INTERNATIONAL MARITIME ORGANIZATION

E

MARINE ENVIRONMENT PROTECTION COMMITTEE
61st session
Agenda item 5

MEPC 61/5/5
16 July 2010
Original: ENGLISH

REDUCTION OF GHG EMISSIONS FROM SHIPS

Size limits and reduction rate for the required EEDI

Submitted by Norway

SUMMARY

Executive summary:	This document proposes to use the concept of a gradually decreasing reduction rate as the ship size gets smaller and below a certain size threshold, with a corresponding lower size limit and reduction rates
Strategic direction:	7.3
High-level action:	7.3.2
Planned output:	7.3.2.1
Action to be taken:	Paragraph 8
Related documents:	MEPC 60/4/36, EE-WG 1/2/3, EE-WG 1/2/6, EE-WG 1/2/11 and MEPC 61/5/3

Introduction

1 During the intersessional meeting of the EE-WG in June 2010, substantial progress was made in the development of the regulatory text for the coming requirements on Energy Efficiency for new ships. This document is meant as an input for the discussions on where to set the size limit and the reduction rate for the required EEDI.

2 Norway is of the view that the size limit and the reduction rate should be discussed simultaneously since appropriate size limits can only be decided when you know what the reduction rate will be and vice versa.

3 There seems to be a general agreement among the delegations in the working group that since there is a larger scatter in the data for smaller ships, this uncertainty must be dealt with somehow. Smaller ships in the context of this document are the size interval as represented in table 1 in annex 1 to document MEPC 61/5/3.

4 There are different ways to deal with this uncertainty. A high size limit can be set and thereby exempt these ships from the required EEDI, and then we can have a phase-in approach of smaller ships after we gain some more experience with the requirements, or we can have more relaxed requirements for these smaller ships. Norway is in favour of the latter

approach, where the concept of a decreasing reduction rate as the ship size get smaller is introduced below a certain size.

Methodology for setting a decreasing reduction rate as the ship size gets smaller

5 Norway has calculated the reduction rate for the smallest ships by drawing a regression line between three points as illustrated for the first phase in figure 1, which will give a gradually increasing reduction rate until the upper size is met. The size limits and the reduction rates summarized in table 1 have been used in this calculation. The middle data points used are the average of the sizes and the reduction rate used.

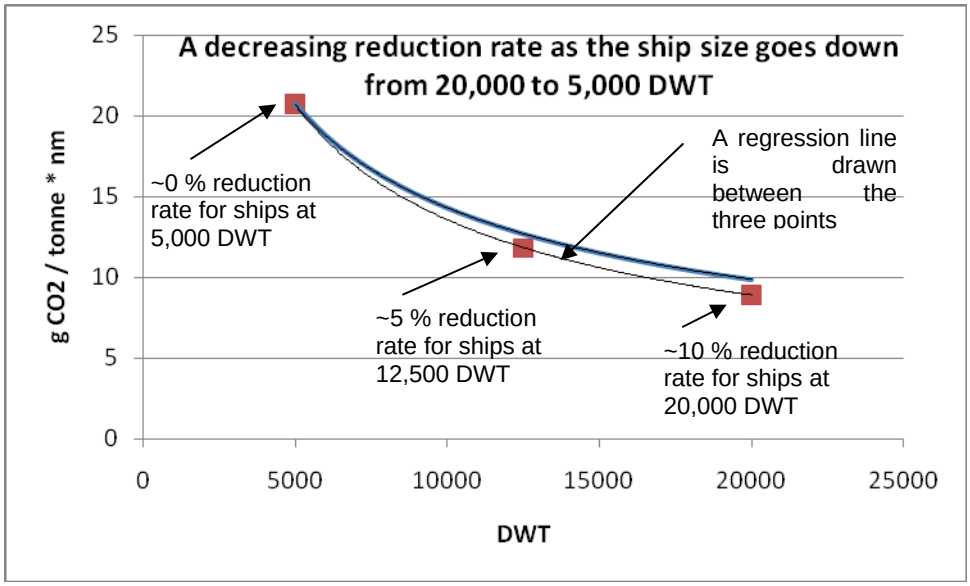


Figure 1. Example of the methodology used to set a gradually decreasing reduction rate for ships below a certain size threshold

