



İstanbul :

Sayı:

Our Reference : 566

08.02.2019

Konu:

Subject : **Gemilerden Kaynaklanan Sera Gazı Emisyonlarının Azaltılmasında ICS'in Taslak Teklifleri Hk.**

SİRKÜLER No: 96 / 2019

İlgi: ICS (Uluslararası Deniz Ticaret Odası)'in 22.01.2019 tarihli ve MC (19) 06 sayılı yazısı

Sayın Üyemiz,

İlgi yazı ile, 6-10 Mayıs 2019 tarihleri arasında gerçekleşecek olan **gemilerden kaynaklanan sera gazı emisyonlarının azaltılması konusundaki oturumlararası çalışma grubunun beşinci oturumuna** sunulan güncellenmiş taslak ICS teklifleri, Ek'te üyelerimizin bilgilerine sunulmuştur.

Bilgilerinizi arz/rica ederiz.

Saygılarımızla,

İsmet SALİHOĞLU
Genel Sekreter

EKLER:

Ek-1: İlgi yazı Türkçe Çevirisi (3 syf.)

Ek-2: İlgi yazı ve Eki (25 syf.)

DAĞITIM:**Gereği:**

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EK-1

22 Ocak 2019

(Serbest Çeviridir)

**GEMİLERDEN KAYNAKLANAN SERA GAZI EMİSYONLARININ AZALTI MASINDA
OTURUMLARARASI ÇALIŞMA GRUBUNUN 5. OTURUMUNA SUNULAN ICS'İN
TASLAK TEKLİFLERİ**

Yapılması Gereken: 6-10 Mayıs 2019 tarihlerinde gerçekleşecek olan gemilerden kaynaklanan sera gazı emisyonlarının azaltılması konusundaki oturumlararası çalışma grubunun beşinci oturumuna üç adet taslak ICS teklifi sunan MC (18) 108 dökümanı üyelerin bilgisi dahilindedir. Bahse konu taslaklar, üyeler tarafından gönderilen yorumların incelenmesinden sonra değiştirilmiştir.

Üyeler tarafından gönderilen yorumların incelenmesinin ardından, Sekreteryaya'nın, sera gazı emisyonlarının azaltılması konusundaki çalışma gruplarının beşinci oturumu için tasarlanan gemilerden kaynaklanan sera gazı emisyonlarını azaltmak için kısa vadeli tedbirler konulu üç taslak ICS teklifinde değişiklik yapıldığı üyelere bildirilmektedir (GHG 5).

Bu taslakların ilkinde, ISWG-GHG 4/2/10 dökümanında GHG 4'e sunulan tekliflere dayanarak SEEMP'in (Gemi Enerji Verimliliği Yönetim Planı) güçlendirilmesi teklif edilmiştir. Üyeler tarafından yapılan incelemelerin ve sekreteryaya tarafından yapılan değerlendirmelerin ardından bu belge önemli ölçüde değiştirilmiş olup, değiştirilen belge Ek A'da belirtilmiştir.

Üyeler tarafından sunulan değerlendirmelerde, genişletilmiş SEEMP'in etkinliğini ölçmek için hedefler koymanın gerekli olacağına dair genel bir teşhis ve kabul olduğu gösterilmektedir. Bunun nasıl başarılacağına dair bir fikir birliği bulunmayıp, bununla birlikte, SEEMP'e hedefler getirmenin özel gemilerin operasyonel endekslenmesini sağlamak için bir yol yaratmaması gerektiği konusunda bir fikir birliği vardır. Sekreteryaya, hedeflerin ve önerilen kısa vadeli önlemlerin etkinliğinin ölçülmesinin, ileriye dönük olası bir CEEMP (Şirket Enerji Verimliliği Planı) oluşturulmasında IMO'nun kilit üye ülkelerinin desteğinin sağlanması için gerekli olacağını düşünmektedir.

CEEMP, enerji verimliliği hedeflerinin belirlenmesini kolaylaştırabilirken, özel gemiler için operasyonel verimlilik göstergeleriyle ilgili sorunlardan kaçınılmasını sağlayabilir. Geminin operasyonel verimlilik göstergeleri enerji verimliliğinin dışında ticaret verimliliğini ölçmek için teklif edilmiştir. Ayrıca filo performansının analizini takiben hesaplanan referans hatlarından türetilen zorunlu enerji verimliliği hedefleri getirdiğinden dolayı, yüksek verimli gemilerin cezalandırılma riski de vardır. Örneğin, eğer bir gemi pratikte ulaşılabilir olan hedefin sınırında çalışıyorsa, o zaman ne tür verimlilik iyileştirme hedefinin uygun olacağı konusu belli değildir.

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CEEMP, özel gemiler için değil, şirketler için hedefler getirecektir. Bu, gemilerden kaynaklanan sera gazı emisyonlarının azaltılması konusundaki ilk IMO stratejisiyle (MEPC.304 (72)) (ilk strateji) tutarlıdır. İlk stratejinin ilk hedefi, nakliye işi başına uluslararası sevkiyatta ortalama olarak 2008 yılına göre en az %40 oranında CO2 emisyonunu azaltmaktır. Bu durumu 2050 yılındaki yüksek seviyelerdeki talepler izleyecektir.

