



Marine Notice 13/2012

Introduction of Measures to Reduce Greenhouse Gas Emissions from International Shipping

The purpose of this Marine Notice is to provide information to ship owners and operators about the introduction of technical and operational measures to reduce greenhouse gas (GHG) emissions from ships.

Amendments to Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL) introducing the mandatory global greenhouse gas reduction regime for the international industry sector were adopted at the 62nd session of the International Maritime Organization (IMO) Marine Environment Protection Committee (MEPC) in July 2011. The new regulations will apply to ships of 400 gross tonnage and above and will enter into force on 1 January 2013.

A new Chapter 4 entitled *Regulations on Energy Efficiency for Ships* is being added to MARPOL Annex VI which mandates:

- an Energy Efficiency Design Index for new ships;
- a Ship Energy Efficiency Management Plan for all ships; and
- a requirement for all ships to carry an International Energy Efficiency (IEE) Certificate.

Energy Efficiency Design Index (EEDI) for new ships

The EEDI is a non-prescriptive, performance-based mechanism that leaves the choice of technologies to use in a specific ship design to the industry. As long as the required energy-efficiency level is attained, ship designers and builders will be free to use the most cost-effective solutions for the ship to comply with the regulations. The EEDI standards will be phased in from 2013 to 2025.

In general form, the EEDI formula may be expressed as:

$$\text{EEDI} = \text{CO}_2 \text{ emission/transport work}$$

where:

- the CO₂ emission represents total CO₂ emission from combustion of fuel, including propulsion and auxiliary engines, taking into account the carbon content of the fuels in question; and
- the transport work is calculated by multiplying the ship's capacity (dwt), as designed, with the ship's design speed measured at the EEDI draft condition (summer load condition) and at 75 per cent of the rated installed shaft power.

The EEDI regulations will apply to "new" ships, defined as a ship:

- for which the building contract is placed on or after 1 January 2013; or
- in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 1 July 2013; or
- the delivery of which is on or after 1 July 2015.

All ships will be required to have an attained EEDI. In addition, the EEDI regulations requiring an improvement in energy efficiency up to 2025 will initially apply to container ships, general cargo ships, refrigerated cargo carriers, gas tankers, oil and chemical tankers, dry bulk carriers, and combination dry/liquid bulk carriers. According to IMO studies, these types of ships overall represent more than 70 per cent of ship emissions.

IMO is continuing work to develop an appropriate means of improving the energy efficiency of passenger ships and roll-on roll-off cargo ships.

According to IMO, the introduction of the EEDI for new ships will reduce CO₂ emissions by between 45 to 50 million tonnes annually by 2020, compared with 'business as usual' and depending on the growth in world seaborne trade. For 2030, the reduction will be between 180 to 240 million tonnes annually.

Ship Energy Efficiency Management Plan (SEEMP) for all ships

The SEEMP establishes a mechanism for operators to improve the energy efficiency of ships. Potential operational efficiency measures include:

- improved hull and propulsion system maintenance;
- voyage planning;
- weather routing;
- speed optimization; and
- use of automated engine management systems.

Each ship will be required to keep a ship specific SEEMP on board which may form part of the ship's Safety Management System. The SEEMP for each ship will need to be developed taking into account guidelines adopted by the IMO (see below).

A critical element to consider in developing a SEEMP will be the need to set a goal for the ship to serve as a signal, which those involved should be conscious of, to create an incentive for proper implementation, and then to increase commitment to the improvement of energy efficiency. The goal can take any form, such as the annual fuel consumption or a specific target of Energy Efficiency Operational Indicator (EEOI).

The EEOI developed by IMO (see below) is one of the internationally established tools to obtain a quantitative indicator of energy efficiency of a ship and/or fleet in operation, and can be used for this purpose. It is important to recognise that the setting of a goal is voluntary.

International Energy Efficiency Certificate

All ships of 400 gross tons and above engaged in international voyages will need to be issued with an International Energy Efficiency (IEE) Certificate. Owners and operators of Australian ships engaged in international trade should ensure the IEE Certificate is issued and available after the first intermediate or renewal survey, whichever is the first, on or after 1 January 2013. Classification Societies will be authorized to issue the certificates for Australian vessels.

Additional information

Ship owners and operators should note that this Marine Notice provides only a summary of the new regulations. For further details on determining the

requirements for each specific ship, please refer to MARPOL Annex VI and the IMO Circulars and MEPC Resolutions that have been developed to support these new regulations:

- Resolution MEPC.212(63) - 2012 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships;
- Resolution MEPC.213(63) - 2012 Guidelines for the development of a Ship energy Efficiency Management Plan (SEEMP)
- Resolution MEPC.214(63) - 2012 Guidelines on Survey and Certification of the Energy Efficiency Design Index (EEDI)
- Resolution MEPC.215(63) – Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI)

Copies of these Resolutions can be obtained by contacting eps@amsa.gov.au

The IMO has also issued a number of circulars providing additional information on these new regulations. These can be located at www.imo.org, and then navigating to "Circulars" and "MEPC". The relevant circulars are:

- MEPC.1/Circ.682 – Interim Guidelines for Voluntary Verification of EEDI
- MEPC.1/Circ.684 – Guidelines for Voluntary use of EEOI.

Amendments to the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*, *Navigation Act 1912* and Marine Orders Part 97 are being developed to give effect to the new regulations.

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