Table 1. Size limits and reduction rates used in the calculations

Ship type	**Y (Dwt)**	**p %** (phase 1)	**q %** (phase 2)	**r %** (phase 3)
Dry cargo carrier	10,000-20,000	0-10 %	5-20 %	10-30 %
	>20,000	10 %	20 %	30 %
Gas tanker	2,000-10,000	0-10 %	5-20 %	10-30 %
	>10,000	10 %	20 %	30 %
Tanker	5,000-20,000	0-10 %	5-20 %	10-30 %
	>20,000	10 %	20 %	30 %
Container ship	5,000-20,000	0-15 %	5-25 %	10-35 %
	>20,000	15 %	25 %	35 %
General cargo ship	3,000-10,000	0-10 %	5-15 %	10-30 %
	>10,000	10 %	15 %	30 %
Refrigerated cargo carrier	3,000-10,000	0-10 %	5-15 %	10-30 %
	>10,000	10 %	15 %	30 %

6 Norway has not performed any independent analysis as a basis for this proposed reduction rates, but used the reduction rates proposed in document MEPC 60/4/36 (Japan) as a starting point. However, Norway proposes some adjustments to take into account the ship type's historical average speed or the feasibility for a ship type to use speed reductions as a means to fulfil the required EEDI.

Proposal

7 In conclusion, Norway proposes that

.1 the Committee agree on the concept of a gradually decreasing reduction rate as the ship size gets smaller and below a certain size threshold, using the methodology summarised in paragraph 5 in this document; and

.2 the Committee considers the proposed reduction rates and the lower size limits as summarized in the annex to the document.

