



中国船级社

China Classification Society

船舶能效管理认证规范
RULES FOR CERTIFICATION
OF SHIP ENERGY EFFICIENCY MANAGEMENT

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Chapter 1 General

Section 1 General Requirements

- 1.1.1. Purpose
- 1.1.1.1 The *Rules for Certification of Ship Energy Efficiency Management* (hereinafter referred as the Rules) is hereby formulated with the purpose of establishing the ship energy efficiency certification system and ship energy efficiency database, and satisfying the requirements of ship owners, operators, charterers, cargo owners, ports, administration and other relevant parties for the ship energy efficiency management standard and ship energy efficiency certification.
- 1.1.2. Application
- 1.1.2.1 The rules are applicable to the following energy efficiency certification services provided by China Classification Society (hereinafter referred as the society):
- (1) Energy management certification, including certification of company energy efficiency management and certification of energy efficiency management of ship in service;
 - (2) Energy efficiency verification of ship in service, including verification of ship energy efficiency management plan, ship energy efficiency data and improvement performance of ship energy efficiency
 - (3) Other technical services.
- 1.1.3. Definition and Abbreviation
- 1.1.3.1 In addition to the following terms and definitions, the rules also adopt relevant terms and definitions related to ISO9000, ISO14001, ISO/DIS 50001, ISM CODE and IMO.MEPC.1/Circ.681-684:
- (1) **Company**
Company means the owner of the ship or any other organization or person such as the manager, who has assumed the responsibility for operation of the ship from the ship owner.
 - (2) **Branch**
Branch means the organization which is controlled by the company as a component of the company, subordinate to the same energy efficiency management system.
 - (3) **Energy efficiency**
Utilization ratio of energy, i.e. the relationship between the result obtained and the energy used.
 - (4) **Energy efficiency factors**
The factors that influence the ship energy consumption, energy efficiency and CO₂ emission during the ship transportation/operation.
 - (5) **Energy efficiency management system**
It is a part of the company management system, which is utilized to establish energy efficiency policy and goals, manage energy efficiency factors, and realize the integration of policy and goals, including the company structure, responsibilities, usual practice, procedures, processes and resources.
 - (6) **Energy efficiency policy**
The objectives of the ship energy efficiency management officially released by top management of the company.
 - (7) **Energy efficiency goal**
The overall requirements for the reduction of ship energy consumption, improvement of energy efficiency and reduction of CO₂ emission that the company plans to meet.
 - (8) **Energy efficiency index**
The specific requirements stipulated for the achievement of the energy efficiency goal, which are applicable to the whole or part of the company (including ships).
 - (9) **Energy efficiency data**
The energy efficiency data means all the data related to the calculation of the energy consumption, energy efficiency and CO₂ emission.
 - (10) **Energy efficiency management baseline**
The level of the energy consumption, energy efficiency and CO₂ emission determined by the company as the comparison basis in accordance with the energy efficiency management of the ship or fleet.

- (11) **Energy efficiency management benchmark**
The level of the energy consumption, energy efficiency and CO₂ emission determined by the company in accordance with the comparison between the same types of ship.
- (12) **Energy efficiency design index¹**
It is a measure of the CO₂ efficiency of new ships, i.e. the CO₂ emission of the ship calculated in accordance with the propulsion power required and the fuel oil consumed by auxiliary power at a certain speed under normal maximum sea load
- (13) **Energy efficiency operational indicator²**
Energy Efficiency Operational Indicator is defined as the ratio of mass of CO₂ (M) emitted per unit of transport work, namely, the ratio of CO₂ emission from the fuel consumption to the quantity of cargo/number of people multiplied by transport distance, which is used to measure the ship energy efficiency during a certain period.
- (14) **Energy consumption intensity index³**
The energy consumption by the unit transport turnover of ships in service
- (15) **CO₂ emission intensity index⁴**
The CO₂ emission in unit transport turnover of ships in service
- (16) **Audit**
It means the systematical and independent verification process with the purpose of determining whether the energy efficiency management activities and relevant results comply with the system requirements or planning arrangements, and whether the arrangements are effectively implemented for the intended objectives.
- (17) **Verification**
It means the specific audit and verification activity carried out for the ship energy efficiency data and ship energy efficiency improvement.
- (18) **Auditor**
The qualified personnel who are authorized to carry out the energy efficiency audit.⁵
- (19) **Lead auditor**
The qualified auditor authorized to take charge of the auditing team composed of one or more auditors.
- (20) **Objective evidence**
Quantitative or qualitative information, records or statements of fact pertaining to safety or the existence and implementation of an Energy Efficiency Management System element, which is based on observation, measurement or test and which can be verified.
- (21) **Non-conformity**
Non-conformity means an observed situation where objective evidence indicates the non-fulfillment of a specified requirement.
- (22) **Major non-conformity**
It means the non-conformity which leads to the severe deviation from the expected ship energy consumption, energy efficiency and CO₂ emission, or one or more non-conformities in a certain element or key process of the system which results in the systematic failure or regional failure.
- (23) **Observation**
"Observation" means a statement of fact made during an energy efficiency management audit and substantiated by objective evidence. It may also be a statement made by the auditor referring to a weakness or potential deficiency in the energy efficiency management system which, if not corrected, may lead to a nonconformity in the future.
- (24) **Anniversary date**
Anniversary Date means the day and month of each year that corresponds to the date of expiry of the relevant CEEMC or SEEMC.
- (25) **Short term certificate**
Short Term certificates means certificates issued by the society after the completion of the initial or renewal audits and before issue of full term certificates, the validity of which is not to exceed five months.

