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FURTHER CONSIDERATION OF A BASKET OF CANDIDATE MID-TERM MEASURES IN THE CONTEXT OF PHASE II OF THE WORK PLAN FOR THE DEVELOPMENT OF MID- AND LONG-TERM MEASURES

Refinements to IMSF&R (F&R) proposal using a flat rate contribution system, for consideration as a mid-term measure under phase II of the Work Plan, which combines core elements of proposals submitted under phase I

Submitted by ICS

SUMMARY

Executive summary:	To facilitate consensus, ICS suggests combining core elements of proposals submitted under phase I of the Work Plan for development in phase III, including potential ideas for a revised IMSF&R measure based on a flat rate contribution by ships (rather than using the CII framework). ICS considers the immediate need is to ensure that e.g. 5% of the energy used by shipping in 2030 could be produced from alternative fuels by narrowing the price gap with conventional fuels via a rewards programme for CO_2 emissions prevented by ships using "eligible alternative fuels" (whose definition can be decided in phase III). This would accelerate shipping's transition to new fuels to reach a 'take off' point on a pathway to full decarbonisation, whilst allowing the proposed contribution per tonne of CO_2 emitted to be set at a quantum which would avoid disproportionately negative impacts on States. Cognizant of CBDR-RC, as well as funding rewards, a proposed IMO Maritime Sustainability Fund (IMSF) could be used, inter alia, to expedite a fair and equitable transition. With political will, such a measure could be adopted by 2024.
Strategic direction, if applicable:	3
Output:	3.2
Action to be taken:	Paragraph 72
Related documents:	MEPC 78/17, MEPC 78/7/3, MEPC 78/7/5, MEPC 78/WP.6; ISWG-GHG 12/3/7, ISWG-GHG 12/3/8, ISWG-GHG 12/3/9, ISWG-GHG 12/3/10, ISWG-GHG 12/3/17; MEPC 77/7/1; MEPC 76/7/7, MEPC 76/7/12; MEPC 76/15/Add.2; ISWG-GHG 10/5/2

NEW TECHNOLOGIES FOR GREENER SHIPPING

INTRODUCTION

1 MEPC 78 endorsed the conclusion of ISWG-GHG 12 as set out in paragraph 105 of document MEPC 78/WP.6, in particular, that ISWG-GHG 12 had finalized the consideration of the various proposals for mid-term measures under phase I of the Work Plan for the development of mid-term measures and was now advancing to further development of a "basket of candidate mid-term measures" under phase II of the Work Plan (MEPC 78/17, paragraph 7.91).

2 MEPC 78 encouraged proponents of measures to work together intersessionally with a view to exploring how different elements of these proposals could be combined in the context of a basket of mid-term GHG reduction measures, and invited Member States and international organizations to submit new documents to a future session of ISWG-GHG, including refined proposals to that purpose (MEPC 78/17, paragraph 7.92).

3 The preference of ICS, as the basis of a mid-term measure which all sectors of the industry can accept, is for the development of a flat rate contribution system as set out in document ISWG-GHG 10/5/2 (ICS and INTERCARGO).

4 But to help facilitate consensus, and in response to the invitation from MEPC 78, and following consultations with the proponents of other measures, this document sets out (tentatively and provisionally) the potential core elements of a refined International Maritime Sustainability Funding and Reward (IMSF&R) mechanism, combined with a flat rate contribution system, as an economic measure to reduce GHG emissions from international shipping. For convenience, this is described as the fund and reward or 'F&R' mechanism.

5 Following consultation with proponents of previous proposals, these potential core elements seek to combine elements of proposals previously submitted under phase I of the Work Plan, in particular those set out in documents ISWG-GHG 12/3/17 (Japan), MEPC 76/7/12 (Marshall Islands and Solomon Islands) and ISWG-GHG 10/5/2 (ICS and INTERCARGO), in addition to those set out in document ISWG-GHG 12/3/9 (Argentina et al.) which proposed an IMSF&R (F&R) system.

6 It should be noted that whilst this suggestion for a refined 'F&R' proposal is presented as an economic measure which, ICS believes, subject to further consideration, could be adopted and implemented relatively quickly for adoption by 2024, this does not preclude further consideration of complementary technical measures that could address issues such as upstream emissions from fuels used by ships which have been proposed in the context of a 'basket' of mid-term measures, including the proposal for a Global GHG Fuel Standard (GFS) in document ISWG-GHG 12/3/3 (Austria et al) as may be elaborated in any further submissions to ISWG-GHG 13. However, rather than combining such a complementary technical measure with an economic measure within the same set of regulations, which would be significantly challenging to do from a drafting perspective, it is suggested (if the Committee decides to develop such a measure) that this should be developed in parallel to an economic measure as a separate chapter within MARPOL Annex VI. ICS also wishes to reiterate its comments about a potential GFS as set out in document ISWG-GHG 12/3/10.

7 ICS national shipowner associations are still giving careful consideration to the exact detail of how some of the suggested core elements for an economic measure might work, as set out in paragraph 33. However, as this complex negotiation has now moved into phase II which, in accordance with the Work Plan, must be completed by Spring 2023, the tentative/provisional ideas set out in this document are intended to help move the discussion forward.

Overview of a refined fund and reward (F&R) measure, using a flat rate contribution system

8 ICS welcomes document ISWG-GHG 12/3/9 (Argentina et al.) and its proposal for a funding and reward (IMSF&R) system, which is viewed by the industry as a constructive attempt to facilitate consensus which could contribute meaningfully to the achievement of the levels of ambition contained in the IMO GHG Strategy, whilst at the same time, to address concerns raised by many Member States, avoiding disproportionately negative impacts for States, particularly for developing countries including LDCs and SIDS, whilst also remaining cognizant of the CBDR-RC principle as reflected in the Initial Strategy[1].

9 However, ICS does have serious concerns about the proposed use of the Carbon Intensity Indicator (CII) framework within an economic measure, which were also shared by several Member States at ISWG-GHG 12. In combination with ICS's previous proposal for a flat rate contribution system, ICS wishes to suggest some refinements to the fund and reward proposal which could address these concerns whilst still allowing it to achieve the same objectives.

