INTERNATIONAL MARITIME ORGANIZATION

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INTERSESSIONAL MEETING OF THE WORKING GROUP ON REDUCTION OF GHG EMISSIONS FROM SHIPS
6th session
Agenda item 2

ISWG-GHG 6/2/11
27 September 2019
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FURTHER CONSIDERATION OF 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 a goal-based short-term reduction measure

Submitted by Denmark, Germany and Spain

SUMMARY

Executive summary:	This document comments on document MEPC 74/7/4 on a proposal for a goal-based short-term reduction measure, submitted by Denmark, Germany and Spain. The document is structured in accordance with the note by the Chair (ISWG-GHG 6/1/1) addressing the issues and questions raised at ISWG-GHG 5 and MEPC 74. This document further includes draft amendments to MARPOL Annex VI, the SEEMP guidelines and draft guidelines on the certification and verification process.
Strategic direction, if applicable:	3
Output:	3.2
Action to be taken:	Paragraph 8
Related documents:	MEPC 74/7/4, MEPC 74/18; ISWG-GHG 6/1/1, ISWG-GHG 6/2/1; ISWG-GHG 5/4, ISWG-GHG 5/4/12; ISWG-GHG 4/2/14; ISWG-GHG 3/2/9; resolutions MEPC.215(63), MEPC.215(65) and resolution MEPC 282(70)

Introduction

1 The Marine Environment Protection Committee, at its seventy-fourth session (13 to 17 May 2019), instructed the Working Group on Reduction of GHG Emissions from Ships at its sixth intersessional meeting (ISWG-GHG 6) to 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.

2 The co-sponsors seek to contribute to the discussions under agenda item 2 and provide with this document comments related to document MEPC 74/7/4 (Denmark et al.), the goal-based short-term measure.

3 Document MEPC 74/7/4, following up on document ISWG-GHG 4/2/14 (Belgium et al.), proposes a short-term measure for all ships consisting in a goal-based approach based on the legal framework of SEEMP with a reduction target derived from Objective 2 of the Initial Strategy.

4 The co-sponsors of this document welcome the concept document (ISWG-GHG 6/1/1) by the Chair of the Group to facilitate the further consideration of the measures. Document ISWG GHG 6/1/1 provides an indicative list of 10 elements which would be beneficial to include in submissions to ISWG-GHG 6 for further consideration of the proposed measures.

5 This document includes five annexes. Annex 1 is the main document and follows the structure suggested in document ISWG-GHG 6/1/1 except that the draft amendments and draft guidelines are set out in separate annexes (annexes 2, 3, and 4).

6 The document also responds to questions and concerns raised at ISWG-GHG 5 and MEPC 74 as well as other questions and analyses presented to the co-sponsors.

7 The annexes are titled as follows:

.1 annex 1: Comments on document MEPC 74/7/4 – the goal-based short-term measure;

.2 annex 2: Draft amendments to MARPOL Annex VI;

.3 annex 3: Draft amendments to resolution MEPC 282(70) on *2016 guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP)*;

.4 annex 4: Draft guidelines on the certification and verification process of the carbon intensity goal required in MARPOL Annex VI regulation 22; and

.5 annex 5: Voluntary action of shipowners and operators in relation to changes in charter party contracts.

Action requested of the Working Group

8 The Group is invited to include this document in its further consideration of document MEPC 74/7/4 and take action as appropriate.

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ANNEX 1

Comments on document MEPC 74/7/4 – the goal-based short-term reduction measure

1 The concept

1.1 Mandatory carbon intensity reduction goal under the SEEMP

1.1.1 The general concept of document MEPC 74/7/4 is to apply to all ships a mandatory carbon intensity reduction goal under SEEMP to take effect as soon as possible and no later than 2023, hence the name a goal-based short-term measure. It should be noted that the SEEMP already aims for carbon intensity reduction. The new element added by document MEPC 74/7/4 is that there would be mandatory targets for each ship.

1.1.2 The goal-based short-term measure is based on the concept of delivering on Objectives 2 and 3 of the Initial Strategy whilst maintaining a level playing field by giving fair treatment to all ships.

1.1.3 The carbon intensity reduction goal is derived from the Initial Strategy. The requirement should ensure the agreed Level of Ambition of at least 40% reduction of CO_2 emissions per transport work in 2030 compared to 2008, pursuing efforts towards 70% by 2050, compared to 2008; also contributing to reaching the agreed Level of Ambition of GHG emissions from international shipping to peak and decline.

1.1.4 The mandatory requirement for all ships would be introduced in the SEEMP by amending MARPOL Annex VI in order to make an energy efficiency requirement in the SEEMP regulation and introduce an auditing regime to ensure the enforcement (explained in sections 3 and 7 below).

1.1.5 The co-sponsors note that document ISWG-GHG 5/4/12 (Cyprus) proposed that a mandatory SEEMP regulation would be the obligation of the company not the individual ship as such. The document states in paragraph 9 that "Companies should be free to choose and implement the most appropriate technological or operational solution for each ship to achieve the required goal." It further suggests that companies can also apply the ISO 14001 standard.

1.1.6 In the current SEEMP guidelines, part I of SEEMP recommends that a company also establishes an energy management plan to manage its fleet (should it not have one in place already) and makes necessary coordination among stakeholders (paragraph 4.1.5). The issue of how to regulate individual ships on a ship or company basis needs to be further explored.

1.2 Benefits and advantages of a goal-based approach

1.2.1 The goal-based short-term measure will make it mandatory to reach the agreed goal of carbon intensity reduction. A reduction measure that most directly reflects the specifics of the Initial Strategy is the best regulatory guarantee available to achieve our stated Level of Ambition.

1.2.2 The goal-based short-term measure will also contribute to reaching the goal set out in paragraph 4.2 of the Initial Strategy aiming for early action, as the measure will set early targets as soon as possible and no later than 2023 (cf. section 1.3 below). The co-sponsors note that the 0.50% sulphur limit taking effect from 1 January 2020 has already had effect on the industry complying with the target before 2020. The co-sponsors further note that IMO guidance and guidelines have assisted operators and shipowners to plan ahead of 2020. Thus, it is fair to assume that a carbon intensity target from 2023 increasing yearly or three-yearly and with IMO guidance and guidelines will result in an early effect, i.e. before 2023.

1.2.3 The goal-based short-term measure will have this effect on early and short-term action, because means to achieve carbon intensity reduction already exist. As demonstrated in document ISWG-GHG 3/2/9 (Belgium et al.), ships have gradually reduced carbon intensity, albeit predominantly using market induced slow steaming. A goal-based short-term measure is the most effective way to secure the existing carbon intensity gains whilst also incentivizing the spread of low-hanging fruit and existing cost-effective actions, which have not been taken up because of known market failures and barriers.

1.2.4 The goal-based short-term measure controls the problem of rebound effect. A rebound effect occurs when a planned carbon intensity reduction does not fully translate into practice, often because of profit maximizing incentives. For example, a technical solution can theoretically reduce carbon intensity at a given level, but in practice, the full potential would not be reached if higher profits can be gained by increasing speed thereby underutilizing the potential reduction. The goal-based short-term measure mandates a limit on operational emissions; thus, speed and other operational characteristics have to observe the carbon intensity target in practice.

1.2.5 In developing this reduction measure, it is essential to take into account that many shipowners have already taken significant measures to reduce carbon intensity and GHG emissions. To have long-term effect, a new measure should not reduce incentives to build energy efficient ships nor hinder innovation. The goal-based short-term reduction measure recognizes early action (attained carbon intensity reductions, cf. figure 2 below) and also incentivizes further energy efficiency initiatives, both by building new more energy efficient ships and by retrofitting energy-efficiency technologies to existing ships.