Action requested of the Committee

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

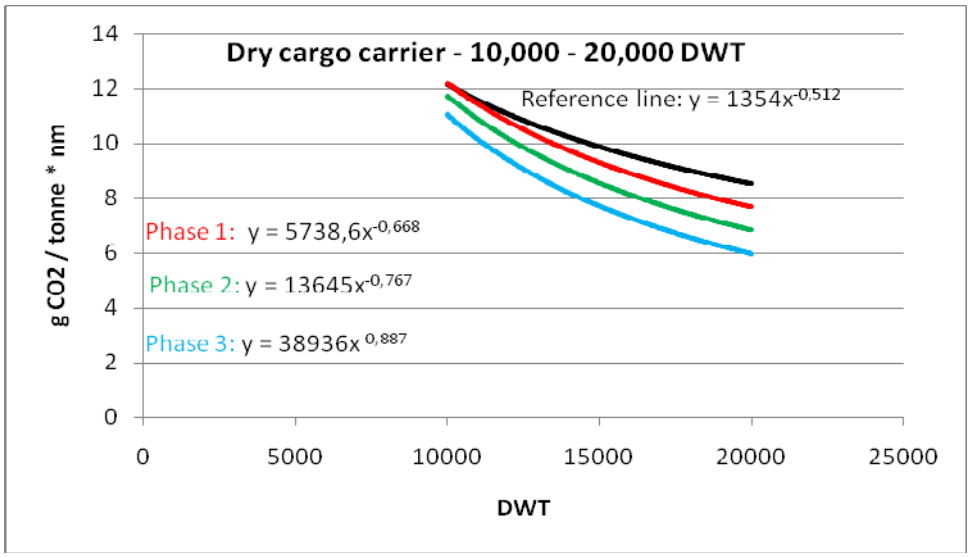
***

ANNEX

A SUMMARY OF THE PROPOSED LOWER SIZE LIMITS AND REDUCTION RATES

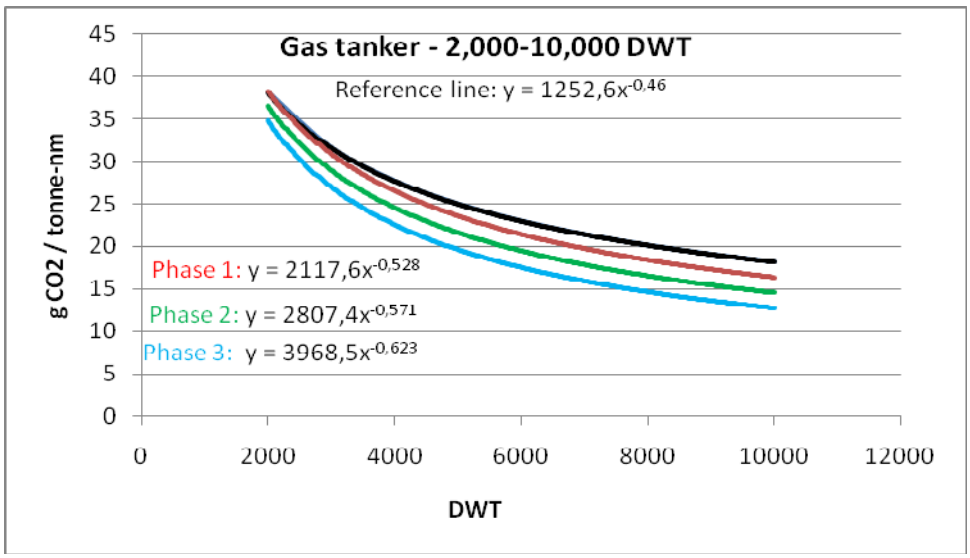
Dry cargo carrier

Ship type	**Y (Dwt)**	**p %** (phase 1)	**q %** (phase 2)	**r %** (phase 3)
Dry cargo carrier	10,000-20,000	$y = 5738{,}6x^{-0{,}668}$	$y = 13645x^{-0{,}767}$	$y = 38936x^{-0{,}887}$
	>20,000	$y = (1354x^{-0{,}512})*0{,}9)$	$y = (1354x^{-0{,}512})*0{,}8)$	$y = (1354x^{-0{,}512})*0{,}7)$



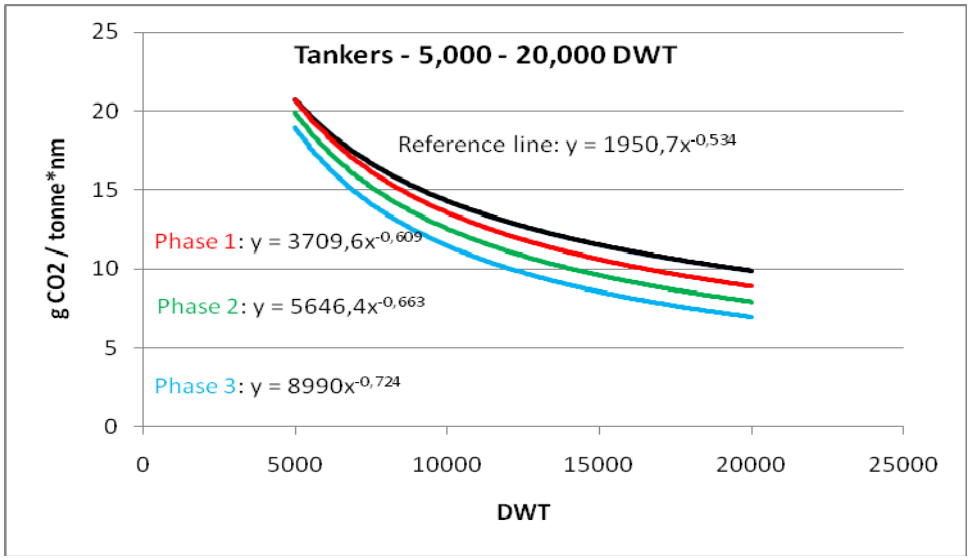
Gas tanker

Ship type	**Y (Dwt)**	**p %** (phase 1)	**q %** (phase 2)	**r %** (phase 3)
Gas tanker	2,000 -10,000	$y = 2117{,}6x^{-0{,}528}$	$y = 2807{,}4x^{-0{,}571}$	$y = 3968{,}5x^{-0{,}623}$
	>10,000	$y =(1252{,}6x^{-0{,}46})*0{,}9$	$y =(1252{,}6x^{-0{,}46})*0{,}8$	$y =(1252{,}6x^{-0{,}46})*0{,}7$



