No. 175 SEEMP/CII Implementation Guidelines

(Apr 2023) (Rev.1 Jun 2025)

Introduction

These guidelines have been developed to provide further guidance on the implementation of

1. 2022 Guidelines for the development of a Ship Energy Efficiency Plan (SEEMP) - Resolution MEPC.346 (78) as amended by MEPC.388(81), MEPC.395(82) and MEPC.401(83), hereafter referred as “SEEMP Guidelines”

2. Guidelines for the verification and company audits by the Administration of Part III of the Ship Energy Efficiency Plan (SEEMP) – Resolution MEPC.347 (78), hereafter referred as “SEEMP Verification Guidelines”.

3. 2022 Guidelines on Operational Carbon Intensity Indicators and the Calculation Methods (CII Guidelines, G1) – Resolution MEPC.352 (78).

4. 2022 Guidelines on the Reference Lines for Use with Operational Carbon Intensity Indicators (CII Reference Lines Guidelines, G2) – Resolution MEPC.353 (78).

5. 2021 Guidelines on the Operational Carbon Intensity Reduction Factors relative to Reference Lines (CII Reduction Factors Guidelines, G3) - Resolution MEPC.338 (76) as amended by MEPC.400(83).

6. 2022 Guidelines on the Operational Carbon Intensity Rating of Ships (CII Rating Guidelines, G4) – Resolution MEPC.354 (78).

7. 2022 Interim Guidelines on Correction Factors and Voyage Adjustments for CII Calculations (CII Guidelines, G5) - Resolution MEPC.355 (78).

The document may be updated whenever new issues are brought to the attention of IACS.

No. 175 (cont)

1 Objective

These guidelines aim to address issues in relation to SEEMP/CII verification and provide guidance for supporting the implementation of IMO SEEMP/CII as per reg. 26 and 28 of MARPOL Annex VI. In the context of SEEMP, the emphasis is on implementation of SEEMP Part III, specifically, as per reg. 26.3.

2 Inter-relation between various Parts of SEEMP

The inter-relation between the various parts of SEEMP is shown in figure 2.1.

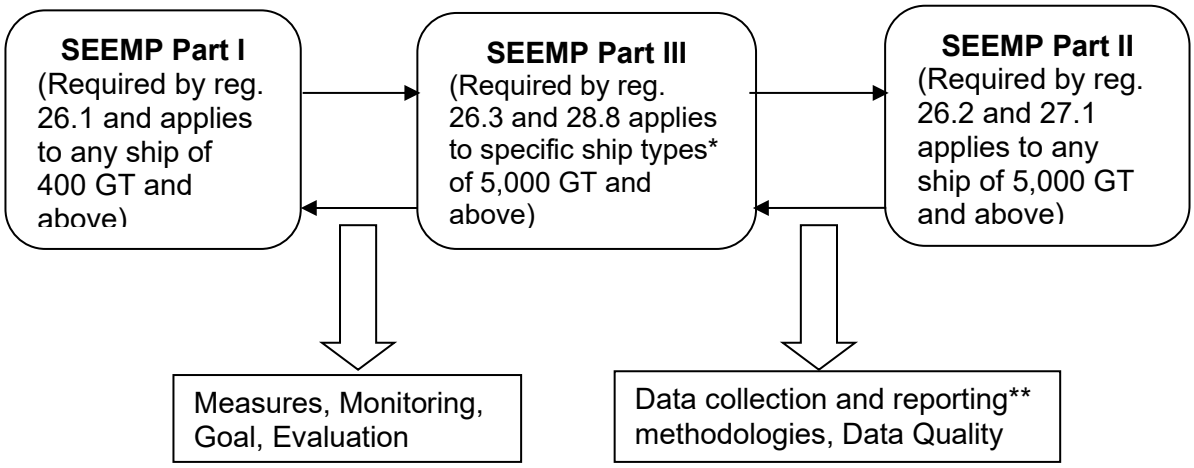


Figure 2.1 Inter-relation between various parts of SEEMP

Note: *Bulk Carrier, Combination carrier, Containership, Cruise passenger ship, Gas carrier, General cargo ship, LNG carrier, Refrigerated cargo carrier, Ro-ro cargo ship, Ro-ro cargo ship (vehicle carrier), Ro-ro passenger ship, Tanker. As per MARPOL Regulation 19.3, Regulation 28 shall not apply to category A ships as defined in the Polar Code. Therefore, unless advised otherwise by Flag Administration, Regulation 26.3 is not considered applicable to Category A ships as defined in the Polar Code. **The data reporting for vessels that operate in international waters only during a limited period of the year and the rest of the year operate in national waters (that may be or not the same Flag they fly) is subject to the respective Administration's requirements.

2.1 SEEMP Part I provides a generic approach to monitor ship and fleet efficiency performance over time and describes various energy efficiency measures to improve the ship's energy efficiency performance and reduce carbon intensity.

2.2 SEEMP Part II provides a description of the methodologies that will be used to collect data on fuel oil consumption (method of fuel collection, fuel type and quantity), distance travelled and hours underway.

2.3 SEEMP Part III provides an implementation plan on how the attained annual operational CII will be maintained less than or equal to the required annual operational CII for the next three years. It also describes the required data for the calculation of CII and methodologies to obtain relevant data if not addressed in SEEMP Part II.

2.4 The calculation of the attained CII is based on the verified fuel oil consumption data collected by implementation of methodologies described in SEEMP Part II and if relevant, adjusted as per interim guidelines on correction factors and voyage adjustments for CII calculations (G5 guidelines, resolution MEPC.355(78)).

No. 175 (cont)

2.5 For those ships where SEEMP Part III is applicable, following sections of SEEMP Part I should be revised by the Company as needed to reflect the actions taken in SEEMP Part III to maintain consistency with the requirements of regulation 28 of MARPOL Annex VI.

- Measures (consistent with list of measures considered and implemented in three-year implementation plan)
- Monitoring (consistent with data required for calculation methodology of attained annual operational CII, milestones described in three-year implementation plan)

- Goal (consistent with the required annual operational CII)

- Evaluation (consistent with the self-evaluation and improvement described in three-year implementation plan)

3 Data transfer in case of change of company and/or Administration

Partial year data transfer

3.1 In case of transfer of the ship from one company to another (irrespective of change in Administration), the former company should get the partial data (for the operated period) verified by the relevant Administration or any organization duly authorized by it and transfer the verified data with the supporting documents to the receiving company within one month after the date of transfer (day of completion of the change or as close as practical thereto report). In this regard, any company which intends to transfer the ship to another company should make early arrangements so that the verification of the data is completed within one month after the date of transfer. Companies are therefore advised to establish procedure(s) in their management system which ensures that the data is submitted for verification and transferred to the new company within one month after the date of transfer. In case of change of company and the Administration, the receiving company should obtain the data verified by the losing Administration or any organization duly authorize by it for the partial period of the calendar year when the transfer takes place. Receiving Administration will use the verified partial data to verify the calculation of the attained annual operational CII for the whole year. The receiving company should review the previously verified SEEMP Part III and may update as necessary in-line with company's practices before submitting it to the Administration/RO for verification.

3.2 In any case if no such verified or non-verified partial data is available from the former company, the receiving company can calculate the Attained annual operational CII using the available data (engine room log, noon reports, bunker delivery notes, AIS data, etc.) covering a period as long as practically possible.

Whole calendar year data transfer

3.3 In case the former company does not transfer the verified data (when available) for the whole calendar year when the transfer takes place in early months of the next calendar year, the receiving company should request the losing as well as gaining Administration to make relevant data (submitted to the IMO Fuel Oil Consumption Database) available to them for calculating the Attained annual CII.

3.4 In case the former company does not transfer the non-verified data for the whole calendar year when the transfer takes place in early months of the next calendar year, the receiving company can calculate the Attained annual operational CII using the available data (engine room log, noon reports, bunker delivery notes, AIS data, etc.) covering a period of the preceding calendar year as long as practically possible.

No. 175 (cont)

4 CII reduction factors

4.1 Resolution MEPC.338(76) provides reduction factors to calculate required annual operational CII value up to year 2026 only. For the SEEMP Part III which will be developed in 2025 year (as a part of mandatorily update after every three years) to include implementation plan for next three years (2026-2028), it is expected that the CII reduction factors for 2027 and 2028 years will be available by the end of 2025.

