Intersessional Meeting on Energy Efficiency, 9th – 13th January, 2012

Background

At MEPC 62, discussion of this item occupied Plenary for several days and the Working Group had only half a day to consider all the papers submitted. Consequently, most of them were not discussed and the Group proposed (accepted by the Committee) to hold an Intersessional Meeting at which these papers and any other supplementary papers could be debated. In the event, a further 24 papers were submitted to the Intersessional Meeting.
The objective of the meeting was to further develop the Guidelines for the implementation of the new Annex to MARPOL ANNEX VI, which comes into force on 1st January 2013. It was therefore necessary to make a distinction between "Guidelines", which can be fine-tuned, and those technical issues, such as the curves of required EEDI values, which are written into the Regulations. Any changes to Regulations, even if only fine-tuning, have to go through the IMO amendment procedure, which cannot happen until after the Regulations come into force.

Representatives

RINA was represented by:
Mr. M. Osborne
Mr. P. Swift
Mr. T. Dinham-Peren, BMT

Agenda

Discussion was structured as follows:

1. Further improvement of Guidelines:
    - .1 on the method of calculation of the EEDI for new ships
    - .2 for the development of a SEEMP
    - .3 on Survey and Certification of the EEDI
    - .4 for determining minimum propulsion power and speed to enable safe manoeuvring in adverse weather conditions
2. EEDI requirements for large tankers and bulk carriers
3. EEDI frameworks for ships not covered by the current EEDI
4. Other Guidelines or supporting documents for technical and operational measures
5. Energy Efficiency Operational Indicator (EEOI)

1.1 Calculation of EEDI

IPTA had highlighted an apparent anomaly in the calculation, in that chemical carriers with high cargo cubic appeared to be unfairly penalised. A correction factor, f_c, was eventually agreed. Although at present this factor only applies to chemical carriers as

defined in MARPOL Annex II, several delegations advanced the logic that it should be applied to any product carrier/tanker with higher than “norm” cubic capacity. RINA might wish to raise this point or support others in doing so when further discussed at MEPC 63.

A few corrections to anomalies in the correction factors for ice classed ships were tabled by Finland and accepted.

At present, the EEDI relates to performance under trial conditions of calm sea and wind. In order to prevent designers optimising performance for artificially calm conditions, there is a provision for calculating the performance under “service” conditions, presently defined as Beaufort 6 and Sea State 6. The ITTC are working on a method for a more accurate prediction of the speed/power relationship under these conditions and expect to complete the work within 2 years. Until then, the “Weather Correction Factor”, f_w, has the value of 1.0 for the purpose of calculation of the attained EEDI for regulations 20 and 21 in MARPOL Annex VI. The meeting acknowledged, however, that on a voluntary basis the EEDI Technical File may include the usage of a f_w value less than 1.0 to calculate an “attained $EEDI_{weather}$”.
At this meeting a new factor F_{ivse} was introduced. The intention is to allow an owner to increase the scantlings beyond the Class minimum without being penalised through a reduced deadweight, e.g. bow slamming reinforcement, enhanced collisiuon strength, etc. As worded however, an owner will be penalised by loss of deadweight through changing from higher tensile steel to mild steel. RINA pointed out this anomaly but IACS say that they wish to prevent designers producing “minimum weight” higher tensile designs and then building them in mild steel with the ability to claim the same deadweight (for EEDI purposes) as the higher tensile design. RINA expressed the view that the EEDI drives the designer towards a minimum weight design and therefore minimum weight higher tensile designs maybecome the norm. While some delegations were sympathetic to these concerns, the majority were not. Thus if an owner wishes to increase fatigue strength, corrosion margins and reduce flexibility, without reducing the nominal deadweight for the purposes of calculating the EEDI, he must increase the scantlings of the higher tensile steel, not change it to mild steel.

A further correction factor, F_{icsr}, was introduced. This allows for the fact that the reference lines for the required EEDI are based on ships built over the last 20 years, before the CSR were adopted. New ships built to the CSR will be slightly heavier and this compensation factor has been introduced for tankers and bulk carriers.