CEEMP hedefleri, ilk stratejinin yüksek seviyelerinden türetilenlerdir. Bu şirket düzeyindeki hedefler, SEEMP'te gemiye özel hedeflerin getirilmesiyle ilgili sorunlardan kaçınacaktır. Bu durumda, tüm şirketlerin ilk stratejinin yüksek seviyesinden türetilen hedeflere ulaşması gerektiğinden, eşit seviyede hedefler sağlayacaktır.

Şirketler, CEEMP'de tanımlanan hedeflere ulaşmaları şartıyla, özel gemiler için SEEMP'ler geliştirirken tam bir esnekliğe sahip olacaklardır. Birkaç olası uyum stratejisi aşağıdaki gibi olabilir:

- Eski gemilere ağır güçlendirme teknolojisi yatırmak veya yavaşlatmak zorunda kalmadan gerekli CEEMP hedefine ulaşmak için yeni gemilerin etkin performansının artırılması,
- Verimliliği artırmak için eski gemilerin teknoloji iyileştirmesine yatırım yapılması,
- Yavaşlama gibi tamamen operasyonel önlemlerin uygulanması ve,
- Düşük karbon faktörü (Cf) olan yakıtlara geçişlerdir.

Diğer olasılıklar veya bunların kombinasyonlarında ise şirketler, yönetmesi gereken kendi uyum stratejilerini oluşturmada özgür olacaklardır.

Teklifin gerçekleştirilmesi için çözülmesi gereken birçok sorun bulunmaktadır:

- 2030 hedefi, IMO'nun ilk stratejide kullanıldığı gibi "taşımacılık çalışması"nın kesin anlamını netleştirmesini ve aynı zamanda emisyonlar için 2008 baz çizgisi geliştirmesini gerektirecektir.
- Bir "şirket" tanımına ihtiyaç duyulmaktadır.
- Konvansiyonel taşımacılık çalışma kriterlerinin uygun olmadığı ve uygun taşımacılık çalışma yetkilerinin geliştirilmesini gerektiren önemli gemi tipleri vardır.

Taşımacılık ile ilgili konuların, hangi kısa vadeli önlemlerin alındığına bakılmaksızın ilk stratejiyi uygulamak için açıklık gerektireceği belirtilmektedir.

Aşağıdaki kısa vadeli önlemlerin alınması gerektiğini öneren ikinci taslak teklif Ek B'de verilmiştir:

- Metan kaçmasını azaltmak için önlemlerin geliştirilmesi,
 - Limanlarda kıyı elektrik enerjisi tedarikinin sağlanmasını kolaylaştıracak ve liman verimliliğini artıracak
- Ayrıntılı bilgi: Erkin TUĞRAN, Çevre Birimi Telefon:252 0130-246 E-mail: erkin.tugran@denizticaretodasi.org.tr



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önlemlerin geliştirilmesi,

- Her tür yakıt için yaşam döngüsü sera gazı / karbon yoğunluğu kılavuz ilkelerinin geliştirilmesi,
- Sera gazı / karbon yoğunluğunu azaltmada teknolojilerin etkinliğini değerlendirmek için kılavuzların geliştirilmesidir.

Taslak teklifler, üyeler tarafından sunulan yorumların incelenmesinden sonra değiştirilmiştir.

Teklif edilen kısa vadeli tedbirler için görüşler sunan son öneriler Ek C'de bulunmaktadır. Bu öneriler, üyeler tarafından sunulan görüşlerin incelenmesinden sonra değiştirilmiştir.

Üyelerden, ekte bulunan taslak teklifler için aşağıda bulunan mail adresine görüşlerini veya desteklerini sunmalarını talep edilmektedir.

john.bradshaw@ics-shipping.org

John Bradshaw

Teknik direktör

Ekler:

Ek A – SEEMP Teklifi, Alternatif versiyon

Ek B - Uluslararası denizcilik kaynaklı sera gazı emisyonlarını azaltmaya yönelik kısa vadeli önlemler

Ek C – Aday Kısa Dönemli Önlemlerin İncelenmesi_v1

İngilizceden çeviren: Erkin TUĞRAN

İMEAK DTO Çevre Sorumlusu / Çevre Mühendisi

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22 January 2019

MC(19)06

To: MARINE COMMITTEE

**Copy: BOARD
CONSTRUCTION & EQUIPMENT SUB-COMMITTEE
ENVIRONMENT SUB-COMMITTEE
ALL FULL AND ASSOCIATE MEMBERS (for information)**

**REVISED ICS DRAFT SUBMISSIONS TO THE FIFTH SESSION OF THE
INTERSESSIONAL WORKING GROUP ON REDUCTION OF GHG EMISSIONS
FROM SHIPS**

Action required: *Members will recall circular MC(18)108 which invited comments on three draft ICS submissions to the fifth session of the intersessional working group on reduction of GHG emissions from ships which will take place May 6 – 10, 2019. The drafts have been amended following a review of comments submitted by Members, who are invited to review and provide comment on the amended drafts.*

Members are advised that following a review of comments submitted by Members the Secretariat has amended three draft ICS submissions on the matter of short term measures to reduce GHG emissions from ships which are intended for the fifth session of the intersessional working group on reduction of GHG emissions from ships (GHG 5).