In case CII reduction factors are not available for the complete 3-year period at the time of developing the SEEMP III the required annual operational CII can be left blank for the year(s) where the reduction factor is not available (e.g. 2027 for a 2025 to 2027 plan), However the SEEMP Part III should be updated later with the required annual operational CII when those CII reduction factors are determined.

4.2 Taking into account, future progressive increase in reduction factors for required annual CII, a company may set a voluntary target annual CII that is different from the IMO requirement (required annual CII) but must be more stringent than the latter (required annual CII). However, when a vessel achieves IMO required annual CII and could not achieve the voluntary target, such non-achievement should not be considered as company audit finding.

Any such case may be analysed by the company, with the aim to identify the reasons for non-achieving a set voluntary target annual CII, and the results of the analysis may be used by the company in case of any future setting of annual CII.

5 Self-evaluation and improvement

5.1 The purpose of self-evaluation is to evaluate the effectiveness of the measures aimed to achieve required annual operational CII at the planned milestone. In this process, a CII investigation study can be undertaken by the company. Instead of simplistic annual average speed or annual single speed-power curve, the vessel performance model could combine operational data, draughts, speeds, encountered weather (i.e. combined AIS and Hindcast MetOcean data) with vessel's technical data. The CII investigation study when evaluating the performance should include the results of the measures which are described in the three-year implementation plan of SEEMP Part III.

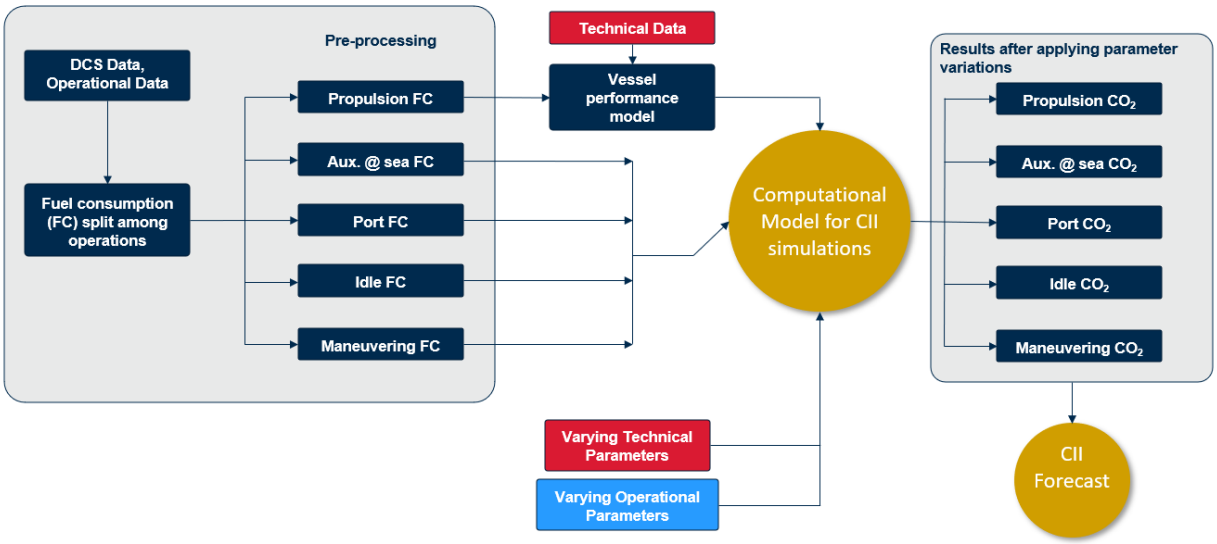


Figure 5.1 Sample CII investigation study methodology

No. 175 (cont)

5.2 Alternative procedures can also be described and implemented to demonstrate impact of adopted energy efficiency measures through the self-evaluation and improvement process. In a simpler way, based on the studies performed for which the data/claim is available in published form, approximate reduction potential of the energy efficiency measure can be used directly from such studies. The calculation of the forecasted operational CII should still consider the vessel' technical characteristics and operational profile as far are practicable. For example, for an energy efficiency measure whose published studies show that 5% reduction in fuel consumption can be achieved, the potential reduction may be converted to attained CII by assuming that the distance travelled remains same for the whole year service.

5.3 The effect of the adopted energy efficiency measures should be measurable and provide data to perform self-evaluation. Documentation relevant to self-evaluation and improvement should be maintained. In case, the self-evaluation concludes that a certain energy efficiency measure is not effective towards achieving required CII, additional measures should be identified or existing measures should be amended for improvement by performing root cause and effect analysis. In such a case, SEEMP Part III needs to be revised as part of improvement process and re-verification should be followed.

5.4 The monitoring frequency of the CII performance should be decided based on the best compromise to ensure sufficient precision and reduce the work burden. This frequency and the triggers for action, dependent on the deviation from the target CII, should be identified. For instance, a company may decide that if the CII is greater than the target by x%, then the monitoring frequency may be increased. Whilst if the CII is greater than the target by y%, then concerned higher authority/management level at shore to be informed, an investigation to commence, etc.

No. 175 (cont)

6 Corrective actions plan (CAP)

6.1 MEPC.346(78), as amended ,para 15.4.1 reads as *the purpose of the plan of corrective actions is to set out what actions a ship that was rated D for three consecutive years or E for one year should take to achieve the required annual operational CII*.

In case a ship requires to develop a CAP, a revised SEEMP Part III including the corrective actions for CII reduction should be submitted to the Administration or any organization duly authorized by it for verification under the requirement of additional verification (regulation 6.8 of MARPOL Annex VI) as described in section 7.3 of this guidelines. Figure 6.1 illustrates the process of SEEMP Part III and Corrective Actions Plan (CAP).

