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**INFORMATION**

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| From: | General Secretariat of the Council |
| To: | Delegations |
| Subject: | Preparation of IMO/ISWG-GHG 4 (London, 15-19 October 2018) |

Delegations will find attached a submission by Cyprus in view of IMO/ISWG-GHG 4 (London, 15-19 October 2018)

Cyprus invites Member States to take note of/support the paper.

INTERNATIONAL MARITIME ORGANIZATION

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INTERSESSIONAL WORKING GROUP ON REDUCTION OF GHG EMISSIONS FROM SHIPS
4th Session
Agenda item 3

ISWG-GHG 4/3/X
X August 2018
ENGLISH ONLY

# FURTHER CONSIDERATION OF POTENTIAL MEASURES FOR THE REDUCTION OF GHG EMISSIONS FROM SHIPS

## Short-term measures to reduce GHG emissions from Ships

**Submitted by Cyprus**


**SUMMARY**

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| *Executive summary:* | The document provides comments on some of the short-term measures listed in the Initial IMO strategy for reducing GHG emissions and puts forward suggestions regarding the potential implementation of said short-term measures. |
| *Strategic Direction, if applicable:* | 3 |
| *Output:* | 3.7 |
| *Action to be taken:* | Paragraph 26 |
| *Related documents:* | MEPC.304(72) |


## Introduction

1. The Marine Environment Protection Committee (Committee) during its 72nd Session in April 2018 adopted, by resolution MEPC.304(72) the Initial IMO strategy on the reduction of greenhouse gas (GHG) emissions from ships (the Initial Strategy). The Initial Strategy is the first milestone set out in the Roadmap for developing a comprehensive IMO Strategy on the reduction of GHG emissions from ships (the Roadmap) approved at MEPC 70. The Roadmap specifies a number of key stages for the adoption of a Revised IMO GHG Strategy in 2023.

2. The Initial Strategy specifies three levels of ambition with quantified global emission reduction objectives and a specific related time line. Furthermore, the Initial Strategy provides a non-exhaustive list of possible short-term, mid-term and long-term measures

for reducing GHG emissions and achieving the set levels of ambition. Additionally, the Initial Strategy indicates that the timeline for short-term measures should prioritize potential early measures that the Organization could develop, while recognizing those already adopted, including MARPOL Annex VI requirements relevant for climate change, with a view to achieve further reduction of GHG emissions from international shipping before 2023.

3. Cyprus fully supports the Initial Strategy adopted, which sets ambitious yet pragmatic GHG reduction objectives and recognizes the need for the IMO to proactively develop and implement short-term measures, in line with the Initial Strategy, which can reduce GHG emissions before 2023.

**Short-Term Measures**

4. The initial strategy specifies 13 candidate short-term measures. Of these 13 measures, the first five candidate short-term measures aim to directly reduce GHG emissions from ships. The rest of the candidate short-term measures aim to implicitly reduce GHG emissions from ships. Given that the primary aim of the candidate short-term measures is to achieve further reduction of GHG emissions from international shipping before 2023, this paper focuses on the five candidate short-term measures that aim to directly reduce GHG emissions, which Cyprus believes should be the priority of the IMO in the implementation of the Initial Strategy.

5. Although each of the aforementioned five candidate short-term measures has the potential to reduce GHG emissions from ships, not all five measures are suitable for all ships. Furthermore, the effectiveness and applicability of some of the short-term measures depends on the operational particularities of each ship and its specific characteristics.

***Further improvement of the existing energy efficiency framework with a focus on EEDI and SEEMP, taking into account the outcome of the review of EEDI regulations***

6. Cyprus believes that further improvement of the existing energy efficiency framework through the enhancement of Energy Efficiency Design Index (EEDI) and the Ship Energy Efficiency Management Plan (SEEMP) can be achieved relatively quickly and effectively as a sound legal framework is already in place and only minor amendments are required to enhance the effectiveness of these two measures.

