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REDUCTION OF GHG EMISSIONS FROM
SHIPS
6th session
Agenda item 1

ISWG-GHG 6/X/X
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**FURTHER CONSIDER CONCRETE PROPOSALS TO IMPROVE THE OPERATIONAL
ENERGY EFFICIENCY OF EXISTING SHIPS, WITH A VIEW TO DEVELOPING DRAFT
AMENDMENTS TO CHAPTER 4 OF MARPOL ANNEX VI AND ASSOCIATED
GUIDELINES, AS APPROPRIATE**

**PROPOSAL FOR APPROVAL BY MEPC 75 OF MANDATORY AMENDMENTS TO
STRENGTHEN THE SHIP ENERGY EFFICIENCY MANAGEMENT PLAN (SEEMP)**

Submitted by [Coalition of Member States]

SUMMARY

Executive summary: The co-sponsors provide a concrete proposal for a short term measure for immediate consideration by ISWG-GHG 6, for finalisation at ISWG-GHG 7 prior to approval at MEPC 75. Incorporating elements of other proposals, the core of this proposal is to strengthen the SEEMP, subjecting it to mandatory external audits, either under the ISM Code or by amending the IEEC survey regime. The co-sponsors consider that if agreement in principle was achieved at ISWG-GHG6, the working group could invited concrete proposals on the form of the regulatory amendment to MEPC 75 for approval. Approval of amendments at MEPC 75 should not prevent further consideration of other proposals by Member States. The co-sponsors have made an assessment of the impact on Member States, which identifies there will be no disproportionate impacts, despite the significant contribution this measure should make towards achieving the 2030 target. This paper also suggests other actions to be taken by ISWG-GHG 6, in order to ensure that the measure proposed is implemented quickly, in a manner that will take account of any Member State concerns, including agreement to develop various supporting guidelines at future sessions of the ISWG and the Committee as soon as possible.

Strategic direction:

High-level action:

Output:

Action to be taken: Paragraph 24

Related documents: MEPC.304(72), ISWG-GHG 4/2/10, ISWG GHG 4/2/9, MEPC 74/7/4, ISWG-GHG 5/4/1, ISWG-GHG 5/4/12

Introduction

1. It will be recalled that the *Initial IMO strategy on reduction of GHG emissions from ships* (MEPC.304(72)) (the initial strategy) was adopted at MEPC 72 and a draft programme of follow-up actions was agreed at MEPC 73. The programme of follow-up actions agreed, inter alia, three categories for candidate short term measures. Importantly, at MEPC 74 a procedure for assessing the impact on Member States of GHG reduction measures was also agreed.

2. The co-sponsors assert that in order for the Organization to demonstrate progress, to the outside world, towards the level of ambition for 2030, MEPC 75 will need to approve amendments to MARPOL Annex VI, for adoption at MEPC 76, that will begin to deliver further GHG reductions by international shipping by 2023. The co-sponsors therefore provide a concrete proposal for a mandatory short term measure for immediate consideration by ISWG-GHG 6, for finalisation at ISWG-GHG 7 prior to approval at MEPC 75.

3. Having carefully reviewed those documents which have proposed concrete short term measures (including ISWG-GHG 4/2/10, ISWG-GHG 5/4/1, ISWG-GHG 5/4/9, ISWG-GHG 5/4/12 and MEPC 74/7/4), and having considered the concerns raised in document ISWG-GHG 5/4/13, the co-sponsors provide a concrete proposal for a mandatory short term GHG reduction measure which could be quickly agreed and implemented – and which is likely to achieve broad support from Member States – in order to help achieve the levels of ambition for 2030 established by the initial strategy.

4. While incorporating elements of other proposals so far made at previous sessions of the ISWG-GHG with regard to technical and operational measures, the core of this proposal – which can be adopted and implemented very quickly – is to strengthen the Ship Energy Efficiency Management Plan (SEEMP), by subjecting it to mandatory external audits. The co-sponsors consider that there are two alternative regulatory options to strengthen the SEEMP and require mandatory audits, either:

- Mandate that the SEEMP will form part of the ships Safety Management System (SMS), making it subject to the existing verification requirements of *the International Management Code for the Safe Operation of Ships and Pollution Prevention* (the ISM Code); or
- Introduce mandatory periodic audits of the SEEMP as a requirement for maintaining the validity of the International Energy Efficiency Certificate (IEEC) which is required under MARPOL Annex VI.

