

# Contemporary assessment of International Maritime Organization's Carbon Intensity Indicator requirement on tanker vessels' chartering and employability prospects

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**Abstract:** Carbon Intensity Indicator (CII) is one of the measures adopted by International Maritime Organization (IMO) in June 2021 during the 76<sup>th</sup> session of the Marine Environment Protection Committee (MEPC) for the reduction of carbon intensity of international shipping, taking effect from January 1, 2023. The CII consists an operational rating system that measures the efficiency of a vessel in grams of CO<sub>2</sub> by cargo carrying capacity in nautical miles (g CO<sub>2</sub>/t-nm). Starting with the pertinent data for 2019 as reference and with a reduction of 1% per annum from 2020 to 2022 and thereafter of 2% per annum from 2023 to 2026, each vessel's CII shall be calculated each year and a rating ranging from A to E will be assigned to the vessel. If a vessel gets a rating of D or E corrective actions will need to be implemented. Considering that the CII rating is affected by factors (such as, for example, the distance sailed, the fuel used, time in port, whether the vessel is loaded or ballast) that depend on operational and/or commercial considerations of the parties involved, vessels' chartering will be affected by way of the provisions in the charter party regarding the need to abide by the CII requirements as well as by any implications on vessel's employability prospects due to vessel's attained CII rating. Aim of this paper is to provide a concise, yet comprehensive, assessment on the topic and offer suggestions for further analysis.

**Keywords:** CII, Chartering, Tankers

## 1. Introduction

In 2018 the International Maritime Organization (IMO) adopted the target to reduce Green House Gas (GHG) emissions from ships by 2050 by 50% compared to the 2008 levels and to reduce carbon intensity by 40% by 2030 compared to 2008 (IMO 2018). These targets could be achieved by short-term measures agreed by IMO between 2018 and 2023. In that connection, the Marine Environment Protection Committee (MEPC) 75 which was held by a remote meeting between 16-20 November 2020 approved the draft amendments to the International Convention for the Prevention of Pollution from Ships MARPOL convention that required vessels to achieve reduction of carbon intensity by way of a combination of

operational and technical measures (IMO 2020, DNV GL, 2020). Development of the proposed amendments was done by the Intersessional Working Group on Reduction of GHG Emissions from Ships (ISWG-GHG 7) that was held during 19-23 October 2020. The draft amendments were put under consideration for formal adoption by MEPC 76 during a remote session that took place between 10 and 17 June 2021.

Carbon Intensity Indicator (CII), which is an operational approach, consist one of the two short-term measures adopted by IMO to strengthen the arsenal of means to achieve the GHG emission reduction targets. The other is the Energy Efficiency Existing Ship Index (EEXI) which is a technical approach pursuant to which it is required for the ship to apply technical measures or improvements to achieve that existing ship's design efficiency to a level equivalent to Energy Efficiency Design Index (EEDI) phase 2 or 3. The measures adopted by MEPC 76 include the enhanced Ship Energy Efficiency Management Plan (SEEMP) also (IMO 2021a, DNV 2021).

CII apply to ships of more than 5,000 gross tones. According to the regulation, ships are required to have determined by use of the information submitted by way of IMO's Data Collection System – which was adopted by IMO on 28 October 2016 by way of resolution MEPC 278(70) and entered into force on 1 March 2018 – their annual operational CII. CII measured the efficiency of a ship in grams of CO<sub>2</sub> by cargo carrying capacity in nautical miles (g CO<sub>2</sub>/t-nm). Following the outcomes of ISWG-GHG 8, that took place 24 – 28 May 2021, it was decided to start with 2019 data as reference which would define the mid-point of C rating for each year. The CII rating would reduce by 1% per annum from 2020 to 2022 and thereafter of 2% per annum from 2023 to 2026. Each vessel's CII shall be calculated each year and a rating ranging from A to E will be assigned to the vessel (A being the best) where the ship need to achieve at least a C rating. The rating for 2027 – 2030 will be decided as part of the review of the CII measure. Such rating is incorporated in ship's statement of compliance issued by ship's administration. In case a ship gets a rating of D for three consecutive years or a rating of E for any year, then a corrective actions plan need to be implemented into ship's