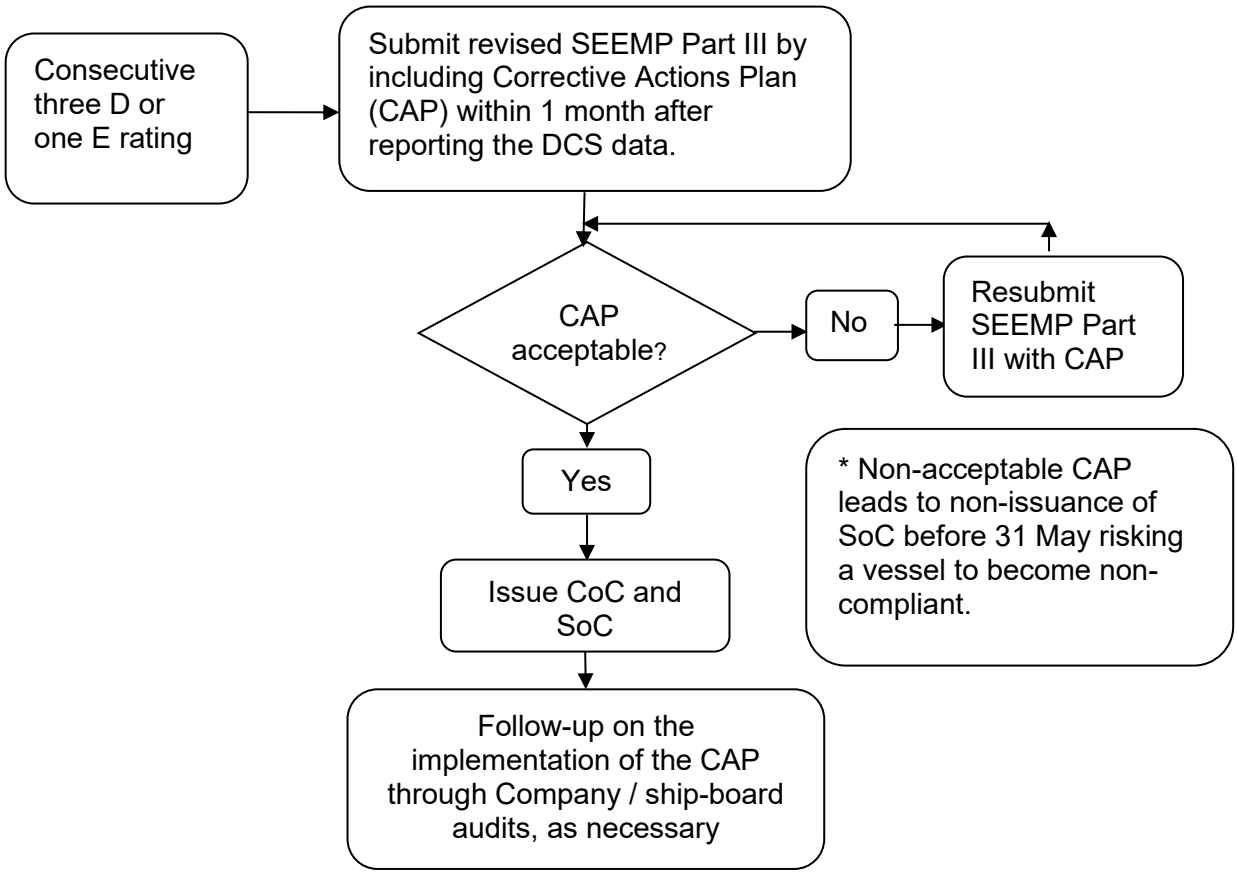


Figure 6.1 Corrective Actions Plan process flow

6.2 In accordance with MEPC.1/Circ.795/Rev.9 (UI 20), *in case an inferior rating* 'E' or third time 'D' consecutively *is given for data collected in calendar year 'YYYY'* (e.g. 2023), *the revised SEEMP including the plan of corrective actions should be verified in year 'YYYY+1'* (i.e 2024), *and it should be developed to achieve the required annual operational CII for data collected in the calendar year 'YYYY+2'* (i.e. 2025).

Upon identification of need of CAP and its acceptance (within revised SEEMP Part III) by end of May YYYY+1, a vessel will get approximately 19 months (from June YYYY+1 to end of YYYY+2) of time to achieve the required annual operational CII. However, the required annual operational CII also becomes more stringent after 19 months. Therefore, CAP should be developed appropriately to achieve the required annual operational CII.

No. 175 (cont)

In case the CAP is made in the last year of the three-year period, the CAP should be included in the SEEMP III for the next three-year period and the additional or revised measures should be integrated with the other planned measures.

It is recommended to establish intermediate milestones to be achieved with timelines followed by self-evaluation and analysis of the attained CII trend and if the trend is not indicating improvement in attained CII values, the implementation of corrective actions plan should be strengthened.

6.3 The revised SEEMP Part III should be submitted together with, but in no case later than one month after reporting the attained annual operational CII that is along with the annual fuel oil consumption data to be reported as per Appendix 3 of SEEMP guidelines (resolution MEPC.346(78) as amended). Company is advised to be pro-active into assessing if a vessel's attained annual operational CII would be less than the required annual operational CII and if a Corrective Actions Plan is needed in the coming reporting period.

6.4 In case of repeated E rating or more than three consecutive D rating, a new corrective actions plan should be created to ensure that the vessel achieves the required rating. The new corrective actions plan may be developed based on the previous version or may be entirely new.

An analysis of the cause of the inferior rating should be undertaken to ensure that any ineffective part of the previous corrective actions plan is replaced or improved in the new plan.

6.5 The preparation of corrective actions plan should start with investigation of the inferior CII rating and determination of the root cause considering all the aspects of ship operations where fuel is consumed. Analysis of effect of each cause on the CII rating should be performed and followed with the necessary corrective actions in order to avoid recurrence of the cause. Also, analysis of already implemented measures as per the implementation plan should be performed to know which measures are contributing to the inferior CII rating. Results of the self-evaluation can also be used as the basis for the analysis, for example referring to a CII investigation study or alternative procedures in section 5 of these guidelines.

6.6 The CAP should include a root cause analysis, the self-evaluation described in the SEEMP Part III and any other relevant investigation, to determine the cause of the inferior CII. Corrective actions to improve the CII rating should be devised, ensuring that these actions are achievable, measurable and time bound. Objective supporting documentation for each measure needs to be maintained and produced during the company audit.

6.7 Within three-years plan (eg. 2023-2025), if a vessel achieves the required CII value for the data collection year YYYY+1 (e.g. 2024 data verified in 2025) by effective implementation of the Corrective Actions Plan that was developed in the year YYYY+1 (i.e. 2024), the CAP may be retained as a part of SEEMP Part III until end of the year YYYY+2 (i.e. 2025). The SEEMP Part III may be reviewed in view of considering measures of CAP for their inclusion in its next three-year implementation plan and CAP may be removed.

No. 175 (cont)

7 SEEMP verification and documentation

In general, the aim of SEEMP Part III verification is to ensure that the SEEMP Part III complies with regulation 26.3.1 of MARPOL Annex VI in accordance with regulation 5.4.6 (initial verification and periodical verification) and in accordance with regulation 6.8 (additional verification for corrective actions plan).

SEEMP Part III verification (initial, periodical, and additional) should be based on documentary evidence.

Despite of the supporting documentation as required in sections 7.1 to 7.3 of these Guidelines for the verification of SEEMP Part III, in order to ensure that the individual energy efficiency measure or their combination included in the implementation plan are adequate to achieve the required annual CII, it is recommended to submit following minimum documentation along with SEEMP Part III.

a) Copy of latest SEEMP Part I kept on-board (if referred to in the SEEMP Part III)

b) Copy of latest verified SEEMP Part II kept on-board

Note: SEEMP Part II does not need to be revised and verified against the 2022 Guidelines for the development of SEEMP (MEPC.346(78) as amended), unless the company resubmits this plan due to a change of flag, change of company or change of data collection methodology for fuel, distance and hours underway.

7.1 Initial verification

Initial verification should be performed to verify that SEEMP Part III of all vessels which are in service on 1 January 2023 complies with regulation 26.3.1 of MARPOL Annex VI and on satisfactory assessment of the SEEMP Part III, the Administration, or any organization duly authorized by it, issues the Confirmation of Compliance which is to be retained on board the vessel.

For vessels which are delivered after 1 January 2023, the initial verification should be performed, and Confirmation of Compliance should be issued and kept on board the vessel.

Verification could consist, but not be limited to, the following elements:

1. verification of the method of calculations of the attained CII complying with G1 guidelines (resolution MEPC.352(78) and G5 guidelines on correction factors and voyage adjustments for CII calculations MEPC.355 (78)) including the methodologies to collect data relevant to above calculations;

   Note: The vessel's actual capacity (DWT or GT) should be used for the calculation of attained annual operational CII value irrespective of application of voyage adjustments and correction factors.

2. verification of required CII complying with G2 and G3 guidelines (resolution MEPC.353(78) and 338(76));

   Note: The vessel's actual capacity (DWT or GT) or the threshold Capacity (as applicable) given in Table 1 of G2 guidelines (resolution MEPC.353(78)) should be used for the calculation of required annual operational CII value.

No. 175 (cont)

3. verification of the description of the method to report ship data to the Administration complies with Appendix 3 of SEEMP guidelines (resolution MEPC.346(78) as amended);

4. verify that the implementation plan is prepared in line with the format provided in Appendix 2bis of MEPC.346(78) as amended;

5. assess the effectiveness (of the combination) of measures, so that when implemented the ship will with reasonable assurance achieve the required annual operational CII, including the goal as set in accordance with paragraph 4.1.7 and 9.7 of the SEEMP Guidelines;

6. verify that self-evaluation is planned to improve the implementation actions if necessary;

7. identification of impediments during the course of implementation plan execution and remedial actions;

8. robustness of the three-year implementation plan through imparting adequate training to the responsible personnel, implementing data collection-communication-storage system, changes in company's internal documentation, procedures and audit system for shore and on-board operations relevant to the implementation plan, etc.;

Supporting documentation to be submitted: Company should submit following documentation along with its completely filled SEEMP Part III and any other supporting documents as requested by the Administration, or any organization duly authorized by it.

a) Verified SEEMP Part II on methodologies on the Fuel Oil Data Collection System pursuant to regulation 27 of MARPOL Annex VI (to verify that the data and relevant data collection process used for the calculation of ship's attained annual operational CII are in line with this methodology).