10 To address concerns raised at ISWG-GHG 12 and MEPC 78 about the importance of avoiding market distortion and a measure which is excessively complex, the following document seeks to identify core elements of a measure which, subject to agreement of the Committee, could be further developed and finalized under phase III of the Work Plan together with the necessary regulatory framework.

11 With political will, these potential core elements – as set out in paragraph 33 below – could realistically form the basis of an economic measure which could be adopted by the Committee in 2024, in advance of the anticipated implementation date for unilateral/regional measures which have been proposed outside of the Organization.

12 This document seeks to address comments made at ISWG-GHG 12, particularly in respect to reducing the complexity of the original IMSF&R proposal submitted as document ISWG-GHG 12/3/9 (Argentina et al.), by removing, as originally suggested, the use of CII rating boundaries to set contribution/reward benchmarks and by instead proposing that all ships, to which the measure applies, would make a flat rate contribution per tonne of CO_2 emitted to an IMO Maritime Sustainability Fund (IMSF), and that rewards should be limited to ships which use "eligible alternative fuels" calculated on the basis of the CO_2 emissions prevented through the use of such fuels.

13 Noting the importance which many Member States attach, for the moment at least, to the use of a tank-to-wake approach for the calculation of contributions and rewards, it is suggested that the complex issue of which alternative fuels might be eligible for rewards should be decided during phase III of the Work Plan, by which time work on the IMO lifecycle assessment (LCA) guidelines should be more advanced. The LCA guidelines could be relevant to the application of the measure (as may be decided) to the use, inter alia, of methanol, ammonia, hydrogen, sustainable biofuels and synthetic fuels. ICS currently remains neutral/undecided with regard to which types of alternative fuels should be eligible for rewards, and suggests that a means should also be found to reward CO_2 emissions prevented by use of technologies such as carbon capture and storage (CCS).

14 While ICS suggests the use, within a modified funding and reward measure, of a flat rate contribution system in the interest of keeping the measure relatively simple and to avoid market distortion, it is emphasised that this refined F&R measure should still be designed, as

[1] Resolution MEPC.304(72)

sought by Argentina et al. and many other Member States, to ensure that the quantum of the contribution by ships will avoid disproportionately negative impacts on States.

15 Subject to further consideration by ICS members, and taking account of the interventions made by Member States during phase II, for the reasons explained below, but primarily as a pragmatic approach to avoid excessive complexity, it is currently (but tentatively and provisionally) suggested that for the first five years of implementation of the F&R measure, the contributions and rewards should be calculated as CO_2 emitted/prevented on a tank-to-wake basis not least because enforcement under IMO provisions of upstream emissions is currently not possible and also politically difficult to agree as some Member States consider these come under their national jurisdiction. However, ICS will carefully consider the views of Member States and, in any event, it is suggested that this approach should be re-examined by IMO as part of a five year review, to be completed within three years of the measure entering into force. Moreover, during phase III of the Work Plan, ICS may yet modify its position on this issue, especially when the important work on the LCA guidelines is more advanced.

16 Taking account of the discussion at ISWG-GHG 12 and MEPC 78, ICS considers that to achieve the levels of ambition set by the IMO GHG Strategy, the immediate purpose of any economic measure should be to narrow the price gap between conventional fuel oil and those fuels that when combusted result in zero or low CO_2 being emitted by the ship, with the immediate goal of expediting the production and take-up of new fuels, to help ensure that e.g. 5%[2] of the energy used by international shipping in 2030, i.e. within 5 years of implementation of the measure, should be produced from alternative fuels (however these might be defined by the Organization during phase III) and which for the purpose of this measure and the refined rewards mechanism suggested are termed “eligible alternative fuels”. This would be with the goal of helping international shipping to reach a ‘take off’ point by 2030, as a vital step on a pathway to full decarbonisation.

17 Being cognizant of the CBDR-RC principle[3], as referred to in the IMO GHG Strategy, in addition to having a mechanism which can fund a rewards programme for the use of “eligible alternative fuels”, ICS also recognises the important need for the measure to generate sufficient funds to help expedite a fair and equitable transition in developing countries, in particular SIDS and LDCs, as well as supporting research, development and deployment (RD&D) of eligible alternative fuels and innovative technologies.

18 Based on ICS’s current understanding of document ISWG-GHG 12/3/9, ICS agrees with Argentina et al. that the immediate purpose of an F&R proposal should be to help narrow the price gap between conventional fuels and alternative fuels whilst, through the use of a rewards system, allowing the initial quantum of the contribution per tonne of CO_2 emitted to be set at a level which will avoid disproportionately negative trade impacts. However, given the need to avoid excessive complexity and the potential for market distortion, the easiest means of achieving this will be to develop a flat rate contribution system per tonne of CO_2 emitted using the existing Fuel Oil Data Collection System (DCS), with rewards being limited to the use of “eligible alternative fuels”, the consumption of which can also be reported using the DCS.

19 Given the urgent need for the MEPC to adopt an economic measure as soon as possible, the core elements of this refined IMSF&R (F&R) proposal are intended to allow the measure to be as simple as possible to implement, minimising the administrative burden for

[2] This would broadly be in line with the goals of Mission Innovation’s ‘Action Plan for The Zero-Emission Shipping Mission’, September 2022, which is supported by the governments of Denmark, France, Ghana, Norway, India, Morocco, Republic of Korea, Singapore, United Kingdom, and United States Zero-Emission-Shipping-Mission-Action-Plan.pdf (mission-innovation.net) (accessed 27 September 2022)

[3] Common But Differentiated Responsibilities and Respective Capabilities

Member States and the Organization. This removal of excessive complexity from this refined proposal should also make it easier to conduct a comprehensive impact assessment, so that adoption of the measure should be feasible by 2024.

