Annex VI are approved for circulation, that Parties to MARPOL Annex VI have a broad understanding of the final shape of the entire package to help expedite adoption at MEPC/ES.2.

4 The following paragraphs provide detailed comments in support of the decisions which the Committee is requested to make at MEPC 83, as set out by the co-sponsors in paragraph 6 of document MEPC 83/7/6, with regard to the calculation of annual GHG levy/contributions and rewards for the use of zero or near-zero (ZNZ) fuels.

5 Additional comment concerning treatment of life cycle emissions, biofuel blends and the use of ZNZ technologies, such as carbon capture, is provided in document MEPC 83/7/8.

Discussion

The need for IMO guidelines which set out the rate of the annual GHG levy/contribution per tonne of fuel consumed for different fuel types

6 In the annex to document ISWG-GHG 18/2/5 (Austria et al.) the proposed draft text in paragraph 4 of "Regulation X [*Economic mechanism(s) to incentivize the transition to net-zero*]" reads as follows:

> "The required annual GHG levy/contribution shall be set at a rate of [USD 18.75] calculation of the amount of GHG emissions under the required annual GHG levy/contribution [and the equivalent rates per tonne of fuel oil consumed*] shall be made taking into account guidelines adopted by the Organization."

7 The words "and the equivalent rates per tonne of fuel oil consumed", as set out above, are currently in square brackets. The co-sponsors suggest that it would be preferable for the square brackets to be removed from this regulation if approved at MEPC 83. As previously explained in document ISWG-GHG 17/2/5 (Bahamas et al.), it is very important that the shipping industry, its customers and energy suppliers have a clear understanding of the rate of the GHG levy/contribution expressed in US $ per tonne of fuel consumed. This is because, as well as the need to account for different types of marine fuel having different energy densities, different marine fuels have different CO_2e conversion factors, which, it is expected, for the purpose of effective and uniform implementation of the amendments to MARPOL Annex VI, will be determined, with clarity, by the next iteration of the *2024 Guidelines on life cycle GHG intensity of marine fuels* (2024 LCA Guidelines).

* The footnote [4] in document ISWG 18/2/5 reads as follows: "See guidelines to be developed by the Organization on the determination of the annual GHG levy/contribution for ships, to be adopted at the time of adoption of these amendments." The co-sponsors of this document (Bahamas, Liberia and ICS) set out a suggested draft of such guidelines in the annex to document MEPC 83/7/5.

8 While the MARPOL regulation should clearly set out the rate of the GHG levy/contribution per tonne of CO_2e emitted, it is emphasized that ships purchase tonnes of fuel, rather than tonnes of CO_2e, and in the interests of transparency and the efficient transfer of the cost of GHG levy/contributions along the transport chain, it is important that these costs for different fuel types are also expressed in the proposed IMO guidelines in terms of USD per tonne of fuel consumed.

9 If, for example, the initial GHG levy/contribution rate is set by the MARPOL regulation at USD 18.75 per tonne of CO_2e, and the agreed CO_2e conversion factor for diesel/gas oil (if so determined by the 2024 LCA Guidelines) is 3.2 (on a tank-to-wake basis), then the cost of the GHG levy/contribution for the CO_2e emitted per tonne of diesel/gas oil consumed should be set out clearly in the proposed IMO guidelines as being, in this case, equivalent to USD 60 per tonne of fuel consumed (USD 18.75 x 3.2 = USD 60).

10 Likewise, the cost of the annual GHG levy/contribution for the CO_2e emitted due to the consumption of marine fuel with a lower CO_2e conversion factor than diesel/gas oil should also be expressed in the IMO guidelines at the applicable equivalent rate per tonne of fuel consumed. If, for example, a (certificated) sustainable 24% biofuel blend (B24) was determined by the 2024 LCA Guidelines to have a CO_2e conversion factor of, say, 2.432, then the IMO guidelines should state clearly, for the benefit and information of all concerned, that the cost of the GHG levy/contribution will be equivalent to only USD 45.60 per tonne of 24% biofuel-diesel/gas oil blend, rather the USD 60 applicable (in this example) per tonne of conventional marine diesel/gas oil consumed due to its higher CO_2e conversion factor, subject to confirmation by the 2024 LCA Guidelines, of 3.2 (2.432/3.2 = 76%, 76% of USD 60 = USD 45.60).

