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ENERGY EFFICIENCY OF SHIPS

Comments on the application of the Interim Guidelines on Correction Factors and Voyage Adjustments for CII Calculations (G5) to small LNG Carriers

Submitted by INTERTANKO

SUMMARY

Executive summary: This document provides data to indicate that the current reference line is not adequate for LNG carriers smaller than 65,000 DWT. It is suggested that small LNG carriers recently built for refuelling ships using LNG as primary fuel should be exempted from the CII rating. It is also suggested that the reference line for the LNG carriers below 65,000DWT needs to be revised.

Strategic direction, if applicable: 3

Output: 3.2

Action to be taken: Paragraphs 14 and 15

Related documents: Regulation 28 of MARPOL Annex VI; Resolution MEPC.352(78); Resolution MEPC.353(78); MEPC 79/7/1

Introduction

1. This document is submitted in accordance with the Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies (MSC-MEPC.1/Circ.5/Rev.1) and comments on documents related.
2. The Organisation has rightly adopted levels of ambitions for reducing CO₂ emissions from ships. The success of a gradual reduction of CO₂ emissions is primarily related to the carbon footprint of fuels used by ships. Although not the ultimate solution, the use of liquid natural gas (LNG) as fuel could reduce CO₂ emissions to a certain degree until fuels with lower carbon content fuels become available.
3. Consequently, the industry has developed logistics for the distribution and supply of LNG as fuel. Over the last 5 years, a number of smaller LNG carriers have been built and entered into refuelling operations for ships using LNG as their primary fuel. These LNG carriers range in size from 7,000 GT to 10,000 GT and many of them operate between neighbouring ports of

different countries, therefore subject to Regulation 28 of MARPOL Annex VI, including the CII rating.

4. The CII rating concept, as now defined, keeps these ships rated E with no possible improvement through design or operational changes. The basic concept behind the CII regulation is to index the efficiency of “transport work”. However, the refuelling operation cannot be defined as “transport work”. Consequently, it is not possible to ensure an equitable application of CII regulation for these ships. Also, the required CII value for smaller LNG carriers is not adequate as it is a constant value for all LNG carriers below 65,000 DWT.

5. This submission explains the background of the problem and justifies the need to either review the scope of the CII regulation for these smaller LNG carriers or, due to the nature of their activity, consider exempting them from the CII rating.

Background

6. The CII reference line is defined in MEPC.353(78) as: $CII_{ref} = aCapacity^{-c}$. For LNG carriers below 65,000 DWT, the formula is defined as $CII_{ref} = a65,000^{-c}$ keeping the “capacity” as a constant value. Therefore, all LNG carriers with a capacity of 65,000DWT or smaller will have the same required CII value which for the year 2023 is 18.77.

7. According to MEPC.352(78) (G1 Guidelines), the attained annual operational CII value is calculated with the formula $attained\ CII_{ships} = \frac{M}{C \times D_t}$, in which M is the mass of CO₂ emissions, C is the ship’s actual maximum Capacity/DWT and D_t is the total annual distance travelled by the ship as reported to IMO DCS.

8. The required CII value is calculated with a constant value up to 20 times higher than the actual DWT of such small refuelling LNG carriers. The lower the DWT value of any LNG carrier than 65,000DWT, the lower the chance of attaining a rating better than E. This represents a major inconsistency in the application of the CII rating to these small LNG carriers.

9. Table 1 provides data on two small refuelling LNG carriers. Table 2 provides the data reported by these refuelling LNG carriers for the indicated periods.

Ship	Built	GT (t)	DWT (t)
LNG 1	2020	17,645	9,458
LNG 2	2017	7,403	3,121

Table 1 – Data of LNG refuelling carriers

Ship	Reporting period (dates)		D _{total} nm	Total fuel (t)		CII _{req.}	CII _{att.}	Rating
	From	To		MGO	LNG			
LNG1	14/06/2020	31/12/2020	12,042	1,237	478	18.77	46.36	E
LNG1	01/01/2022	31/12/2022	3,864	2,053	628	18.77	227.29	E
LNG1	01/01/2023	13/08/2023	2,213	331	1,000	18.77	182.05	E
LNG2	18/12/2020	12/12/2021	3,569	443	2,414	18.77	723.45	E
LNG2	21/12/2021	16/12/2022	5,986	358	1,874	18.77	337.14	E
LNG2	16/12/2022	23/12/2023	8,996	136	1,812	18.77	192.95	E

Table 2 – Results of application of the CII regulation to small refuelling LNG carriers

10. One can easily note the discrepancies between the “attained” CII values which are up to 40 times higher than the constant required CII value. The attained CII values cannot be improved by design or by operational means. The cause of this inconsistency and the remedy can only be addressed by modifying the regulation itself.

11. The disadvantage of these ships relates to their type of operations. They do not perform “transport work” but rather “supply” fuels to other ships. They do not undertake “voyages” but “move” over short distances between shore terminals and locations where other ships wait to be supplied with fuel in ports or outside port areas. Table 2 shows that in 2020, ship LNG 1 covered a larger total distance than usual due to a long voyage from the delivery shipyard to the areas of its operations. However, this longer total distance was still insufficient to meet the required CII value which is still 2.5 times lower than the attained value.

12. Table 3 provides additional data explaining why ships engaged in fuel supply operations cannot be rated better than E. These ships spend 85% to 90% of the time: (a) loading fuel from the shore, (b) supplying fuel to other ships and (c) waiting between these operations. Most of the fuel consumption is during the time these ships are stationary. With zero distance covered for up to 90% of the time of fuel consumption, these ships have no means to attain a good CII rating. Even though ship LNG 1 had a longer initial voyage in 2020 from the delivery shipyard to its home port, she still had 68% of the activity stationary. Ships with most of their operations being stationary do not receive fair treatment under the current CII rating.

Ship	Reporting period (dates)		hrs. underway	Days		
	From	To		at sea	in port/waiting	at sea of total reported days (%)
LNG 1	14/06/2020	31/12/2020	1,524	63	137	31.75%
LNG 1	01/01/2022	31/12/2022	614	26	339	7.01%
LNG 1	01/01/2023	13/08/2023	354	15	210	6.56%
LNG 2	18/12/2020	12/12/2021	662	28	332	7.66%
LNG 2	21/12/2021	16/12/2022	1,253	52	309	14.46%
LNG 2	16/12/2022	23/12/2023	1,219	51	322	13.61%

Table 3 – Details of activities at sea and in port/waiting

13. This is not unique to LNG refuelling carriers. Similar problems are encountered by oil tankers over 5,000 GT engaged in bunker supply.

Conclusion

14. The major handicap of the smaller size LNG carriers lies with the current definition of the CII reference line. INTERTANKO believes that the only remedy is a review of the definition of the CII reference line for the LNG carriers below 65,000 DWT. The need for such review has already been explained by INTERTANKO in document MEPC 79/7/1.

15. The application of the CII rating to the operational profile of LNG refuelling carriers is wholly inadequate. INTERTANKO suggests that LNG carriers supplying LNG to ships as fuel should continue to report their activity but should be exempted from the CII rating requirement.

Action requested of the Committee

16. The Committee is invited to consider the suggested proposals in paragraphs 14 and 15 and decide accordingly.