INTERNATIONAL MARITIME ORGANIZATION

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MARINE ENVIRONMENT PROTECTION COMMITTEE
76th session
Agenda item 3

MEPC 76/3/5
7 April 2021
Original: ENGLISH
Pre-session public release: ☒

CONSIDERATION AND ADOPTION OF AMENDMENTS TO MANDATORY INSTRUMENTS

Proposal for a possible addition to regulation 22B.1 of MARPOL Annex VI concerning voyage exclusions for ice-classed ships when sailing in ice conditions

Submitted by Estonia, Finland, Russian Federation and Sweden

SUMMARY

Executive summary:	Ice-classed ships consume much more fuel when sailing in ice covered waters compared to sailing in the same area in open water conditions, which may have a big impact on their attained carbon intensity indicator (CII). In this document the need to have voyage exclusions for ice classed ships when sailing in ice conditions is explained. In case the Committee would prefer to integrate relevant voyage exclusions for ice classed ships when sailing in ice conditions into MARPOL Annex VI, a proposal is made to consider amending regulation 22B.1 therein. The definition for the ice conditions and the voyage exclusion would be correspondingly taken into account in the CII guidelines.
Strategic direction, if applicable:	3
Output:	3.6
Action to be taken:	22
Related documents:	MEPC 76/3, MEPC 76/7/5, MEPC 76/7/21 and MEPC 76/INF.67

Introduction

1 This document comments on document MEPC 76/3 (Draft amendments to MARPOL Annex VI, note by the Secretariat).

2 Reference is also made to the document MEPC 76/7/5 (Report of the Correspondence Group on the Development of Technical Guidelines on Carbon Intensity Reduction (TOR 2), submitted by China, Japan and the European Commission). This Correspondence Group considered, inter alia, the need for and concrete proposals on introducing certain correction factors and voyage exclusions in calculation of the operational CII of individual ships in implementing regulation 22B of MARPOL Annex VI (see sections 8 to 12 of document MEPC 76/7/5).

3 The purpose of this document is to highlight the arguments for the need to have voyage exclusions for ice-classed ships when sailing in ice conditions in the CII calculations. The document further proposes an addition to regulation 22B.1 to permit these kinds of exclusions. More detailed information on the magnitude of the impact of sailing in ice conditions on the attained CII of ice-classed ships can be found in document MEPC 76/INF.67, submitted by Finland.

Level playing field among different ships within a ship type and among different ship types

4 Maintaining a level playing field among different ships within a ship type, and among different ship types, is a common principle when developing regulations at IMO. In the regulations for the EEDI, EEXI and CII, which are based on calculation of a certain index value for energy efficiency or carbon intensity, this is taken into account by allowing higher attained index values for small ships compared to big ships, given that the deadweight is the main parameter for capacity in each of these regulations. Different ship types also have different reference lines, which reflect the design parameters (mainly the block coefficient and the attained speed of the ship) of each ship type.

5 However, within each ship type, there are several "sub-categories" of ships, which have different design parameters compared to the other ships belonging to the same ship category. A good example is ice-classed ships, which exist in several ship categories. In order to ensure a level playing field among ice-classed ships and ships designed for sailing only in open water, ice class correction factors are used for the calculation of the attained EEDI and EEXI.

The role of the ice class correction factors for calculation of the operational carbon intensity indicator (CII)

6 The draft CII guidelines set out in annex 1 to document MEPC 76/7/5 include two ice class correction factors. The purpose of these correction factors is to also ensure a level playing field in open water conditions between ice-classed ships and ships designed for sailing only in open water.

7 The two correction factors are the ice class correction factors of EEDI for capacity, f_i, and the ice class correction factor, f_m, for ships having an ice class IA Super or IA. These correction factors have been proposed to be adopted also in the CII guidelines to take into account the different technical design aspects of ice-classed ships compared to ships designed to sail only in open water (see section 4.3.1 of the draft CII guidelines (MEPC 76/7/5, annex 1)). The different technical design aspects imply ice strengthening of the hull and propulsion machinery, and the form of the hull and the propeller(s), and limited possibilities to install devices improving energy efficiency.

