

Ways to EEXI Compliance -Hydrodynamic Measures

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Main focus for vessels not complying with EEXI baselines is currently put on shaft power limitation and engine power limitation. In many cases this is a feasible way to achieve compliance as especially older ships are frequently operating at much lower speeds than originally designed.

Other ships which operate in services where reducing operating speed is not an option, either due to schedules or due to transport demand/transport capacity, must achieve compliance by other means.

Two options are available:

1. Engine power limitation (EPL) or Shaft Power Limitation (ShPoLi) with additional measures to maintain a sufficiently high service speed
2. Application of energy efficiency technologies according to IMO MEPC.1/Circ.815 to realize an allowance on the calculated EEXI

$$\left(\prod_{j=1}^n f_j \right) \left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)} \right) + (P_{AE} \cdot C_{FAE} \cdot SFC_{AE}^*) + \left(\prod_{j=1}^n f_j \cdot \sum_{i=1}^{nPI} P_{PI(i)} - \sum_{i=1}^{noff} f_{eff(i)} \cdot P_{AE_{eff}(i)} \right) C_{FAE} \cdot SFC_{AE} - \left(\sum_{i=1}^{noff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME}^{**} \right)$$

f_i · f_c · f_i · Capacity · f_w · V_{ref} · f_m

IMO distinguishes three categories (A,B,C) of energy efficiency technologies. Category A for example includes the optimisation of hull forms and the installation of energy saving devices. Here, it is not possible to make a separate assessment of the effectiveness of the measures realized. Category B includes measures to reduce main engine power demand whose effectiveness can be assessed directly and finally category C contains all measures for reduction of auxiliary engine power.

The presentation focuses on hydrodynamic measures suitable for retrofitting existing ships in order to support achieving EEXI compliance. Two fundamental ways are available in this respect: Either measures aim at reducing the ship’s resistance or they are designed to increase the propulsive efficiency of the vessel. A third option is to provide additional propulsion by utilizing wind assisted propulsion systems like Flettner Rotors.

The presentation gives insight how hydrodynamic measures affect the attained EEXI.

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