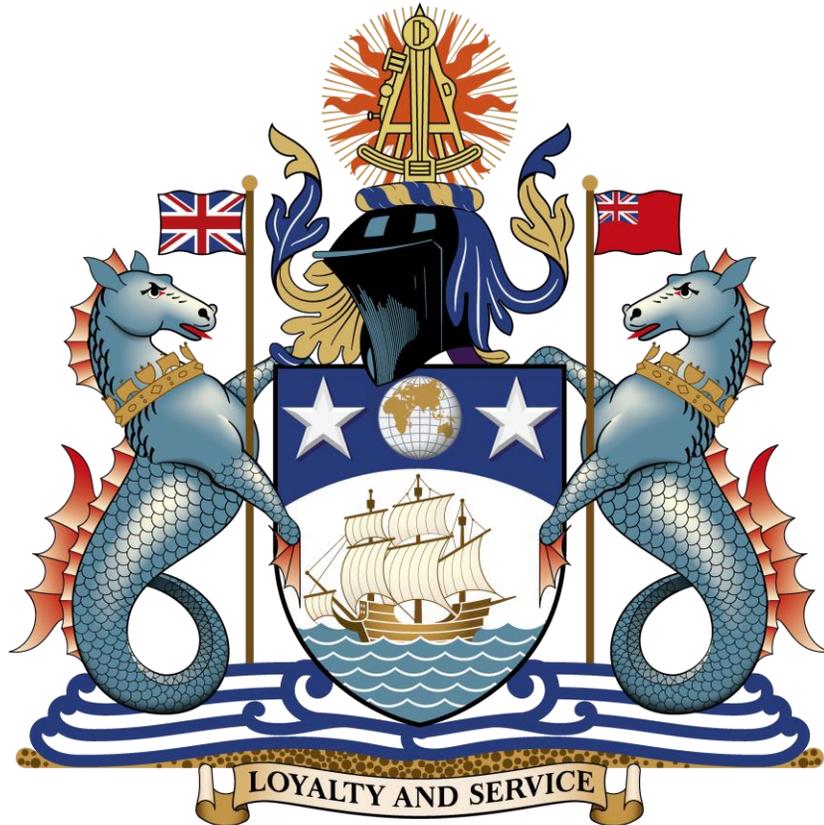


# MEPC 76



## THE HONOURABLE COMPANY OF MASTER MARINERS

*Operations  
Working Group*

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## Introduction

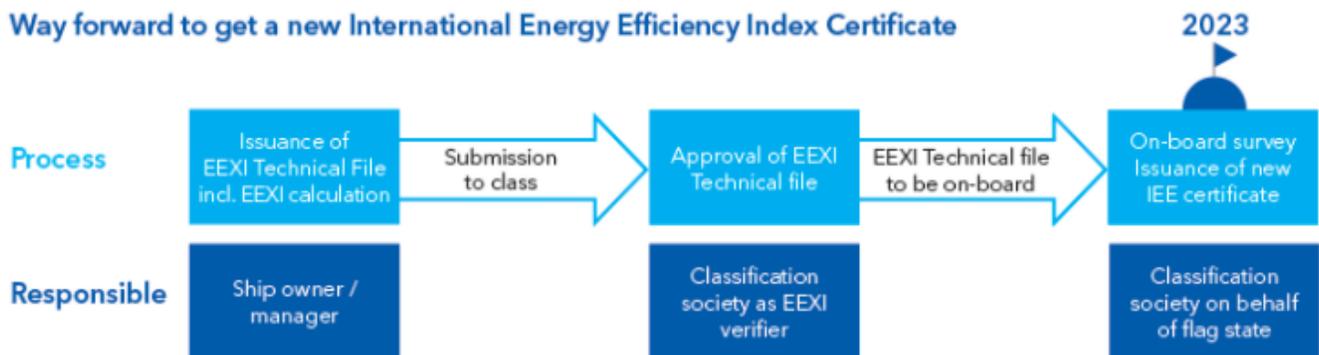
The IMO 's Greenhouse Gas Strategy has set the goal to reduce carbon intensity by 40% within the next decade up to 2030, and by 50% in total (70% intensity) up to 2050 over 2008 baselines. This strategy was approved by the IMO in 2018.

During MEPC 75 in November 2020, draft amendments to MARPOL Annex VI were approved by the IMO hence providing the industry with further insight as to the shape the regulatory changes will take.