Consideration of proposals for economic measures under phase I

20 This revised IMSF&R (F&R) proposal combines core elements of the following proposals:

.1 ISWG-GHG 10/5/2 (ICS and INTERCARGO) which contained a regulatory proposal for ships to make mandatory contributions per tonne of CO_2 emitted, to narrow the price gap between conventional and zero-carbon fuels and to generate funds to expedite the uptake and deployment of zero-carbon fuels. The document set out details for a mandatory contribution system to an IMO fund using the existing IMO Fuel Oil Data Collection System (DCS), and suggested that the quantum of the contribution should be fixed for a 5 year period and then be subject to review. This was supplemented by document ISWG-GHG 12/3/8 (ICS) which contained a detailed initial impact assessment, prepared with the assistance of Clarksons Research, of the impacts on States of a range of different quanta of contributions by ships per tonne of CO_2 emitted, as well as document ISWG-GHG 12/3/7 (ICS) which suggested how the funds collected might be used.

.2 ISWG-GHG 12/3/9 et (Argentina et al.) which proposed an International Maritime Sustainability Funding and Reward (IMSF&R) mechanism as a mid-term measure to reduce GHG emissions from ships. This sought to incorporate the goals of other candidate measures (e.g. ambition assurance, first mover impetus, revenue raising for capacity building/impact mitigation and RD&D) while addressing the concerns about unaffordable fuel price, rationing of transport supply and heavy administrative burden;

.3 MEPC 78/7/5 and ISWG-GHG 12/3/17 (Japan) which proposed to introduce a Zero Emission Vessels (ZEVs) Incentive Scheme to provide incentives for stakeholders in the maritime and energy sectors to promote necessary investments to enable effective deployment of zero-emission fuels and necessary support for States, in particular SIDS and LDCs, to make an equitable transition to reduce GHG emissions from international shipping;

.4 MEPC 76/7/12 (Marshall Islands and Solomon Islands) which also proposed a flat rate contribution system that could be fixed for a five year period but then be subject to a ‘ratchet’ every five years, using a contribution mechanism similar to that proposed for the IMRF/B, as set out in document MEPC 76/7/7 (Denmark et al.). Document MEPC 76/7/12 proposed that the majority of funds collected should be used in a manner that is consistent with the CBDR-RC principle.

21 Furthermore, when considering the individual proposals for mid-term measures during ISWG-GHG 12, several delegations expressed a preference for (or indicated that they could accept) a flat rate contribution system, as proposed, for example, in documents MEPC 76/7/12 (Marshall Islands and Solomon Islands) and ISWG-GHG 10/5/2 (ICS and INTERCARGO), recognising that a flat rate contribution system would be transparent, stable, predictable and that, if rightly designed, it would avoid unintended consequences such as perverse incentives and market distortions or limiting total maritime transport supply. Several delegations expressed the view that a phased increase to the quantum of the contribution was

needed to provide long-term certainty while limiting the increase in maritime transport costs in the early years of implementation (MEPC 78/WP.6, paragraph 85).

22 Several delegations supported the architecture of the integrated International Maritime Sustainability Funding and Reward Mechanism (IMSF&R) proposed in document ISWG-GHG 12/3/9 (Argentina et al.) as the basis for a mid-term measure as those delegations were of the view that the proposal had incorporated merits from various other proposals (MEPC 78/WP.6, paragraph 90).

23 Several delegations, in referring to document ISWG-GHG 12/3/17 (Japan), saw merit in the proposed "hybrid" feebate system which would minimize transport cost increases without hampering global trade. Several delegations expressed the view that a flat rate contribution mechanism alone could lead to a significant fuel cost increase, and therefore preferred that such a system would need to be complemented by a reward or similar mechanism, as proposed in documents ISWG-GHG 12/3/17 and ISWG-GHG 12/3/9 (MEPC 78/WP.6, paragraph 93).

24 ICS notes that when considering proposals on possible combinations of elements of measures proposed, several delegations, whilst supporting the development of a basket of candidate mid-term measures, underlined the importance of limiting unnecessary complexity and administrative burden and to avoid overreliance on guidelines, and the need to take into account all the guiding principles of the IMO GHG Strategy (MEPC 78/WP.6, paragraph 103).

25 It should be noted that whilst this refined ‘F&R’ proposal is presented as an economic measure which ICS believes, subject to further consideration, could be adopted and implemented relatively quickly for adoption by 2024, this does not preclude further consideration of complementary technical measures that could address issues such as upstream emissions from fuels used by ships which have been proposed in the context of a ‘basket’ of mid-term measures, including the proposal for a Global GHG Fuel Standard in document ISWG-GHG 12/3/3 (Austria et al).

Key features of refined Funding and Reward ‘F&R’ measure, in response to discussion under phase I

26 It is emphasized that this combined ‘F&R’ proposal, with its system of flat rate contributions and rewards, is suggested as a means of helping to expedite the rapid uptake of alternative fuels used by internationally trading ships whilst, in the interest of achieving consensus, initially setting the quantum of the contribution by ships at a level which will avoid disproportionately negative impacts on States.

27 ICS considers that the core elements of this combined ‘F&R’ proposal, as suggested in paragraph 33 below, could help to build on the strengths of previous proposals (and potentially those which may be submitted by other Member States to ISWG-GHG 13) whilst addressing issues for which concerns were expressed at both ISWG-GHG 12 and MEPC 78 about avoiding unnecessary complexity and the potential for market distortion, as it dispenses with the previously proposed use of CII or similar benchmarks as a basis for calculating both the contribution by ships and the provision of rewards to ships.

28 It is currently suggested by ICS that all ships, to which the regulations would apply, should make a flat rate contribution to an IMO Maritime Sustainability Fund (IMSF) calculated on the basis of the ship’s annual CO_2 emissions only, while limiting rewards to ships which use “eligible alternative fuels”. It should be noted that rather than referring to a “levy” being paid by ships, ICS considers it would be more appropriate to use the term “contribution”.

29 Limiting the application of rewards, as suggested by ICS, to ships using "eligible alternative fuels" could greatly simplify the reward mechanism and would be directly linked to achievement of the IMO level of ambition for 2050 (as may be revised in 2023) which will require the use by a substantial number of ships of low or zero CO_2 emission fuels. Depending on which fuels might eventually be determined during phase III to be eligible for rewards, given that only about 5% of fuels used by international shipping in 2030, i.e. within the first five years of implementation of the measure, are realistically expected to be "eligible alternative fuels", the mechanism now suggested would minimise the amount of funds that will initially need to be disbursed as rewards, reducing the quantum of the contribution that ships will need to make to the IMO Maritime Sustainability Fund (IMSF) to adequately fund these rewards. This aspect is explored in more detail in paragraphs 34 to 55 below.