The first of these draft submissions proposed strengthening the SEEMP, building on the proposals which ICS submitted to GHG 4 in document ISWG-GHG 4/2/10. Following review by Members, and further consideration by the secretariat, this document has been significantly amended. The amended document is attached at **Annex A**.

The comments submitted by Members indicate that there is a general recognition and acceptance that a means of setting objectives to measure the effectiveness of the enhanced SEEMP would be necessary. There was no consensus on how this should be achieved. There was, however, a consensus that introducing objectives into the SEEMP should not create a pathway to enable operational indexing of individual ships. The Secretariat considers that the introduction of objectives and a means of measuring the effectiveness of any proposed short term measures will be essential in order to secure necessary support of key IMO member states the Secretariat considers that a possible way forward would be to introduce a Company Energy Efficiency Management Plan (CEEMP).

The CEEMP could facilitate the setting of energy efficiency objectives, whilst avoiding the problems associated with operational efficiency indicators for individual ships. The ship operational efficiency indicators which have been proposed to date measure trade efficiency rather than ship energy efficiency. They also risk penalising very efficient ships

by introducing mandatory energy efficient targets derived from baselines calculated following an analysis of fleet performance. For example, if a ship is already operating at the limit of what could practicably be achieved then what sort of efficiency improvement target would be appropriate?

The CEEMP would introduce company objectives, not objectives for individual ships. This is consistent with the Initial IMO strategy on reduction of GHG emissions from ships (MEPC.304(72)) (the initial strategy). The first level of ambition of the initial strategy is to reduce CO₂ emissions per transport work, as an average across international shipping by at least 40% compared to 2008. This would be followed by the 2050 levels of ambition.

The CEEMP objectives would be derived from the levels of ambition of the initial strategy. These company level objectives would avoid the problems associated with introducing ship specific objectives into the SEEMP. This would maintain a level playing field since all companies would be required to achieve objectives derived from the levels of ambition of the initial strategy.

Companies would have complete flexibility when developing SEEMPs for individual ships provided that the company satisfied the objectives defined in the CEEMP. A few possible compliance strategies could be:

- Leveraging the efficient performance of new ships in order to achieve the necessary CEEMP objective without having to invest heavily retrofitting technology to older ships or to slow down;
- Investing in technology retrofit of old ships to improve efficiency;
- Applying purely operational measures such as slowing down; and
- Switching to fuels with a lower carbon factor (C_f).

And any other possibilities or combinations thereof. Companies would be free to establish their own compliance strategies, which would be for the company to manage.

There are a number of outstanding issues which would need to be resolved in order for the proposal to work:

- The 2030 objective would require that IMO clarify the precise meaning of “transport work” as used in the initial strategy, as well as developing a 2008 baseline for emissions;
- A definition of “company” would be needed; and
- There are significant ship types for which conventional transport work metrics are inappropriate and which would require the development of suitable transport work proxies.

It is noted that the issues related to transport work will require clarification in order to implement the initial strategy regardless of which short term measures are adopted.

The second draft submission proposing that the following short term measures should be adopted is attached at **Annex B**:

- Development of measures to reduce methane slip;
- Development of measures to facilitate provision of shoreside electrical power (cold ironing facilities) in ports and to improve port efficiency;

- Development of guidelines for lifecycle GHG/carbon intensity guidelines for all types of fuels; and
- Development of guidelines for assessing the efficacy of technologies for lowering GHG/carbon intensity.

The draft submission has been amended following a review of comments submitted by Members.

The final submission providing comment for short term measures which have been proposed is attached at **Annex C**, this has also been amended following a review of comments submitted by Members.

Members are invited indicate their support, or otherwise, for the attached draft submissions and to provide comment.

Members are kindly requested to provide any comments to the undersigned (john.bradshaw@ics-shipping.org) by **Tuesday, 5 February 2019**.

John Bradshaw
Technical Director

Attachments:

Annex A–SEEMP Submission, Alternate version

Annex B–Short Term Measures to Reduce GHG emissions from international shipping_v1

Annex C–Review of Candidate Short Term Measures_v1

INTERSESSIONAL WORKING GROUP ON
REDUCTION OF GHG EMISSIONS FROM
SHIPS
5th session
Agenda item 3

ISWG-GHG 5/X/X
May 2019
Original: ENGLISH

**CONSIDERATION OF CONCRETE PROPOSALS ON CANDIDATE SHORT-TERM
MEASURES, NOTING THE DISCUSSION AT ISWG-GHG 4 ABOUT SHORT-TERM
MEASURES AND THEIR CATEGORIZATION**

**PROPOSAL TO STRENGTHEN THE SHIP ENERGY EFFICIENCY MANAGEMENT PLAN
(SEEMP) AND TO INTRODUCE A COMPANY ENERGY EFFICIENCY MANAGEMENT
PLAN (CEEMP)**

Submitted by ICS.....