8 The capacity, i.e. deadweight, as compared to ship displacement, is smaller in the case of ice-classed ships than in the case of ships of similar size, designed for sailing in open water only. The reason is that the ice strengthening (steel structures) of the hull and machinery increases the lightweight, which results in a smaller capacity. In addition, if the hull of the ship is designed to have good ice-going capability, this may result in a smaller block coefficient, as compared to a ship of similar size designed to sail only in open water conditions, which will result in an even smaller deadweight and attained CII. Thus, the ice-classed ships have less capacity (deadweight) and will transport less freight per voyage than not-ice-strengthened ships of similar size. The ice class correction factor for capacity, f_i, is intended to compensate for the smaller deadweight.

9 Ships having an ice class have limited possibilities to install devices that improve energy efficiency such as, for example, vane wheels or similar devices, which can reduce fuel consumption. This is because those devices would break off when operating in ice due to ice loads. The purpose of the ice class correction factor, f_m, for ships having an ice class IA Super or IA is intended to compensate for this issue.

10 Due to these different design features, an ice-classed ship always has, even when sailing in open water, a higher attained CII value compared to a ship of the same type and size designed to sail only in open water and, for this reason, the level playing field can be ensured by using the ice class correction factors. Even if voyage exclusions are applied for ice-classed ships when sailing in ice conditions, the ice class correction factors are still needed to ensure level playing field between ice-classed ships and ships designed for sailing in open water only, when ice-classed ships are sailing in open water.

The need to have voyage exclusions in the CII regulations for ice-classed ships when sailing in ice conditions

11 In the view of the co-sponsors, voyage exclusions for ice-classed ships when sailing in ice conditions are needed in the CII regulations, in addition to the ice class correction factors. In addition to the increased fuel consumption in open water, ice-classed ships also consume much more fuel when sailing in ice covered waters compared to sailing in the same area in open water conditions. The obvious reason is that the resistance of the ship increases in ice conditions, resulting in a drop in the speed of the ship. In open water, the ship may normally sail, for example, at a speed of 15 kn using engine power at 80% of MCR, but in heavy ice conditions the speed may drop down to 5 kn using the same engine power.

12 Consequently, the time spent for the voyage increases, resulting in a considerable increase of the total fuel oil consumption compared to sailing the same voyage in open water conditions. The ice class correction factors mentioned above do not take this additional fuel oil consumption into account and it is not possible to develop a correction factor to take this issue into account, because ice conditions in a given sea area will vary considerably and the sailing area of an ice-classed ship may also change year on year. For instance, in the Baltic Sea, the fuel consumption of individual ships due to ice conditions may increase up to 60% compared to open water conditions. Therefore, voyage exclusions should be applied to ice-classed ships when sailing in ice conditions. More detailed information on the effect of sailing in ice conditions on the attained CII of ice-classed ships can be found in document MEPC 76/INF.67.

Is there an overlap of ice class correction factors and voyage exclusions when sailing in ice conditions?

13 Comments were raised within the Correspondence Group indicating that there may be an overlap between the ice class correction factors and the voyage exclusions, when sailing in ice conditions. As presented above, we can conclude that both technical and operational issues have an effect on the calculation of the attained CII value for ice-classed ships. The technical reasons are related to the design and ice-strengthening of ice-classed ships and they can be accounted for by using the ice class correction factors, which are relevant in both open water and ice conditions. The operational reasons are related to the increased fuel oil consumption when sailing in ice conditions, and this should be addressed by excluding voyages in ice conditions when calculating the attained CII of an ice classed ship. Based on the above considerations, in the co-sponsors' view, there is no overlap between the ice class correction factors and voyage exclusions when sailing in ice conditions.