11 The annex to document MEPC 83/7/5 sets out how the annual GHG levy/contribution rate per tonne of fuel consumed **for different fuel types** might be expressed in the proposed IMO guidelines to be approved at MEPC/ES.2 using the CO_2e conversion factors and energy densities of different fuel types as determined by the next iteration of the 2024 LCA Guidelines.

Calculation of annual rewards

12 As explained previously in document ISWG-GHG 17/2/5, the reward element is most important. As well as helping to de-risk expensive investment decisions which will incentivize the accelerated production and uptake of ZNZ fuels and technologies, it will allow the price gap to be reduced significantly without requiring the rate of the GHG levy/contribution to be set at a level which might lead to unacceptable disproportionately negative impacts (DNI), with the reward rate having a 'multiplier effect' on the ability of the agreed GHG levy/contribution rate to reduce the price gap.

13 In the annex to document ISWG-GHG 18/2/5 (Austria et al), the proposed draft text in paragraph 2 of "Regulation X [*Distribution of revenue*]", reads as follows:

> "From [August] 2028 and within [eight] months after the end of each subsequent calendar year until the uptake of eligible [ZNZ fuels] [ZNZs] in international shipping reaches [30%] and, at the latest, by 2040, each ship using eligible [ZNZ fuels] [ZNZs], considered on a lifecycle basis, shall receive, upon request, an annual financial reward ('annual reward')."

14 The co-sponsors of this document (Bahamas, Liberia and ICS) assert that the simplest and most effective way to calculate rewards for the use of eligible ZNZ fuels, energy sources and technologies is to base this on the **CO_2e emissions prevented** by their use compared to the CO_2e which would have been emitted had conventional liquid fuel oil been

consumed instead, which, for the purpose of the draft guidelines set out in the annex to document MEPC 83/7/5 is taken to be diesel/gas oil, i.e. a marine fuel with a CO_2e conversion factor of 4.0, on a well-to-wake basis (subject to confirmation of this conversion factor in the next version of the 2024 LCA Guidelines).

15 It is very important that the disbursement of rewards can be administered by the IMO GHG Strategy Implementation Fund based on verified data about the consumption by the ship of ZNZ fuels, which should be reported via the IMO Ship Fuel Consumption Database (IMO DCS) in the same way as conventional marine fuel oil is reported, which will require amendments to be made to regulation 27 of MARPOL Annex VI. To demonstrate how rewards could be readily administered by the IMO GHG Strategy Implementation Fund, please see document ISWG-GHG 18/2/7 (ICS) which contains a link to an updated prototype of the fully automated web-based contribution and reward system which will be administered by the IMO GHG Strategy Implementation Fund. For convenience the link to the updated prototype is included here.

16 It should be noted that during the initial years of implementation, the majority of ships using eligible ZNZ fuels will most likely be dual fuel ships which, during a calendar year (reference period) will continue to use conventional marine fuels. This means that the rewards for which such dual fuel ships may be eligible, based on consumption of ZNZ fuels during the previous calendar year, are unlikely to exceed the annual GHG levy/contributions which may still be due for the consumption of non-ZNZ fuels during the same reference period. It therefore makes sense for such dual fuel ships to receive their annual reward in the form of a reduction to the annual GHG levy/contribution required, i.e. a 'net contribution'. Again, to see how this would work in practice, the Committee is invited to explore the updated web-based prototype referred to in paragraph 15 above. However, any ship which primarily uses ZNZ fuel throughout a calendar year would receive a 'net reward', with no GHG levy/contributions being due.

