



MARINE ENVIRONMENT PROTECTION  
COMMITTEE  
60th session  
Agenda item 4

MEPC 60/4/20  
15 January 2010  
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## PREVENTION OF AIR POLLUTION FROM SHIPS

### Application of Power Correction Factor $f_j$ for Enhanced Safety

Submitted by INTERFERRY

#### SUMMARY

<b><i>Executive summary:</i></b>	This document is submitted to support discussions on the Energy Efficiency Design Index (EEDI) with regard to Safety Aspects such as Redundant Propulsion Systems
<b><i>Strategic direction:</i></b>	7.3
<b><i>High-level action:</i></b>	7.3.1
<b><i>Planned output:</i></b>	7.3.1.3
<b><i>Action to be taken:</i></b>	Paragraph 9
<b><i>Related documents:</i></b>	MEPC 58/4, MEPC 58/4/30, MEPC.1/Circ.681 and MEPC 60/4/4

#### Introduction

1 Reference is made to MEPC.1/Circ.681 in which Member Governments and observer organizations are invited to use the Interim Guidelines on the calculation of the EEDI for the purpose of test and trial and, furthermore, to report outcome and experiences in applying the Guidelines to future sessions of the Committee for further improvements of the method of calculation of the EEDI for new ships.

2 Even though the power correction factor  $f_j$  is defined in MEPC.1/Circ.681 as a correction factor to account for ship specific design elements, it has so far only been applied to the correction of installed main engine power of ice-classed ships. It is hereby proposed that this correction factor also may be utilized for other purposes, i.e. when additional installed engine power is required for reasons of enhanced safety.

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## **Rationale**

3 It is widely recognized that loss of power and loss of steering are the two most common underlying technical failures in ship accidents, (MAIB statistics 2007, STA Swedish Transport Agency statistics 2008, Safeco FP4 project DNV *et al.* 1999). In addition hereto, enhanced manoeuvrability, as provided by a twin screw configuration, could possibly also significantly reduce the number of ship accidents when navigating in narrow and densely trafficked fairways, and in adverse weather conditions.

4 Thus, redundant propulsion systems providing an increased degree of inherent safety and means to control a failure or incident should, in accordance with the surplus engine power installed in order to facilitate a safe navigation in ice, not be penalized or even worse, disqualified by the implementation of the Energy Efficiency Design Index.

5 On passenger ships, the need for improved safety standards has been recognized and consequently reflected in the outlined requirements pertinent to Safe Return to Port (SRtP). Within these requirements it is proposed that the ship should have a capacity to navigate at 6 knots in Beaufort Scale 8 head wind and a corresponding sea state, following the loss of 50% of its propulsion power. The proposed requirement emanates from the requirements of Redundant Propulsion class notation.

6 Also, in document MEPC 60/4/4 submitted by INTERTANKO, it is proposed to apply the power correction factor,  $f_j$ , for the purpose of allowing redundancy of the prime mover power as requested for safe operation of shuttle tankers. The submission also raises the issue whether such power corrections should also be allowed for other ships where redundant propulsion may be necessary in order to achieve an adequate safety standard.

## **Application of Power Correction Factor $f_j$**

7 It is hereby proposed that the power correction factor,  $f_j$ , as defined to account for ship specific design elements, also may be utilized whenever a class notation of redundant propulsion is applied.

8 Since the verification of Redundant Propulsion class notation and of the requirements pertinent to Safe Return to Port on passenger ships, will require model tests or equivalent evidence at the RPS/SRtP condition, the  $f_j$  could simply be defined as the ratio between the total main engine power requirement for the EEDI-condition and the total main engine power requirement as dictated by the RPS/SRtP-condition. Consequently the  $f_j$  to account for redundant propulsion should be determined on a ship individual basis.

## **Action requested of the Committee**

9 The Committee is invited to consider the information and proposal above and decide as appropriate.

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