ABS REGULATORY NEWS
No. 08/2022

ENERGY EFFICIENCY EXISTING SHIP INDEX (EEXI)
ACTIONS TO TAKE

This Regulatory News provides guidance on global implementation of the Energy Efficiency Existing Ship Index (EEXI). Vessel owners are advised to plan for compliance.

PREPARE NOW FOR EEXI COMPLIANCE

On 1 November 2022, amendments to MARPOL Annex VI will enter into force and set the stage for the implementation of the Energy Efficiency Existing Ship Index (EEXI) beginning 1 January 2023. There is limited time remaining to prepare for compliance with this new regulatory scheme aimed at limiting the technical carbon intensity of vessels.

KEY NOTES

- Applicable Vessel Types: Vessel types as defined in regulations 2.2.5, 2.2.7, 2.2.9, 2.2.11, 2.2.14 to 2.2.16, 2.2.22, and 2.2.26 to 2.2.29 of MARPOL Annex VI
- Required Actions: Review of EEXI Technical File
- References:
  MARPOL Annex VI Regulations 23 and 25
  IMO Resolutions as referenced below
  IACS Rev.172 – EEXI Implementation Guidelines

ACTIONS FOR COMPLIANCE

Step 1: Submissions for Technical Review

- Submit EEXI Technical File (EEXI TF) for review and approval. Where overridable Shaft/Engine Power Limitation (SHaPoLi/EPL) system applied, the Onboard Management Manual (OMM) is also required to be submitted.

Step 2: Preparation for Surveys

- Confirmation of EEXI TF during upcoming IAPP survey on or after 1 January 2023.
- Prepare for onboard verification of SHaPoLi/EPL arrangements, if applicable.

Step 3: Maintaining Compliance

- If future vessel modifications affect the content of the EEXI TF, then re-approval is required.

DETERMINING EEXI

Applicable Regulations in MARPOL Annex VI

Regulations 23 and 25 of the revised MARPOL Annex VI define the application and requirements of the EEXI. These regulations establish the need for an Attained EEXI (Reg.23) to be calculated for each ship, which must be equal to or less than the calculated Required EEXI (Reg.25) for each ship's specific type and size.

Each vessel must develop an EEXI TF which contains the information necessary for the calculation of the **attained and required EEXI** for each ship which falls into one or more of the categories in regulations 2.2.5, 2.2.7, 2.2.9, 2.2.11, 2.2.14 to 2.2.16, 2.2.22, and 2.2.26 to 2.2.29.

Ship Type	Required EEXI Threshold
Bulk Carrier	10,000 DWT and above
Tanker	4,000 DWT and above
Combination Carrier	4,000 DWT and above
Gas Carrier	2,000 DWT and above
LNG Carrier	10,000 DWT and above
Containership	10,000 DWT and above
General Cargo Ship	3,000 DWT and above
Refrigerated Cargo Carrier	3,000 DWT and above
Ro -Ro Cargo Ship - Vehicle Carrier	10,000 DWT and above
Ro -Ro Cargo Ship	1,000 DWT and above
Ro -Ro Passenger Ship	250 DWT and above
Cruise Passenger Ship	25,000 GT and above

Attained EEXI

Regulation 23 provides that the attained EEXI shall be calculated in accordance with the Guidelines developed by the IMO. The proposed calculation methodology in the Guidelines follows the same approach with the EEDI and the attained EEXI is calculated based on the CO2 emissions produced for propulsion and auxiliary services at a single draft and speed and indicates the estimated performance of the ship in terms of energy efficiency (g/t*nm).