7.2 Periodical verification

After the initial verification done before 01 January 2023, vessels' SEEMP Part III should be revised for the following cases. The revised SEEMP shall be verified the Administration, or any organization duly authorized by it, to ensure the SEEMP complies with regulation 26.3.1 of MARPOL Annex VI and Confirmation of Compliance be re-issued. Administrative changes not subject to regulation 26.3.1 and changes other than the following cases may be done without verification. In any case, the original timeline (i.e. the start and end years) of the Three-year implementation plan will remain.

Case 1: Change of company and/or Administration after initial verification

A new SEEMP III will be required in this case as stated in MEPC.1/Circ.795/Rev.9(UI 19.2).

In the case of change of Administration (and no change of company) and SEEMP Part III being remain same for the vessel, the periodical verification could consist of verifying following elements:

1. the attribute 'Flag' to verify gaining Administration
2. year of the transfer is the first year of the three-year implementation plan

No. 175 (cont)

3. in case, the vessel was assigned CII rating in previous year(s), verify that CII values and rating

In the case of change of company (irrespective of change of Administration), the periodical verification could consist of the verification elements as described in section 7.1 of these Guidelines. Additional elements of verification could consist, but not be limited to:

1. Verification of name of gaining company and/or Administration
2. Verify year of the transfer is the first year of the three-year implementation plan
3. company obtained relevant verified (partial) data (with supporting documents) from the former company necessary for the calculation of the attained annual operational CII
4. in case, the vessel was assigned CII rating in previous year(s), verify that CII values and rating.

Supporting documentation (in addition to those described in section 7.1 of these Guidelines) to be submitted:

a) Document of Compliance (DOC) issued to the company
b) Vessel's Safety Management Certificate (SMC) certificate
c) Vessel's Certificate of Classification
d) Previously verified SEEMP Part III and Confirmation of Compliance certificate
e) documentation showing verification of partial data received from former company
f) Statement of Compliance certificates for last three years

Case 2: Addition and/or deletion of energy efficiency measure(s) impacting CII calculation in implementation plan as a result of the self-evaluation and improvement, change in methodology to calculate CII values

Verification could consist, but not be limited to, the following elements:

1. verification of the method of calculations of the attained CII complying with G1 guidelines (resolution MEPC.352(78) and G5 guidelines on correction factors and voyage adjustments for CII calculations MEPC.355 (78)) including the methodologies to collect data relevant to above calculations

2. assess the effectiveness (of the combination) of measures, so that when implemented the ship will with reasonable assurance achieve the required annual operational CII, including the goal as set in accordance with paragraph 4.1.7 and 9.7 of the SEEMP Guidelines;

3. verify that self-evaluation is planned to improve the implementation actions if necessary

4. identification of impediments during the course of implementation plan execution and remedial actions;

5. robustness of the three-year implementation plan through imparting adequate training to the responsible personnel, implementing data collection-communication-storage system, changes in company's internal documentation, procedures and audit system for shore and on-board operations relevant to the implementation plan, etc.

Supporting documentation to be submitted:

a) Records of self-assessment and decisions made which resulted in modification to the original energy efficiency measures, adoption of additional corrections factors or change in calculation methodology etc.;

No. 175 (cont)

b) Verified SEEMP Part II on methodologies on the Fuel Oil Data Collection System pursuant to regulation 27 of MARPOL Annex VI (to verify that the data and relevant data collection process used for the calculation of ship's attained annual operational CII are in line with this methodology).

Case 3: Major conversion (change in dimensions, carrying capacity or engine power, ship type) done after initial verification as an action on adopted energy efficiency measures or on deterioration of CII rating

Verification could consist, but not be limited to:

1. verification of elements of major conversion (dimensions, carrying capacity or engine power, ship type)

2. date of major conversion to ensure conversion is done after initial verification

3. verification of the method of calculations of the attained CII (before and after conversion) complying with G1 guidelines (resolution MEPC.352(78), G5 guidelines on correction factors and voyage adjustments for cii CII calculations MEPC.355 (78)) including the methodologies to collect data relevant to above calculations and para 5.4, 5.5 of resolution MEPC.348(78) as amended by MEPC.389(81)

4. verification of the method of calculation of required CII complying with G2 and G3 guidelines (resolution MEPC.353(78) and 338(76)) and para 5.4, 5.5 of resolution MEPC.348(78) as amended by MEPC.389(81)

5. assess the effectiveness (of the combination) of measures, so that when implemented the ship will with reasonable assurance achieve the required annual operational CII, including the goal as set in accordance with paragraph 4.1.7 and 9.7 of the SEEMP Guidelines

6. verify that self-evaluation is planned to improve the implementation actions if necessary

7. identification of impediments during the course of implementation plan execution and remedial actions

8. robustness of the three-year implementation plan through imparting adequate training to the responsible personnel, implementing data collection-communication-storage system, changes in company’s internal documentation, procedures and audit system for shore and on-board operations relevant to the implementation plan, etc.

Supporting documentation to be submitted: Same as those described in section 7.1 of these Guidelines.

Case 4: Every three years after initial verification

A SEEMP Part III should be revised (before the end of the last year in the Three-year implementation plan) and re-verified every three years (e.g. for a ship delivered prior to 1January 2023, before 2026 for 2026-2028 period, before 2029 for 2029-2031 period)

In such as case, section 7.1 of these Guidelines to be referred for verification activities and supporting documentation. Additionally, section 2 of the revised SEEMP Part III is to be verified to ensure that CII values and rating of the previous three years are described.

No. 175 (cont)

Supporting documentation (in addition to those described in section 7.1 of these Guidelines) to be submitted:

a) Previously verified SEEMP Part III and Confirmation of Compliance certificate
b) Statement of Compliance certificates for last three years

7.3 Additional verification

Starting with the first CII verification in 2024, if a ship is rated as D for three consecutive years or E for one year, SEEMP Part III should be reviewed and updated by inclusion of corrective actions plan. The plan of corrective actions shall list additional measures and revised measures to be added to the three-year implementation plan necessary for achieving the required CII. The updated SEEMP Part III shall be submitted for re-verification to ensure that a plan of corrective actions has been established in accordance with regulations 28.7 and 28.8 and re-issuance of the Confirmation of Compliance. An example is given in Table 7.1 explaining the additional verification case.

Table 7.1 Example of additional verification in case of three consecutive D or E rating for ships delivered before 1 January 2023

<table>
<tr><td>Verification Year</td><td>2023</td><td>2024</td><td>2025</td><td>2026</td><td>2027</td><td>2028</td></tr>
<tr><td>Data year</td><td>-</td><td>2023</td><td>2024</td><td>2025</td><td>2026</td><td>2027</td></tr>
<tr><td>Case 1 - CII rating</td><td>-</td><td>E</td><td>C(*)</td><td>C</td><td>B</td><td>C</td></tr>
<tr><td>Case 2 - CII rating</td><td>-</td><td>C</td><td>D</td><td>E</td><td>C(*)</td><td>C</td></tr>
<tr><td>Case 3 - CII rating</td><td>-</td><td>D</td><td>D</td><td>D</td><td>C(*)</td><td>C</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">Remarks</td><td>Initial SEEMP without corrective actions plan.</td><td>For case 1: SEEMP to be revised by including corrective actions plan to achieve the required annual operational CII for data collected in the calendar year 2025 and to be submitted for verification (additional verification).</td><td></td><td>For cases 2 and 3: SEEMP to be revised by including corrective actions plan to achieve the required annual operational CII for data collected in the calendar year 2027 and submitted for verification (additional verification).</td><td></td><td></td></tr>
<tr><td colspan="2">By the end of 2025 updated SEEMP should be prepared and submitted for verification under periodical verification.</td><td colspan="3">By the end of 2028 updated SEEMP should be prepared and submitted for verification under periodical verification.</td></tr>
</table>

No. 175 (cont)

Note: (*) - C rating and above should remain the objective for each ship for which an inferior rating is given for data collected in calendar year YYYY. But taking into account the provisions of paragraph 15.4.1 of Res. MEPC.346(78) as amended, and MEPC.1/Circ.795/Rev.9(UI 20) on a case-by-case basis, a lower rating may be accepted provided a route plan is established in the SEEMP, taking into account the provisions in paragraph 6.2 of these guidelines, to achieve the required annual operational CII for data collected in calendar year YYYY+2.

