

MARINE ENVIRONMENT PROTECTION
COMMITTEE
66th session
Agenda item 4

MEPC 66/4/27
7 February 2014
Original: ENGLISH

AIR POLLUTION AND ENERGY EFFICIENCY

Comments on document MEPC 66/4 (Chairman of the Working Group)

Submitted by INTERFERRY and the Community of European Shipyards' Associations (CESA)

SUMMARY

<i>Executive summary:</i>	This document conveys a proposal of unified definitions of the ship particulars to be applied in the calculation of the correction factor f_j for ro-ro cargo, ro-ro passenger and general cargo ships, respectively
<i>Strategic direction:</i>	7.3
<i>High-level action:</i>	7.3.2
<i>Planned output:</i>	7.3.2.1
<i>Action to be taken:</i>	Paragraph 5
<i>Related documents:</i>	MEPC 66/4; MEPC 65/4/4, MEPC 65/4/5, MEPC 65/WP.10 and resolution MEPC.212(63)

Introduction

1 This document is submitted in accordance with paragraph 6.12.5 of the *Guidelines on 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.4/Rev.2) and comments on document MEPC 66/4 (Chairman of the Working Group).

2 As stated in document MEPC 66/4, owing to time constraints and the large volume of work assigned, the Working Group on Air Pollution and Energy Efficiency, established during MEPC 65, was not able to complete its discussion on the terms of reference set for it by the Committee. After submission of its report (MEPC 65/WP.10), the working group continued its discussion in the afternoon of 15 May 2013, on calculation and verification of the attained EEDI for ships with dual fuel engine and calculation of the attained EEDI for ships defined in regulations 2.32 to 2.35 of MARPOL Annex VI.

3 During the deliberations of the working group, related to the inclusion of the ro-ro cargo and ro-ro passenger ship types into the IMO energy efficiency regulatory framework, it was noted that the definition of the correction factor, f_j , as proposed in document MEPC 65/4/4, as well as the f_j as proposed in document MEPC 65/4/5 to be applied for general cargo ships, relate to identical ship particulars but are designated differently.

4 For the purpose of facilitating the introduction of relevant correction factors and hereby the implementation of the EEDI regulatory framework also to ship types, as defined under regulations 2.32 to 2.35 of MARPOL Annex VI, the annex to this document presents a proposal of unified definitions of the ship particulars in question which is also consistent with the designation of these geometrical measurements in other IMO instruments.

Actions requested of the Committee

5 The Committee is invited to consider the proposal of unified definitions of the ship particulars to be applied in the calculation of the correction factor f_j for ro-ro cargo, ro-ro passenger and general cargo ships, respectively as expressed in the annex to this document and take action as appropriate.

ANNEX

**PROPOSED AMENDMENTS TO THE 2012 GUIDELINES ON THE
METHOD OF CALCULATION OF THE ATTAINED ENERGY
EFFICIENCY DESIGN INDEX (EEDI) FOR NEW SHIPS**

In addition to the proposed amendments to paragraph 2 of resolution MEPC.212(63) as set out in annex 2 to document MEPC 65/WP.10, the following modifications are suggested. Proposed editorial revisions are indicated as **bold and shaded**.

2 Energy Efficiency Design Index (EEDI)

.8 f_j is a correction factor to account for ship specific design elements:

.2 The factor f_j , for shuttle tankers with propulsion redundancy should be $f_j = 0.77$. This correction factors applies to shuttle tankers with propulsion redundancy between 80,000 and 160,000 deadweight. The Shuttle Tankers with Propulsion Redundancy are tankers used for loading of crude oil from offshore installations equipped with dual-engine and twin-propellers need to meet the requirements for dynamic positioning and redundancy propulsion class notation.

.3 For ro-ro cargo and ro-ro passenger ships f_{jRoRo} is calculated as follows:

$$f_{jRoRo} = \frac{1}{Fn_L^\alpha \times \left(\frac{L_{pp}}{B_s}\right)^\beta \times \left(\frac{B_s}{d_s}\right)^\gamma \times \left(\frac{L_{pp}}{\nabla^{1/3}}\right)^\delta}$$

where the Froude's number, Fn_L , is defined as:

$$Fn_L = \frac{0.5144 \times V_{ref}}{\sqrt{L_{pp} \times g}}$$

and the exponents α , β , γ and δ are defined as follows:

Ship Type	Exponent:			
	α	β	γ	δ
Ro-Ro Cargo Ship	2.00	0.50	0.75	1.00
Ro-Ro Passenger Ship	2.50	0.75	0.75	1.00

.4 The factor f_j for general cargo ships is calculated as follows:

$$f_j = \frac{0.174}{Fn_\nabla^{2.3} \cdot C_b^{0.3}} ; \quad \text{If } f_j > 1 \text{ than } f_j = 1;$$

where

$$Fn_{\nabla} = \frac{0.5144 \cdot V_{ref}}{\sqrt{g \cdot \nabla^{\frac{1}{3}}}} \quad ; \quad \text{If } Fn_{\nabla} > 0.6 \text{ then } Fn_{\nabla} = 0.6;$$

and

$$C_b = \frac{\nabla}{L_{pp} \cdot B_s \cdot d_s}$$

.3 For other ship types, f_j should be taken as 1.0.

.15 Summer load line draught, d_s , is the vertical distance, in metres, from the moulded baseline at mid-length to the waterline corresponding to the summer freeboard draught to be assigned to the ship.

.16 Breadth, B_s , is the greatest moulded breadth of the ship, in metres, at or below the load line draught, d_s .

.17 Volumetric displacement, ∇ , in cubic metres (m^3), is the volume of the moulded displacement of the ship, excluding appendages, in a ship with a metal shell, and is the volume of displacement to the outer surface of the hull in a ship with a shell of any other material, both taken at the summer load line draught, d_s , as stated in the approved stability booklet/loading manual.

.18 g is the gravitational acceleration, 9.81 m/s^2