SUMMARY

Executive summary: The [co-sponsors] provide concrete proposals to strengthen the Ship Energy Efficiency Management Plan (SEEMP) as a short term measure to reduce GHG emissions from international shipping and to introduce a Company Energy Efficiency Management Plan (CEEMP). The CEEMP would include objectives and goals to be derived from the levels of ambition of the Initial IMO strategy on reduction of GHG emissions from ships, introducing energy improvement objectives whilst avoiding the significant challenges facing any attempt to develop ship specific objective setting requirements. The proposals could be agreed and implemented relatively quickly, and deliver actual GHG reductions.

Strategic direction:

High-level action:

Output:

Action to be taken: Paragraph 44

Related documents: MEPC.304(72), MEPC.282(70), MEPC 73/WP.1, MEPC 73/WP.8, MEPC 73/WP.5, MEPC.72/Inf.5, ISWG-GHG 4/2/10, MEPC.1/Circ.684, MEPC.67/5/4, MEPC.65/4/30, MEPC.65/4/19, MEPC.65/4/30, MEPC.72/Inf.5, ISWG-GHG 2/2/7, ISWG GHG 4/2/9

Introduction

1. The Initial IMO strategy on reduction of GHG emissions from ships (MEPC.304(72)) (the initial strategy) was adopted at MEPC 72. The co-sponsors supported the adoption of the initial strategy and consider it to be a major step forward for the international shipping sector, setting out a pathway for the phase-out of GHG emissions.

2. At MEPC 73 a draft programme of follow-up actions of the initial IMO strategy on reduction of GHG emissions from ships up to 2023 was agreed. The programme of follow up actions, inter alia, proposed three categories for candidate short term measures and called for consideration of concrete proposals at MEPC 74 (MEPC 73/WP.5, Annex).

3. The co-sponsors consider it to be essential that short-term measures should be effective and that they should be agreed and implemented quickly.

4. Document ISWG-GHG 4/2/10 proposed strengthening the SEEMP by introducing a mandatory review and improvement process. The proposal was widely supported at GHG 4 however some delegations called for the strengthened SEEMP to include quantified objectives.

5. Attempting to develop appropriate common SEEMP objectives for ships would be extremely difficult. No ship operational performance indicator is appropriate to either all ship types or to all trades. A solution would be to develop a Company Energy Efficiency Management Plan (CEEMP), to include objectives derived from the levels of ambition in the initial strategy. The initial objective would be the 2030 level of ambition in the initial strategy of reducing CO₂ emissions per transport work, as an average across international shipping by at least 40% compared to 2008. The CEEMP could then inform ship specific SEEMP objectives. This is fully consistent with the levels of ambition of the initial strategy which are defined in terms of the industry as a whole and not for individual ships.

6. Company level objectives aligned with the levels of ambition of the initial strategy would quantify efficiency improvement, introduce objectives and avoid the very real problems associated with any attempt to introduce ship specific objectives and operational efficiency indicators. The proposals could be agreed by the Committee and introduced quickly without prejudice to other potential candidate short term measures.

7 Strengthening the SEEMP would be a group A candidate short-term measure, since the proposed CEEMP is an evolution of the strengthened SEEMP it is considered that this is also a group A candidate measure.

Discussion

8. Short term measures should:

- be effective, and make progress towards delivering the levels of ambition established in the initial strategy;
- promote innovation and adoption of GHG reducing technologies;
- be implementable;
- avoid penalising early movers;
- minimise negative impacts on Member States and global trade (consistent with 4.10 – 4.13 of the initial strategy); and
- not divert time and resources from the development of longer term solutions such as zero carbon fuels.

Short term measures which are relatively simple to implement, verify and enforce will reduce GHG emissions more quickly than more complex measures requiring prolonged work to develop and agree.

9. To minimize impacts on global trade and Member States, improving operational efficiency should focus on the efficiency of ships, and not the efficiency of trade. This is a critical distinction, many measures which have been proposed to enhance operational efficiency would be determined by the nature of trade and discourage ships from operating in certain trades, introducing market distortion.

10. The *2016 Guidelines for the development of a ship energy efficiency management plan (SEEMP)* (MEPC.282(70))(SEEMP guidelines) provide detailed and comprehensive guidance for developing a SEEMP, including for speed optimisation and use of operational indicators. The SEEMP guidelines already include an assessment and improvement stage. However, although the SEEMP is a mandatory requirement, there is no mandatory requirement for through life review and improvement. This could be addressed by making the Part 1 of the SEEMP part of the ships Safety Management System. Detailed proposals were provided in document ISWG GHG 4/2/10.