Similarly, if the ship is rated as D in years 2024, 2025 and 2026 for data of 2023, 2024 and 2025 respectively, the SEEMP Part III should be updated in 2026 by including corrective actions plan to be implemented in 2026 and 2027 and submitted for re-verification and re-issuance of the Confirmation of Compliance.

On satisfactory verification of the plan of corrective actions included in the revised SEEMP Part III i.e. re-issuance of the Confirmation of Compliance, the Administration/RO can issue the Statement of Compliance.

Additional verification could consist (in addition to those described in section 7.1 of these Guidelines), but not be limited to, the following elements:

1. verify that the corrective actions plan is necessary for the subject vessel.

2. verification of corrective actions plan that it has been developed in the format prescribed by Appendix 2bis of the SEEMP Guidelines.

3. verification of the planned timelines for application of actions described in corrective actions plan.

4. assess the effectiveness (of the combination) of corrective actions (measures), so that when implemented the ship will with reasonable assurance achieve the required annual operational CII.

5. verify that company is able to perform the actions set out in the plan of corrective actions.

Supporting documentation to be submitted:

a) previously verified SEEMP Part III and Confirmation of Compliance certificate.

b) Statement of Compliance certificates for last three years.

c) documentation in support of analysis of the cause for the inferior CII rating.

d) documentation in support of analysis of the performance of measures in the previous implementation plan.

e) documentation in support of additional and revised measures added to the implementation plan.

f) possible impediments to the effectiveness of the additional measures and relevant contingency measures put in place to overcome these impediments.

No. 175 (cont)

8. Audits

8.1 Company audits

MARPOL Annex VI Regulation 26.3.3 requires that the SEEMP is subject to company audits for ships required to comply with MARPOL Annex VI Reg 28. According to MEPC.347(78), external company audits should be carried out periodically.

The aim of an audit is to verify that SEEMP is effectively implemented by the company and onboard its fleet. SEEMP audit and ISM audit are two distinct activities and may be combined

The company is responsible for providing access to evidential material requested by the auditor including previous audit report.

Company audits neither substitute nor duplicate the verification of the SEEMP leading to issuance of Confirmation of Compliance, or the verification of operational carbon intensity leading to issuance of Statement of Compliance.

Though company audits are mandatory, the periodicity of company audit is not specified in MARPOL Annex VI regulation 26.3.3. A company should be audited every three years. The addition of a vessel to the company fleet (even in the case of a new ship type or new flag) should not prompt a new company audit unless otherwise instructed by the flag.

The purpose of the audit is to

1. verify that the SEEMP for which the Confirmation of Compliance has previously been issued complies with regulation 26.3.1 and, in the case of non-compliance, requires remedial action.
   Guidance note: The SEEMP has already been verified for compliance. Consequently, the purpose of the audit is to verify implementation aspects of the SEEMP.

2. confirm that each sampled ship is being operated in accordance with SEEMP part III, regardless of its rating.
   Guidance note: Whilst the Auditor is not expected to carry out calculations, the Auditor should request objective evidence that each measure including contingency measures , have been implemented by the due date(s), as per SEEMP part III implementation plan.
   Verify that the implementation of the measures is progressing according to the SEEMP part III.
   Verify that the contribution of each measure to CII impact is being evaluated by the company.
   Verify that the CII is being monitored by the company.
   Verify other procedures associated with and/or referenced in the SEEMP part III.

3. verify the progress made in the (corrective) actions to be taken in the execution of the three-year implementation plan and, if applicable, the plan of corrective actions.
   Guidance note: Plan of corrective actions is applicable for vessels rated D three consecutive years or rated E for one year.

4. verify self-assessment and improvement of actions taken;
   Guidance note: Verify that the company has carried out self-assessment and assessed improvement actions. Results of the self-assessment should provide feedback to the company for use in the planning for the next improvement cycle.

No. 175 (cont)

5. verify the assignment of responsibilities related to the implementation and monitoring of measures.
   Guidance note: Verify that the personnel responsible for implementation and monitoring of measures are carrying out duties in accordance with the SEEMP. Verify that the personnel identified in the SEEMP are aware and familiar with their roles, responsibilities and duties, have received training as appropriate, and are receiving necessary support and resources to fulfill their roles.

The focus of the audit is to assess the company's polic(ies) and approach for implementation, monitoring, self-assessment, improvement and corrective actions for its fleet., SEEMP implementation for individual vessels should be assessed on a sampling basis. The number of sampled vessels should be based on fleet size, flags, ship types and CII ratings.

8.2 Shipboard audit

Periodical SEEMP shipboard audits are not required, unless the Administration decides otherwise Additional SEEMP shipboard audits may be carried out if deemed necessary. A shipboard audit may be combined with an ISM audit.

8.3 Audit execution and reporting

The audit shall be carried out in accordance with documented procedures. The audit result and any non-compliance identified at the audit shall be documented and brought to the attention of the company. The verification audits may be carried out in accordance with applicable audit principles as described in the *G*uidelines on implementation of the ISM Code by Administrations, referred to in Section 15 of the ISM Code.

The reports of the company audit(s) should be made available by the Company to all the parties responsible for verification of the company fleet. The company should also provide a copy of the audit report to all ships of the company fleet.

8.4 Non-compliance, corrective actions and follow up

The company is responsible for determining and initiating the corrective action needed to correct a non-conformity or to correct the cause of a non-conformity.

The follow-up action may include additional company or shipboard audit(s), as appropriate, to verify that corrective actions have been properly implemented.

Corrective actions and any subsequent audits should be completed within the time period agreed. For corrective actions, this should not normally exceed three months.

8.5 Qualifications of auditors

Persons performing SEEMP audits should have auditing experience and knowledge of SEEMP requirements

Each RO shall define and document its requirements for qualification of personnel conducting SEEMP audits.

No. 175 (cont)

9 LNG Carriers

9.1 Nitrogen (N_2) content correction

Boil-off-Gas (BoG) means vapour which results from evaporation of LNG in the cargo tanks. After cargo loading, heel and cargo gets mixed and there is no distinction being made between with respect to source of BoG. Practically, when BoG is used as fuel, it comes from both the heel and the cargo.

When calculating the fuel consumption for LNG ships, nitrogen mass content should be subtracted for each laden voyage from LNG consumption as it does not contribute to CO_2 emissions. To determine the quantity of nitrogen, certificates (e.g. Custody Transfer Management System (CTMS)), issued from terminals during loading and unloading of LNG certifying its quantity and quality information containing the composition of LNG components (including nitrogen) are to be used. Where such corrections are applied, the certificates of quantity and quality should be submitted for verification of annual fuel oil consumption and subsequent verification of CII.

In case, vessel is installed with gas chromatograph that can monitor real time nitrogen content in the gas flow to the engines, such reports should be submitted for verification of nitrogen subtraction from LNG. The volume will then be converted to mass by multiplication with the density.

CTMS based example for determining Nitrogen content in LNG for correction:

		LNG received		**LNG discharged**	
LNG Component	**Molecular Weight (Mi)**	**Molar Fraction (Xi)**	**Molecular Mass (Mi × Xi/100)**	**Molar Fraction (Xi)**	**Molecular Mass (Mi × Xi/100)**
Methane (CH_4)	16.042	94.95	15.232	96.52	15.484
Ethane (C_2H_6)	30.069	4.56	1.371	3.12	0.938
Propane (C_3H_8)	44.096	0.30	0.132	0.30	0.132
i-Butane (i-C_4H_{10})	58.122	0.04	0.023	0.02	0.012
N-Butane (n-C_4H_{10})	58.122	0.04	0.023	0.02	0.012
i-Pentane (i-C_5H_{12})	72.149	0.00	0.000	0.00	0.000
n-Pentane (n-C_5H_{12})	72.149	0.00	0.000	0.00	0.000
Hexane Plus (C_6H_{14})	86.175	0.00	0.000	0.00	0.000
Nitrogen (N_2)	28.013	0.11	0.031	0.02	0.006
Oxygen (O_2)	31.999	0.00	0.000	0.00	0.000
Carbon Dioxide (CO_2)	44.010	0.00	0.000	0.00	0.000
Total		100.00	16.812	100.00	16.584
Density (t/m^3)*		0.436		0.432	
Cargo loaded/discharged (m^3)		169603		166500	
Cargo loaded/discharged (t)		73946.91		71928.00	
LNG consumed during the voyage (t)		2018.91			
N_2 mass (t)		(169603×0.436×0.031) /16.812 = 136.35		(166500×0.432×0.006) / 16.584 = 26.02	
N_2 content (t) correction		110.33			

*When actual density value is not available, 0.422 t/m^3 may be used.