The effect of voyage exclusions for ice-classed ships when sailing in ice conditions on the ambition of the IMO Initial GHG Strategy

14 In the Correspondence Group it was argued that voyage exclusions may have an impact on carbon intensity reduction and the impact of such exclusions should be assessed ex-ante and taken into account by the Committee, when deciding on the reduction targets, i.e. to compensate for the excluded share of voyages and the overall target.

15 The co-sponsors would like to stress that the proposed voyage exclusions for ice-classed ships when sailing in ice conditions only apply to calculation of the attained CII value of ice-classed ships. All ships, including ice-classed ships, will have to report all their fuel oil consumption and distance travelled in accordance with the IMO Data Collection System (DCS). Accordingly, IMO can monitor the development of the carbon intensity of international shipping, even if voyage exclusions are allowed for ice-classed ships.

16 We would like to point out that the carbon intensity indicator measures the relative CO_2 emissions of the ship divided by its deadweight (or GT) and multiplied by distance travelled. Therefore, a ship sailing a short distance annually may have the same attained CII compared to its sister ship sailing a much longer distance, whereby these ships sail in the same area with the same average speed. However, the ship sailing a longer distance has much higher absolute CO_2 emissions when compared to the other ship. This means that the CII framework does not prevent the increase of the absolute CO_2 emissions from international shipping in the long term if shipping activity will considerably increase in the future.

17 The co-sponsors would also like to underscore that, in the terms of carbon intensity, excluding voyages sailed in ice conditions implies the same outcome, if instead of voyage exclusion, the carbon emissions when sailing in ice conditions were replaced with the annual average carbon emissions per distance sailed in open water. Thus, the value of the carbon indicator, which is obtained using voyage exclusion, is the same as the one that would be obtained if the additional emissions due to sailing in ice conditions were excluded.

18 The co-sponsors would also like to point out that, in their understanding, the number of ships that would use voyage exclusions when sailing in ice conditions is relatively small. Therefore, the effect of voyage exclusion, when sailing in ice conditions, should be minor from the point of view of the ambition of the IMO Initial GHG Strategy. In Seaweb IHS, the total number of ships with GT ≥ 5,000 is about 37,680, while the number of ships (GT ≥ 5,000) having an ice class is only 3,550 (9%). Furthermore, all ships having an ice class do not actually sail in ice conditions annually. As an example, in the Baltic Sea area, about 30 ships, for which the CII regulations apply, sail during the winter period from January to April to the northernmost ports of Finland in the Bothnian Bay, where ice conditions exist every winter. In addition, all these ships are small ships compared to ocean-going ships.

Discussion

19 As mentioned in the report of the Correspondence Group (MEPC 76/7/5, paragraph 9), the members of the group had different understandings on whether voyage exclusions should be considered in the guidelines or stipulated in MARPOL Annex VI. A slight majority, including Finland and the Russian Federation, favoured the inclusion in the CII guidelines.

20 Notwithstanding the above, the question still remains as to whether voyage exclusions should be considered in the CII guidelines, or specifically stipulated in MARPOL Annex VI. If the Committee decides that there is a need to stipulate voyage exclusions in MARPOL Annex VI, the co-sponsors propose to consider adding a sentence to regulation 22B.1

of MARPOL Annex VI to clearly permit such exclusions for ice-classed ships when sailing in ice conditions. The proposal is to add a sentence at the end of regulation 22B.1, as follows:

> "Data for voyages, when sailing in ice conditions, may be excluded from the calculation of the attained annual operational CII of ice-classed ships."

21 More detailed guidance on voyage exclusions for ice-classed ships when sailing in ice conditions can then be included in the CII guidelines. Finland and the Russian Federation have made specific proposals for this guidance in document MEPC 76/7/21.

Action requested of the Committee

22 The Committee is invited to consider the information provided in the document and the proposal set out in paragraph 20, and decide as appropriate.

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