11. The diversity of ship types and trade patterns makes any attempt to define common energy efficiency metrics or KPIs and objectives to quantify efficiency improvement to all ships very challenging. Setting objectives which could be applied to all ships would also be extremely challenging. The reasons for this were outlined in detail in document ISWG GHG 4/2/9, however a brief summary is provided in the following paragraphs.

12. Ships are subject to environment and weather conditions, as well as asymmetric trade patterns which are beyond the control of the shipowner and crew. Operational efficiency is influenced by route deployment and the nature of trade on those routes. Even ships which operate on known routes (i.e. liner trades) may be redeployed, tramp ships do not know their next port of destination until they receive orders for a given voyage. Therefore a ships indicated operational efficiency may vary through the year in ways which cannot be predicted by the shipowner. Document MEPC.72/Inf.5 (Intertanko) provided the results of applying operational efficiency indicators to identical sister ships operated by the same company varied greatly, demonstrating the limitations of such indicators.

13. Short term measures to reduce emissions must not distort markets and penalise those countries, many of which are small islands developing states (SIDS) or least developed countries (LDCs), which are remote from the principal trade routes and/or for which trade is heavily weighted in one direction (import of essential goods and materials, or export of a bulk commodity for example). Mandatory objectives for individual ships using inappropriate metrics or KPIs could disincentivise ships from serving certain trades if a potential consequence is that a ships fail to meet an environmental objective, triggering enforcement action and being noted as having done so by Administrations and charterer vetting services.

14. Measures to improve operational energy efficiency must not punish efficient ships. If all ships were required to quantitatively demonstrate an improvement of "X"% based on a standard means of measuring operational efficiency, this could have the unfortunate result of punishing ships which are already operating as efficiently as is practicable. It has been suggested that reference lines for operational efficiency could be developed followed by requiring reductions below such reference lines. No reference line could reflect a genuine datum point for operational efficiency of a given ship type, attempting to develop such lines would be time consuming and contentious.

15. Some measures to improve operational efficiency are not affected by route deployment and weather conditions, however the most important factors affecting such efficiency are largely determined by route deployment and weather conditions. Similarly, transport work indicators will largely be determined by route deployment and the nature of trade. Many trades are inherently asymmetrical making it impossible for shipowners to avoid ballast voyages or voyages in the part load condition (for example, repositioning empty containers). This is despite the best efforts of shipowners to maximise vessel utilisation and minimise ballast and part loaded voyages. Any objective setting at ship level would need to consider:

- The differences between efficiency parameters which are within the control of the shipowner and crew, and those which aren't;
- Existing operational energy efficiency, i.e. an unrealistic objective based on an across the fleet objective should not be imposed on a ship which is already at the limits of what can practicably be achieved;
- The risks of market distortion resulting from setting objectives which will inhibit ships from serving certain markets in order to avoid failure to satisfy objectives;
- That a ship can be managed to a high standard and to miss meeting operational efficiency objectives as a result of being redeployed to other routes or because of weather and environmental conditions;
- Operational efficiency indicators may be influenced by the nature of the loads carried, for example the number of refrigerated cargo containers or liquid cargo requiring thermal conditioning; and
- The diversity not just of shipping as a whole but even between operational conditions for ships of the same type.

16. The diversity of shipping means that no single operational efficiency indicator or KPI will be appropriate for all ships, not even all ships of a given ship type. Indicators and KPIs used for a particular ship will not generally provide data which is comparable with data for other ships.

17. The co-sponsors recognise, however, that to preserve a level playing field and also quantify the effectiveness of measures to improve the operational efficiency a uniform means of monitoring efficiency should be established. This could be achieved by setting objectives at company level, avoiding the difficulties associated with any attempt to define ship specific objectives applicable to all ships (or all ships of a defined ship type).

18. Company objectives would be aligned with the levels of ambition of the initial strategy, in the first instance the 2030 target of reducing CO₂ emissions per transport work, as an average across international shipping by at least 40% compared to 2008, followed by the 2050 level of ambition of at least a 50% reduction in GHG emissions compared to 2008 whilst pursuing efforts towards phasing them out.

19. A company (to be defined) would set objectives for its ships, to be included within the SEEMP, which would be derived from the CEEMP. This would introduce flexibility, companies could set very ambitious objectives for those ships within a fleet for which this is practicable, at the same time as avoiding imposition of inappropriate objectives for other ships.

20. Introducing objectives derived from the proposed CEEMP into Part I of the SEEMP (using appropriate KPIs defined in the CEEMP), along with a mandatory independent third party review process would strengthen the existing SEEMP guidelines provisions for monitoring, review and self-improvement and provide the same benefits which have been claimed for some other candidate short term measures, such as mandatory speed reduction or a single IMO operational efficiency indicator for all ships.

21. Although it is proposed that SEEMP objectives be derived from the CEEMP which in turn would incorporate objectives derived from the initial strategy it should be emphasised that this would not prevent more ambitious objective setting by individual companies for their ships.