An anomaly in the reference line for the required EEDI of container ships was corrected. In calculating the attained EEDI, 70% of the deadweight is used, but in calculating the required EEDI from the reference curve, 100% of the deadweight is used.

Treatment of shaft generators and electric propulsion motors in the EEDI formula was discussed and a much improved and simplified text was agreed. This removes any disincentive to using shaft generators with large installed powers and any penalties associated with “take me home”/power redundancy systems.

1.2 Guidelines for the SEEMP

The paragraph on voluntary reporting by owners of efficiency improvements was deleted from the SEEMP

It was recognised that many situations required a ship to sail at full speed (not just search and rescue), and these should override considerations of CO_2 emissions.

Further guidance is needed for the development of SEEMPs for specialised craft.

1.3 Survey and Certification

There is no satisfactory standard method of conducting model tests and sea trials. Several papers highlighted problems with ISO 15016:2002. The ITTC is working on an improved method, which should be available for MEPC 64.
Minor editorial improvements were made to the text of the Guidelines for Survey and Certification.

1.4 Minimum Power in Adverse Weather Conditions

It was agreed that it is not possible, with present technology, to predict the speed loss in adverse weather conditions with sufficient accuracy to include this requirement as part of the EEDI requirement. ITTC estimate that it will take them 2 years to develop a sufficiently robust procedure. Some delegations advocated the inclusion of a minimum allowable design speed as a function of deadweight for bulk carriers and tankers as tentative guidance in the interim. In the meantime, IACS will propose a simplified method for submission to MEPC 64. RINA will consult informally with IACS in the preparation of this proposal.

2. EEDI for Large Tankers and Bulk Carriers

It has been shown that some of the most modern VLCCs and Bulk Carriers would have EEDIs about 10% above the required value, mainly because the more modern ships have design speeds which generally average 0.5 to 1.0 knots faster than the previous generation. Although new designs could meet the required values by an increase in the slenderness ratio (Length/Displacement $^{1/3}$), this implies an increase in length which some port constraints might not permit. Many Administrations were opposed to any relaxation of the requirements prior to the entry into force of Chapter 4 of Annex VI and the issue will be re-examined under the review process at phase 1 (January 2015).

3. EEDI for Ships not covered by current EEDI

LNG carriers suffer from the same problem as large Tankers and Bulk Carriers. It is probably a statistical quirk caused by the simple form of the curve-fit used for all the

reference lines ($Y = a \cdot X^{-b}$). This curve type does not fit well to those ships at the extreme end of the data set. The large number of LPG carriers – small, medium and large – disproportionately influence the curve fit for all Gas Carriers. Nevertheless, it was agreed that a correction factor for diesel powered LNG carriers should be introduced. This is based on the cargo capacity in the same way as the correction factor for chemical carriers. Dual fuelled LNG carriers are still not covered by the EEDI requirements.

Proposals for bringing Passenger/Cruise ships and Ro-Ro/Ro-Pax ships into the EEDI requirements were discussed and will be further developed.

4. Other Guidelines

There was a brief discussion on how New Technologies for the improvement of Energy Efficiency should be evaluated and certified. An informal intersessional correspondence group was established in order to develop this further. The intention is to ensure that any predicted savings are validated at full scale and any relevant technical criteria are determined. RINA asked to be a member.

5. Energy Efficiency Operational Indicator

Proposals for amendments to the calculation of the EEOI for Container Ships and Tankers were discussed and rejected.

Future Action

RINA should consider supporting a proposal to allow the capacity correction factor for Chemical Carriers to be applied to ALL tankers. OCIMF and INTERTANKO will support this. It could not be debated in this Intersessional Working Group since the Terms of Reference allowed the Group to consider only Chemical Carriers.

RINA (BMT) will liaise with IACS on the development of their simplified approach to definition of the minimum power requirements.

Japan will lead an informal correspondence group on the validation and certification of New Technologies. In this respect, OCIMF have submitted a paper to MEPC 63 which echoes the points made in the RINA paper on the subject, but they have been able to draw from a much wider field and provide well documented data. RINA will participate in this correspondence group.

The IMO secretariat advised that delegations have until 3 February 2012 to submit supplementary papers for MEPC 63 that result directly from the discussions and report of this Intersessional Meeting.