INTERNATIONAL MARITIME ORGANIZATION

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MARINE ENVIRONMENT PROTECTION COMMITTEE
73rd session
Agenda item 5

MEPC 73/5/5
9 August 2018
Original: ENGLISH

AIR POLLUTION AND ENERGY EFFICIENCY

Mandatory reporting of attained EEDI values

Submitted by Japan, Norway, ICS, BIMCO, CLIA, IPTA and WSC

SUMMARY

Executive summary:	A comparison of EEDI values reported to the IMO EEDI database with known new builds reported in the IHS Fairplay database reveals dramatic under-reporting to IMO of attained EEDI values for newly built ships. The paucity of verified EEDI values being reported under the EEDI database undermines the ability of Member States, industry and other stakeholders to analyse EEDI trends using precise and verified data. To address this problem, the co-sponsors propose amendments to MARPOL Annex VI that would require mandatory reporting of verified EEDI values for new ships subject to the EEDI phase 0, phase 1 and future EEDI phases required under regulation 21 of chapter 4 of MARPOL Annex VI.
Strategic direction, if applicable:	3
Output:	3.6
Action to be taken:	Paragraph 13
Related documents:	Resolution MEPC.245(66), as amended; resolution MEPC.251(66); resolution MEPC.254(67) and MEPC 70/18/Add.1

Discussion

1 Regulations 19, 20 and 21 of chapter 4 of MARPOL Annex VI stipulate the requirements for calculating the attained Energy Efficiency Design Index (EEDI) and required EEDI values for new ships beginning on 1 January 2013 (phase 0) and for subsequent phases identified in regulation 21 of MARPOL Annex VI.

2 While resolution MEPC.245(66) sets forth detailed requirements for calculating EEDI values for new ships and resolution MEPC.254(67) sets forth the relevant guidelines on survey and certification of the EEDI, reporting of attained EEDI values of ships subject to the regulation 21 is voluntary.

3 An examination of the verified EEDI values reported to the IMO EEDI database and a comparison of new ship data reported under the IHS Fairplay database reveals substantial gaps in the number of ships reporting attained and verified EEDI values to IMO. A recent break-out of the data reported for new container ships to the IMO EEDI database revealed that of the 607 new container ships (> 2,000 TEU in size) reported under phase 0 and phase 1 to the IHS Fairplay database, only 210 ships with verified EEDI values have been reported to the IMO EEDI database. This represents only 34% of ships and in some cases the data gaps are even more extreme. By way of example, looking at phase 1 containerships between 8,000 TEU and 12,000 TEU (June 2018 data), IHS Fairplay reports 57 ships of this size reported for phase 1 (2015 to present), but only 2 ships in this same size category are found in the IMO EEDI database. Looking also at new phase 1 container ships between 14,500 TEU and 19,000 TEU or larger, there are 31 ships in the IHS Fairplay database, but only 6 ships in the IMO EEDI database. An examination of vehicle carrier data (June 2018) in IHS Fairplay and the IMO database reveals 40 new phase 1 vehicle carriers greater than 4,000 DWT in IHS Fairplay, but only 2 ships reported in the IMO EEDI database.

4 Low levels of reporting-attained EEDI values to the IMO EEDI database is common across the fleet in general and not limited to specific ship types. The IMO EEDI database includes 62 phase 1 bulk carriers and 140 phase 1 tankers. In contrast, a search of the IHS database looking at ships that should align with EEDI phase 1 and the latest IMO EEDI database figures produced a result of approximately 1,100 phase 1 bulk carriers and 850 phase 1 tankers. Looking at the IMO EEDI database, it is notable that there has been a very significant drop in numbers from phase 0 to phase 1 for many ship types and size segments. It should be noted that a fully accurate comparison is difficult due to the definition of "new ship" which can be triggered by the date of contract, keel laying or delivery. Nonetheless, it is clear that there are extremely limited data entries for verified EEDI values in the IMO EEDI database.

5 The lack of verified data being submitted to the IMO EEDI database is substantial. As a result, the use and analysis of verified EEDI values in the IMO EEDI database as a statistically representative reference point is greatly compromised or impossible for certain ship types and size segments. The use of scatter diagrams based on limited data can be misleading and can lead to conclusions that may or may not be consistent with observations that would be available with a complete data set.