30 The regulatory architecture proposed for the funding and reward (F&R) system is intended to be as simple to implement as possible and would build upon on the flat rate contribution system set out in document ISWG 10/5/2 (ICS and INTERCARGO) which is similar to that proposed in document MEPC 76/7/12 (Marshall Islands and Solomon Islands), both being derived from the architecture for the proposed IMRF/B as set out in document MEPC 76/7/7 (Denmark et al.).

31 Being cognizant of the CBDR-RC principle, and the desire to limit administrative complexity and the potential for market distortion with regard to the collection of contributions to the IMSF from ships, ICS suggests that concerns about disproportionately negative impacts for developing countries can be addressed satisfactorily by a mechanism, such as that now suggested, which minimises the quantum of the contribution. ICS considers that the most effective means of addressing CBDR-RC for international shipping within IMO's regulatory framework will be through the use of a substantial proportion of funds generated for the proposed IMSF being used to expedite a fair and equitable transition in developing countries, in particular SIDS and LDCs, as set out in more detail in paragraphs 61 and 62 below.

Core elements of a revised IMSF&R (F&R) proposal that might be taken forward for further consideration during phase III of the Work Plan

32 The issues associated with the development of an economic measure, which all Member States, as well as all sectors of the global shipping industry, might be able to accept are complex. ICS member national shipowner associations are therefore still giving careful consideration to the detail of some of the ideas set out below, including the emissions to which the measure would apply subject to the LCA guidelines under development by the Organization. The 'square brackets' included in paragraph 33 reflect issues on which further consideration may be required. But as the Work Plan moves into phase II, and in the interest of helping to facilitate consensus within the Group at this critical stage of the negotiation, ICS wishes to present the following ideas on a tentative/provisional basis, with the understanding that the position of ICS may evolve in response to the continuing discussions within the Group.

33 The following are suggested as possible core elements for a refined 'F&R' proposal, which seeks to combine key elements of previous proposals referred to in paragraph 20 of this document, which ICS suggests, with the agreement of the Committee, could be taken forward for further consideration and development in phase III of the Work Plan:

.1 An International Maritime Sustainability Funding and Reward (IMSF&R) mechanism will be established by amendments to MARPOL Annex VI;

.2 All applicable ships will be required to make an annual contribution per tonne of CO_2 emitted to an IMO Maritime Sustainability Fund (IMSF) calculated in

line with IPCC Guidelines[4] [on a tank-to-wake (TtW) basis]. For the purpose of the measure, the conversion factor for the CO_2 emissions of all fuel types will be in line with the associated [TtW] value (in gCO_2/MJ) to be provided in the LCA guidelines under preparation by the Organization[5]. However, for the avoidance of excessive complexity (as the conversion factors are similar) it is currently suggested that the conversion factor for the CO_2 emissions of "Diesel/Gas Oil", "Light Fuel Oil (LFO)" and "Heavy Fuel Oil (HFO)" will be treated as being equal to Diesel/Gas Oil[6]. For a ship which combusts more than one fuel type, the CO_2 emitted from different fuel types should be calculated separately and then be aggregated as the basis to calculate the total contribution to the IMSF;

.3 The quantum of the contribution (in US$/$tCO_2$) by ships to the IMSF will be agreed by the Committee and reviewed on a five year basis taking account, inter alia, of the availability of "eligible alternative fuels", their price gap with conventional liquid fuel oil (Diesel/Gas Oil) and the impacts on States;

.4 A flat contribution rate (in US$/$tCO_2$) per tonne of CO_2 emitted by a ship will be set so that ships combusting fuels with a lower CO_2 conversion factor (such as LNG or methanol), [determined on a TtW basis] taking account of the IMO LCA Guidelines[3], will consequently make a smaller contribution compared to ships that only use liquid fuel oil (Diesel/Gas Oil). Some alternative fuels, with a zero carbon factor, including some which when consumed by a ship may be eligible for rewards, will not require a contribution to be made to the IMSF;

.5 To help narrow the price gap between conventional liquid fuel oil and "eligible alternative fuels", ships will receive rewards from the IMSF based on the CO_2 emissions which are prevented by their use of "eligible alternative fuels". As alternative fuels have a different energy density to each other and conventional fuel oil, the CO_2 emissions prevented would be calculated in terms of the energy consumed in comparison to liquid fuel oil, which for the purpose of the measure would be treated as being equivalent to Diesel/Gas Oil. Alternative fuels that are eligible for reward would be considered and specified by the Committee;

.6 To address concerns raised about the complexity of the previous IMSF&R proposal, it is proposed that all applicable ships should be required to make a flat rate contribution to the IMSF based on their actual annual [TtW] CO_2 emissions[7], and that only ships that use "eligible alternative fuels" would receive a reward for CO_2 emissions prevented. In order to help move the discussion forward, it is suggested that any decision about which alternative fuels might be eligible for rewards should be deferred to phase III of the negotiation;

[4] 2006 IPCC Guidelines for National Greenhouse Gas Inventories

[5] Under preparation by Correspondence Group on Marine Fuel Lifecycle GHG Analysis established by MEPC 78

[6] Conversion factor between fuel consumption and CO_2 emissions, as currently set out in paragraph 2.2.1 of annex to resolution MEPC.308(73) 2018 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships, as amended. However, this issue might be revisited when the LCA guidelines under development by the Organization are finalised. It should be noted that following implementation of the IMO 2020 sulphur cap many ships now use "Very Low Sulphur Fuel Oil (VLSFO)".

