INTERNATIONAL MARITIME ORGANIZATION

IMO

E

MARINE ENVIRONMENT PROTECTION COMMITTEE
59th session
Agenda item 4

MEPC 59/4/23
8 May 2009
Original: ENGLISH

PREVENTION OF AIR POLLUTION FROM SHIPS

Definition of ship types to be covered by Energy Efficiency Design Index

Submitted by Finland and Sweden

SUMMARY

Executive summary:	This document is submitted to propose refinements of the definitions for the ship types to be covered by the Energy Efficiency Design Index (EEDI) for the benefit of having an appropriate basis of comparison between ships
Strategic direction:	7.3
High-level action:	7.3.1
Planned output:	7.3.1.3
Action to be taken:	Paragraph 15
Related documents:	MEPC 58/23, MEPC 58/WP.8, GHG-WG 2/2/8 and MEPC 59/4/2

Background

1 MEPC 58 approved the use of the draft Interim Guidelines on the method of calculation of the Energy Efficiency Design Index for new ships for calculation and trial purposes with a view to further improvement, as set out in annex 11 to document MEPC 58/23. Possible improvements were discussed during the second Intersessional Meeting of the Working Group on Greenhouse Gas Emissions from Ships (GHG-WG 2). One of the issues highlighted during the meeting was the need to find an appropriate solution to reflect energy efficiency for ships engaged in short-sea shipping, taking into account specific requirements for design to be met by these ships.

2 In document MEPC 58/23, annex 11, paragraph 3, the following ship types are defined: dry cargo carriers, tankers, gas tankers, containerships, ro-ro cargo ships, passenger ships and general cargo ships. Concerns were expressed in respect of calculation of the EEDI for ro-ro passenger ships and the possible need for better resolution for passenger vessels in general were pointed out (MEPC 59/4/2, paragraph 2.7.2). The possibility to treat the ro-ro passenger ship type as an individual segment, as opposed to being an integral part of the passenger ship segment

was also acknowledged. These ship categories differ from each other substantially with respect to design due to the different purpose of carriage.

Proposal

3 In order to meet the need for an appropriate Energy Efficiency Design Index for the above mentioned ship categories this document proposes refinements of the definitions for the ship types to be covered by the Energy Efficiency Design Index (EEDI).

4 The co-sponsors consider that ro-ro passenger ships and the passenger ships should be treated as two individual ship segments. We therefore seek the Committee's approval of making the *ro-ro passenger* ship type, as defined by SOLAS chapter II-1, part A, regulation 2-13, a distinct ship type in addition to those presented in MEPC 58/23, annex 11, paragraph 3 and in line with the definition presented in the "Draft Interim Guidelines on the Method of Calculation of the Energy Efficiency Design Index for New Ships" in document MEPC 59/14/2, annex 2.

5 Furthermore, within the *ro-ro cargo* ship type, there are some distinguishable differences between ship sub-types *within* this category.

6 In order to obtain an appropriate basis for comparison, the *ro-ro cargo* ship type ought to be split into several sub-categories for the benefit of achieving meaningful levels of correlation. Recognizing the difficulties of undertaking such definitions, much improvement could already be achieved, however, by splitting the category into two parts; the *ro-ro cargo ships* and the *vehicle carriers*.

7 Henceforth in this submission only, for clarity, the phrase *general ro-ro cargo ships* will be used, thus excluding v*ehicle carriers*.

8 Both ship types are designed to handle rolling goods, both in terms of trucks, cars and special rolling cargo. The main difference is that the *vehicle carrier* typically engages in trans ocean voyages whereas the *general ro-ro cargo* ship typically engages in short sea voyages. This presents differing design challenges in these two sub-types; *e.g.*, in terms of power to DWT ratios, geometrical constraints imposed by quay lenghts and not the least the varying need of permanent ballast.

9 The LR Fairplay dataset, used to calculate baselines for the various ship types, contains according to our notes, some 400 vessels in the *ro-ro cargo* ship type segment as it has been defined so far. More than two thirds of those vessels are actually *vehicle carriers* which means that any inherent differences between the above mentioned sub-types will bias the baseline towards the v*ehicle carrier* ship type.

10 As can be seen by figure 1, there are in fact significant differences in the overall baseline if:

.1 R*o-ro cargo* and *vehicle carriers* are represented by one common baseline; or

.2 *General ro-ro cargo* and *vehicle carriers* are represented by two individual baselines.