No. 175 (cont)

9.2 Gas Combustion Unit (GCU) consumption

Boil-off-Gas (BoG) burnt in GCU on-board, as a secondary means of controlling the tank pressure, is considered as fuel and shall be reported as part of the IMO DCS reporting. Measurement of BoG burnt in GCU can be performed by following ways:

- use the Custody Transfer Monitoring System (CTMS);

- Gas flow meters; although these are common only installed on the newer built ships. If gas is measured in volume, then it should be converted to mass using appropriate density, pressure and temperature corrections.

9.3 Gas Carriers built with the purposes of carrying LNG and having their IEEC changed from Gas Carriers to LNG Carriers

SEEMP Part III and CII requirements are applied based on the definitions in Regulation 2 of MARPOL Annex VI and separate definitions and ship categories for gas carriers (regulation 2.26) and LNG carriers (regulation 2.38) are defined.

For the purposes of compliance with SEEMP Part III and CII, an LNG carrier will be an LNG carrier regardless of when ship has been delivered and the ship type applied when her SEEMP Part III and CII was verified.
Gas Carriers built with the purposes of carrying LNG and their IEEC is changed from Gas carrier to LNG carrier are expected to comply with the requirement of SEEMP and CII applicable to LNG Carrier.

These Gas Carriers would need to achieve the required annual CII for LNG carriers. In addition, correction factors for cargo cooling and reliquification plant will also apply.

10 Case of change in DWT and/or GT

MEPC.348(78) as amended by MEPC.389(81) states that permanent changes to vessel's deadweight (DWT) and/or gross tonnage (GT) can be undertaken as a measure within SEEMP Part III or a corrective actions plan to improve the ship's operational carbon intensity performance. Such changes undertaken after to initial verification of SEEMP Part III should only be considered as a measure to improve the ship's operational carbon intensity performance.

- all future required annual operational CII should be calculated and verified using the original DWT or GT value before DWT or GT conversion; and

- the attained annual operational CII which is to be used to assess compliance should be calculated and verified using the new DWT or GT value after conversion. Except for the year of conversion where the attained CII should be calculated and verified based on the average DWT or GT value weighted on distance travelled before and after conversion.

In case of DWT and/or GT change, SEEMP Part III to be revised and submitted for verification.

In case of a ship which permanently changes its deadweight and where the change is not so substantial as to qualify as a major conversion and which are not identified as a CII reducing measure in the SEEMP III or the CAP, both the attained and required CII should be calculated and verified using the new DWT or GT after conversion. Except for the year of

No. 175 (cont)

conversion where the attained and required CII should be calculated and verified based on the average DWT or GT value weighted on distance travelled before and after conversion In case of a ship undergone major conversion, including extensive changes of carrying capacity and/or ship type during the year, defined by regulation 2.2.17 and regarded by the Administration as a newly constructed ship as per regulation 5.4.3, the required and attained annual operational CII should be calculated and verified as per a newly constructed ship for the period after conversion. For the year when the major conversion is made, the data for partial year before conversion should still be reported for verification but will not be included in the calculation and verification of the attained annual operational CII. In case where the major conversion occurs at the end of the year, such conversions can be considered as non-substantial conversion for the year of conversion for calculating the required and attained annual operational CII values.

11 Definitions for voyage adjustments

Fuel consumption and distance travelled for a defined period of voyages (partial or whole voyage) may be exempted from consideration in the calculation of the annual operational attained CII subject to certain threshold conditions being met. These conditions are specified in regulation 3.1 of MARPOL Annex VI (endangering safe navigation of a ship - safety of a ship or saving life at sea, damage to a ship or its equipment) and sailing in ice conditions (ice classed ships sailing in a sea area within the ice edge). Only the parts of the voyage directly related to securing the safety of a ship or saving life at sea can be exempted. This does not include for example running at higher speed to catch up after delays, even if that delay was caused by such causes; or sailing to a yard for repair.

The fuel consumption and the distance travelled for the voyage adjustment the following should be noted:

- The fuel oil consumption for voyage periods should include all the fuel oil consumed on board (main engine(s), auxiliary engine(s), boiler(s), inert gas generator, etc).

- All fuel types consumed onboard.

- Regardless of whether a ship is under way or not.

Voyages subject to voyage adjustment (usually involving the safety of the ship) may include (however respective Flag Administration’s instructions needs to be followed on case-by-case basis):

- When a vessel encounters imminent safety concerns during its voyage, including (example situations):

    • saving life at sea, i.e., search and rescue operations, evacuation.

    • navigation hazards such as icebergs.

    • areas that have been designated on an ad-hoc period due to prevailing navigational hazards.

    • piracy risk or other areas restricted for navigation due to war risk

The use of each correction factor of voyage adjustments should be evidenced by presenting relevant data/parameter/information (voyage period, date and time, ship position, distance travelled, starting and leaving a particular area, equipment starting and stopping data, etc.) and recorded in the Ship Log Book, Engine Log Book or Noon Report and copy of such

No. 175 (cont)

official documentation shall be submitted to the RO/Administration at the time of verification in the data reporting format. Flag Administration's advice may be considered on case-by-case basis.

11.1 Ice-edge

MEPC.355(78), section 2.7 defined ice edge as "*Ice edge is defined by paragraph 4.4. of the WMO Sea-Ice Nomenclature, March 2014 as the demarcation at any given time between the open sea and sea ice of any kind, whether fast or drifting*."

The ice edge moves very rapidly with wind, current and influenced by ice melt or freezing, it is challenging to determine exact details on the ice edge as required for the exemptions.

When voyages are excluded from CII calculation, the verification should primarily be based on ice charts or log-book extracts, possibly be supported by statements by Master and/or ice navigator/pilot i.e. documented support for the voyage exclusion when the vessel enters the ice edge and finish when leaves the ice edge.

Where such voyages are to be excluded from the CII calculation, the fuel oil consumed and the distance travelled during this period is to be measured and documented in the Ship's log book along with data entries for the voyage period with date, time and position of the ship when this started to apply (entering the ice edge) and ceased to apply (leaving the ice edge). Justification for adjustment to primarily be based on ice charts or log-book extracts, possibly be supported by statements by Master and/or ice navigator/pilot. i.e. documented support for the voyage exclusion when the vessel enters the ice edge and finish when leaves the ice edge. This shall be submitted to the RO/ Administration at the time of verification.

11.2 Piracy

When voyages are excluded from CII calculation, reports submitted by the ship to its Flag Administration/ Port States would be considered to verify acts of piracy and armed robbery against ships, with log-book extracts as supporting documentation.

Additional information regarding acts of piracy and armed robbery against ships which is publicly available (subject to registration) in IMO's Piracy and Armed Robbery module within the Organization's Global Integrated Shipping Information System (GISIS) may be considered as reference documentation.

11.3 Safe / Unsafe navigation

When voyages are excluded from CII calculation, reports submitted by the ship to its Flag Administration/ Port States would be considered to verify ship's making unsafe navigation, with log-book extracts as supporting documentation.

For weather related unsafe navigation where vessel is seaworthy, i.e. without any known damage nor critical equipment failures, the vessel's operational safety envelope, vessel's maximum and minimum speeds at different drafts in different weather conditions, for manoeuvring, crew sickness, equipment failure, may be considered as supporting documentation for verifying the voyage adjustment.

11.4 Damage to a ship or its equipment

Regarding the damage to ship's equipment as per regulation 3.1.2, any CO_2 emissions as a result of ship or equipment damage may not be that likely. As such damage to critical equipment or ship may not qualify under reg. 3.1.2 unless the damage itself increases the

No. 175 (cont)

CO_2 intensity for the given period and that all reasonable precautions have been taken after the damage to prevent or minimizing the emissions. This can for example be that the engine for dual fuel system is damaged and incapable of running on e.g. LNG and have to run on diesel with higher emission as a result. CO_2 emissions during an accidental oil spill may not be excluded, although if the ship participates in a clean-up effort, this part can be deducted.