22. Should the Organization agree to the development of the CEEMP and company level objectives, it would be necessary to clarify the 2030 level of ambition, both in terms of defining CO₂ emissions per transport work and also to establish a baseline figure for 2008. In addition, there are significant ship types which do not provide transportation services, but rather provide services (for example, offshore construction vessels). Appropriate transport work proxies will be needed for such ships. However, such clarifications will be necessary regardless of which measures the Organization decides to progress under the initial strategy.

23. The CEEMP would be subject to mandatory survey and audit, it is anticipated that a similar audit approach to that used for the ISM Code could be used.

Proposals

24. The co-sponsors propose that Part I of the SEEMP should form part of the ship's Safety Management System (SMS) for those ships subject to SOLAS Chapter IX. There have been some concerns that such a measure would conflate safety and environmental protection, however Regulation 22 of MARPOL Annex VI already states that the ship's SEEMP may form part of the ship's SMS. Therefore the MARPOL Convention already makes provision for the SEEMP to be part of the SMS. This is reflected in industry guidance (such as, for example, *Guidelines on the Application of the IMO International Safety Management(ISM) Code* published by ICS and ISF).

25. This would make the SEEMP subject to mandatory external audits by the Administration or a duly authorised Recognised Organization on a regular basis. This would include interim (where applicable), initial, intermediate and renewal audits; the renewal audit being carried out after five years.

26. Regulation 22 of MARPOL Annex VI should be amended to include a mandatory requirement for a Company Energy Efficiency Management Plan (CEEMP). The co-sponsors provide draft regulatory amendments for the consideration of the Committee in Annex 1 to this document.

27. Guidelines for the development of a CEEMP and appropriate audit requirements based on existing management system audit methods should be developed.

28. This is considered to be a Group A short term measure, as defined in the programme of follow-up actions of the initial IMO strategy on reduction of GHG emissions from ships up to 2023 (MEPC 73/19-Add.1, Annex 9).

Action requested by the Committee.

29. The Committee is invited to consider the comments and proposals contained in this submission and to take action as appropriate.

INTERSESSIONAL WORKING GROUP ON
REDUCTION OF GHG EMISSIONS FROM
SHIPS
5th session
Agenda item 3

ISWG-GHG 5/X/X
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**CONSIDERATION OF CONCRETE PROPOSALS ON CANDIDATE SHORT-TERM
MEASURES, NOTING THE DISCUSSION AT ISWG-GHG 4 ABOUT SHORT-TERM
MEASURES AND THEIR CATEGORIZATION**

Short Term Measures to Reduce GHG emissions from international shipping

Submitted by ICS.....

SUMMARY

Executive summary: The co-sponsors recommend that measures to reduce methane slip, promote improved port efficiency and encourage provision of shore power (cold ironing) should be developed and implemented. Additionally, robust guidelines assess the lifecycle GHG/carbon intensity of marine fuels and also the efficacy of technologies for lowering GHG emissions from ships should be developed.

Strategic direction:

High-level action:

Output:

Action to be taken: Paragraph 38

Related documents: MEPC.304(72), MEPC 73/WP.5, MEPC.281(70),

Introduction

1. The Committee, at MEPC 72, adopted the Initial IMO strategy on reduction of GHG emissions from ships (MEPC.304(72)) (the initial strategy). The co-sponsors supported the adoption of this initial strategy and consider it to be a major step forward for the international shipping sector, setting out a pathway for the phase-out of GHG emissions.

2. ISWG-GHG 4 developed a draft programme of follow-up actions of the initial IMO strategy on reduction of GHG emissions from ships up to 2023 which, inter alia proposed three categories for candidate short term measures and called for consideration of concrete proposals at MEPC 74 (MEPC 73/WP.5, Annex).

4. Further to the decision of MEPC 73 to call for concrete proposals to be submitted for consideration at ISWG-GHG 5 the co-sponsors provide proposals for reducing GHG emissions from ships and to facilitate informed decision making by the Organization.

5. These proposals are:

1. Development of measures to reduce methane slip;
2. Development of measures to facilitate provision of shoreside electrical power (cold ironing facilities) in ports and to improve port efficiency;
3. Development of guidelines for lifecycle GHG/carbon intensity for all types of fuels; and
4. Development of guidelines for assessing the efficacy of technologies for lowering GHG/carbon intensity.

Discussion

Reducing methane slip and fugitive emissions of VOCs

6. The Initial IMO strategy on reduction of GHG emissions from ships includes consideration and analysis of measures to address emissions of methane and further enhance measures to address emissions of Volatile Organic Compounds as a short term candidate measure.

7. Natural gas fuelled ships emit much lower levels of local pollutants than those combusting marine fuel oil, with clear benefits for public health in coastal and port areas. Natural gas fuelled ships may also lower GHG emissions from shipping in the short term.

8. The carbon factor (Cf) of liquefied natural gas (LNG) for the EEDI calculation is 2.75, compared with 3.206 for marine diesel/gas oil (MDO/MGO) and 3.114 for heavy fuel oil (HFO) (MEPC.281(70)). Therefore strengthening the EEDI, such as implementing EEDI phase 3 in 2022, will encourage the adoption of LNG fuel.