1.2.6 Most available low-hanging fruit and other energy efficiency means are theoretically cost-effective; however, IEA's work on tracking clean energy progress in the shipping sector[1] suggests a lack of investments and implementation in the shipping sector. This and other studies have consistently evidenced that shipowners face significant barriers that prevent take-up: e.g. the owner-charterer split incentive, lack of access to finance, lack of information, or short-term over long-term thinking. Additional international regulation such as the proposed goal-based short-term measure is necessary to remedy these market barriers.

1.2.7 Based on experience with previous international regulation, such as the implementation of the ISM-code, the co-sponsors find that the goal-based short-term measure would very likely also lead to a change of mindset and a new culture of improvement.

1.2.8 The measure will also have effect from 2023, towards the 2030 and 2050 targets by incentivizing short-, mid- and long-term innovation. In order to achieve the Levels of Ambition, changes to ships to reduce carbon intensity and GHG emissions can be achieved through four not mutually exclusive means (not including normal maintenance of hull and equipment, etc.). Means are understood as the collective (available and future) tools and solutions. They are as follows (see also figure 1 below):

.1 introduce ship construction innovations (new-builds or retrofitting), e.g. bulbous bows, ship design improvements, propulsion efficiency, drag reducing paint, etc.;

.2 introduce technical innovations, e.g. energy saving devices, batteries, digitalization, etc.;

[1] https://www.iea.org/tcep/transport/shipping

.3 introduce operational change, e.g. just-in-time voyage planning, improved network and route design, cargo loading to optimize trim and drag, onboard energy management, fuel-efficient operations like main engine power limitation, speed reduction, speed optimization, etc.; and

.4 develop and introduce low-carbon or zero-carbon fuels.

1.2.9 In 2030, most ships will be able to reach Objective 2 of the Initial Strategy by applying one or more of the above means. Different situations and circumstances of a ship and its operation mean there is no one solution that fits all. Some options, however, are more compatible with the targets beyond 2030 pursuing efforts towards 70% carbon intensity and at least 50% decline of GHG emissions by 2050. Maximizing the flexibility and giving full control to each shipowner and operator to select the combination of the four means that suit their circumstances will ensure achievement of the given objectives with the maximum cost effectiveness.

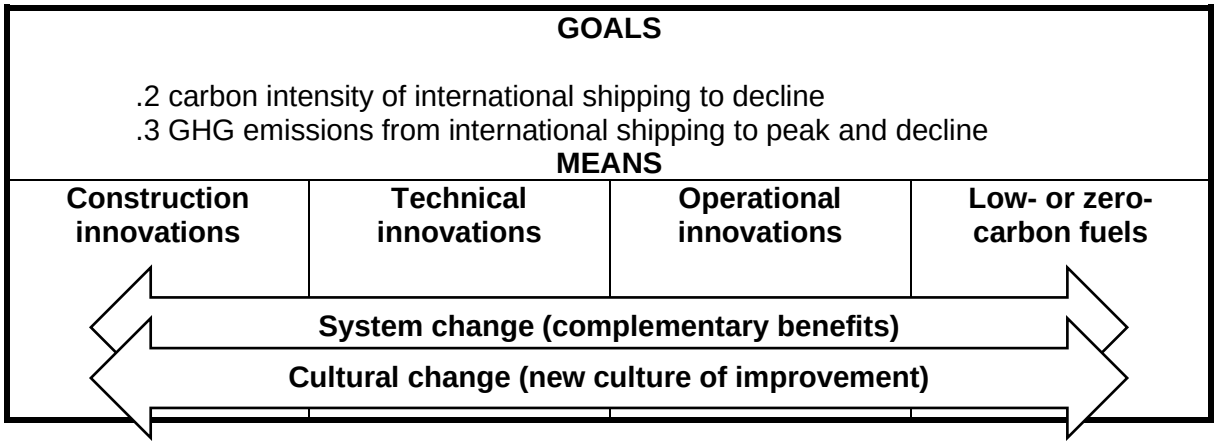

Figure 1: Relationship between energy efficiency innovations, system change and cultural change in the goal-based short-term measure

1.2.10 Figure 1 illustrates how the goal-based short-term measure regulated through SEEMP places the four means of achieving the goals side by side – as they are interdependent in their influence on a ship's carbon intensity and GHG reduction performance. This goal-based short-term measure further adds crosscutting changes like system change and cultural change. In each box a range of specific tools and solutions are available (not mentioned in figure 1, but some examples are given in paragraph 1.2.8).

1.2.11 An important benefit of an overarching goal-based approach, which leaves the choice of the four energy efficiency means described above to the shipowner and operator, is that it promotes a holistic perspective and system change with additional benefits. Construction design, technology, operations and low-/zero-carbon fuels can complement each other and lead to additional carbon intensity reductions if system change is included. For example, when better designs, which for example EEDI brings, are realized in practice together with operational system change, they are not countered by inefficient operations. Likewise, digitalization and new operational systems including monitoring systems can make existing design and technology more efficient.

1.2.12 The goal-based short-term measure will offer flexibility for shipowners, who can choose and mix from a range of available tools in the toolbox (the means to achieve the goals); thus shipowners will be able to utilize tools that best suit their business strategies and time horizons, and they will be able to change tools to adapt to new circumstances or when new and better tools become available.

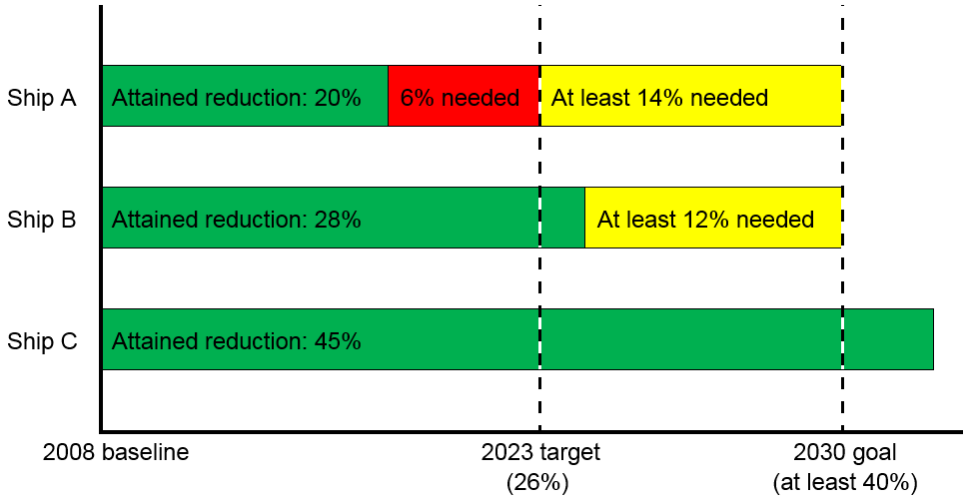

Figure 2: Examples of different ships' attained carbon intensity reductions and needed reductions to reach 2023 target and 2030 goal compared to 2008 baseline

1.2.13 Figure 2 illustrates three different ships (A, B and C) with different starting points in terms of already attained carbon intensity reduction compared to 2008, with a 2023 target of 26% and a goal in 2030 of at least 40%:

.1 ship A could be an old pre-EEDI ship, which has attained a 20% carbon intensity reduction compared to 2008. Ship A has to develop and implement a Ship Energy Efficiency Management Plan, which documents the attained reduction and further reduces the ship's carbon intensity by 6% in 2023 and towards 2030 by at least another 14%;

.2 ship B could be an EEDI phase 1 ship, which has attained a 28% carbon intensity reduction compared to 2008. Ship B has already met the target in 2023, but has to develop and implement a Ship Energy Efficiency Management Plan, which documents the attained reduction and further reduces the ship's carbon intensity towards 2030 by at least another 12%; and

.3 ship C could also be an EEDI phase 1 ship, but which has attained a 45% carbon intensity reduction compared to 2008. Ship C has already met the target in 2023 and the 2030 goal. Ship C has to develop and implement a Ship Energy Efficiency Management Plan, which documents the attained reduction.