The higher fuel consumption and corresponding increase in CO2 emissions as a result of damage to a ship or it's equipment (provided that the intent of MARPOL Annex VI, Regulation 3.1.2.1 has been met) can be excluded from the CII calculation. The Company should record such instances in the Ship log book, Engine log book or noon report together with details of the increase consumption and how it has been ascertained, for reporting to the RO/ Administration.

12 AF_{Tanker} for corrections to shuttle tankers or STS voyages on tankers

12.1 Tankers engaged in Ship-to-Ship (STS) operation when operating in accordance with regulation 41.2 of MARPOL Annex I may apply the correction factor $AF_{Tanker,STS}$ to all fuel consumption relating to STS voyages only for tankers carrying oil.

Correction includes for activities such as cargo oil transfer (loading or discharge) at offshore location, voyage, cargo discharge in port and waiting periods at anchor or drifting (idle time; either drifting or at anchor) during which the ship reports being part of an STS operation and voyage. The STS operation includes fuel consumption in port where the transferred cargo is discharged after such a voyage.

To qualify for using $AF_{Tanker,STS}$ a voyage (between cargo loading and cargo discharging locations, or between cargo discharging and cargo loading locations) shall be max 600nm and limited to 72 hours.
In the case of a voyage with multiple STS operations, any leg between two STS operations shall be max to 600nm and limited to 72 hours for the voyage to qualify for the correction factor $AF_{Tanker,STS.}$

The aforementioned time limit of 72 hours refers to the time corresponding to when the ship is moving (i.e. under propulsion) only, and excludes the idle time corresponding to stationary conditions such as at anchor, discharge, loading and drifting.

The Ship is to record the fuel consumption for the above operation in the Ship Log book or voyage reports or noon reports, including proof from the vessel that it has been engaged STS operation e.g. cargo manifest oil is being carried as cargo, and submit to the RO/Administration for verification.

Tankers which are involved in cargo oil transfer from a vessel's cargo tank to another vessel's cargo tank are qualified. Bunker operations, which involves oil transfer from a vessel's cargo tank to another vessel's bunker tank, are not qualified for STS correction. Various scenarios of voyages qualified for STS correction are shown in Figure 12.1.

Where $AF_{Tanker,STS}$ is applied, $FC_{electrical}$, FC_{boiler} and FC_{others} should not be used.

12.2 Tankers (shuttle tankers) equipped with dynamic positioning and specialized cargo handling equipment making it capable of loading crude oil at offshore installations may apply the correction factor $AF_{Tanker,Shuttle}$ to total fuel consumption.

The Ship is to record the fuel consumption for the above operation in the Ship Log book or voyage reports or noon reports, and submit to the RO/ Administration for verification.

No. 175 (cont)

Where $AF_{Tanker,Shuttle}$ is applied, $FC_{electrical}$, FC_{boiler}, FC_{others} and $AF_{Tanker,STS}$ should not be used.

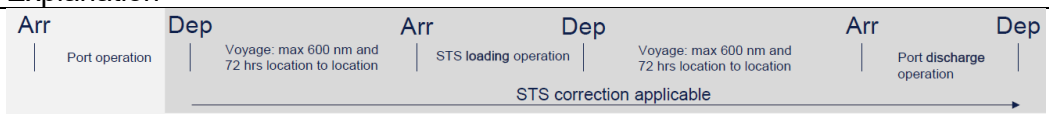
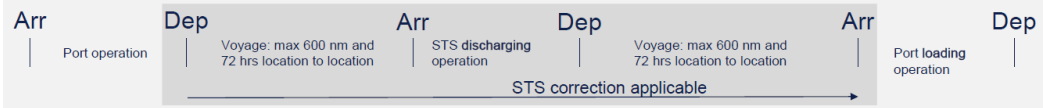
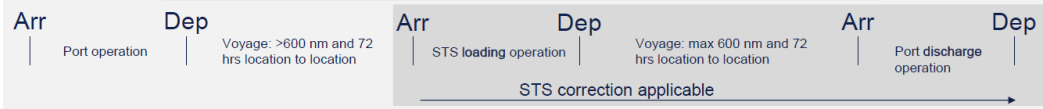
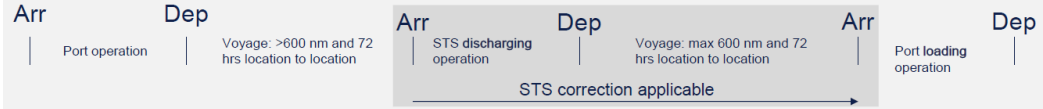
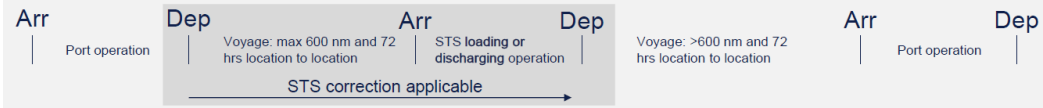
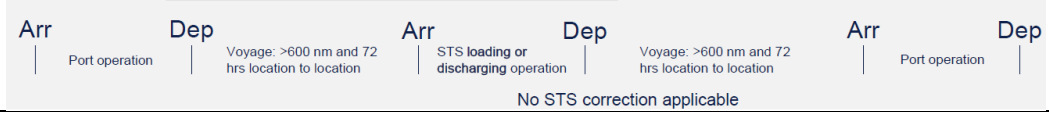
Scenario	Explanation
1	
2	
3	
4	
5	
6	

Figure 12.1 Different scenarios of STS correction

13 $FC_{electrical,j}$ for corrections relating to electrical power

The parameter $FC_{electrical,j}$ is the mass (in grams) of fuel type , consumed for production of electrical power during the calendar year which may be deducted from the calculation of the attained CII for the following purposes:

1. Electrical consumption (kWh) of refrigerated containers (on all ships where they are carried, including intermodal refrigerated containers fitted on trucks/trailers)). $FC_{electrical\_reefer,j}$ represents the estimated fuel consumption attributed in-use refrigerated containers carried using the calculation methodology specified in part A of appendix 1 of the G5 guidelines.

   The primary method to monitor reefer electrical consumption (kWh) is by kWh meter. The Ship is to record the kWh meter readings for the entire calendar year with supporting evidence in the ship's log book or noon reports etc, and submit to the RO/ Administration for verification.

   If this is not available, then a default consumption of 2.75 kW/h per reefer multiplied with number of reefer containers as recorded in the BAPLIE (BayPlan Including Empties) file when in Port and at Sea is to be used as specified in part A of appendix 1 of the G5 guidelines (resolution MEPC.355(78)).

   The number of reefer containers is to be the actual number of in-use reefer containers, regardless the size of the containers as recorded in the BAPLIE file and this is to be submitted to the RO/Administration for verification, when this correction factor is applied.

2. Electrical consumption (kWh) of cargo cooling/reliquification systems on gas carriers and LNG Carriers measured by kWh meter. $FC_{electrical\_cooling,j}$ represents the estimated fuel consumption attributed to cooling of gas cargoes using the calculation methodology specified in part A of appendix 1 of the G5 guidelines.

No. 175 (cont)

The Ship is to record the kWh meter readings of the electrical equipment used for cargo cooling and reliquefication for the entire calendar year with supporting evidence in the ship's log book or noon reports etc, and submit to the RO/ Administration for verification.

3. Electrical consumption (kWh) of directly or indirectly electrically powered cargo discharge pumps on tankers.

   $FC_{electrical\_discahrge,j}$ represents the estimated fuel consumption attributed to the use cargo discharge pumps during cargo operation regardless of operation, for example recirculation, internal transfer tank cleaning operations.

   Indirectly electrically powered cargo discharge pumps may be hydraulically operated pumps using an electric motor driven hydraulic power pack (HPP).

   The electrical consumption related to other hydraulic consumers on the same system such as mooring winches, windlass and ballast pumps is considered either insignificant or related to use of cargo discharge pumps and therefore the total electrical consumption by the HPP may be used for calculating the $FC_{electrical\_discahrge,j}$. $FC_{electrical,j}$ can also be applied to directly or indirectly electrically powered pumps operated for heating purposes.