[7] TtW – "Tank-to-Wake" as defined in IMO LCA Guidelines under preparation

.7 The data to support the implementation of the IMSF contribution system will utilize the existing IMO Fuel Oil Data Collection System (DCS) for fuel oil consumption of ships which will minimise the administrative burden on Member States. The proposed IMSF would carry out all the functions necessary to calculate the contributions to be made by ships, collecting these contributions using a fully automated contribution system and providing evidence that the required contributions have been made which would be presented by the ship to its flag State. All that would be required of Administrations would be to issue the ship with a Statement of Compliance, which would be used as the primary means of demonstrating compliance to port State control. No contributions from ships will be collected by governments or maritime Administrations and all contributions by ships will be made directly to the IMSF;

.8 It is further proposed to amend the DCS to enable ships to report the "eligible alternative fuels" which they have consumed and the CO_2 emissions that have been prevented, so that this information can be reported annually to the IMSF, using the same fully automated system for calculating and collecting contributions, at the same time each year when ships will be required to report their verified annual fuel oil consumption data to the IMSF. The IMSF will use this data (which will already have been verified by a Recognized Organization at the same time that DCS fuel consumption data is verified) to calculate any rewards to ships for the use of "eligible alternative fuels" and disburse these rewards to the ships concerned;

.9 The quantum of the reward rate per tonne of CO_2 prevented will be determined taking into account the average global price of conventional liquid fuel oil during the five calendar years preceding the adoption of the measure, and will be equivalent to [X%] of this average price during this period as determined by the MEPC. The reward rate will be reviewed by the MEPC every five years.

.10 The contributions made to the IMSF will be disbursed for the following purposes:

.1 To expedite the development and uptake of "eligible alternative fuels" through the provision of annual rewards to ships which use "eligible alternative fuels";

.2 Capacity building and negative impact mitigation in developing countries, including deployment of alternative maritime fuel production facilities and new bunkering infrastructure that may be required to expedite transition, and funding, inter alia, for the IMO GHG-Trust Fund and IMO CARES, to support other maritime GHG reduction projects in developing countries, especially SIDS and LDCs;

.3 Funding for applied research and development (R&D) programmes of alternative fuels and innovative technologies; and

.4 Administration of the IMSF including the establishment and administration of the contribution and reward mechanism to ensure that this entails no costs to the Organization.

.11 The MEPC will be required to ensure that the IMSF directs sufficient funds each year to reward ships using "eligible alternative fuels", so that the Organization can honour its commitments to energy producers and shipping companies which invest in "eligible alternative fuels". For the first five years after entry into force, the initial quantum of the contribution by ships will be set by the MEPC with the aim of ensuring that around [XX%] of the total contributions made by ships each year to the IMSF will be adequate to fund rewards to ships for CO_2 emissions prevented, on the basis that the energy from "eligible alternative fuels" consumed annually may comprise up to [5%] of the total fuel consumption by international shipping in any year. However, if during the first five years of implementation the total contributions made to the IMRF are lower than that required to meet the funding of rewards, the funding of rewards (and for administration of the contribution and reward system) will take precedence over other any uses agreed by the MEPC for the contributions collected, but would in no case be more than [XX%];

.12 Governance of the IMSF and its administration of the contribution and reward mechanism will be undertaken with overall oversight by IMO Member States acting through the MEPC. The use of funds allocated for purposes other than rewards and administration of the system will be determined by an International Maritime Sustainability Board (IMSB) which will also report to the MEPC. The establishment and governance arrangements for the IMSB could be based on the proposal for an IMRB, refined as appropriate, as set out in annex 4 to document MEPC 76/7/7, and as amended in paragraph 4 of annex to document MEPC 78/7/3; and

.13 Other important issues that will be necessary to ensure smooth implementation of the measure should be considered under phase III of the Work Plan. These include, inter alia, avoidance of double counting of emissions under any national or regional measures which might also charge ships for CO_2 emissions to which this IMO measure applies; ensuring that any entity other than the shipowner/operator that assumes responsibility for the operation of the ship under a charter party agreement and is responsible, inter alia, for paying for the cost of the fuel, is responsible for the cost of the contribution to the IMSF; implications for the maintenance of fair competition of the gross tonnage threshold for ships, to which the regulations would be applicable when adopted; and change of ship ownership or flag State Administration during a calendar year.

DISCUSSION

Narrowing the price gap between conventional and "eligible alternative fuels", setting the reward rate, and establishing the quantum of the contribution by ships to the International Maritime Sustainability Fund (IMSF)

34 It should be noted that ICS currently takes no view on what the precise quantum of the contribution by ships per tonne of CO_2 emitted should be, or on the reward rate for the CO_2 emissions prevented by the use of "eligible alternative fuels". The suggestions below are simply examples to illustrate how the funding and reward mechanism would work and to show the variables which, if adopted, could provide a means for the Committee to take a decision about what the initial quantum of the contribution by ships should be for the first five years of implementation, consistent with achieving the objectives of the measure and the need to avoid disproportionately negative impacts on States.

35 Recognising that encouraging the development, deployment and take-up of eligible alternative fuels will be vital to achieve the levels of ambition set out in the IMO GHG Strategy, and that such fuels are not yet available for shipping on a commercial basis, ICS considers that, during the first five years of implementation, the immediate primary purpose of any economic measure should be to narrow the price gap between conventional liquid fuel oil and eligible alternative fuels. It is therefore proposed that an agreed minimum percentage of the funds collected annually by the IMSF should be allocated for this purpose during the first five years of implementation.

36 The reason for suggesting that a significant percentage of the funds collected from contributions by ships is initially used to fund rewards is to ensure that the IMSF has sufficient funds for this purpose whilst allowing the quantum of the contribution by ships to be set at a level that avoids disproportionately negative impacts on States.

37 Because most of those types of alternative fuels that might be eligible for rewards are not yet available to shipping on a commercial basis it is difficult to be precise about their future cost. But it is commonly estimated that during the first five years of implementation, these "eligible alternative fuels" will be at least two times the cost of conventional marine fuel oil. It is anticipated that when many "eligible alternative fuels" initially become available to international shipping their additional cost compared to liquid fuel oil will in fact be far more expensive, but this will vary according to the type of fuel and at different ports around the world. ICS therefore suggests that, for the purpose of designing a measure intended to narrow the price gap, it will not be practical for the Committee to agree upon a precise estimate of the price of "eligible alternative fuels" that is meaningful, whereas the price of conventional liquid fuel oil can be determined for the purpose of the measure using readily available commercial data, as set out in document ISWG-GHG 12/3/8 (ICS).