5. The co-sponsors consider that there are both advantages and disadvantages to each of these two options, but also assert that either option would deliver a robust, effective and implementable mechanism for strengthening the SEEMP and making it subject to regular mandatory external audits. If a decision is taken to support the proposals provided in this document, which could be implemented either by a regulatory amendment making the

SEEMP part of the ships SMS, or by amending the survey regime for the ships IEEC, then the working group could invite concrete proposals on the form of the regulatory amendment to be submitted to MEPC 75. This would potentially allow measures to be approved at MEPC 75 and adopted at MEPC 76.

6. However, approval of relatively simple amendments at MEPC 75 should not preclude further consideration of other candidate measures or other proposals submitted by Member States, some of which may require more comprehensive assessments of their impacts on Member States.

General Considerations

7. The co-sponsors believe that short term measures should:

- Be effective, and make progress towards delivering the levels of ambition of the initial strategy in particular that established for 2030;
- Promote innovation and adoption of GHG reducing technologies;
- Be implementable;
- Address existing ships;
- Avoid penalising early movers and/or ships which are already operated as efficiently as is practicably achievable;
- Minimise negative impacts on Member States and global trade; and
- Not divert unnecessary time and resources from the development of longer term measures needed to achieve the level of ambition established for 2050 and beyond.

8. Without wishing to prevent further consideration of other candidate short term measures, the co-sponsors consider that it is essential for the Organization to agree a mandatory short term measure at MEPC 75 which, realistically, will be likely to achieve broad support from Member States, in order to start delivering further GHG reductions by 2023 (as precursor to further efficiency improvements before 2030 when the majority of the world fleet is expected to continue operating using conventional fuels).

9. The co-sponsors firmly believe that goal based measures will promote innovation and will provide shipowners with the necessary flexibility to select the most appropriate GHG reduction strategies for their ships, bearing in mind that the high cost of fuel – which is expected to increase considerably as a result of the 2020 sulphur cap – means that shipowners have every incentive to further reduce their fuel consumption.

10. Notwithstanding the co-sponsors' support for a goal based approach, it is acknowledged that more prescriptive measures could be preferred by some Member States, which could also address concerns, in particular, that some charterers may be unwilling to co-operate with implementing goal based measures. This is especially important in the case of ships where it is the charterer, not the shipowner, which makes the key decisions that determine operational efficiency. In such cases, technical measures (such as, for example, limiting shaft power) might be more appropriate than operational measures. The co-sponsors therefore consider that shipowners should be able to decide whether to implement operational or technical measures, or a combination of both. What is of the utmost importance is that further fuel efficiencies are achieved by the proposed amendments (and supporting guidelines), rather than the means by which these efficiencies are achieved, which may need to vary considerably according to type and age of the ship, or the trades and ocean conditions in which the vessel is operating.

11. It should be noted that both operational and technical measures are already addressed in Part I of the SEEMP.

12. It should also be noted that the mandatory introduction of the ISM Code between 1998 and 2002, which provides for external and periodic auditing by Administrations of goal based means for improving the safe operation and environmental performance of ships, is widely agreed to have contributed significantly to the reduction of ship source pollution. There is no reason to believe that the extension of this approach to the SEEMP will not deliver similarly successful results with regard to CO₂ reduction. However, should member states have reservations with respect to making the SEEMP part of the SMS then the same objectives could be achieved by developing through life audit and survey requirements for the SEEMP as a condition of maintaining validity of the IEEC.

Concrete Proposals

13. ISWG GHG 6 should agree to recommend to MEPC 75 that Part I of the SEEMP should either:

- Form part of the ship's Safety Management System (SMS) for those ships subject to SOLAS Chapter IX and *the International Management Code for the Safe Operation of Ships and Pollution Prevention* (the ISM Code); or
- Be made subject to periodic audits which would be a condition of maintaining validity of the ships IEEC.

This would make the SEEMP subject to mandatory external audits by the Administration (which may be delegated to a Recognized Organization). In line with the ISM Code, this would include both interim and periodic audits (every two-three years and every five years) during which shipping companies would have to demonstrate that they are doing everything possible to improve efficiency and reduce CO₂ emissions. If the IEEC survey route was preferred, it is anticipated that audit periodicity would be similar, or potentially more frequent.