   The Ship is to record the kWh meter readings from these devices installed to electrically powered cargo discharge pumps or the HPP electric motors when in operation during the entire calendar year with supporting evidence in the ship's log book or noon reports etc, and submit to the RO/ Administration for verification.

With reference to Res. MEPC.355(78) Appendix 1 Part A, it is intended that SFOC is the power-weighted average among SFOCs of the respective engines used to provide the electrical power, as indicated in the EEDI or EEXI Technical file and obtained as specified in MEPC.364(79) para 2.2.7, independently of the actual engine load in the condition relevant to the correction factor applied.

Possible alternatives to monitoring of Electrical consumption (kWh) using the kWh meter counters are as follows provided the same is approved by the Administration before such data is collected, is based on the configurations on board the ship and provides an accuracy equivalent to the installation of kWh meter counters:

1. Derivation of fuel consumption:
   Based on the ship specific fuel oil piping system configuration, the ship is to document the procedure in the SEEMP III on how the fuel consumption to the engine (s) can be ascertained specific to cargo operations alone, and submit to the Administration/RO for their approval. This should include information on the data that will need to be captured and recorded by the ship staff in the ship log-book or noon reports and be made available during the verification process, to ascertain the fuel consumption

2. For kWh from auto-logged data (automatically logged data during) or recorded data, it can be determined by the following three-phase power consumption calculation formula considering voltage, current and power factor:

   $$W = \sqrt{3} \times V \times I \times \mathrm{pf} \times \mathrm{H} \times 0.001$$

   where:

   W represents the power in kWh.

No. 175 (cont)

V represents the voltage in volts and may be measured from the main switchboard in engine control room.

I represents the current in amps and may be measured from group starter panel.

P_f represents the power factor and may take account for the difference between the real power which performs useful work and the apparent power which is supplied to the circuit. The typical power factors are as follows:

Device	Power Factor
Lamp, fluorescent uncompensated	0.5
Lamp, fluorescent compensated	0.93
Lamp, incandescent	1
Motor, induction 100% load	0.85
Motor, induction 50% load	0.73
Motor, induction 0% load	0.17
Motor, synchronous	0.9
Oven, resistive heating element	1
Oven, induction compensated	0.85
Pure resistive load	1

Source : https://www.engineeringtoolbox.com/three-phase-electrical-d_888.html

H represents the running hours of the equipment or system in hours and may be measured by running hour meter. The running hours after each cargo operations are to be recorded in the ship's log book or noon reports and should be submitted to the Administration/RO for verification.

V, I, P_f may be measured at regular interval (e.g. 4 hours) and recorded in the ship's log book or noon reports and should be submitted to the Administration/RO for verification.

Alternatives to monitoring of kWh such as derivation of fuel consumption or kWh from auto-logged data are subject to approval by the Administration/RO.

The method should have been stated in the SEEMP Part III and may include software updates to control and monitoring systems to calculate of specific fuel consumption for given consumers.

14 $FC_{boiler,j}$ for corrections relating to boiler fuel consumption

The parameter is the mass (in grams) of fuel oil type, consumed by the oil fired boiler during the calendar year which may be deducted from the calculation of the attained CII, for the purposes of cargo heating and cargo discharge on tankers for the period that the cargo heating or steam driven cargo pumps are in operation. Some amount of fuel consumed by the boiler during cargo heating or discharge operations may be attributed to other purposes, e.g. calorifiers. It is not necessary to split these out from reporting. Fuel consumption for boiler should be measured by flow meters installed on the fuel supply line. Alternatively, where tank sounding method is adopted, the Company is to detail the procedure on how the fuel oil consumption for the Boiler alone is being ascertained for deductions.

The Ship is to record the fuel consumption for the above operation in the Ship Log book or voyage reports or noon reports, and submit to the RO/ Administration for verification. Boiler consumption should not include consumption during voyage adjustment periods.

No. 175 (cont)

15 $FC_{others,j}$ for corrections relating to other fuel consumption devices

The parameter is the mass (in grams) of fuel oil type, consumed by standalone engine driven cargo pumps (e.g. hydraulic pumps/power packs) during discharge operations on tankers which may be deducted from the calculation of the attained CII. It should be measured by accepted means, e.g. tank soundings, flow meters. This may include hydraulic deep-well pumps using a hydraulic power pack (HPP) driven by a standalone engine.

Consumption by Inert gas generators on tankers (including flue gas and N_2 generators) should not be considered for any corrections.

For tankers with discharge pumps powered by their own engine, the amount of fuel used for the period that the discharge pumps are in operation should be measured by flow meters installed on the fuel supply line. Alternatively, where tank sounding method is adopted, the Company is to detail the procedure on how the fuel oil consumption for the engine driven cargo pumps alone is being ascertained for deductions.

For vessels with hydraulic deep-well pumps using an standalone engine driven HPP, the fuel oil consumption related to other hydraulic consumers on the same system such as mooring winches, windlass and ballast pumps is considered either insignificant or related to use of cargo discharge pumps and therefore the total fuel oil consumption by the HPP may be used for calculating $FC_{others,j}$.

The Ship is to record the fuel consumption for the above operation in the Ship Log book or voyage reports or noon reports, and submit to the RO/ Administration for verification.
All consumption related to the operation of discharge pumps on tankers is subject for correction, including electrical consumption and fuel oil consumption for boilers and other standalone engines.

16 $FC_{electrical\_cooling,j}$ for corrections relating to cargo cooling fuel oil consumption on LNG carrier having steam turbine

SFOC for $FC_{electrical\_cooling,j}$ is the specific fuel consumption in g/kWh associated with the relevant source of electrical power as per the EEDI/EEXI Technical File or NOx Technical File. In the case of ships without a Technical File, a default value of 175 g/kWh for 2 stroke engines and 200 g/kWh for 4 stroke engines may be applied.

In case of LNG carrier having steam turbine which could not distinguish its engine type, the total fuel consumption per hour of its boiler after converted in g/kWh may be applied.

17 EEDI and EEXI correction factors

EEDI and EEXI correction factors may be applied, provided they are included in the ship's EEDI Technical File or EEXI Technical File. These includes:

f_i capacity correction factor for ice-classed ships as specified in paragraph 2.2.11.1 of the *2022 Guidelines on the method of calculation of the attained EEDI for new ships* (resolution MEPC.364(79))

f_m factor for ice-classed ships having IA Super and IA as specified in paragraph 2.2.19 of the *2022 Guidelines on the method of calculation of the attained EEDI for new ships* (resolution MEPC.364(79))

No. 175 (cont)

f_c cubic capacity correction factors for chemical tankers as specified in paragraph 2.2.12.1 of the *2022 Guidelines on the method of calculation of the attained EEDI for new ships* (resolution MEPC.364(79))

$f_{i,VSE}$ correction factor for ship-specific voluntary structural enhancement as specified in paragraph 2.2.11.2 of the *2022 Guidelines on the method of calculation of the attained EEDI for new ships* (resolution MEPC. 364(79)), to be applied only to self-unloading bulk carriers

These factors, if applied, are to be described in SEEMP Part III. If EEDI or EEXI correction factors are not applied, these factors should be taken as one (1.0).

18 Use of fuel oil types not listed in resolution MEPC.364(79) and their carbon conversion factors

The conversion factor for the type of the fuel oil not covered by resolution MEPC.364(79), as may be further amended, should be obtained from the fuel oil supplier supported by documentary evidence.
Company needs to submit the methodology for sampling, methods of analysis, and a description of the laboratories used (with confirmed ISO 17025 accreditation where relevant), the conversion factor or the carbon content, on which it is based for the fuel in question.

It is intended that a biofuel is a type of fuel oil not covered by resolution MEPC.364(79), and the relevant conversion factor should be obtained from the biofuel oil supplier supported by documentary evidence such as statement declaring carbon conversion factor or methodology for sampling, methods of analysis, test reports issued by the accredited laboratory.

Relevant Flag Administration's instructions on use of biofuel should be followed.

19 Use of multiple types of fuels and correction factor

In case of different fuel types are used on-board, mass of consumed fuel of each type should accounted while determining the correction factors. Relevant records are to be submitted in the case of use of different fuel types. Mass quantities of consumed fuel of each accounted in correction factor should correspond with the reported quantity in IMO DCS in that year.

End of Document