6th Technical Workshop @ EMSA

EEDI implementation

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EEDI status ahead of MEPC 69

- EEDI formula available for all shiptypes;
- A lot of implementation experience gained for MEPC 62 standard shiptypes;
- Limited implementation available for complex European MEPC 66 shiptypes;
- 2014 Guidelines on Survey and Certification of the EEDI – Par. 4.2.3 Criteria for LNG as Primary fuel;
- 2015 Industry Guidelines for Calculation and Verification of the EEDI / IACS PR No. 38.

Clarification / homogeneous implementation world-wide needed in order to ensure a level-playing field ahead of phase 1 reductions!

EEDI implementation issues

- 2014 Guidelines on Survey and Certification of the EEDI – Par. 4.2.3 Criteria for LNG as Primary fuel
- 2015 Industry Guidelines for Calculation and Verification of the EEDI / IACS PR No. 38
  - Sect. 14 – IPR concerns related to documentation requirements;
  - Correction factor fj for ice-classed MEPC 66 shipstypes.

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Par. 4.2.3 – LNG as Primary Fuel

For ships equipped with DF engine(s) using LNG and fuel oil, the CF-factor for gas and the SFC of gas fuel should be used by applying the following criteria as a basis for the guidance of the Administration:

.1 final decision on the primary fuel rests with the Administration;

.2 the ratio of calorific value of gas fuel (LNG) to total marine fuels (HFO/MGO), incl. gas fuel at design conditions should be equal or larger than 50% in accordance with the formula below. However the Administration can accept a lower value of the percentage taking into account the intended voyages;

Par. 4.2.3 – LNG as Primary Fuel

$$\frac{V_{gas} \times \rho_{gas} \times LCV_{gas} \times K_{gas}}{\left(\sum_{i=1}^{nLiquid} V_{liquid(i)} \times \rho_{liquid(i)} \times LCV_{liquid(i)} \times K_{liquid(i)} \right) + V_{gas} \times \rho_{gas} \times LCV_{gas} \times K_{gas}} \geq 50\%$$

.3 in case the ship is not fully equipped with DF engines, the CF-factor for gas should apply only for those installed engines that are of DF type and sufficient gas fuel supply should be available for such engines; and

.4 LNG fuelling solutions with (…) tank-containers should also fall under the terms of LNG as primary fuel.

This design primary fuel definition does not reflect operational CO_2 emissions correctly and excludes many DF ships from the LNG fuel factor that might be needed in future .

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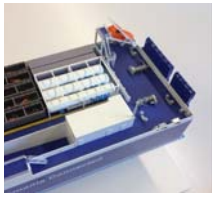
Application Example – Flensburger



	Req. EEDI	Att. EEDI
MDO Scant	15,2	17,4*
MDO Design	16,8	16,7
LNG Scant	15,2	11,8

- Vessel operates in LNG mode continuously between two harbours, exchange of LNG bunkering trailers (3 ·41,78 m³) every 2 days;
- Vessel has redundant capacity (735 m³) to fully operate on MDO, however preference for LNG;
- Although very cost effective, such concepts will not be regarded EEDI LNG compatible subject to special permission from administration.

*Vessel typically operates on design draft, however EEDI has to be verified at scantling draft. If EEDI has to be met in the future, EEDI at design draft will be much worse due to inadequate optimization on scantling draft (only verification of attained EEDI for this vessel)

Application Example – Flensburger

LR interpretation:

Acc. to MEPC.254(67) Par. 4.2.3.2 the flag state can accept a lower value of the percentage of the bunker capacities taking into account the intended voyages. Unfortunately we cannot give clear guidance and have to recommend to consult the flag state asap.

Based on the current wording classes and/or industry Guidelines can not ensure homogeneous implementation world-wide. In order to improve planning security a criteria have to be developed to guide the flag states decisions and R.O. interpretations.

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IMO Verification Guidelines – IPR

4.1.2 The information used in the verification process may contain confidential information of submitters which requires IPR protection. In the case where the submitter wants a non-disclosure agreement with the verifier, the additional information should be provided to the verifier upon mutually agreed terms and conditions.

4.2.7 Additional information that the verifier may request the submitter to provide includes, but is not limited to:

- lines of a model ship and an actual ship for the verification of the appropriateness of the tank test; the lines (sheer plan, body plan and half-breadth plan) should be detailed enough to demonstrate the similarity between the model ship and the actual ship;

PR38 Ch. 14 – documents to be submitted

(…) The following information is to be submitted by the submitter to the verifier at the design stage:

- Ship lines and model particulars: Lines of ship and Report incl. the particulars of the ship / propeller model

In line with the IMO Verification Guidelines (4.1.2), it is recognized that the documents listed above may contain confidential information of submitters, which requires IPR protection. In the case where the submitter wants a non-disclosure agreement with the verifier, the additional information is to be provided to the verifier upon mutually agreed terms and conditions.

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fj – Ice-classed ships

- The ice-class factor is defined for the following shiptypes only: Tanker, Bulk carrier, General cargo ship, Refrigerated cargo ships.
- What ice-class factor should be used for RoRo ships?

MARPOL Annex VI is still lacking ice-class factors for all other shiptypes, although some of them have tighter margins and might fail to meet ambitious phase 1 to 3 required EEDI when ice-strengthening cannot be taken into account.

The way forward

- Raise primary fuel issue at MEPC 69 with reference to the Chinese re-submission; problem cannot be appropriately solved based on pure design parameters – operational aspects have to taken into account, which could lead to double certification;
- IACS dismissed the SEA Europe claim to respect IPR;
- Launch industry initiative to develop missing ice-class factors at Tripartite – requires European flag state support an technical input from polar flags.