1.2.14 The goal-based short-term measure will offer flexibility for the Committee when reviewing the measure and the Initial Strategy, as goals and targets in the measure can easily be changed as appropriate, because the choice of how to reach the goals and targets rests on the shipowner.

1.2.15 The goal-based short-term measure provides a more overarching framework for other measures (cf. figure 1 above). Some other measures are compatible with the goal-based measure, as they describe a subset of the specific tools that are available.

1.2.16 In summary, the co-sponsors find that the goal-based short-term measure offers the most effective regulation of carbon intensity reduction as it is effective in several different aspects. It is effective in time from before 2023 towards 2030 and 2050. It is effective in its direction of innovation from construction, technology, operation, future fuels and their innovative combinations. Finally, it is effective in coverage of the fleet as it targets individual ships and is based on the principle of securing a level playing field.

1.3 Targets from 2023 to 2030

1.3.1 Document MEPC 74/7/4 suggested setting yearly or three-yearly targets from 2023 to 2030. Both yearly and three-yearly targets fit the enforcement design (explained in sections 3 and 7 below).

1.3.2 As explained above and as seen with the example of the 2020 sulphur limit, setting the first target in 2023 will affect carbon intensity reduction prior to 2023; thus this measure will also function partly as an early measure – cf. paragraph 4.2 of the Initial Strategy.

1.3.3 Table 1 below provides an example of the carbon intensity goal with yearly targets beginning from 1 January 2023. Three-yearly targets are marked in grey. Compared to 2008, carbon intensity measured in the Annual Efficiency Ratio (AER) has already been reduced, and the co-sponsors suggest the 2023 target to be set at an already achieved level. Preliminary data shows that efficiency continued to improve from 2012 to 2015. We assume that a target of 26% from 1 January 2023 is a realistic first target for most ships, but this could be refined with further data.

Table 1: Different reduction rate scenarios towards 2030 with a 26% SEEMP (AER) target in 2023 (yearly and three-yearly targets)

Reduction rate / Year	2%	3%	4%	5%
2023	26%	26%	26%	26%
2024	28%	29%	30%	31%
2025	30%	32%	34%	36%
2026	32%	35%	38%	41%
2027	34%	38%	42%	46%
2028	36%	41%	46%	51%
2029	38%	44%	50%	56%
2030	40%	47%	54%	61%

1.3.4 As demonstrated in document ISWG-GHG 3/2/9 (Belgium et al.), in the past decade, the carbon intensity has improved by 4% to 7% per annum. It is therefore quite possible that average annual reduction rates between 2% and 5% are achievable in the next decade. In table 1, different reduction rates are presented, ranging from the lower and conservative end of what is achievable to a more ambitious part of the spectrum.

1.3.5 The reduction targets are additional to attained EEDI targets. An example of what this means for different ships is given in table 2 below.

Table 2: Example of additional reduction targets for different ships in 2023, 2026 and 2030, with a 2% reduction rate and a 26% SEEMP (AER) target in 2023

Year	2023		2026		2030	
SEEMP (AER) target	26%		32%		40%	
SHIPS	EEDI reduction	Additional operational reduction	EEDI reduction	Additional operational reduction	EEDI reduction	Additional operational reduction
Existing	0%	26%	0%	30%	0%	40%
EEDI-0	0%	26%	0%	30%	0%	40%
EEDI-1	10%	16%	10%	22%	10%	30%
EEDI-2	20%	6%	20%	12%	20%	20%
EEDI-3*	30%	0%	30%	2%	30%	10%

* Most EEDI-3 ship types have a 30% target. Taking into account amendments approved at MEPC 74, for adoption at MEPC 75:
Containerships between 40,000-79,999 DWT have a 35% target.
Containerships between 80,000-119,999 DWT have a 40% target.
Containerships between 120,000-199,999 DWT have a 45% target.
Containerships above 200,000 DWT have a 50% target.

1.4 A carbon intensity proxy and differentiation between ship types and sizes

1.4.1 Transport work proxies can be estimated from the detailed activity overview provided in the *Third IMO GHG Study 2014*. It is expected that the Fourth IMO GHG Study will re-assess the 2008 data and propose a value for the 2008 carbon intensity of the fleet.

1.4.2 The goal-based short-term measure differentiates between ship types and sizes according to IMO standards.

1.4.3 As explained in paragraphs 18, 19, 20 and 22 of document MEPC 74/7/4, operational energy efficiency reference lines for 2008 do not exist and the data needed to calculate them is probably not available. However, reference lines have been calculated for ships delivered in the period from 1 January 1999 to 1 January 2009, making a few simplifying assumptions such as that the speed in the IHSF database is the reference speed and this speed is achieved at 75% MCR. These are called EEDI reference lines, certified based on calculations in accordance with resolution MEPC.215(63). According to the *Third IMO GHG Study 2014* (table 4, page 14), many ships sailed at average engine loads below 75% in 2007, and probably also in 2008. Therefore, if it were possible to calculate reference lines for 2008, they would likely be lower than the EEDI reference lines. In other words, using the EEDI reference lines is a conservative approach to defining 2008 operational reference lines. The value in the EEDI reference lines expresses the average energy efficiency in gram CO_2 per tonne*nm compared to the deadweight.

1.4.4 It is noted that some ship types are not included in the EEDI regulation. For these ships, other proxies or baselines for the 2008 emissions will be needed. One example would use a methodology whereby each ship's emission baseline or emission set point is calculated by using the information available on the ships in the IHSF database and the calculations on the aggregated CO_2 emission in the *Third IMO GHG Study 2014*. Based on this data, 2008 baseline/set point could be established for the emission goal for 2030. It should be noted that these ships account for a relatively small share of the total emissions from the international shipping sector.[2]

[2] Document MEPC 74/7/4, paragraph 18.4.

1.5 Indicators

1.5.1 The goal and targets would be set in Annual Efficiency Ratio (AER), so that it can be evaluated on the basis of the IMO Data Collection System (DCS). Document MEPC 74/7/4 suggested that shipowners could choose whether to indicate and report their reductions in AER, Energy Efficiency Operational Indicator (EEOI) or other indicators approved by the Committee. However, if the EEOI – or another alternative indicator – were chosen, the reduction goal would need to be adjusted and recalculated accordingly. The same baseline/reduction goal could be used for AER and EEOI if a correction is applied to AER to incorporate average utilization/loading conditions. A correspondence table would need to be set up, indicating how a certain target in AER translates into another metric. More work would also need to be done in relation to verification.

1.5.2 The co-sponsors highlight the principle that the shipowner has flexibility in choosing an indicator. This is important since no one indicator fits all ship types, sizes and individual voyage characteristics. The co-sponsors recognize that carbon intensity per transport work is influenced by external factors like weather conditions. Thus, if current indicators do not sufficiently account for external factors to be useful when developing and implementing new Ship Energy Efficiency Management Plans, new indicator(s) need(s) to be developed.