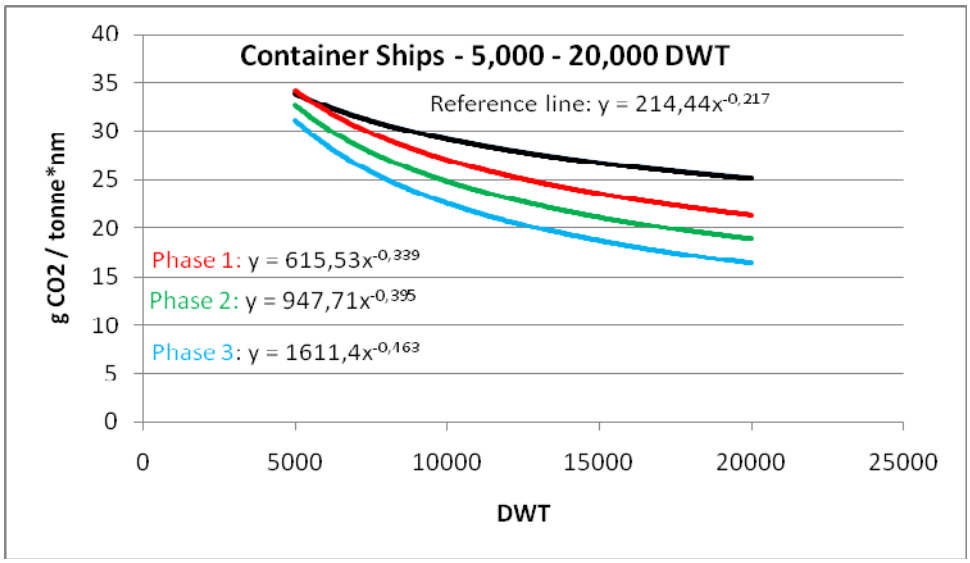
Tanker

Ship type	**Y (Dwt)**	**p %** (phase 1)	**q %** (phase 2)	**r %** (phase 3)
Tanker	5,000 -20,000	$y = 3709{,}6x^{-0{,}609}$	$y = 5646{,}4x^{-0{,}663}$	$y = 8990x^{-0{,}724}$
	>20,000	$y = (1950{,}7x^{-0{,}534})*0{,}9$	$y = (1950{,}7x^{-0{,}534})*0{,}8$	$y = (1950{,}7x^{-0{,}534})*0{,}7$



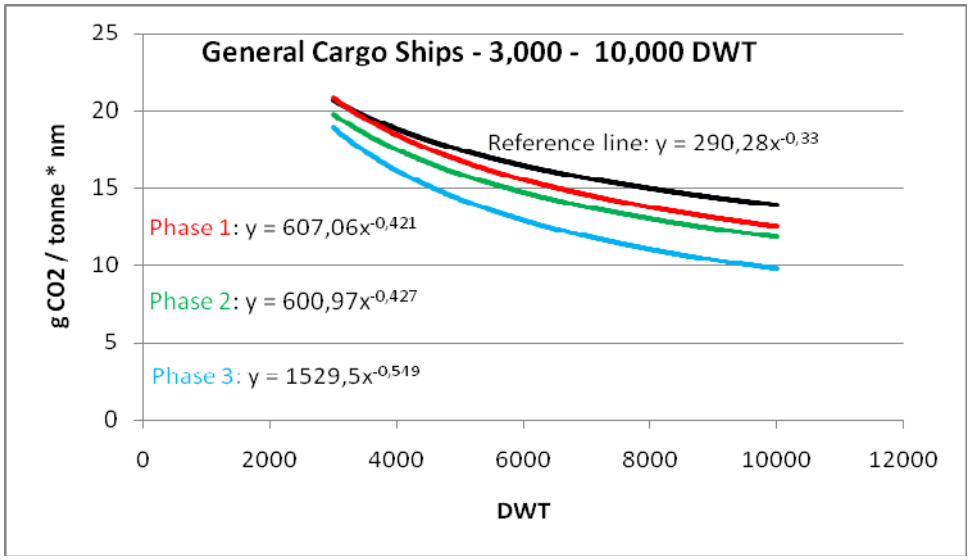
Container ship

Ship type	**Y (Dwt)**	**p %** (phase 1)	**q %** (phase 2)	**r %** (phase 3)
Container ship	5,000-20,000	$y = 615{,}53x^{-0{,}339}$	$y = 947{,}71x^{-0{,}395}$	$y = 1611{,}4x^{-0{,}463}$
	>20,000	$y = (214{,}44x^{-0{,}217})*0{,}85$	$y = (214{,}44x^{-0{,}217})*0{,}75$	$y = (214{,}44x^{-0{,}217})*0{,}65$



General cargo ship

Ship type	**Y (Dwt)**	**p %** (phase 1)	**q %** (phase 2)	**r %** (phase 3)
General cargo ship	3,000-10,000	$y = 607{,}06x^{-0{,}421}$	$y = 600{,}97x^{-0{,}427}$	$y = 1529{,}5x^{-0{,}549}$
	>10,000	$y=(290{,}28x^{-0{,}33})*0{,}9$	$y=(290{,}28x^{-0{,}33})*0{,}85$	$y=(290{,}28x^{-0{,}33})*0{,}7$



Refrigerated cargo carrier

Ship type	**Y (Dwt)**	**p %** (phase 1)	**q %** (phase 2)	**r %** (phase 3)
Refrigerated cargo carrier	3,000-10,000	$y = 857{,}37x^{-0{,}399}$	$y = 848{,}76x^{-0{,}404}$	$y = 2271x^{-0{,}532}$
	>10,000	$y=(409{,}97x^{-0{,}308})*0{,}9$	$y=(409{,}97x^{-0{,}308})*0{,}85$	$y=(409{,}97x^{-0{,}308})*0{,}7$