SEEMP. It is to be noted that the regulation includes provision whereby administrations, port authorities and other stakeholders are encouraged to provide incentives to ships rated as A and B. The said amendments to MARPOL Annex VI entered into force on 1 November 2022 and the requirements for CII came into effect from 1 January 2023. Accordingly, as regards CII reporting, the first rating will be issued in 2024. It is further provided that the effectiveness of the CII measure will be reviewed by 1 January 2026 and if necessary further amendments will be developed and adopted by IMO (IMO 2021b). During MEPC 78 that was held from 6 to 10 June 2022 the guidelines for CII, EEXI and SEEMP were finalized ensuring that EEXI, CII and SEEMP are ready for implementation by the due dates (DNV 2022, Psaraftis 2021).

## 2. Practical approach to CII and implications to vessels' chartering

### 2.1. Practical approach to CII

CII calculation uses the "supply-based" method of measuring the transportation work for the computation of ship's carbon intensity. The numerator of the CII ratio is the annual CO<sub>2</sub> emission and the denominator is the product of the ship's deadweight (or gross tonnes depending on ship's type) multiplied by the distance sailed during the year which is thereafter multiplied by any correction factor pursuant to the applicable IMO guidelines. The decision to adopt the "supply-based" instead of the "demand-based" which would use as denominator the actual tonne-miles carried by the ship during the year, can be assumed to have been influenced by the fact that IMO DCS does not include such detailed cargo information. To be noted that one of the main reasons for criticizing IMO as regards CII is the decision to adopt the supply-based measurement. Wang et al. (2021) have provided calculation leading to the conclusion that on the basis of the current CII calculation method a ship may end up getting a rating of A or B whilst has produced more GHG emissions than it would have been the case with the "demand-based" measure. The outcome could result from a vessel sailing in ballast condition which would produce GHG emission without producing transportation work. Another main point of criticism relates to the fact that CII regulation has been considered a toothless tiger – a ship getting a rating E in one year or a rating D for three consecutive years will only result in the obligation to submit a corrective actions plan into SEEMP. A further reason relates to the fact that bad weather, port delays and (in time charter parties) off-hire periods are not taken into account in the CII calculation.

Ways to improve ship's CII rating and ensure compliance include a variety of actions ranging from: voyage planning improvement; speed reduction or slow steaming; use of alternative fuels; installation of energy saving / power limitation devices; enhanced underwater cleaning plan; better hull coating; fitting of more efficient propeller; proper engine maintenance resulting in more 'active' days during the year. To better appreciate the effect of these actions, it would be helpful to consider that a lower level of the numerator and/or a higher level of the denominator can positively affect the CII rating of a ship. On a simpler

approach, factors that could result in lower CO<sub>2</sub> emission include: use of alternative (lower carbon emission) fuels; installation of energy saving or power limitation devices; speed reduction or slow steaming. Although as regards the latter, Adland et al (2020) questioned the environmental benefits of slow steaming on the basis of analysis of tanker fleet data. Turning to the denominator and considering that deadweight (or GT) is stable, increase of the annual distance sailed will result in better CII rating – one of the criticisms to IMO mentioned above.

### 2.2. CII implications on vessels' chartering and employability

The main and clearly envisaged implication on vessel's operation and by extension on vessel's chartering is the alteration of the traditional division of responsibilities between owners and charterers both as regards time charter parties and voyage charter parties. Accordingly, the parties should carefully consider revising their existing charter parties and negotiating under a different perspective their new contracts. In that respect, soon after the CII regulation was adopted by IMO various attempts were made and bespoke charter party provisions were negotiated to address the point and the uncertainties regarding the responsibility for implementing the required measures to achieve CII compliance. Such attempts which were focused on time charter parties varied from: vague wording that *the parties will in good faith discuss and mutually agree the implementation of any actions as are required to comply with CII*; to *the obligation of the owner to always comply with CII regulation with all other terms and provisions of the charter party remaining unaltered*; to *charterers agreeing that they will provide any required assistance in respect of the necessary corrective action(s) and agreeing that the charter party will be deemed amended accordingly*. In an attempt to address the issue, BIMCO released on 17 November 2022 its CII Operations Clause for Time Charter Parties which is a very detailed and lengthy clause aiming to assist the parties to fairly and properly address the need for a ship employed under a time charter to comply with CII regulation. Realizing that CII regulation alters the traditional relationship between owner and charterer and the allocation of responsibilities that eventually requires the parties to collaborate and cooperate to the fullest extent possible, the clause is drafted in a way that promotes cooperation and transparency by way of information disclosure between the parties. This is so because commercial actions and vessel's employment is outside of owner's control and rest with the charterer. Therefore, the improvement of ship's CII rating is a responsibility that the parties share. Despite the substantial efforts and work put forward by the members of BIMCO committee entrusted with this task (which included participants from owners, charterers and legal experts), the initial reactions from the market are not positive and major charterers including, among others, Trafigura, Vitol, MSC, Oldendorff Carriers expressed their criticism to BIMCO for making charterers responsible for the CII rating of a ship under time charter (Splash 247, 2022). It is worth mentioning that BIMCO is working on a CII clause for voyage charter parties.