38 In the interests of keeping the measure as simple to implement as possible, it is suggested that it will not be practical to close the price gap with conventional fuel completely, as the quantum of the contribution by ships to the IMSF would be fixed for a five year period and it will be necessary to ensure that the IMSF has sufficient funds to provide rewards to ships using "eligible alternative fuels". Despite the goal of encouraging first movers, neither would it be appropriate to close the price gap completely as this could result in some ships, or sectors, which are better placed to use "eligible alternative fuels", potentially being given an unfair competitive advantage, especially if the cost of using such fuels is further reduced by national support measures.

39 For the purpose of designing a global measure that can be readily implemented and which will provide assistance to first movers while limiting the potential for market distortion, it is therefore proposed that the reward rate for CO_2 emissions prevented should initially be equivalent to less than 100% of the cost of conventional fuel oil, the price of which, for the purpose of the measure, would be determined by the MEPC and based on the average global price of Diesel/Gas Oil during the five year period preceding adoption of the measure.

40 To illustrate how the reward rate per tonne of CO_2 emissions prevented could be calculated, in January 2022, the average price of Diesel/Gas Oil during the previous five years was about US$400 per tonne. This would result in a reward rate, if equivalent (for example) to e.g. 80% of this amount i.e. US$320, being set at about US$100 per tonne of CO_2 emissions prevented, based on a CO_2 conversion factor of 3.206 per tonne for Diesel/Gas Oil[8]. It should be noted that this example is for illustrative purposes only, and the percentage of the average cost of conventional liquid fuel oil during the five year period preceding adoption of the measure used to calculate the reward rate could be higher or lower than that used in this example. Moreover, taking account of the fact that the price of Diesel/Gas Oil reached

[8] MEPC.308(73)

US$1,000 per tonne in mid-2022, should this price level return/persist it is possible that, if using such an approach, the reward rate set when the measure is adopted could be higher, based on the increased average price over the five years preceding adoption of the measure.

41 A ship would provide to the IMO DCS the quantity of “eligible alternative fuels” used in the preceding calendar year and from the aggregated figure submitted by the ship to the IMSF, the reward would be calculated by the IMSF. For example, for ammonia, which has the energy density by mass of 0.43 of Diesel/Gas Oil, a ship using 10,000 tonnes of ammonia during a calendar year would have prevented 13,786 tonnes of CO_2 emissions (10,000 multiplied by 0.43, multiplied by 3.206). As such, the ship in this case, if based on a reward rate of e.g. about US$100 per tonne of CO_2 prevented, would receive an annual reward of about US$1.38 million for the total CO_2 emissions prevented during the calendar year. However, the actual amount for this annual reward would depend on the reward rate agreed by the Committee which could be higher or lower than US$100 per tonne depending on the price of conventional fuel oil during the previous 5 year period to the measure being adopted and the percentage of this price agreed for the purpose of calculating the reward rate.

42 Whilst intentionally not closing the price gap completely, ICS considers that such an approach to setting the reward rate, as well as being simple to administer and minimising the potential for market distortion, would still be of sufficient magnitude to encourage first movers, sending a strong signal to fuel producers and the shipping industry which will expedite the production and uptake of those alternative fuels which are eligible for rewards.

43 To provide certainty for investors, and to ensure that contributions made to the IMSF would be sufficient to cover the cost of rewards, it is suggested that the reward rate be fixed for a five year period. Given that the price of conventional liquid fuel oil is just as likely to decrease during the next five years as it is to increase, setting the reward rate below the five year average cost of Diesel/Gas Oil at the time when the measure is adopted would provide a ‘safety buffer’ or degree of balance that should ensure that the reward rate continues to serve its purpose throughout the first five years of implementation, regardless of any significant changes to fuel oil prices that might reasonably be anticipated.

44 To reiterate, an important advantage of a reward mechanism, in addition to expediting the production and take-up of “eligible alternative fuels”, is that the price gap can be reduced without requiring the quantum of the contribution by ships to the IMSF to be set at a level which would result in disproportionately negative impacts on States.

45 For example, if the initial goal of the measure was to help ensure that e.g. 5% of the energy used by international shipping in 2030 is produced using “eligible alternative fuels”, the funds which would be required annually to help narrow the price gap would need to be sufficient to provide rewards for the CO_2 emissions prevented in 2030 which would be equivalent to not combusting about 15 million tonnes of conventional fuel oil per annum (assuming total annual fuel consumption by international shipping to be equivalent to 300 million tonnes, i.e. 5% of 300 million = 15 million).

46 In this example, to provide rewards to ships for not combusting a total of about 15 million tonnes of fuel oil per annum i.e. (based on a conversion factor of 3.206) 48.1 million tonnes of CO_2 emissions prevented, and setting a reward at the rate identified above for illustrative purposes, e.g. US$100 per tonne of CO_2 emissions prevented, would for this example (of a 5% energy goal in 2030) therefore require total contributions by ships to the IMSF of about US$5 billion per year

47 To show how the quantum of the contribution by ships to the IMSF would be arrived at, the following example is also for illustrative purposes only. Assuming that the contributions

to the IMSF by ships would in fact come from total fuel consumption by the world fleet of about 250 million tonnes per year (i.e. less than 300 million tonnes because some ships might not be required to make the contribution) a reward rate of e.g. US$100 per tonne of CO_2 emissions prevented would require the quantum of the contribution by ships needed to fund this reward rate to be set at about US$6 per tonne of CO_2 emitted (about US$20 per tonne of fuel oil).

48 Being cognizant of CBDR-RC, additional contributions by ships to the IMSF would also be required for the other purposes of the IMSF as set out in paragraph 33.10 of this document. If (for illustrative purposes only) it was decided by IMO that the quantum of the contribution was set with the understanding that a similar proportion of the funds collected by the IMSF each year might be allocated to support the reward element of the 'F&R' mechanism as the proportion of the funds allocated for all of the other purposes set out in paragraph 33.10, then the total annual funds that would need to be generated each year from contributions by ships would, in this case (again for illustrative purposes only) be around US$10 billion per annum (i.e. approximately 2 times US$5 billion).