1.5.3 To respond to these issues, the co-sponsors suggest developing guidance and guidelines based on the upcoming work in the Fourth IMO GHG Study as well as any other relevant methodology on indicators of transport work.

2 Justification of the proposal

2.1 Analysis of the issue

2.1.1 The Initial Strategy lists candidate short-term measures, such as "further improvement of the existing energy efficiency framework with a focus on Energy Efficiency Design Index (EEDI) and SEEMP, taking into account the outcome of the review of EEDI regulations".[3]

2.1.2 The review of EEDI regulations on the possible introduction of EEDI Phase 4 is currently being carried out by MEPC in the Correspondence Group on Possible Introduction of EEDI Phase 4. This Correspondence Group will report to MEPC 75 and MEPC 76 on the proposal of a future EEDI Phase 4. However, the improvement of SEEMP is not included in the terms of reference of the Correspondence Group. Additional EEDI phases after Phase 4 should be further considered, however, the introduction of further EEDI phases will be a mid-term measure.

2.1.3 EEDI regulates the design efficiency of new ships, but also includes ship types covering pre-EEDI ships. While improving design efficiency of new ships is important, a large share of the fleet in 2030 will comprise pre-EEDI ships and ships of Phases 0 and 1[4] (see also paragraph 5.1.1 and 5.1.2 below).

2.2 Need for a goal-based short-term measure to target the existing fleet

2.2.1 Accordingly, there is a need for a short-term mandatory measure to target the existing fleet, in order to meet the levels of ambition of the Initial IMO GHG Strategy both in 2030 and in 2050. The co-sponsors therefore intend to focus on the SEEMP element of the existing energy efficiency framework.[5]

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3 Document MEPC 74/7/4, paragraph 6.

4 Document MEPC 74/7/4, paragraph 8.

5 Document MEPC 74/7/4, paragraph 8.

2.2.2 The co-sponsors strongly prefer goal-based reduction measures for an ambitious approach to reducing carbon intensity and GHG emissions. Thus, an ambitious measure for reducing carbon intensity and GHG emissions should focus on the reduction goal and mandate the specific reduction needed rather than mandating specific means or tools. An overarching goal-based short-term measure can incentivize and encourage innovation and new technologies, since the choice of means for reducing emissions is open.

2.2.3 See also section 1.2 above for benefits and advantages of the goal-based short-term measure.

3 Description of the proposal's legal nature

3.1 Mandatory regulation

3.1.1 Ships must document the carbon intensity reduction in relation to the given target, the relevant reference line, and the chosen indicator, and in accordance with IMO guidelines, as compared to a comparable ship in 2008.

3.1.2 Obligation to meet the targets will be included in SEEMP of all ships.

3.1.3 The mandatory regulation is described in annexes 2, 3 and 4.

3.2 Voluntary elements

3.2.1 Shipowners (and operators) are free to choose from a range of means and available tools in the toolbox, thus shipowners will be able to utilize tools that best suit their business strategies, and they will be able to change tools to adapt to new circumstances or when new and better tools become available.

3.2.2 The co-sponsors suggest that IMO guidance could include examples of tools and best practices. Some tools and options are, however, outside the purview of IMO regulation, e.g. charter contracts setting responsibilities of shipowners and operators as well as putting a price on specific carbon intensity reductions.

3.2.3 The co-sponsors recognize that charter contracts can be a relevant tool for shipowners, as have been demonstrated with adding new standard clauses related to the sulphur limit and investments in and installation of scrubbers. Such clauses are based on principles of sharing the saved fuel costs and can for example be implemented in time charter agreements. Shipowners are incentivized to invest in scrubbers or fuel saving technology, because they will be paid part of the saved fuel costs. Charterers are incentivized to charter energy efficient vessels with scrubbers or fuel saving technology, because of lower fuel costs, although they pay a part back to the shipowner.

3.2.4 Another element to include in charter contracts is a thorough consumption/emission description of the individual vessel. This is described in annex 5 to this document.

4 Application of the goal-based short-term measure

4.1 Pre-EEDI and EEDI ships

4.1.1 The goal-based short-term measure should include all ships of 400 GT and above. However, document MEPC 74/7/4 proposes a simple method to use the existing EEDI reference lines as a proxy for the different ship types and sizes. The EEDI reference lines were calculated in accordance with resolution MEPC.215(63) and included the existing ships

of 400 GT and above from the IHSF database delivered in the period from 1 January 1999 to 1 January 2009. The EEDI value in the reference lines expresses the average energy efficiency in gram CO_2 per tonne*nm compared to the deadweight.

4.2 Ship types not covered

4.2.1 By using the EEDI reference lines as proxy for the carbon intensity, it is clear that some ship types are not included in the EEDI regulation. For these ship types, other proxies or baselines for the 2008 emissions will be needed and should be developed. One example would use a methodology whereby each ship's emission baseline or emission set point is calculated by using the information available on the ship in the IHSF database and the calculations on the aggregated CO_2 emissions in the *Third IMO GHG Study 2014*. Based on this data, 2008 baseline/set point could be established for the carbon intensity reduction goal for 2030.

5 Estimation of number of ships affected and expected benefits in terms of GHG emissions reduction

5.1 Estimation of numbers of ships

5.1.1 As demonstrated in document ISWG-GHG 5/4 (Norway), the fleet in 2015 consisted of 62,400 ships according to data from IHS and active data from AIS. The number of ships covered by MARPOL Annex VI totaled 53,300 ships. The emissions from the remaining ships not covered by MARPOL Annex VI were less than 1% of total emissions and therefore the focus for short-term measures should be on amending MARPOL Annex VI.

5.1.2 Document MEPC 74/7/4 proposes to use the EEDI reference lines as baseline for short-term reduction and, as stated in document ISWG-GHG 5/4, the EEDI regulation 21 of MARPOL Annex VI covers 33,600 ships within the different ship types and size thresholds. These 33,600 ships emitted around 90% of the total emissions from all active ships in 2015. Therefore, the proposed short-term measure in document MEPC 74/7/4 would cover the large majority of ship emissions and could deliver on the 2030 carbon intensity target of the Initial IMO GHG Strategy.

5.2 Expected benefits in terms of GHG emissions reduction

5.2.1 The measure is expected to contribute to the 2030 Level of Ambition, i.e. to reduce CO_2 emissions per transport work, as an average across international shipping, by at least 40% by 2030. It will also contribute to the third Level of Ambition, i.e. GHG emissions from international shipping to peak and decline.

5.2.2 However, there are some uncertainties in terms of GHG emissions, because the carbon intensity objective is a relative goal, whereas the 2050 objective of GHG reduction is an absolute goal. If transport demand rises more than the carbon intensity reduction gains, GHG emissions will increase. However, without an effective and goal-based carbon intensity measure in place, compared to a business-as-usual scenario, GHG emissions would increase even more.

5.2.3 We therefore propose to review the reduction rates after the publication of the BAU emission scenarios in the Fourth IMO GHG Study and set them so that emissions will continuously decline, while also meeting the 2030 Level of Ambition.

6 Indication of the additional workload for the Organization

6.1 Workload related to MARPOL amendment, development of IMO guidance and guidelines, and other associated work

6.1.1 Based on table 1 from document MEPC 74/WP.9/Add.1, table 3 below indicates the workload by ISWG-GHG and MEPC from autumn 2019 towards 2030. For the Group and the Committee, workload in autumn 2019 and spring 2020 consists of further developing and approving the draft amendment put forward in this commenting document. In parallel with this, the Group and Committee will also assess impacts on States. At the same time, the Group could begin further developing the guidelines also put forward in this commenting document.