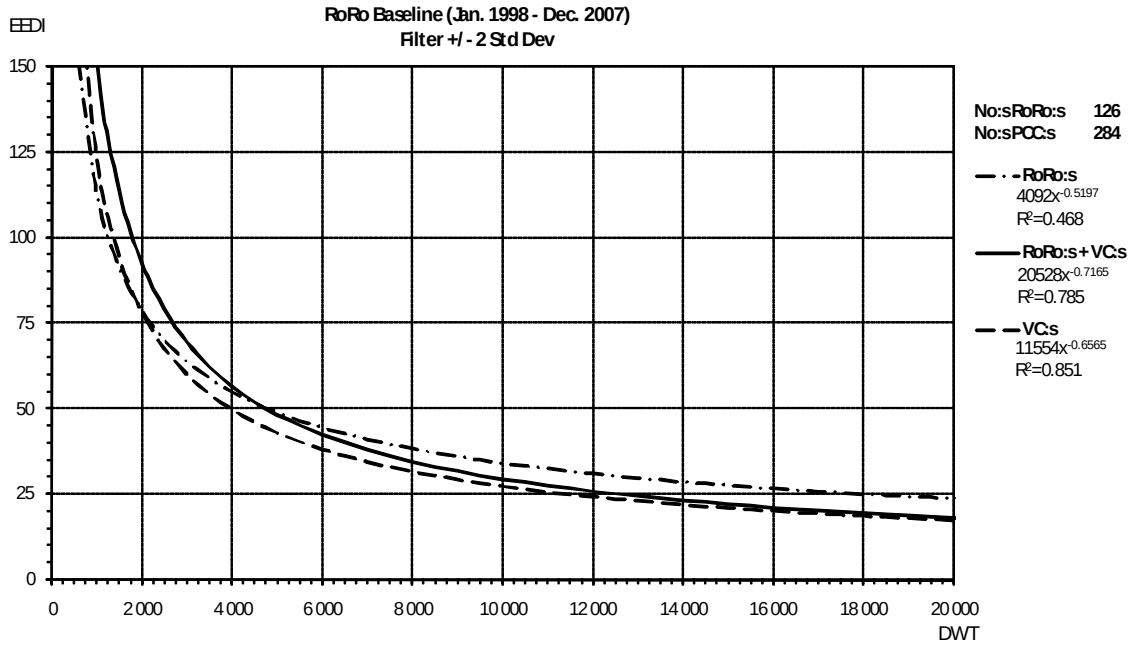

Figure 1

11 Please note that due to inconsistencies in datasets, it has not been possible to utilize the baseline as expressed for example in MEPC 58/4/8. Recalculation of baseline values ($a \cdot Capacity^{-c}$) had to be undertaken and the result can be seen in the legend above.

12 As a way to further illustrate above differences, figure 2 presents the relative difference in the baseline as related to *Capacity* (DWT) when comparing the individual general ro-ro cargo and vehicle carrier baselines to a single common ro-ro+vehicle carrier baseline.

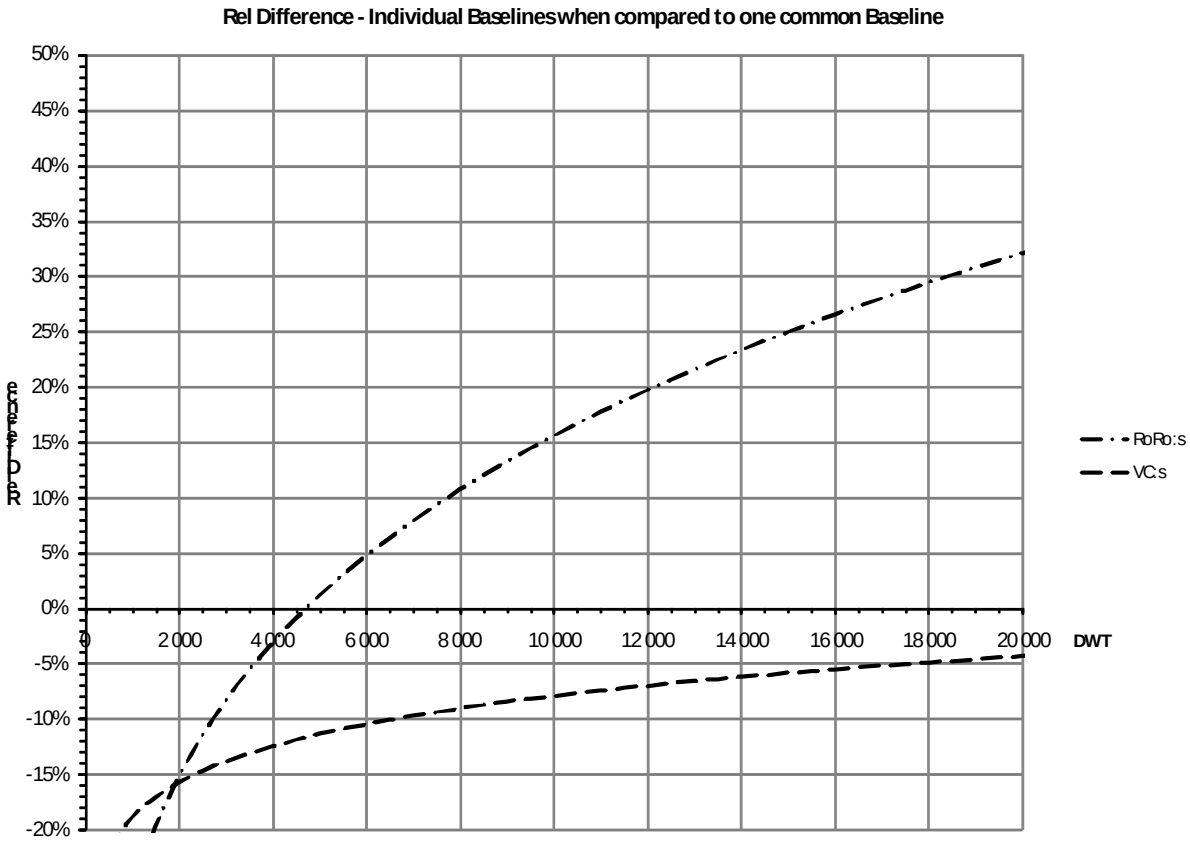

Figure 2 – Note that the X-axis in this graph, represents a common baseline, which incorporates both ro ro cargo ships and vehicle carriers, as defined in paragraph 13 above.

13 The ship sub-types as discussed above are not defined in SOLAS or MARPOL, however, based on definitions in "LR Fairplay Statcode 5" the following definitions are proposed for discussion:

Ro-ro cargo ship: A single or multi deck cargo ship for the carriage of laden vehicles which are loaded via ramps.

Vehicle carrier: A multi deck cargo ship for the carriage of cars and trucks which are loaded via ramps.

14 If the design of a ship allows it to fall into more than one of the above ship type definitions, it is proposed that the required energy efficiency design index for the ship shall be the most stringent energy efficiency design index.

Action requested of the Committee

15 The Committee is invited to consider the proposal and take action as appropriate.