49 Using this example, to fund a reward rate of (for illustrative purposes only) of about US$100 per tonne of CO_2 emissions prevented, as well as the other agreed purposes for the funds raised, if the total contribution required to achieve this was about, say, US$10 billion per year, the quantum of the contribution to be paid by ships could therefore initially be set at no more than about US$12 per tonne of CO_2 emitted equivalent to about US$40 per tonne of fuel oil consumed.

50 It is emphasised again that this example of how the quantum of the contribution by ships might be calculated is for illustrative purposes only. ICS does not advocate what this quantum should be. However, document ISWG-GHG 12/3/8 (ICS) contains detailed analysis, produced with the assistance of Clarksons Research, of the impact of a range of contribution rates which suggests that an initial contribution by ships set at US$50 or more per tonne of CO_2 emitted would have no disproportionately negative impacts on the economies of States. However, the quantum of the contribution finally agreed by the Committee would need to be subject to a comprehensive impact assessment and, as suggested by ICS and others, would be subject to review every five years, taking account of any increase in the availability of "eligible alternative fuels".

51 In the event that more than 5% of the energy from fuels used by the world fleet in 2030 (or within the first five years of the measure being implemented) were alternative fuels that were eligible for rewards, the proportion of the funds collected annually from contributions to be used for this purpose could be increased by the IMSF as the purpose of funding rewards should take precedence over other any uses agreed by the MEPC for the contributions collected. This is so that IMO can honour its commitments with respect to the provision of rewards to fuel producers and shipping companies which invest in "eligible alternative fuels".

52 However, a scenario in which more than 5% of the energy from fuels used by international shipping in 2030 was from "eligible alternative fuels" would mean that the measure was a success. Moreover, to address concerns about the measure having unanticipated negative impacts, there should be no need to increase the quantum of the contribution by ships within the first five years of implementation unless more than about 10% of the energy from fuels being used by international shipping in any year was from "eligible alternative fuels" for which rewards were applicable, a scenario, realistically, which is considered unlikely before 2030.

53 Keeping in mind that during the first years of implementation of the measure, the requirement for funds for the development of bunkering infrastructure would be related to the availability of "eligible alternative fuels", the allocation, if necessary, of a greater proportion of the total contributions generated annually to reward the emissions prevented by the use of

"eligible alternative fuels" should have no significant consequences for the achievement of the levels of ambition set by the IMO GHG Strategy. However, to ensure that sufficient funds are available for other purposes, it is suggested that the proportion of the funds used for reward purposes in any year should not in any case be larger than a specified maximum percentage.

54 As fuel availability is such a key factor in determining the take-up of "eligible alternative fuels", as was the case with the implementation of the 0.50% global sulphur limit for fuel oil in 2020, it is suggested that any revision made to the contribution quantum/reward rate should be made every five years, following a review to be completed within three years of implementation of the measure, with the announcement of any change to the contribution quantum/reward rate to made at least two years before implementation.

55 In summary, the variables which would determine the calculation of the quantum of the contribution by ships to the IMSF under this suggested F&R measure would include the following:

.1 Total annual funding required to meet obligations of IMSF (total annual funding required for rewards programme plus funding for other agreed purposes) which would depend on:

.1 The percentage alternative energy goal agreed for 2030 e.g. 5%;

.2 The different types of alternative fuels that were determined to be eligible for rewards;

.3 The agreed minimum percentage of total annual contributions to IMSF that are allocated for the funding of rewards;

.4 The agreed minimum percentage of total annual contributions to IMSF that are allocated for all purposes other than rewards;

.2 The reward rate for CO_2 emissions prevented using "eligible alternative fuels" which will depend on:

.1 The average global price of conventional fuel (Diesel/Gas Oil) in the five years preceding the adoption of the measure;

.2 The agreed percentage of this five year average global price on which the reward rate will be based; and

.3 Agreed estimates of the minimum annual total fuel consumption of ships, during the first five years of implementation, to which mandatory contributions are applicable.

"Eligible alternative fuels"

56 ICS currently remains neutral/undecided with regard to which types of alternative fuels should be eligible for rewards, which is an issue which can best be decided during phase III of the Work Plan when work on the development of the LCA Guidelines is more advanced. For this reason, it is suggested that throughout phase II, the Group adopt the general term "eligible alternative fuels."

57 ICS currently (but tentatively and provisionally) suggests that alternative fuels which are eligible for rewards for preventing CO_2 emissions are those used by ships which allow them to emit net zero or low CO_2 emissions compared to traditional fuels calculated on a tank-to-wake basis from a life-cycle perspective pending further consideration by the Committee (i.e. potentially also taking account of upstream emissions when the IMO LCA guidelines are finalised). In line with IPCC Guidelines, and to keep the contribution and rewards system as simple to implement and administer as possible, it is suggested that the upstream emissions will not be counted as additional emissions from ships, for at least the first five years of implementation. However, the definition of "eligible alternative fuels" should duly take into account the upstream GHG emissions and the sustainability of these fuels. As mentioned above, ICS may evolve its position on this issue, depending on the views of other delegations and when the IMO LCA guidelines are more advanced.

58 In practice, due to the fact that when most "eligible alternative fuels" first become available on a commercial basis, their supply will probably be limited to a few ports worldwide, many ships using these may be operating on a dual fuel basis, continuing to use conventional fuel oil for some of the time, for which a contribution to the IMSF will still be required.

59 Despite (tentatively and provisionally) suggesting that the calculation of CO_2 emissions should be on a tank-to-wake basis, in line with IPCC Guidelines, ICS fully recognises the importance of upstream emissions towards achieving the goals of the Paris Agreement and that this could potentially be addressed through consideration of complementary technical measures which have also been proposed in the context of a 'basket' of mid-term measures. This includes the proposed Global GHG Fuel Standard which (depending on the what the Committee may decide), could take into account the upstream emissions of alternative fuels.

60 Although ICS currently remains neutral/undecided with regard to which types of alternative fuels should be eligible for rewards, the measure would be relevant to expediting the production and take-up, inter alia, of various potential alternative fuels including (as may be decided), inter alia, methanol, ammonia, hydrogen, sustainable biofuels and synthetic fuels. The mechanism will also need to be designed to allow rewards to be given to ships that prevent CO_2 emissions through carbon capture technologies. However, given that such technologies are not yet available to ships on a commercial basis, careful consideration is needed.