Table 3: Timeframe of development and implementation of the goal-based short-term measure and associated work

Timeframe	Goal-based short-term measure	Associated work
Autumn 2019	ISWG-GHG 6 initiates development of draft amendments	Assessment of impacts on States Development of guidelines
Spring 2020	ISWG-GHG 7 puts forward draft amendments MEPC 75 approves amendments	
Autumn 2020	MEPC 76 adopts amendments	Development of guidelines
Spring 2021		
Autumn 2021	Acceptance	Finalization of guidelines MEPC 78 approves guidelines Development and issuance of new Ship Energy Efficiency Management Plans (shipowners and Administrations)
Spring 2022		
Mid-2022	Entry into force	
1 January 2023		Enforcement of SEEMP Possible reviews of measure and guidelines
2030		

6.1.2 The Group will be able to work on guidelines until MEPC approves the guidelines at the last meeting before entry into force, i.e. MEPC 78 in spring 2022.

6.1.3 Shipowners and Administrations will begin to develop and issue Ship Energy Efficiency Management Plans as soon as guidelines are approved.

6.1.4 After 2023, the Committee could initiate possible reviews of the measure and guidelines in light of the Revised Strategy and/or new and better knowledge of certain issues, e.g. related to assessing impacts on States.

7 Implementation and enforcement of the goal-based short-term measure

7.1 Implementation

7.1.1 The goal-based short-term measure will be implemented through amendment of MARPOL Annex VI in relation to SEEMP. Implementation includes IMO guidance and guidelines.

7.1.2 Table 3 above illustrates implementation steps.

7.2 Enforcement

7.2.1 During MEPC 74 and ISWG-GHG 5, concerns were raised in relation to the proposed enforcement, verification and documentation. Document MEPC 74/7/4 proposed enforcement within the system of survey and certification under MARPOL Annex VI. This could be done by including the SEEMP requirement in the International Energy Efficiency Certificate (IEEC), which shall be periodically surveyed and renewed by the Administration. In order to secure consistent implementation of the measure, compliance to the requirement should be checked by the Administration and the port States through port State controls (PSC) and other enforcement actions in accordance with MARPOL Annex VI. Document MEPC 74/7/4 thus proposed revoking IEEC as a sanction for non-compliance, but offered no proposal as to how to regain IEEC.

7.2.2 The co-sponsors understand the concerns raised and propose a more developed enforcement scheme.

7.2.3 The goal-based short-term measure should not be included in the ISM system. The ISM Code requires, in accordance with part B of resolution A.741(18) *on International management code for the safe operation of ships and for pollution prevention (ISM Code)*, that a Document of Compliance (DoC) is issued to the company operating the ship and a Safety Management Certificate (SMC) issued to the specific ship. The DoC issued to the company is valid for five years and should be subject to annual validation, whereas the SMC issued to the ship is valid for five years with one intermediate verification between the second and third anniversary dates. The purpose of the required annual and intermediate audits of the DoC is to verify that the safety management system is functioning effectively and that any modification to the system complies with the requirements of the ISM Code. Including the ISM system in the enforcement regime of the goal-based short-term measure complicates implementation and enforcement, because ISM is under SOLAS, which can only be amended every fourth year, and SEEMP is under MARPOL.

7.2.4 The co-sponsors find that some parts of the ISM system can serve as inspiration to establish an auditing system in SEEMP. Such a SEEMP auditing system should include annual audits on board the ship whether targets are yearly or three-yearly. The carbon intensity goal for the ship should be described in SEEMP part I, and if an audit shows that the described goal is not fulfilled in the reporting system using observations, non-conformities and major non-conformities followed by corrective actions with follow-up should be established according to the yearly or three-yearly targets and the 2030 goal.

7.2.5 The proposed amendments to MARPOL Annex VI are set out in annex 2 to this document. Proposed draft amendments to resolution MEPC.282(70) on *2016 guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP)* are included in annex 3 to this document.

7.2.6 Furthermore, draft guidelines on the certification and verification process of the carbon intensity required by the revised MARPOL Annex VI are set out in annex 4 to this document. These guidelines should be developed in order to ensure effective verifications. By introducing this certification and verification process, a "normal procedure" will not be to revoke the IEE Certificate for small excesses. However, if major non-conformities are found, and the IEE Certificate is ultimately revoked, the shipowner must introduce an action plan on how to ensure compliance with the regulation, and a plan for documentation of compliance. This can be a long-term plan, which could include, for example, speed or power limitation and in the longer term dry docking for hull improvements and retrofitting of energy saving devices and systems.

7.2.7 The co-sponsors suggest that, when developing guidelines, attention should be given to how well existing or new indicators account for external factors influencing carbon intensity.

7.2.8 The system should also include an effective sanction system in order to establish a level playing field.

8 Expected timeframe and process for development, approval, adoption and implementation of the goal-based short-term measure

8.1 Development

8.1.1 The Initial Strategy sets out to prioritize short-term measures, which can have effect before 2023. Consideration and development of the goal-based short-term measure should take place at ISWG-GHG 6, ISWG-GHG 7 and MEPC 75. See also table 3 above.

8.2 Approval

8.2.1 The co-sponsors invite the Committee to finalize the proposal with the aim to be approved at MEPC 75 (spring 2020). See also table 3 above.

8.3 Adoption

8.3.1 Considering the required 16 months between adoption and entry into force, MEPC 77 is the latest option for adoption if the measure is to be in force before 2023, in accordance with the Initial Strategy and the Programme of follow-up actions. See also table 3 above.

8.4 Progressing the work

8.4.1 The co-sponsors recognize the increased workload related to implementation of the Initial Strategy in general. In order to progress the work on the goal-based short-term measure, including the technical elements, the co-sponsors also recognize the need to agree on new working arrangements.

8.4.2 The co-sponsors note that finalization of guidelines can take place after adoption of the measure before entry into force. To progress work, priority should be given to development, approval and adoption of the goal-based short-term measure, after which finalization of guidance and guidelines can be prioritized. See also table 3 above.

9 Initial impact assessment

9.1 Initial impact assessment of the goal-based short-term measure

9.1.1 Document MEPC 74/7/4 was submitted before the finalization of MEPC.1/Circ.885, but included a preliminary impact assessment. The proponents of document MEPC 74/7/4 acknowledge that the preliminary impact assessment in document MEPC74/7/4 does not cover all elements of an initial impact assessment as set out in MEPC.1/Circ.885.

9.1.2 Document ISWG-GHG 6/2/1 includes a full initial impact assessment of the proposal made in document MEPC 74/7/4.

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ANNEX 2

DRAFT AMENDMENTS TO MARPOL ANNEX VI

(New text is shown as underlined and text to be deleted as ~~strikethrough~~)

Regulation 5
Surveys

4 Ships to which chapter 4 of this annex applies shall be subject to the surveys specified below, taking into account the guidelines adopted by the Organization:* ~~†~~

.1 An initial survey before a new ship is put in service and before the International Energy Efficiency Certificate is issued. The survey shall verify that the ship's attained EEDI and SEEMP are ~~is~~ in accordance with the requirements in chapter 4 of this Annex~~, and that the SEEMP required in regulation 22 is on board~~;

4.4 For existing ships, the verification of the requirement to have a SEEMP on board ~~according to regulation 22 shall take place at the first intermediate or renewal survey identified in paragraph 1 of this regulation, whichever is the first, on or after 1 January 2013~~in accordance with the requirements in chapter 4 of this Annex shall take place on [date of entry into force].