9. When combusting natural gas in internal combustion engines some methane may be emitted to atmosphere as part of the engine exhaust. This is referred to as methane slip. Depending on the thermodynamic cycle of gas fuelled internal combustion engines, methane slip may be significant. Methane slip is particularly associated with Otto engines, it is not generally associated with gas fuelled diesel engines because of more efficient and complete combustion of gas in a gas Diesel engine. Methane is a more potent GHG than CO₂, therefore any fugitive emissions such as methane slip are undesirable and reduce the GHG benefit of using natural gas fuel¹.

10. Otto engines offer some significant advantages relative to gas fuelled diesel engines since they do not need the high pressure gas supply requirement of gas Diesel engines, emit less NO_x and can operate without a pilot fuel such as oil. The simplified gas supply arrangements, lower NO_x emissions and lower risk profile resulting from eliminating high pressure gas systems mean that Otto engines are a popular option for gas fuelled internal combustion engines on ships.

¹ Intergovernmental Panel on Climate Change (IPCC), Climate Change 2013: Physical Science Basis, Anthropogenic and Natural Radiative Forcing, p. 714.

11. To reduce the risk that methane slip levels could negate the GHG benefits of using natural gas fuel it is proposed that the Organization agree measures to control methane slip.

12. There may be several ways to achieve this. For example it could be done by means of an engine certification scheme, similar to that which regulates emissions of NO_x, with an engine being pre-certificated in accordance with measures to be developed by the Organization. This could be included within the Engine International Air Pollution Prevention Certificate (EIAPPC). However, the co-sponsors consider that regulations to control methane slip should be goal based and non-proscriptive, similar to those which govern emissions of NO_x.

13. It will be necessary to consider both emission limit values for methane slip and methane slip at different engine load points.

14. In addition to methane slip, VOCs may be released during loading and unloading of cargo, this can be easily mitigated by using a vapour return system. Most tankers are already provided with vapour arrangements however operator experience is that many ports and terminals have vapour return arrangements.

15. The Organization should consider measures to increase the take up of vapour return arrangements in tanker terminals.

16. Development of suitable methane slip and port vapour return measures may require significant effort to complete. However, as a purely technical matter it could be undertaken by the PPR sub-committee, and should not divert resources from development of other GHG reduction measures.

17. This is considered to be a Group B candidate short-term measures, one that is not a work in progress and which would be subject to data analysis in order to establish emission limit values.

Measures to facilitate provision of shoreside electrical power (cold ironing facilities) in ports as well as consideration of how ports could be made more efficient

18. MEPC 73 agreed that improving port efficiency/optimisation could ports contribute to reducing GHG emissions from ships and encouraged the exchange of best practices as well as the development of non-mandatory guidelines to assist member states to reduce emissions from ships in ports (MEPC 73/WP.1 paragraph 7.21). A further contribution which ports could make to reduce GHG emissions from ships would be to increase the provision of shoreside electrical power. The initial strategy already includes development and implementation of measures to facilitate provision of shoreside electrical power (cold ironing facilities) in ports as well as consideration of how ports could be made more efficient.

19. The efficiency of shipping is linked to the efficiency of a wider logistic chain, improving the efficiency of shipping is contingent on similar efficiency enhancements being applied in other parts of that chain, especially ports. For example, for speed optimisation to be effective ports must ensure the availability of berths, cranes, pilots, tugs, land transport etc. on time for the planned arrival time of the ship. This would facilitate smoother voyage speed profiles and avoid the current all too common situation where ships manage their voyage speed to arrive at a given time only to be required to anchor, or be allocated a berth but then have to await cranes.

20. Although some aspects of port optimisation may have to be addressed via national action plans there may be a role for IMO in developing improved communication and planning tools.

21. Increased provision of shoreside electrical power supplies could encourage the adoption of cold ironing by ships, eliminating at berth emissions of GHGs and local emissions. Efforts to promote cold ironing have been hampered by two factors:

1. In many cases it is more cost effective for ships to use their electrical generators at berth; and
2. Incompatibility between the ship and shoreside power systems.

22. The Organization is already developing technical guidelines for shoreside electrical power systems, including the interface between ship and shore and safe management of operations. The report of a correspondence group which has been progressing this work will be considered at SSE 6. The co-sponsors support this work and look forward to the final guidelines. Although the co-sponsors support developing the use of shoreside electrical power it should also be acknowledged that there are alternatives such as provision of zero emission auxiliary power units onboard and that shoreside power may not be appropriate for all ships calling at a particular port. In the case of ships with high electrical loads at berth (such as cruise ships and container ships) it must be recognised that fitting providing cold ironing arrangements may be complex and that it may not be appropriate as a retrofit measure for existing ships (however it is accepted that it is these ships with high electrical loads at berth for which cold ironing will provide the greatest environmental benefit). It should also be understood that use of shoreside electrical power will only reduce GHG emissions where that power is supplied from low carbon energy sources.