Other use of funds from contributions to the IMSF to support a fair and equitable transition

61 Being cognizant of the principle of CBDR-RC and to expedite a fair and equitable transition, it is proposed, as set out in paragraph 33.10 of this document, that a significant proportion of the funds collected, i.e. those funds not allocated for rewards to ships using "eligible alternative fuels" and for the administration of the system, would be used to support capacity building and negative impact mitigation in developing countries, including deployment of alternative marine fuel production facilities and new bunkering infrastructure and funding for the IMO GHG-Trust Fund, IMO CARES, as well as other maritime GHG reduction projects in developing countries.

62 The details of such programmes, including the impact these might have on the pricing of new fuels, would require further analysis and careful consideration, and could be determined by the proposed International Maritime Sustainability Board (IMSB) with oversight from the Committee. Furthermore, a certain proportion of the contributions would be used to fund applied research and development (R&D) programmes of alternative fuels and innovative technologies with an emphasis on collaboration between entities in developing and developed countries. As referred to above, during the first five years of implementation, the percentage allocated for rewards might need to be increased in proportion to these other purposes should insufficient funds be available in any year to meet the cost of rewards for eligible alternative fuels used.

Support for applied R&D programmes of alternative fuels and innovative technologies

63 Support for applied R&D of zero carbon technologies and fuels to accelerate their development and readiness with a particular emphasis on safety issues, is identified as another key purpose for the funding provided by the F&R mechanism. The IMRB proposal made under phase I of the work plan (MEPC 76/7/7) identified some US$500 million per year in order to achieve the objective of increasing Technology Readiness Levels and funding of the programmes identified by the Ricardo report included with document MEPC 77/7/1.

64 It is suggested that the functions previously proposed for the IMRB, as set out in document MEPC 76/7/7, would be undertaken by the proposed International Maritime Sustainability Board (IMSB).

Timeline for finalization of the refined F&R mechanism

65 Subject to the consideration of the Group and agreement by the Committee at MEPC 80 (summer 2023), to finalize a revised funding and reward 'F&R' mechanism under phase III of the Work Plan, including the necessary draft amendments to MARPOL Annex VI, ICS considers, in view of developments outside the Organization, that there is a need for approval of these amendments at MEPC 81 (spring 2024), with a view to adoption at MEPC 82 (autumn 2024). This timetable would permit the amendments establishing the 'F&R' mechanism to enter into force in 2025.

CONCLUSION

66 As requested by MEPC 78, ICS has sought to combine and modify core elements of proposals submitted under phase I of the Work Plan to suggest some ideas that might facilitate consensus. These core elements are set out in paragraph 33 of this document, which it is proposed should be taken forward for development and finalization under phase III of the Work Plan. With political will, such a measure could be adopted by 2024.

67 Whilst this 'combined' proposal is presented as an economic measure which ICS considers can be adopted and implemented relatively quickly, this does not preclude further consideration of complementary technical measures that could address issues such as upstream emissions from fuels used by ships which have been proposed in the context of a 'basket' of mid-term measures.

68 Taking account of previous discussions during phase I, ICS has sought to take a pragmatic approach toward the further development for an International Maritime Sustainability Funding and Reward (IMSF&R) measure based on a flat rate contribution by ships per tonne of CO_2 emitted (rather than use of the CII framework). The immediate intention

of the proposed rewards programme is to help ensure that e.g. 5% of the energy used by shipping in 2030 will be produced from alternative fuels, so as to accelerate the transition and reach a 'take off' point on a pathway to full decarbonisation as soon as possible.

69 Being cognizant of the CBDR-RC principle, as well as funding rewards for the CO_2 emissions prevented by the use "eligible alternative fuels", the proposed IMO Maritime Sustainability Fund (IMSF) would be used, inter alia, to expedite a fair and equitable transition. This would include capacity building and negative impact mitigation in developing countries, including deployment of alternative maritime fuel production facilities and new bunkering infrastructure that may be required to expedite transition, and funding, inter alia, for the IMO GHG-Trust Fund and IMO CARES, to support other maritime GHG reduction projects in developing countries, especially LDCs and SIDS.

70 Of critical importance to many Member States, by narrowing the price gap with conventional fuels through the use of a rewards programme for the use of "eligible alternative fuels" a modified IMSF&R (F&R) measure will still allow the proposed contribution per tonne of CO_2 emitted to be set at a quantum which would avoid disproportionately negative impacts on States.

71 Most important, however, ICS considers that the approach suggested in this document for setting the quantum of the contribution per tonne of CO_2 emitted and the reward rate for the use of "eligible alternative fuels", as well as being simple to administer and minimising the potential for market distortion, would still be of sufficient magnitude to encourage first movers, sending a strong signal to fuel producers and the shipping industry which will expedite the production and uptake of "eligible alternative fuels" to reach a 'take off' point by 2030.

ACTION REQUESTED OF THE GROUP

72 The Group is invited:

.1 To consider this refined IMSF&R (F&R) measure which, as set out above, uses a flat rate contribution system, and, in particular, the identified core elements of this measure as set out in paragraph 33 of this document, with a view to agreeing to recommend that these core elements should be further developed and finalized under phase III of the Work Plan together with the necessary regulatory framework, so that the measure might be adopted in 2024.

.2 In the interest of moving forward, to recommend that a decision on which alternative fuels might be eligible for rewards for CO_2 emissions prevented should be deferred until phase III of the Work Plan and that, in the meantime, in the context of a possible rewards programme that the general term "eligible alternative fuels" should be used by the Group;

.3 Also in the interest of moving forward, to recommend that a final decision about the treatment of upstream emissions and whether the calculation of contributions/rewards should be based on tank-to-wake emissions only should be deferred until phase III and when the LCA guidelines have been further developed; and

. .4 To note the variables which, under this refined F&R measure, might be used to determine the quantum of the flat rate contribution by ships to the IMSF as summarised in paragraph 55 of this document.