Other than the issues discussed in the preceding paragraph pertaining to the allocation of responsibility regarding CII

compliance, there is the issue of a ship's employability prospects and preference by a charterers to be dependent on its CII rating. As a starting point, it is submitted that during Bimco's webinar on Tanker Market Overview and Outlook that took place on 1 March 2023, Bimco's chief analyst expressed the view that CII rating will not have an impact on tankers' employability, at least, for the foreseeable future. Such opinion tally with the fact that for the time being there is not available data regarding this aspect regarding to the implications (if any) of CII regulation on a ship's employability prospects.

### 3. Conclusions

The preceding concise analysis of the issue in question, lead us to some useful conclusions and the identification of room for further analysis. CII regulation, although with good intents, appears to have not convinced the market stakeholders of its effectiveness. The reasons for this lack of appreciation include, but it is not claimed to constitute an exhausting list, the following: the CII calculation formula; the unclear and vague implications of a ship failing to achieve the minimum required CII rating; the fact that circumstances beyond parties' control are not catered for; the lack of specific incentives for compliance; the fact that a ship may get a rating of A in one year and a rating of D in the next year as a result of ship's employment pattern alone. Accordingly, it is suggested that there are issues to be addressed during the review process of the regulation. Turning to ships' chartering and employability prospects, there are two perspectives to approach this issue. As regards the contractual provisions in the charter party, there is room for development of bespoke clauses. It is also suggested that Bimco's clause for time charter parties constitutes a fair and proper starting point for the owners and charterers to negotiate a clause dealing with the CII compliance obligation. However, it needs to be stated that

a portion of charterers do not wish their contracts to include a specific provision in that respect. Regarding the employability prospects and the potential of a ship to improve its earnings due to the fact that it is CII compliant, it is noted that no clear signs exist to that effect. However, it is worth mentioning that dependent on a ship's age, the assumptions used for the calculation and whether the ship is 'eco' or 'non-eco', the CII rating is affected in a considerable manner. By way of an example, in the TD7 Baltic Exchange Aframax route (80,000 mt. North Sea to Continent), a 5 year old 'eco' aframax will get a CII rating of C both in 2023 and 2024 whilst on the basis of Baltic Exchange assumptions, the ship will get a CII rating of D. Bearing in mind that 'eco' ships achieve better earnings than 'non-eco' it could be argued that a CII compliant ship receives a premium; however, it is suggested that the rating is a side-effect and not the reason of the improved earnings. Further, so long as there are no clear and specific benefits for a ship with a CII rating of A or B, a charterer would arguably prefer such a ship not for strictly economic reasons but for the improvement of company's public image and environmental profile. Given that charterers of tanker ships are sensitive to such indicators, it is possible that a preference for tanker ship with CII rating of A or B will be observed.

This section is concluded with the acknowledgement that any attempt to forecast the implications (if any) of CII compliance on a ship's earnings prospects, which entails the prediction of the future as accurately as possible given all available information including historical data and knowledge of any future events that might impact the forecasts (Hyndman & Athanasopoulos, 2021) would on the basis of the current circumstances be limited to: expert judgment; survey analysis; and scenario analysis. Accordingly, there is field for further analysis on the issue.

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