4.6 On or after [date of enter into force of the revised regulation 22 of chapter 4] a yearly survey on the Carbon Intensity Goal in accordance with regulation 5.1 of this Annex.

* Refer to 2014 Guidelines --- MEPC 254(67)

~~†~~) Refer to draft guidelines on the certification and verification process of the carbon intensity goal required in MARPOL Annex VI regulation 22 (Annex 5 of this document

Regulation 9
Duration and validity of Certificates and Statements of Compliance related to fuel oil consumption reporting

International Energy Efficiency Certificate

10 The International Energy Efficiency Certificate shall be issued for a period by the Administration, which shall not exceed five years, ~~be valid throughout the life of the ship~~ subject to the provisions of paragraph 11 below.

11 An International Energy Efficiency Certificate issued under this annex shall cease to be valid in any of the following cases:

.1 if the ship is withdrawn from service or if a new certificate is issued following major conversion of the ship; ~~or~~

.2 upon transfer of the ship to the flag of another State. A new certificate shall only be issued when the Government issuing the new certificate is fully satisfied that the ship is in compliance with the requirements of chapter 4. In the case of a transfer between Parties, if requested within three months after

the transfer has taken place, the Government of the Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the certificate carried by the ship before the transfer and, if available, copies of the relevant survey reports; or

.3 if the ship does not meet its Carbon Intensity goal as expressed in SEEMP.

Regulation 22
Ship Energy Efficiency Management Plan (SEEMP)

1 Each ship shall keep on board a ship specific Ship Energy Efficiency Management Plan (SEEMP). This may form part of the ship's Safety Management System (SMS).

2 On or before 31 December 2018, in the case of a ship of 5,000 gross tonnage and above, SEEMP shall include a description of the methodology that will be used to collect the data required by regulation 22A.1 of this Annex and the processes that will be used to report the data to the ship's Administration.

3 SEEMP shall be developed taking into account guidelines adopted by the Organization, and shall include:

.1 carbon intensity goal ensuring that the ship is at least [X]% more energy efficient in 2030 compared to the average energy efficiency of a ship of same type and size in 2008 expressed as grams-CO_2/tonne-mile. This shall be complied with in following steps:

Year	Target
2023	26%
[2024]	[28]%
[2025]	[30]%
2026	[32]%
[2027]	[34]%
[2028]	[36]%
2029	[38]%
2030	[40]%

.2 a specific performance indicator by which it is possible to document the carbon intensity of the ship; and

.3 evidence that the performance indicator will also lead to the required carbon intensity in practice, of the scale set by the goal.

4 The annual or three-yearly goal must be documented.

5 The average energy efficiency value in 2008 can be calculated in accordance with regulation 21.3.

Appendix VIII – Supplement to the IEE certificate

5 Ship Energy Efficiency Management Plan

5.1	The Ship is provided with a[n approved] Ship Energy Efficiency Management Plan (SEEMP) in compliance with regulation 22…….....		☐

5.2 [The annual or three-yearly goal is documented]……... ☐

5.3 [The ship fulfill the carbon intensity goal]……..... ☐

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ANNEX 3

DRAFT AMENDMENTS TO RESOLUTION MEPC 282(70) ON 2016 GUIDELINES FOR THE DEVELOPMENT OF A SHIP ENERGY EFFICIENCY MANAGEMENT PLAN (SEEMP)

(New text is shown as underlined and text to be deleted as ~~strikethrough~~ (Note: draft amendments to appendix 1 and 2 referred to in subparagraph 1.3 are not included))

1 INTRODUCTION

1.1 The *Guidelines for the development of a Ship Energy Efficiency Management Plan* have been developed to assist with the preparation of the Ship Energy Efficiency Management Plan (SEEMP) required by regulation 22 of MARPOL Annex VI.

1.2 There are two parts to a SEEMP. Part I provides a possible approach for monitoring ship and fleet efficiency performance over time and some options to be considered when seeking to optimize the performance of the ship. Part I shall further include the carbon intensity goal, the specific performance indicators and evidence that the performance indicator will lead to the required carbon intensity in practice of the scale set by the goal. Part II provides the methodologies ships of 5,000 gross tonnage and above should use to collect the data required pursuant to regulation 22A of MARPOL Annex VI and the processes that the ship should use to report the data to the ship's Administration or any organization duly authorized by it.

1.3 A sample form of the SEEMP is presented in appendices 1 and 2 for illustrative purposes. A standardized data-reporting format for the data collection system is presented in appendix 3.

2 DEFINITIONS

2.1 For the purpose of these Guidelines, the definitions in MARPOL Annex VI apply.

2.2 "Ship fuel oil consumption data" means the data required to be collected on an annual basis and reported as specified in appendix IX to MARPOL Annex VI.

2.3 "Safety management system" means a structured and documented system enabling company personnel to implement effectively the company safety and environmental protection policy, as defined in paragraph 1.1 of International Safety Management Code.

2.4 "Carbon Intensity Goals" means the energy efficiency/carbon intensity goal required in paragraph 22 of MARPOL Annex VI chapter 4.

2.5 "Performance indicator" means a performance indicator by which it is possible to document the energy efficiency/carbon intensity of the ship, in accordance with paragraph 22 of MARPOL Annex VI chapter 4.

PART I OF THE SEEMP: SHIP MANAGEMENT PLAN TO IMPROVE ENERGY EFFICIENCY AND DOCUMENTATION OF COMPLIANCE WITH THE CARBON INTENSITY GOALS

3 GENERAL

3.1 In global terms it should be recognized that operational efficiencies delivered by a large number of ship operators will make an invaluable contribution to reducing global carbon emissions.

3.2 The purpose of part I of SEEMP is to establish a mechanism for a company and/or a ship to improve the energy efficiency of a ship's operation. Preferably, this aspect of the ship-specific SEEMP is linked to a broader corporate energy management policy for the company that owns, operates or controls the ship, recognizing that no two shipping companies are the same, and that ships operate under a wide range of different conditions. SEEMP Part I shall further describe the ships carbon intensity goal, indicator and how the ship document the that the goal is fulfilled.

3.3 Many companies will already have an environmental management system (EMS) in place under ISO 14001 which contains procedures for selecting the best measures for particular vessels and then setting objectives for the measurement of relevant parameters, along with relevant control and feedback features. Monitoring of operational environmental efficiency should therefore be treated as an integral element of broader company management systems.

3.4 In addition, many companies already develop, implement and maintain a Safety Management System. In such case, part I of SEEMP may form part of the ship's Safety Management System.

3.5 This section provides guidance for the development of part I of SEEMP that should be adjusted to the characteristics and needs of individual companies and ships. Part I is intended to be a management tool to assist a company in managing the ongoing environmental performance of its vessels and as such, it is recommended that a company develops procedures for implementing the plan in a manner which limits any on-board administrative burden to the minimum necessary.

3.6 Part I of SEEMP should be developed as a ship-specific plan by the company, and should reflect efforts to improve a ship's energy efficiency in accordance with the through four steps: planning, implementation, monitoring, and self-evaluation and improvement. These components play a critical role in the continuous cycle to improve ship energy efficiency management. With each iteration of the cycle, some elements of part I will necessarily change while others may remain as before.

3.7 At all times safety considerations should be paramount. The trade a ship is engaged in may determine the feasibility of the efficiency measures under consideration. For example, ships that perform services at sea (pipe laying, seismic survey, OSVs, dredgers, etc.) may choose different methods of improving energy efficiency when compared to conventional cargo carriers. The nature of operations and influence of prevailing weather conditions, tides and currents combined with the necessity of maintaining safe operations may require adjustment of general procedures to maintain the efficiency of the operation, for example the ships which are dynamically positioned. The length of voyage may also be an important parameter as may trade specific safety considerations.