6 Given the lack of verified EEDI values that are statistically significant, analysts and decision makers must calculate estimated index values (EIV) that are subject to a wide band of uncertainty. To develop an EIV value, the analyst must make assumptions concerning the specific fuel consumption (SFC) of the ship and the ship speed as stipulated in the verification procedures for the sea trial. As both values are undefined and reference speeds reported to IHS Fairplay vary significantly, the resulting EIV figures are subject to a large degree of inaccuracy.

7 Another important point of information that is not currently available is a short summary of what design elements or changes contributed to the attained EEDI value of a newly built ship. A concise statement summarizing non-propriety design elements or changes could assist Member States, industry and other stakeholders in evaluating design features and trends that are contributing to improving attained EEDI values.

8 In the view of the co-sponsors, the significant data shortcomings that are currently in the IMO EEDI database can be addressed by making submission of attained EEDI values to the IMO EEDI database mandatory. Mandatory reporting of attained EEDI values for ships subject to regulation 21 of MARPOL Annex VI would provide Member States, industry and other parties with accurate and verified data for all newly built ships. The co-sponsors propose

that reports include the data elements specified in annex 8 to document MEPC 70/18/Add.1, a concise statement highlighting what design elements/changes contributed to the attained EEDI value, the common commercial size reference for a given ship (e.g., 8,500 TEU)[1] and the fuel type used in the calculation of the attained EEDI. The later elements should enable easier analysis and comparison of data.

9 The proposed mandatory reporting requirements, if adopted, would greatly assist the Committee as it considers phase 4 and other future EEDI requirements.

10 To ensure data anonymity consistent with that provided under the IMO Ship Fuel Oil Consumption Database, data submitted under this proposal would be subject to the same data anonymization conditions stipulated in the *2017 Guidelines for the development and management of the IMO Ship Fuel Oil Consumption Database* (resolution MEPC.293(71). For example, the ship identification number would be available only to the IMO Secretariat for data management purposes and specific tonnage figures should be rounded to two significant digits. Should the Committee proceed with the amendments proposed in this document, it may wish to amend the standard data format for reporting and develop other guidance as it deems appropriate.

Proposal

11 The co-sponsors propose amendments to regulation 20 of MARPOL Annex VI that would require mandatory reporting by the Administration or recognized organization of:

.1 verified attained EEDI scores and related information[2] for ships already subject to phase 0 and phase 1; and

.2 verified EEDI scores and related information for any future new ship covered by regulation 21 of MARPOL Annex VI.

12 Draft amendment text is attached in the annex to this document.

Action requested of the Committee.

13 The Committee is invited to consider the comments and proposal contained in this document and to take action as appropriate.

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[1] In addition to the ship's DWT or GT.

[2] See proposed appendix [XX] for list of specific data elements.

ANNEX

PROPOSED DRAFT AMENDMENTS TO MARPOL ANNEX VI

1 Regulation 20 is amended by adding a new paragraph 3, reading as follows:

"3 For each ship subject to regulation 21, the Administration or any organization duly authorized by it shall report the information specified in appendix [XX] to the IMO GISIS database via electronic communication and in the format specified by the Organization:

.1 within [30] days of completing the survey required under regulation 5.4 of this Annex; or

.2 within [90] days following [insert date of entry into force of amendment] for a ship delivered prior to [insert date of entry into force of amendment]."

Note: paragraph 3.2 serves to require the submittal of the required information for covered ships (subject to a required EEDI under MARPOL Annex VI) delivered after 1 January 2013, but before the effective date when paragraph 3 applies.

2 A new appendix [XX] is added, as follows:

"Appendix [XX]

Mandatory Reporting of Attained and Verified EEDI Values and Related Information

Information to be reported under regulations 20.3.1 and 20.3.2 shall include:

.1 applicable EEDI phase (*e.g. phase 1, phase 2, etc*.);

.2 identification number (IMO Secretariat use only);

.3 ship type;

.4 common commercial size reference as appropriate (*e.g., 12,500 TEU, PCC,*…);

.5 DWT or GT (as appropriate);

.6 dimensional parameters (length Lpp (m), breadth Bs (m), and draught (m));

.7 year of delivery;

.8 required EEDI value;

.9 attained and verified EEDI value;

.10 Vref (knots) and Pme (kW);

.11 use of innovative technologies (4th and 5th terms in the EEDI equation);

.12 short statement (*200 words or less*) describing the principal design elements or changes employed to achieve the attained EEDI; and

.13 type of fuel used in the calculation of the attained EEDI, and for dual fuel engines, the f_{DFgas} ratio."