14 In order to demonstrate the effectiveness of the enhanced SEEMP, it is proposed that emissions reduction should be quantified. Recognising that some ships may prefer to demonstrate emissions through performance monitoring, and that others would prefer a pre-certification scheme it is proposed to introduce two SEEMP schemes:

- SEEMP Scheme A – emissions reduction demonstration using performance monitoring; and
- SEEMP Scheme B – pre-certification of the ships technical efficiency

15. GHG emissions reduction objectives, consistent with the levels of ambition of the initial strategy, should be established by the Organization and be incorporated within Part I of the SEEMP. These would either be expressed as CII's for SEEMP Scheme A, or as an EEXI value for SEEMP Scheme B. The shipowner would determine how best to achieve these objectives.

16. The Organization should either develop a range of Carbon Intensity Indicators (CIIs) which could be applied to different ship types and segments, or alternatively develop guidelines for establishing appropriate CIIs, which would underpin SEEMP Scheme A.

17. In the case of SEEMP Scheme B, the proposals provided in document ISWG-GHG 5/4/1 (Japan) should be further developed. Ships would be assigned an Energy Efficiency Existing Ship Index value (EEXI) which would underpin SEEMP Scheme B.

18. In the case of SEEMP Scheme A it will not be necessary to assign an EEXI value to the ship; ships would instead demonstrate the necessary emissions reduction using CII. However the SEEMP would remain part of the SMS and the operational management of the ship would still be subject to a review and improvement process.

19. The Organization should develop guidelines for auditing Part I of the SEEMP, including both SEEMP Scheme A and SEEMP Scheme B. The guidelines would include provisions to address cases where an objective is not achieved because of circumstances outside the control of the shipowner, and for ships serving Member States subject to particularly challenging operational conditions, such as geographical remoteness or prevalence of adverse weather.

20. During audits of Part I of the SEEMP it should be demonstrated that the measures and self-evaluation process of the SEEMP have been fully implemented, including a review of CII and/or the EEXI, as applicable.

21. Objectives and guidelines for SEEMP Scheme A and SEEMP Scheme B would be developed so as to maintain full equivalence between each of the two schemes, and so maintain a level playing field for all ships.

22. Assuming that these amendments could be agreed at MEPC 75, and adopted at MEPC 76, they could enter into force by 2023 using the tacit acceptance procedure as an amendment to MARPOL Annex VI. This would allow the Committee a period of three years, or five sessions of the Committee (including MEPC 76) to develop the necessary supporting guidelines, this is felt to be achievable since the guidelines would be drafted by technical experts with higher level policy matters having already been agreed.

23. The above proposals are considered to be Group A candidate short-term measures, which can be considered and addressed under existing IMO instruments.

24. An assessment of the impact on Member States is attached as **Annex 1**.

25. It is repeated that these proposals from the co-sponsors are not intended to prejudice consideration of other candidate measures, which could be developed [in due course] to complement the measures proposed.

Action requested of ISWG-GHG 6

26. Taking account of the assessment of the impact on States at Annex 1, the working group is requested to agree to strengthening the SEEMP as a priority item, to agree in principle which of the two regulatory options is preferred and to invite concrete proposals for text for the necessary regulatory amendment(s) to be submitted to MEPC 75, with an aspiration to reach agreement at MEPC 75 and adoption at MEPC 76.

27. Taking account of the amendments proposed by the co-sponsors at Annex 1, and the assessment of the impact on States at Annex 2, ISWG-GHG 6 is requested to consider and agree:

1. Development of two options to demonstrate the effectiveness of the SEEMP and emission reduction. These two options would be performance monitoring (SEEMP Scheme A) or ship pre-certification (SEEMP Scheme B).
 2. That the Organization should develop GHG emissions reduction objectives, consistent with the levels of ambition of the initial strategy, and which should be
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incorporated within Part I of the SEEMP. For SEEMP Scheme A these objectives would utilise appropriate carbon intensity indicators (CIIs), for SEEMP Scheme B it they would be expressed as an existing ship energy efficiency index (EEXI) value. In each case, objectives should be fully equivalent and with neither option being either more or less onerous;