The ship speed is a parameter which may be challenging to be obtained in the EEXI condition for an existing ship, therefore the Guidelines foresee several options:

1. Model test results which include the EEXI draught.
2. Sea trials results which may have been calibrated by the tank test under the EEXI draught
3. For containerships, bulk carriers or tankers whose sea trial results are available under the design load draught, a formula provides the ship speed at EEXI draught.
4. Numerical calculations as a replacement for model tests provided that the methodology and numerical model used have been validated/calibrated against parent hull sea trials and/or model tests, with the approval of the verifier.
5. In-service performance measurement method conducted and verified in accordance with circular MEPC.1/Circ.901, *Guidance on Methods, Procedures and Verification of In-Service Performance Measurements*.
6. Approximate value from statistical data (mean of distribution of ship speed and engine power)

Notwithstanding the above, in cases where an energy-saving device is installed, the effect of the device may be reflected in the ship speed Vref with the approval of the verifier, based on the following methods:

1. sea trials after installation of the device; and/or
2. in-service performance measurement method; and/or
3. dedicated model tests; and/or
4. numerical calculations

Required EEXI

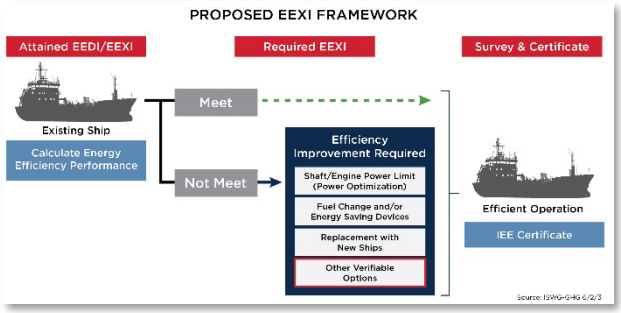
Regulation 25 establishes the basic calculation for the **required EEXI** as follows:

$$Attained\ EEXI \leq Required\ EEXI = \left(1 - \frac{y}{100}\right) \bullet EEDI\ reference\ line\ value$$

where Y is the reduction factor specified in MARPOL Annex VI / Table 3 for the Required EEXI compared to the EEDI reference line.

In cases where a ship does not meet the above condition, an overridable SHaPoLi/EPL arrangement may be installed to limit the power and comply with the EEXI requirement while the power reserve can be used only for the purpose of securing the safety of a ship or saving life at sea.

For ships provided with attained EEDI which is equal to or less than that of the required EEXI, the attained EEXI shall be verified based on the EEDI technical file.



The following IMO resolutions provide guidance related to calculation, survey and certification of the attained EEXI, and implementation of a SHaPoLi/EPL system and the use of the power reserve.

Resolution	Title
MEPC.350(78)	*2022 Guidelines on the Method of Calculation of the Attained Energy Efficiency Existing Ship Index (EEXI)*
MEPC.351(78)	*2022 Guidelines on Survey and Certification of the Attained Energy Efficiency Existing Ship Index (EEXI)*
MEPC.335(76)	*2021 Guidelines of the Shaft/Engine Power Limitation System to Comply with the EEXI Requirements and Use of a Power Reserve*

Timeline for Compliance

Regulation 5.4.7 requires verification that the ship's attained EEXI is in accordance with the requirements in regulations 23 and 25 of MARPOL Annex VI, which shall take place at the first annual, intermediate or renewal survey on or after **1 January 2023** associated with the International Air Pollution Prevention (IAPP) Certificate. For vessels entering into service after 1 January 2023, the EEXI requirements must be satisfied at the initial survey associated with issuance of the IEE Certificate.

For the verification of a vessel's attained EEXI, an application for a survey should be submitted to the verifier together with an EEXI TF containing the necessary information for the verification and supporting background documents.

EEXI TF and OMM Verification

The verification scope is generally expected to align with the one applied for EEDI.

1. For cases where the attained EEDI of the ship satisfies the required EEXI, the EEDI Technical File shall be submitted to the ABS Engineering office for review and subsequent issuance of the IEE Certificate and IEE Supplement will carried out by the assigned Survey office.
2. For cases where overridable SHaPoLi/EPL system applied, the OMM for SHaPoLi/EPL is required to be submitted for engineering review and approval.
    - In case the NOx critical settings and/or components are altered beyond what is allowed by the engine technical file as defined in NTC 2008, the engine needs to be re-certified. Where uncertainty as to the NOx impact exists, confirmation from the engine designer confirming that the applicable NOx emission limit is not exceeded will be requested
    - For SHaPoLi/EPL carried out by vendors other than the Engine Makers, a Declaration from the Engine Maker is to be requested from the EPL Vendor to confirm that the NOx Technical File is not affected.