7. The EEDI has already demonstrated effectiveness in reducing GHG emissions, with several ship types already meeting and exceeding the Phase II targets. The Committee at its 70$^{th}$ session agreed to consider early implementation of phase 3 in 2022 and, if agreed, introduction of phase 4 as soon as possible.

8. At the 72$^{nd}$ session of the Committee, several delegations expressed the view that no decision on early implementation of EEDI phase 3 requirements should be taken until the work on the guidelines regarding minimum propulsion power had been completed so as to prevent underpowered ships, unable to operate safely in adverse weather conditions, from being built.

9. Cyprus believes that the Organization should urgently conclude the development of new guidelines on minimum power in order to facilitate the early implementation of EEDI phase 3 and introduction of phase 4 as soon as possible.

10. The SEEMP is an operational measure that establishes a mechanism to improve the energy efficiency of a ship in a cost-effective manner. The SEEMP provides an approach for shipping companies to manage ship and fleet efficiency performance over time using the Energy Efficiency Operational Indicator (EEOI) or any other Indicator as a monitoring tool. Part I of the SEEMP is a ship-specific plan developed by the company, reflecting their efforts to improve the energy efficiency of a ship through four steps: planning, implementation, monitoring, and self-evaluation and improvement, in a continuous cycle aiming to improve ship energy efficiency management.

11. Currently there are no specific targets for improving the energy efficiency of each ship. Companies can use their own reduction targets based on their own policies. Furthermore, in most cases, there is no continuity when there is a change in the company managing the ship. Cyprus believes that the Organization should set a mandatory annual minimum reduction target for $CO_2$ emissions per transport work. This target should be such that the Organization can achieve the second level of ambition directing the Initial Strategy, which requires the Organization to reduce $CO_2$ emissions per transport work, as an average across international shipping, by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008.

***Develop technical and operational energy efficiency measures for both new and existing ships, including consideration of indicators in line with the three-step approach that can be utilized to indicate and enhance the energy efficiency performance of shipping, e.g. Annual Efficiency Ratio (AER), Energy Efficiency per Service Hour (EESH), Individual Ship Performance Indicator (ISPI) and Fuel Oil Reduction Strategy (FORS);***

12. During the recent discussions for the reduction of GHG from shipping, in addition to the EEOI, the following four operational energy efficiency indicators were proposed to the Committee:

1. EESH – Energy Efficiency per Service Hour – MEPC 65/4/19 by the United States;

2. ISPS – Individual Ship Performance Indicator – MEPC 66/4/6, by Germany and Japan;

3. FORS – Fuel Oil Reduction Strategy – MEPC 66/4/6 by Germany and Japan and;

4. AER – Annual Efficiency Ratio –MEPC 67/5/4 by Japan.

13. International shipping consists of a wide range of ship types providing a variety of services ranging from transportation of goods, passengers and special personnel to dredging, icebreaking, and many more. Given the wide range of activities performed by international shipping, and the diversity of ship characteristics even in the same sector, it would therefore be necessary to define which combination of indicators would be most appropriate to apply to each specific type of vessel.

14. Each of the operational energy efficiency indicators proposed to the Committee has some advantages and some disadvantages and can represent some segments better than others. Additionally, none of four energy efficiency indicators takes into account the actual cargo carried. Thus, a ship that sails more in ballast will appear to be more efficient than a ship that goes fully loaded. Furthermore, none of the aforementioned indicators gives any incentives for better fleet utilization. On the contrary, all proposed energy efficiency indicators punish ships that utilize their full cargo capacity. It is therefore necessary to consider incorporating the cargo on board into the index as opposed to the mere carrying capacity.

15. During the 72nd Session of the Committee, INTERTANKO through documents MEPC 72/7/1 and MEPC 72/INF.5, presented the results of a study commissioned from the University College of London (UCL) Energy Institute which examined the data collected over five years from 11 sister ships, all operated under the same management. As indicated in paragraph 20 of document MEPC 72/7/1 there are serious challenges in defining an indicator which could adequately assess ships' operational efficiencies and allow meaningful comparison between them. Furthermore, the aforementioned study concludes that even if a ship is managed in a consistent manner, the indicator could still show significant inter-year variations. The various considerations identifiedregarding the data used in defining an indicator, should be taken into account in order to define the correct indicator(s) that should be applied to the various types of ships.