3. That the Organization should consider either development of a range of CIIs which could be applied to different ship types and segments when using SEEMP Scheme A, or, alternatively, guidelines for establishing appropriate CIIs and to agree upon a timetable for completion of this work;
4. That the proposals provided in document ISWG-GHG 5/4/1 (Japan) should be adopted as the basis for SEEMP Scheme B;
5. That in cases where ships apply SEEMP Scheme A it would not be necessary to assign an EEXI value to the ship, since ships would demonstrate that they have achieved required CO₂ emissions reduction using CIIs;
6. That in cases where a ship applies both technical and operational measures in order to achieve the necessary GHG emission reductions then the ship would be subject to SEEMP Scheme A;
7. That the Organization should develop guidelines for auditing Part I of the SEEMP, which would address both SEEMP Scheme A and SEEMP Scheme B. The guidelines are to include provisions to address cases where an objective is not achieved because of circumstances outside the control of the shipowner, and for ships serving Member States subject to particularly challenging operational conditions such as geographical remoteness or prevalence of adverse weather; and to agree upon a timetable for the completion of this work; and
8. Develop guidelines for ensuring that Member States with ports and areas which are subject to particularly challenging operational conditions, such as geographical remoteness or prevalence of adverse weather, are not penalised by operational efficiency indicators used in conjunction with the audited SEEMP.

Annex 2

INITIAL ASSESSMENT OF IMPACTS

1 Measure: Enhancing the SEEMP

1.1 Proposals

.1 Part I of the SEEMP should be made subject to mandatory audits by the Administration or its duly authorised Recognized Organizations. This could either take the form of making the SEEMP part of the ships SMS, or by developing appropriate audit requirements linked to maintaining validity of the ships IEEC.

.2 GHG emissions reduction objectives, consistent with the levels of ambition of the initial strategy, should be established by the Organization and be incorporated within Part I of the SEEMP. The shipowner would determine how to achieve these objectives.

.3 The Organization should consider either development of a range of carbon intensity indicators (CIIs) which could be applied to different ship types and segments, or alternatively, guidelines for establishing appropriate CIIs.

.4 The proposals provided in document ISWG-GHG 5/4/1 (Japan) should be [adopted?] so as to provide a framework which could be used to improve the efficiency of existing ships should shipowners elect to apply technical measures, with ships being assigned an EEXI value.

.5 In cases where purely operational measures are implemented it would not be necessary to assign an EEXI value to the ship, ships would demonstrate the necessary emissions reduction using CIIs.

.6 The Organization should develop guidelines for auditing Part I of the SEEMP, including provisions to address cases where an objective is not achieved because of circumstances outside the control of the shipowner, and for ships serving Member States subject to particularly challenging operational conditions, such as geographical remoteness or prevalence of adverse weather.

.7 At audits of the SMS it should be demonstrated that the measures and self-evaluation process of the SEEMP have been implemented, including a review of CIIs and/or the EEXI.

1.2 Assessment of impacts on Member States

.1 Geographic remoteness of and connectivity to main markets

The proposal includes provisions to ensure that measures do not act to disincentivise provision of shipping services to destinations which are subject to greater prevalence of adverse weather or [where] trade is inherently imbalanced (e.g. remote communities dependent upon imports). These provisions are to develop guidelines for ensuring that Member States with ports and areas which are subject to particularly challenging operational conditions, such as geographical remoteness or prevalence of adverse weather, are not penalised by operational efficiency indicators used in conjunction with the audited SEEMP.

.2 Cargo value and type

Since the measures would apply to all ships subject to SOLAS Chapter IX then they do not discriminate between different cargoes or cargoes of different value. However, since the measures are goal based, and offer the option of applying operational or technical measures, or a combination of both, it is anticipated that shipowners would select measures appropriate for their own operating conditions. This would allow measures to be optimised for particular cargo segments.

.3 Transport dependency

It is recognised that short term GHG measures might disproportionately impact Member States which are dependent on maritime transport and which are located in areas which are likely to result in poor indicated operational efficiency. To mitigate this risk, the proposals include provisions to develop guidelines for ensuring that Member States with ports and areas which are subject to particularly challenging operational conditions, such as geographical remoteness or prevalence of adverse weather, are not penalised by operational efficiency indicators.

.4 Transport costs

The proposals are not expected to increase transport costs. Improving ship efficiency will result in lower fuel use with a consequential cost saving. Although investing in technology improvements will require investment should a shipowner decide to improve technical efficiency in this way, it should be noted that the proposals allow for options such as speed optimisation or applying a power limitation which could be implemented with minimal cost.

.5 Food security

The proposals will have no adverse impact on food security.

.6 Disaster response

The proposals will have no adverse impact on disaster response.

.7 Cost-effectiveness

Since the measures are flexible and goal based, facilitating decision making by shipowners based on their own particular operating model, they are expected to be inherently cost effective. Shipowners could select from a wide range of options, ranging from higher capital investment in technical improvements which could result in greater operational savings over time, or low (potentially zero) capital cost measures such as speed optimisation and limiting shaft power.