23. Cold ironing generally requires incentives to be a viable option for shipowners. The fuel consumption of auxiliary engines when alongside is relative small compared to the consumption during a voyage, however providing a ship with cold ironing capability can be expensive meaning that often there is a poor business case for such investment. This may have to be addressed via national action plans.

24. These measures are considered to be a combination of Group A and Group C.

Development of guidelines for lifecycle GHG/carbon intensity guidelines for all types of fuels

25. The co-sponsors consider that the 2050 levels of ambition in the initial strategy can only be achieved by adopting new low/zero carbon fuels, energy carriers and technologies.

26. In order to facilitate informed decision making it will be essential to understand the carbon intensity of marine fuels. This requires the development of lifecycle GHG intensity guidelines for marine fuels. Development of such guidelines is already included within the initial strategy as a candidate measure.

27. Without such guidelines there is a risk that marine fuels which initially appear to offer GHG emission benefits but which are subsequently re-evaluated and found to deliver very limited or no net GHG emissions benefit over their lifecycle could be adopted. This could involve high costs firstly to adopt such fuels, followed by possibly still greater costs to phase out their use in favour of low carbon alternatives. Such a wrong turning which later had to be reversed would be hugely expensive for all sectors of the industry, potentially delay progress towards achieving the 2050 level of ambition in the initial strategy and abstract resources from long term solutions to decarbonise the industry.

28. To facilitate the necessary investment to commercialise new fuels industry needs some surety that the fuels concerned will be accepted as low/zero carbon products.

29. The lifecycle GHG intensity of fuels is sensitive to how system boundaries are defined and the methodology used, meaning that it is possible to develop different analysis for the same fuel.

30. IMO guidelines for lifecycle GHG analysis would promote consistency and transparency, facilitate informed decision making and provide greater assurance to industry when considering investing in new or alternative fuels and technologies.

Development of guidelines for assessing the efficacy of technologies for lowering GHG/carbon emissions

31. As stated in paragraph 23, the co-sponsors consider that the 2050 levels of ambition in the initial strategy can only be achieved by adopting new low/zero carbon fuels and technologies.

32. The Organization is already considering strengthening the EEDI regulation, as the industry moves beyond EEDI phase 2 it will be increasingly necessary to adopt new and innovative technologies, and for the Organization to understand what is technologically achievable when considering further EEDI strengthening.

33. In addition to the EEDI regulation it is anticipated that the Organization will take far reaching decisions as it implements the initial strategy. Some of these decisions may be predicated on assessments of the readiness of technologies to reduce GHG emissions.

34. If decisions are made based on unrealistic assessments of what is technologically achievable, or based on inappropriate analysis of proposed technical solutions then the consequences could be setting unrealistic objectives and wrongful decision making.

35. Documents ISWG-GHG 4/3/4 and MEPC 73/5/9 (both RINA) highlighted some of the issues associated with evaluating the efficacy of technologies for improving the efficiency of ships.

36. Operational experience indicates that there can be significant differences between claimed improvements for new technologies and what is actually achieved in service. How such claims verified and quantified? For example, are measured improvements in an aspect of performance compared with alternatives on a like for like basis, or based on conditions which could be favourable to certain outcomes? For example if a ship is fitted with a new propeller design during a dry dock, it is probable that the hull will also be cleaned to some degree at the same time and the opportunity taken to perform engine maintenance, sea water system cleaning and other routine works which will improve performance and efficiency. This presents the question of how much of any measured improvement is because of the new propeller design and how much is attributable to maintenance and cleaning. Or it may be that changes in operational management are introduced along with a technology trial which make it difficult to assess whether these changes in operational management or the new technology are responsible for any measured differences in performance and efficiency.

37. The efficacy of technologies should be demonstrated under a range of representative conditions. This is to minimise the risk that data obtained under highly optimized conditions which are not representative of actual operations is used to support claims made for a technology.

38. IMO guidelines for assessing the efficacy of technologies for lowering GHG/carbon emissions would promote consistency and transparency, facilitate informed decision making and promote improved regulation making.

Proposals

39. The co-sponsors propose that:

1. Measures to reduce methane slip and promote the provision of VOC vapour return arrangements in ports should be developed as a short term candidate measure. This includes developing appropriate emission limit values, followed by development of goal based regulations to control such emissions. This should consider the practicability of an engine pre-certification scheme and the most effective means to verify continued compliance through life;
2. Work to develop technical standards for provision of shoreside electrical power (cold ironing facilities) should be finalized, this should be complimented by developing measures to encourage the provision and use of cold ironing. This may be most appropriately addressed by suitable guidance for member states for how the matter should be addressed in national action plans.
3. The Organization should develop requirements to improve communications between ships and ports so as to improve voyage planning and improve port efficiency. In addition, the Organization should develop guidance for member states for promoting improving port efficiency for inclusion in national action plans;
4. Guidelines for lifecycle GHG/carbon intensity guidelines for all types of fuels should be developed; and
5. Guidelines for assessing the efficacy of technologies for lowering GHG/carbon intensity should be developed.

Action requested by the Committee.

40. The Committee is invited to consider the comments and proposals contained in this submission and to take action as appropriate.