Subject to the final adoption during MEPC 76 in June 2021, two new short-term measures have been introduced for all ships (both new build vessels and ships in operation):

1. Energy Efficiency Existing Ships Index (EEXI)
2. Operational Carbon Intensity reduction requirements based on a new operational Carbon Intensity Indicator (CII).

### Way forward to get a new International Energy Efficiency Index Certificate



## The Issue

The EEXI is a measure of the vessel's energy efficiency. The new regulation requires for all ships (of 5000GT and over) to meet a specific EEXI reduction that is unique for each vessel type and size. For example, Gas Carriers over 15,000 DWT and LNG Carriers over 10,000 DWT are to achieve a reduction factor of 30%. Verification that each ships EEXI is in accordance with the required values will take place at the first periodical Class survey on or after 1<sup>st</sup> January 2023.

The CII formula is still to be released but is assumed to be a measure of the total CO2 emissions vs the transport work. Ships will be required to report their annual operational CII based on reported annual data of CO2 emissions and annual data reported under the IMO Data Collection system. The new regulation will require Ships to meet an annual CII value, with the required value declining every year by a reduction factor. A rating system (categories A to E) will be implemented. Each ship shall be required to meet a level C at each annual survey. If a ship is rated as cat D for three consecutive years or rated as cat E, the Administration will not issue a statement of compliance related to the annual operational carbon intensity rating.

By the 1<sup>st</sup> January 2023, each ship's Energy Efficiency Management Plan (SEEMP) shall include the CII calculation methodology, the required performance over the next three years and the implementation plan for how the required reduction in CII will be achieved.

The industry appreciates the proposed amendments to MARPOL Annex VI are in draft form, and further work is required to finalise the CII and EEXI calculation methods prior to their adoption by MEPC 76. However, naturally, all Owners are investigating the impact of the draft documentation across their respective fleets.

### **The Impact**

The current LNG fleet is comprised of vessels powered by high-pressure steam boilers and turbines; dual fuel diesel electric propulsion; and slow speed diesel engines, most capable of burning natural gas and/or fuel oil. The global fleet is approximately split 1/3 in each category.

Owners are investigating measures to meet the new emissions targets which may involve the installation of energy saving devices or retrofitted machinery to improve cargo handling capacities. The commercial viability of ship modifications will need to be assessed considering the required reduction in EEXI for each respective vessel type. Further clarification is required from the IMO to identify how energy efficiency devices and retrofitted equipment will be captured within the calculations.

However, even with the inclusion of on-board improvements, speed reductions via engine power limitations will inevitably need to be implemented across all LNG vessel types. Unlike other types of vessel, LNGCs manage a 'live' cargo that continually evaporates (Boil Off Gas - BOG) during voyages. Evaporation of the cargo results in the increase of vapor pressure within the tanks, which LNG carriers must monitor and control. For most of the LNG fleet, the most common and efficient method for controlling tank pressure is to send the BOG to the propulsion and generator engines to power the vessel.

If LNG Carriers are required to reduce speed to meet the new EEXI and CII targets, for many vessels this will result in a reduction in their ability to manage cargo tank pressures. These ships will therefore have to use alternative less efficient methods, such as the gas combustion unit (GCU), for tank pressure control. This again is an area for further investigation and clarification as consuming BOG in the GCU represents wasted energy which is in contradiction to the intention of the new regulations.

This particular implication for LNG carriers is just one of many under further investigation within the IMO after the release of the draft amendments, and prior to the adoption of MARPOL Annex VI for EEXI at MEPC 76.

### **Conclusions**

The steam powered LNG carrier segment is the most significantly impacted by the draft regulatory documentation. To meet the proposed targets, the vessels will need to implement a significant speed reduction resulting in corresponding challenges with BOG management and operational efficiency.

Over the last 15 years the LNG industry has made significant advances in reducing emissions through the adoption of the latest technologies, optimization of hull forms and the application of energy saving devices. However,

what is now proposed will place possibly onerous restrictions on the operation of current generation LNG carriers, particularly those with steam turbine propulsion.

### **HCMM Actions**

The HCMM fully supports the IMO's initiative to further reduce CO2 and greenhouse gas emissions in shipping and endorses that there should be a measured path to reduction in those emissions,

However, through attendance at seminars etc and, working with other maritime professional organisations, the HCMM will endeavour to develop balanced discussions to influence representations to the IMO strongly recommending that new regulations should recognise the efficiencies already inbuilt in steam LNG vessels when operating in BOG Mode.