16. In conclusion and in light of the above, Cyprus is of the view that none of the operational energy efficiency indicators which have been proposed to the Committee, including the EEOI is presently adequate or appropriate for application to all types of ships and operations and recommends that further work is done to take all the above factors and omissions into account.. The development of more accurate indicators will greatly assist companies in to better evaluating the energy efficiency of their fleet and improve it through the implementation of SEEMP.

***Establishment of an Existing Fleet Improvement Programme***

17. The vast majority of the ships currently in operation are not subject to the requirements of EEDI. Thus, the establishment of a programme to improve the energy efficiency of the existing fleet is considered essential.

18. During the deliberations for the formulation of the Initial Strategy, a number of Member States have indicated different technological solutions that are available and that could improve the energy efficiency of existing ships. Cyprus believes that the Organization should not seek to formulate prescriptive regulations imposing specific technological or operational solutions. Cyprus is of the view that the Organization should seek to formulate a goal-based programme in order to improve the energy efficiency of the existing ships, thus allowing Companies to choose and implement the most appropriate technological or operational solution for each ship.

***Consider and analyse the use of speed optimization and speed reduction as a measure, taking into account safety issues, distance travelled, distortion of the market or trade and that such measure does not impact on shipping's capability to serve remote geographic areas;***

19. Speed optimization or speed reduction is a very promising short-term measure that can swiftly achieve considerable GHG emission reductions. This was witnessed during the widespread adoption of slow steaming by many ships during the period of the global economic downturn.

20. Slow steaming is today adopted as a voluntary practice by Companies as a reaction to changes in the market, such as cargo availability, freight rates and fuel prices. The extent and level of slow steaming are not fixed; these parameters are subject to change in response to changes in the market.

21. Introducing measures to regulate the operational speed of ships would be a complex process which could generate some side effects. If the maximum operational speed or a maximum average operational speed is set too low or declines too sharply, to a level which would not offset the resulting delay by the reduction of the waiting time for the Vessel's berthing at the port, this could cause a temporary increase in freight rates. Any possible increase in transportation costs may have a negative effect on some economies, particularly the economies of the least developed countries (LDCs).

22. The third IMO GHG study revealed that during the period 2007–2012 the average reduction in at-sea speed relative to design speed was 12% and the average reduction in daily fuel consumption was 27%. However, as indicated in the study, a reduction in speed and the associated reduction in fuel consumption are not necessarily proportionate to increase in efficiency.

23. Cyprus is of the view that, in considering speed optimization as a measure for reducing GHG emissions from ships, great care should be taken in introducing the appropriate measures and risk management procedures so as to ensure:

1. compliance and consistent implementation;
2. no adverse effects on the competitiveness of maritime transport; and
3. no adverse impact on the shipping sector's capability to serve remote geographical areas

***Consider and analyse measures to address emissions of methane and further enhance measures to address emissions of Volatile Organic Compounds***

24. Natural Gas is often highlighted as the cleanest fossil fuel alternative as it provides a 20% to 25% reduction in $CO_2$ emissions compared to diesel. The true reduction of GHG emissions in each individual case depends on the total efficiency of the chosen alternative internal combustion engine. However, the methane slip that occurs in the Otto cycle mode, significantly limits the reduction of GHG, and in the worst of cases eliminates the gains from $CO_2$ reductions. It should be noted that methane is about 20-25 times more powerful

than $CO_2$ as a GHG during a 100-year time span (molecule for molecule, methane traps about 20 to 25 times more heat than carbon dioxide).

25. The manufacturers of Natural Gas burning engines try to minimise methane slip by improving the combustion process and using after-treatment systems. However, Cyprus believes that the Organization should regulate methane slip that occurs in the Otto cycle mode through the adoption of performance standards for the new Natural Gas burning engines.

**Action requested by the Committee**

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