17 The co-sponsors of this document emphasize and caution that alternative means of calculating the reward for the use of ZNZ fuels, such as comparing the price gap between different ZNZ fuels and different types of conventional marine fuel oil, would be highly impractical and could potentially lead to unfair competition and market distortion, complicating the transition to net-zero emissions, especially if such a price comparison was conducted on an annual basis so that the reward rate was adjusted on an annual basis too. It is emphasized that the price of conventional marine fuel varies considerably from port to port, and from region to region, while conventional marine fuel prices and thus differentials with ZNZ fuels are extremally variable and volatile, sometimes even on a seven-day basis. For evidence of this, the Committee is referred to document ISWG-GHG 16/2/2 (ICS), the annex to which contains data, provided by Clarksons Research, on marine fuel price volatility.

18 The challenge of establishing accurate prices for ZNZ fuels is even more problematic as the current availability of these fuels is extremely low/close to zero, with huge differences between prices under long term contracts and spot market prices. In short, at least for the first five years of implementation, the challenge to the Organization that would be involved in establishing a meaningful cost differential between different types of conventional marine fuels and ZNZ fuels would be enormous if not insurmountable, even more so if this very complex exercise was conducted on an annual basis. The outcome of such an exercise would also likely prove to be controversial, as demonstrated by the Comprehensive Impact Assessment.

19 For a reward programme to work effectively, so that it will immediately help to incentivize the production of ZNZ fuels, it needs to be as simple as possible rather than unnecessarily complicated. Moreover, if rewards are to be successful in accelerating the rapid uptake of ZNZ fuels, first movers will require a reward rate which will help de-risk their very expensive investment decisions, which means a reward rate guaranteed for a minimum five-year period, so that shipowners can negotiate long term contracts with energy suppliers.

20 In an ideal world, it might seem desirable to set a reward rate which might completely close the price gap with ZNZs. However, this has to be carefully balanced with the complexity of accurately identifying the cost gap with respect to such a wide variety of fuels at any given moment in time, with significant variation between different ports and regions, and – as highlighted by document ISWG-GHG 16/2/12 (Japan) – the important need to avoid the danger of 'over-rewarding' certain ZNZ fuels, which could create perverse incentives and would require setting of the reward rate at a level which would require the annual GHG levy/contribution rate to be set so high that DNI would be increased to unacceptable levels, or which would reduce the revenue available to support other important purposes of the IMO GHG Strategy Implementation Fund, such as maritime GHG reduction programmes in developing countries, including LDCs and SIDS.

21 The co-sponsors of this document therefore suggest that a pragmatic approach is needed. This is why an initial reward rate of about USD 100 per tonne of **CO_2e prevented** (on a life cycle basis) is the reward rate proposed for inclusion (in square brackets) in the draft guidelines set out in the annex to document MEPC 83/7/5. To help achieve the IMO level of ambition for at least 5-10% of the energy used by international shipping to come from ZNZ sources by 2030, the industry and energy producers need a clear signal to be agreed in 2025, in the form of a guaranteed reward rate for the use of ZNZs which will apply to any eligible ZNZs consumed between 2027 and 2028.

22 Recognizing that 'the best can sometimes be the enemy of the good', the co-sponsors reiterate the need to have a reward rate that is readily comprehensible to the shipping industry and energy producers, based on **CO_2e emissions prevented** compared to the use of conventional liquid fuel oil, which, to help de-risk expensive decisions, will provide a guaranteed minimum level of reward for a fixed period of at least five years.

23 Once the amendments to MARPOL Annex VI have entered into force and the reward mechanism has been established, the method of calculating rewards, and the level of the reward rate can be revisited, especially after the level of ambition for 5-10% of the energy used by international shipping to come from ZNZ sources has been achieved and a commercial market for ZNZ marine fuels has been established. But in the interest of quickly establishing a system which can immediately start incentivizing first movers globally, the co-sponsors strongly caution against too much complexity. The Committee should take a pragmatic approach and set a minimum reward rate for the use of ZNZs per tonne of CO_2e prevented, for example USD 100 per tonne of CO_2e prevented on a WTW basis, which can be costed relatively easier for the purpose of setting the GHG levy/contribution rate. While a reward rate of this order would not close the price gap completely (avoiding the risk of over rewarding the use of certain ZNZ fuels) it would still reduce the cost difference by almost USD 400 compared to the cost of a tonne of conventional marine fuel – a substantial incentive which will significantly help to de-risk investments in ZNZ marine fuels.