4 FRAMEWORK AND STRUCTURE OF PART I OF SEEMP

4.1 Planning

4.1.1 Planning is the most crucial stage of part I of SEEMP, in that it primarily determines both the current status of ship energy usage and the expected improvement of ship energy efficiency. Therefore, it is encouraged to devote sufficient time to planning so that the most appropriate, effective and implementable plan can be developed.

Ship-specific measures

4.1.2 Recognizing that there are a variety of options to improve efficiency – speed optimization, weather routing ~~and~~, hull maintenance and retrofitting of energy efficient devices, for example – and that the best package of measures for a ship to improve efficiency differs to a great extent depending upon ship type, cargoes, routes and other factors, the specific measures for the ship to improve energy efficiency should be identified in the first place. These measures should be listed as a package of measures to be implemented, thus providing the overview of the actions to be taken for that ship.

4.1.3 During this process, therefore, it is important to determine and understand the ship's current status of energy usage. Part I of SEEMP should identify energy-saving measures that have been undertaken, and should determines how effective these measures are in terms of improving energy efficiency. Part I also should identify what measures can be adopted to further improve the energy efficiency of the ship. It should be noted, however, that not all measures can be applied to all ships, or even to the same ship under different operating conditions and that some of them are mutually exclusive. Ideally, initial measures could yield energy (and cost) saving results that then can be reinvested into more difficult or expensive efficiency upgrades identified by part I.

4.1.4 Guidance on best practices for fuel-efficient operation of ships, set out in chapter 5, can be used to facilitate this part of the planning phase. Also, in the planning process, particular consideration should be given to minimize any on-board administrative burden.

Company-specific measures

4.1.5 The improvement of energy efficiency of ship operation does not necessarily depend on single ship management only. Rather, it may depend on many stakeholders including ship repair yards, ship-owners, operators, charterers, cargo owners, ports and traffic management services. For example, "Just in time" – as explained in paragraph 5.2.4 – requires good early communication among operators, ports and traffic management service. The better coordination among such stakeholders is, the more improvement can be expected. In most cases, such coordination or total management is better made by a company rather than by a ship. In this sense, it is recommended that a company also establish an energy management plan to manage its fleet (should it not have one in place already) and make necessary coordination among stakeholders.

Human resource development

4.1.6 For effective and steady implementation of the adopted measures, raising awareness of and providing necessary training for personnel both on shore and on board are an important element. Such human resource development is encouraged and should be considered as an important component of planning as well as a critical element of implementation.

Goal setting

4.1.7 The last part of planning is goal setting. The goal setting should be in accordance with the carbon intensity goals required in regulation 22 of MARPOL Annex VI. ~~It should be emphasized that the goal setting is voluntary, that there is no need to announce the goal or the result to the public, and that neither a company nor a ship are subject to external inspection. The purpose of goal setting is to serve as a signal which involved people should be conscious of, to create a good incentive for proper implementation, and then to increase commitment to the improvement of energy efficiency. The goal can take any form, such as the annual fuel consumption or a specific target of Energy Efficiency Operational Indicator (EEOI). Whatever the goal is, the goal should be measurable and easy to understand.~~ The fulfilment of the goal should be documented annually or three-yearly together with the required evidence that the performance indicator will lead to the required carbon intensity in practice. The performance indicator can be the Annual Efficiency Indicator (AER) or a specific target of Energy Efficiency Operational Indicator (EEOI) or any other indicators approved by the Organization.

4.2 Implementation

Establishment of implementation system

4.2.1 After a ship and a company identify the measures to be implemented, it is essential to establish a system for implementation of the identified and selected measures by developing the procedures for energy management, by defining tasks and by assigning them to qualified personnel. Thus, part I of SEEMP should describe how each measure should be implemented and who the responsible person(s) is. The implementation period (start and end dates) of each selected measure should be indicated. The development of such a system can be considered as a part of planning, and therefore may be completed at the planning stage.

Implementation and record-keeping

4.2.2 The planned measures should be carried out in accordance with the predetermined implementation system. Record-keeping for the implementation of each measure is beneficial for self-evaluation at a later stage and should be encouraged. If any identified measure cannot be implemented for any reason(s), the reason(s) should be recorded for internal use.

4.3 Monitoring

Monitoring tools

4.3.1 The energy efficiency of a ship should be monitored quantitatively by a performance indicator. This should be done by an established method, preferably by an international standard. The EEOI, the AER or another performance indicator developed by the Organization are ~~is one of the~~ internationally established tools to obtain a quantitative indicator of energy efficiency of a ship and/or fleet in operation, and can be used for this purpose. Therefore, EEOI or AER could be considered as the primary monitoring tool, although other quantitative approved measures also may be appropriate.

4.3.2 If used, it is recommended that the EEOI is calculated in accordance with the *Guidelines for the development of a Ship Energy Efficiency Management Plan* (MEPC.1/Circ.684) developed by the Organization, adjusted, as necessary, to a specific ship and trade.

4.3.3 In addition to the EEOI, if convenient and/or beneficial for a ship or a company, other measurement tools can be utilized. In the case where other monitoring tools are used, the concept of the tool and the method of monitoring may be determined at the planning stage.

Establishment of monitoring system

4.3.4 It should be noted that whatever measurement tools and specific performance indicator are used, continuous and consistent data collection is the foundation of monitoring. To allow for meaningful and consistent monitoring, the monitoring system, including the procedures for collecting data and the assignment of responsible personnel, should be developed. The development of such a system can be considered as a part of planning, and therefore should be completed at the planning stage.

4.3.5 It should be noted that, in order to avoid unnecessary administrative burdens on ships' staff, monitoring should be carried out as far as possible by shore staff, utilizing data obtained from existing required records such as the official and engineering log-books and oil record books, etc. Additional data could be obtained as appropriate.

Search and rescue

4.3.6 When a ship diverts from its scheduled passage to engage in search and rescue operations, it is recommended that data obtained during such operations is not used in ship energy efficiency monitoring, and that such data may be recorded separately.

4.4 **Self-evaluation and improvement**

4.4.1 Self-evaluation and improvement is the final phase of the management cycle. This phase should produce meaningful feedback for the coming first stage, i.e. planning stage of the next improvement cycle.

4.4.2 The purpose of self-evaluation is to evaluate the effectiveness of the planned measures and of their implementation, to deepen the understanding on the overall characteristics of the ship's operation such as what types of measures can/cannot function effectively, and how and/or why, to comprehend the trend of the efficiency improvement of that ship and to develop the improved management plan for the next cycle.

4.4.3 For this process, procedures for self-evaluation of ship energy management should be developed. Furthermore, self-evaluation should be implemented periodically by using data collected through monitoring. In addition, it is recommended to invest time in identifying the cause-and-effect of the performance during the evaluated period for improving the next stage of the management plan.

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ANNEX 4

DRAFT GUIDELINES ON THE CERTIFICATION AND VERIFICATION PROCESS OF THE CARBON INTENSITY GOAL REQUIRED IN REGULATION 22 OF MARPOL ANNEX VI

Table of contents

1 Introduction

1.1 The Carbon Intensity Goal required in the revised regulation 22 of MARPOL Annex VI is derived from Objective 2 of the *Initial IMO Strategy on reduction of GHG emissions from ships*. The requirement should ensure the agreed ambition of at least 40% reduction in 2030 compared to 2008.