.8 Socio-economic progress and development

The proposed provisions to develop guidelines for ensuring that Member States with ports and areas, which are subject to particularly challenging operational conditions such as geographical remoteness or prevalence of adverse weather, are not penalised by operational efficiency indicators should ensure there will be no significant adverse socio-economic impacts affecting progress and development.

1.3 Justification

.1 Delivery of the *Initial IMO strategy on reduction of GHG emissions from ships* (MEPC.304(72)), in particular providing a pathway to deliver the 2030 level of ambition of the initial strategy.

.2 Avoiding market distortion 1: new ships are expected to be subject to stricter requirements towards 2030 and beyond. In order to retain a level playing field and avoid distortion of the market, older vessels should also be required to demonstrate progress towards stricter energy efficiency requirements.

.3 Promoting technical innovation by avoiding overly prescriptive measures and offering shipowners an [entirely] goal based mechanism which they will be expected to achieve by applying any suitable measures, operational and/or technical.

.4 Supporting those segments of the industry for which goal based operational measures may not be appropriate by providing a technical measures based option.

1.4 Number of ships affected and impact on GHG emissions

.1 All ships subject to SOLAS Chapter IX.

.2 Mandatory reduction in transport work emissions to achieve the 2030 level of ambition of the initial strategy i.e. a 40% efficiency improvement as an average across the fleet compared to 2008 . In reality, it could be expected that the proposed measures would actually exceed the 2030 level of ambition by promoting both technical and operational improvements.

1.5 Impact on seafarers

.1 The measure targets ship design and operation. For example, if shaft power is a part of reducing a ship's EEXI value, or speed is reduced as part of speed optimisation within the SEEMP, then this may increase sailing times for some ships.

.2 Depending upon the nature of measures developed by the Company within the SEEMP there may be a need to provide additional training to seafarers and some additional on board administrative burden in maintaining information for the purposes of demonstrating effectiveness of the SEEMP.

1.6 Positive Impacts

.1 Reduced fuel use and thus reduced GHG emissions.

.2 Reduced local emissions (e.g. NO_x, SO_x and PM) as a consequence of reduced fuel use and greater machinery efficiency.

.3 Improved transport work efficiency and delivery of the levels of ambition of the initial strategy.

.4 Potential to accelerate adoption of new technologies and fuels by providing a goal based structure; for example, shipowners may decide to invest in such technologies in order to avoid reducing speed to the same degree as competitors.

.5 Avoids forcing shipowners to make capital investment in older tonnage with a consequential increase in shipping costs.

.6 The goal based nature of the proposals would allow different segments of the industry to identify measures appropriate to their own operations, minimising the risk of short term GHG reduction measures increasing shipping transport costs or distorting markets.

.7 The proposals include provision to prevent adverse consequences for trade in the case of Member States which are subject to increased prevalence of adverse weather, unbalanced trade, geographical remoteness or other factors which could potentially penalise trade to such areas.

1.7 Negative Impacts

.1 Some ships could be expected to reduce speed, increasing voyage time. This could also necessitate an increased number of ships to maintain transport supply in those segments which reduce speed. However these impacts are expected to be in line with present trends associated with new build ships being provided with lower power in order to reduce EEDI values and are not therefore expected to result in any negative impacts in themselves. It should also be noted that these proposals do not mandate speed reduction, and are flexible in nature so as to promote innovation and more efficient ships and/or alternative lower carbon fuels. It is expected that some ships would apply technical measures to improve efficiency, adopt alternative fuels or other measures which would allow them to achieve the necessary objectives without slowing down.

1.8 Quantification of Impacts

.1 Energy efficiency improvement and GHG reductions at least in line with the 2030 level of ambition of the initial strategy.

.2 Shipping transport costs impacts are expected to be within normal levels of commercial variability.

.3 There is expected to be no significant impact for trade.

1.9 Will the measure result in any disproportionately negative impacts?

.1 No.

1.10 Expected workload for IMO

.1 Develop guidelines for calculation, survey and verification of EEXI.

.2 Develop guidelines for defining SEEMP objectives, operational energy efficiency indicators and auditing of the SEEMP.

.3 Develop guidelines for ensuring that Member States with ports and areas which are subject to particularly challenging operational conditions, such as geographical remoteness or prevalence of adverse weather are not penalised by operational efficiency indicators.

.4 Develop amendments to MARPOL Annex VI.