24 If the reward rate was set at, say, USD 100 per tonne of CO_2e prevented on a WTW basis, if, as required by the 2023 IMO GHG Strategy, between 5-10% of the energy used by international shipping was generated from ZNZs in any calendar year within the first five years of entry into force, the maximum total cost would be in the order of between about USD 5 billion to USD 10 billion per year, requiring a GHG levy/contribution rate of between about USD 10 and USD 20 per tonne of CO_2e emitted (equivalent to just over about USD 30 to USD 60 per tonne of conventional fuel oil consumed). If it was agreed that most of the revenue not used for rewards should be used for other disbursement purposes including support for developing countries – as set out in the draft regulations contained in the annex to document ISWG-GHG 18/2/5 (Austria et al.) – the amount available for these other disbursement purposes would be considerable (USD billions per year) as it is probably unlikely that even the 5% ZNZ energy target, let alone the 10% target, would be met in the earlier years of implementation, notwithstanding the efforts and commitment of all concerned to achieve this.

25 A final decision on the reward rate for the CO_2e emissions prevented by the use of ZNZ fuels would not need to be taken until MEPC/ES.2. Moreover, as this minimum reward rate would be set out in guidelines, as set out in the annex to document MEPC 83/7/5, rather than in the MARPOL regulation, the reward rate could, if necessary and appropriate, potentially be revised upwards by the Committee prior to entry into force of the MARPOL amendments.

The need to establish an individual account for each ship linked to the ship's IMO number

26 To administer the collection of annual GHG levy/contributions, it is important that the IMO GHG Strategy Implementation Fund establishes an individual account for each ship linked to the ship's unique IMO number, as the name of the ship, the flag State Administration and the company responsible for transmitting the annual GHG levy/contribution on behalf of the ship may change. A provision to this effect has therefore been included in the draft guidelines contained in the annex to document MEPC 83/7/5, and is also a feature of the web-based prototype of the automated contribution system referred to in paragraph 15 above.

Option for GHG levy/contributions to be made in advance instalments

27 In the annex to document ISWG-GHG 18/2/5 (Austria et al.) the consolidated proposed draft text in paragraph 8 of "Regulation X [*Economic mechanism(s) to incentivize the transition to net-zero*]" reads as follows:

> "The annual GHG levy/contribution can be provided in instalments in advance of the date specified in paragraph [7] or as a single payment, provided that the total amount of the required annual GHG levy/contribution for each reporting period is made by the date specified in paragraph [7]."

28 The co-sponsors confirm the importance of this provision for non-scheduled shipping services. The cost of the GHG levy/contribution is likely to be recovered by the shipping company from another entity, such as a charterer, which may be responsible for the cost of the marine fuel consumed, and there will be a lengthy time period, up to 18 months in some cases, between the time when fuel is consumed (and CO_2e is emitted) and when the annual GHG levy/contribution has to be transferred to the IMO GHG Strategy Implementation Fund. To see how this might be addressed, please explore the optional "pay as you go" facility of the updated prototype of the automated contribution system referred to in paragraph 15 above.

Action requested of the Committee

29 The Committee is invited to take account of the information set out in this document when considering the decisions to be made at MEPC 83, as requested by the co-sponsors in document MEPC 83/7/6, with regard to the way forward and the content of the draft "Guidelines for the administration of the maritime GHG emissions pricing mechanism by the IMO GHG Strategy Implementation Fund, and for determining the annual GHG levy/contribution and rewards for the use of eligible ZNZ fuels, energy sources and technologies" as set out by the co-sponsors in the annex to document MEPC 83/7/5.