1.2 Regulation 22 of MARPOL Annex VI requires that the Ship Energy Efficiency Management Plan (SEEMP) includes the Carbon Intensity Goal for the specific ship together with a specific performance indicator by which it is possible to document the carbon intensity of the ship.

1.2 Verification and certification responsibilities

1.2.1 The ship/shipowner is responsible for verifying compliance with the required Carbon Intensity Goal.

1.2.2 The Administrations or any organization duly authorized by it shall determine whether the Carbon Intensity Goal is achieved and issue or endorse the International Energy Efficiency Certificate accordingly.

2 SCOPE AND APPLICATION

2.1 Definitions

The terms used in these revised guidelines have the same meaning as those given in MARPOL Annex VI.

2.2 Scope and application

These guidelines establish basic principles for:

.1 verifying that the Carbon Intensity Goal required in regulation 22, its performance indicator and the evidence that the performance indicator will lead to the required carbon intensity of the ship;

.2 carrying out the initial, annual, intermediate and renewal verification(s) of SEEMP Part I and the Carbon Intensity Goal; and

.3 the scope of the additional verification.

3 VERIFYING COMPLIANCE WITH THE CARBON INTENSITY GOAL

3.1 General

3.1.1 To comply with the requirements of the Carbon Intensity Goal, the ship/shipowner should develop, implement and maintain SEEMP part I to ensure that the Carbon Intensity Goal of regulation 22 of MARPOL Annex VI is achieved. This can be achieved by either retrofitting the ship to be more energy efficient, adopting fuel-efficient operations, innovative solutions, Shaft power limitation or speed reductions.

4 CERTIFICATION AND VERIFICATION PROCESS

4.1 Certification and verification activities

4.1.1 The certification process relevant to the Carbon Intensity Goal for a ship will normally involve the following steps:

.1 initial verification;

.2 annual or intermediate verification;

.3 renewal verification; and

.4 additional verification.

4.1.2 These verifications are carried out by the Administration or the organization recognized by the Administration in order to issue or endorse the IEE Certificate.

4.2 Initial verification

4.2.1 The ship/shipowner should develop SEEMP Part I in order to document compliance with the Carbon Intensity Goal. This should include an action plan – or way forward – to achieve the goal including a specific performance indicator which could be EEOI, AER or another performance indicator approved by the Administration. The SEEMP Part I should further include evidence that the performance indicator also will lead to the required carbon intensity in practice of the scale set by the goal.

4.2.2 On satisfactory assessment of SEEMP Part I, including the Carbon Intensity Goal, the administration can issue the International Energy Efficiency Certificate.

4.3 Annual verification

4.3.1 Annual verification of SEEMP Part I and the Carbon Intensity Goal should be carried out to maintain the validity of the goal and should include examining and verifying the ship is operated in accordance with the action plan/way forward and that the goal can be achieved. The purpose of these verifications is to verify that the Carbon Intensity Goal can be achieved.

4.3.2 Annual verification is to be carried out within three months before or after each anniversary date of the IEE Certificate.

4.3.3 During the annual verification, Administrations should verify whether the Carbon Intensity Goal can be achieved. Appropriate action should be taken if the ship does not achieve the goal, which could include observation, non-conformities and major non-conformities and should include a plan for corrective actions. Based upon this the IEE Certificate should be endorsed.

4.4 Intermediate verification

4.4.1 Intermediate management verifications of SEEMP Part I and the Carbon Intensity Goal should be carried out to maintain the validity of the goal and should include examining and verifying the ship is operated in accordance with the action plan/way forward and that the goal can be achieved. The purpose of these verifications is to verify the yearly or three-yearly goal of SEEMP Part I and that the Carbon Intensity Goal has been achieved.

4.4.2 The intermediate verification should be carried out within three months before or three after the second anniversary date or within three months before or three after the third anniversary date of the issue of the IEE Certificate Safety Management Certificate. This verification replaces the annual verification accordingly.

4.4.3 During the intermediate verification, Administrations should verify whether the Carbon Intensity Goal is achieved. Appropriate action should be taken if the ship does not achieve the goal, this could include observation, non-conformities and major non-conformities and should include a plan for corrective actions. Based upon this the IEE Certificate should be endorsed.

4.5 Renewal verification

4.5.1 Renewal verifications are to be performed before the validity of the IEE Certificate expires. The renewal verification will address all the elements of SEEMP Part I and the Carbon Intensity Goal. Renewal verification may be carried out within three months before the date of expiry of the IEE Certificate, and should be completed before the date of expiry.

4.5.2 During the renewal verification, Administrations should verify whether the Carbon Intensity Goal is achieved. Appropriate action should be taken if the ship does not achieve the goal, this could include observation, non-conformities and major non-conformities and should include a plan for corrective actions. Based upon this the IEE Certificate should be renewed.

4.6 Additional verification

4.6.1 The Administration may, where there are clear grounds, require an additional verification to check if the action plan/way forward in the SEEMP Part I as well as the Carbon Intensity Goal are achieved. Additional verifications may be carried out following situations beyond normal procedures such as port State control detentions, or in the case of reactivation after the interruption of operations due to a period of out of service, or in order to verify that effective corrective actions have been taken and/or are being properly implemented. Additional verifications may affect the shore-based organization and/or the shipboard management system. The Administration should determine the scope and depth of the verification, which may vary from case to case. The additional verifications should be completed within the agreed time period, taking the guidelines developed and adopted by IMO into account. The Administration should follow up on the results of the verification and take appropriate action, as necessary.

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ANNEX 5

VOLUNTARY ACTION OF SHIPOWNERS AND OPERATORS IN RELATION TO CHANGES IN CHARTER PARTY CONTRACTS

1 In order to reduce the emissions per dwt-mile, changes to ships to increase energy efficiency and reduce emissions can be achieved through several means:

.1 introduce ship construction innovations (new-builds or retrofitting), e.g. bulbous bows, ship design improvements, propulsion efficiency, drag reducing paint, etc.;

.2 introduce technical innovations, e.g. energy saving devices, batteries, digitalization, etc.;

.3 maintenance of hull and equipment;

.4 introduce operational change, e.g. just-in-time voyage planning, improved network and route design, cargo loading to optimize trim and drag, onboard energy management, fuel-efficient operations like main engine power limitation, speed reduction and optimization, etc.; and

.5 develop and introduce low-carbon or zero-carbon fuels.

2 The non-operating shipowner is in control of the first three (construction and technical innovations and maintenance).

3 The operator is in control of the fourth (operational change).

4 Both shipowner and operator are partly in control of the fifth (low-/zero-carbon fuels).

5 Possible sanctions in case of non-compliance can only be targeted the shipowner. As such, the suggestion is to introduce in the charter party contract a thorough consumption/emission description of the individual ship. With this description, the shipowner can guarantee the technical properties of the ship, and thus what the shipowner is responsible for. Any operational properties related to the relative CO_2 emissions beyond the consumption/emission description should accordingly transfer the related sanctions to the operator.

6 The ship description should at a minimum cover a table of drafts on one scale (in meters) and speeds (knots) on the other. The contents should be the total ship consumption (in tons) without cargo related consumption. There should be a separate table for each relevant weather condition the ship is likely to experience, e.g. BF 3 and 4. The fuel properties relevant for the table must be stated (LCV, fuel type, etc.).

7 Further complexities, such as extended idling periods by order of the operator, can also be covered in the charter party contract. This would move part of the responsibility for hull and equipment maintenance from the shipowner to the operator.

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