Other RO Engagement

In case another RO has approved the EEXI TF for an ABS classed vessel, then the stamped EEXI TF, OMM if applicable, and the approval letter issued by the other RO are to be submitted to ABS Engineering for review towards issuance of the IEEC. If another RO is issuing the IEEC for the vessel, then any modifications that impact Class equipment will need to be submitted to ABS for review and approval. This would include any modifications related to the EPL or SHaPoLi.

On-Board Survey

Upon final verification of the EEXI TF, each vessel's attained EEXI and required EEXI values will be indicated on the vessel's re-issued IEE Supplement.

For cases where overridable SHaPoLi/EPL system applied, implementation on board may be carried either concurrently with a request for EEXI certification or prior to ship assessment and survey for EEXI compliance. The demonstration of compliance of the SHaPoLi/ EPL system shall be verified by a survey on board.

Maneuvering charts/ posters are to be updated as follows:

- The maneuvering charts/ posters need to be updated to reflect the maneuvering capabilities of the vessel with the power limitation installed.

- Vessels will typically need to be provided with two sets of maneuvering charts/ posters in the wheelhouse; one under operation with SHaPoLi/EPL and one using the reserve power (existing one).

Deharmonization of the IAPP Survey

Upon authorization by the vessel's Flag Administration, it may be possible to complete an early renewal of the IAPP Certificate (thereby de-harmonizing the IAPP Certificate's renewal schedule from that of other statutory certificates). In order for this to have the effect of delaying a vessel's EEXI compliance date, the IAPP Renewal survey must be completed prior to 1 January 2023.

FURTHER INFORMATION

Numerous other points of guidance addressing special conditions in EEXI compliance can be found within IACS Recommendation No. 172, *EEXI Implementation Guidelines* including the following:

1) Regarding the "*control unit for calculation and limitation of the power transmitted by the shaft to the propeller(s)"* in the context of section 2.1.1.3 of MEPC.335(76), if this control is independent from the engine automation the following shall be satisfied:

- Override of limitation is indicated by giving an alarm on the bridge, clearly informing the ship's master or OICNW:
  - In case of exceedance, the ship's master or OICNW to manually reduce the power within the limit;
  - In case of deliberate use of power reserve, data recording to commence automatically;
- Data recording device as defined in section 2.1.1.2.

  The OMM should clearly define this confirmation of the alarm as the deliberate action in agreement with requirement in chapter 2.2.1.

2) A SHaPoLi / EPL system (or each sub system) in the context of section 2.2 of MEPC.335(76), is considered tamper-proof if it prevents the following actions:

- Overriding the limitation without authorization, from any operating or control position;
- If applicable, intentionally disabling the alerting-monitoring system;
- In case of SHaPoLi, intentionally disabling sensors, control unit, data recording and processing devices.

3) Sister Ship V_{ref}

A sister ship is one built in a series by same shipyard with identical main dimensions, body lines, appendages, and propulsion system. In a case of identical Propulsion Improvement Device retrofitted on sister ships, the percentage of power savings verified (by either sea trials, or model tests, or numerical analysis, as applicable) for one ship of the series can be applied to the sisters with means of deriving a new speed-power curve.

4) Lower Friction Hull Coatings

In case of lower friction hull coatings, which are considered an EET (Energy Efficiency Technology) in Category A as per IMO MEPC.1/Circ 896, the Vref can only be derived by sea trial.

WORLD HEADQUARTERS
1701 City Plaza Drive | Spring, TX 77389 USA
P 1-281-877-6000 | F 1-281-877-5976
ABS-WorldHQ@eagle.org
www.eagle.org