- 1.1.3.2 For the purpose of the Rules, the abbreviations used therein are as follows:
- (1) IMO International Maritime Organization;
 - (2) MEPC Marine Environment Protection Committee of International Maritime Organization;
 - (3) EEDI Ship Energy Efficiency Design Index;
 - (4) EEOI Ship Energy Efficiency Operational Indicator;
 - (5) SEEMP Ship Energy Efficiency Management Plan;
 - (6) EEMS Energy Efficiency Management System;
 - (7) CEEMC Company Energy Efficiency Management Certificate;
 - (8) SEEMC Ship Energy Efficiency Management Certificate;
 - (9) SEEVS Ship Energy Efficiency Verification Statement;
- 1.1.4. Reference documents
- 1.1.4.1 The development of the Rules is based on relevant requirements of following international organization conventions, standards, guidance and rules of the society:
- (1) IMO.MEPC.1/Circ.681 *Interim Guidelines on the Method of Calculation of Energy Efficiency Design Index for New Ships*
 - (2) IMO.MEPC.1/Circ.682 *Interim Guidelines on Voluntary Verification of Energy Efficiency Design Index*
 - (3) IMO. MEPC.1/Circ.683 *Guidance for the Development of Ship Energy Efficiency Management Plan*
 - (4) IMO.MEPC.1/Circ.684 *Guidelines For Voluntary Use of the Ship Energy Efficiency Operational Indicator*
 - (5) ISO14064-1:2007 Greenhouse Gases--Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals
 - (6) ISO14064-2:2007 Greenhouse Gases--Part 2: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals
 - (7) ISO14064-3:2007 Greenhouse Gases--Part 3: Specification with Guidance for the Validation and Verification of Greenhouse Gas Assertions
 - (8) ISM CODE *International Management Code for the Safe Operation of Ships and for Pollution Prevention*
 - (9) ISO 9000 *Quality Management System-Fundamentals and Vocabulary*
 - (10) ISO 9001 *Quality Management System-Requirements*
 - (11) ISO 14001 *Environmental Management System- Requirements with Guidance for Use*
 - (12) ISO 19011 *Guidelines for Quality and/or Environmental Management System Auditing*
 - (13) ISO/DIS 50001 *Energy Management System- Requirements with Guidance for Use*
 - (14) *The 12th Five-Year Planning of Energy Conservation and Emission Reduction in Highway and Waterway Transportation* by competent Chinese authority.
 - (15) The society's *Rules For Certification Of Safety Management System For Safe Operation Of Ships And Pollution Prevention (2010)*
- 1.1.5. Implementation Guidelines
- 1.1.5.1 The society also develops the *Guidelines for the Implementation of the Ship Energy Efficiency Management System* and the *Guidelines for the best practices of the Ship Energy Efficiency*, providing guidance for the establishment and perfection of energy efficiency management system, and providing reference for the auditors in the energy efficiency certification and verification.
- 1.1.6. Compatibility with other standards and rules
- 1.1.6.1 The Chapter 2 hereof specifies the requirements for the ship energy efficiency management system. For the sake of convenience, the chapter takes the contents of ISM CODE, ISO 50001, ISO 14001, and ISO 9001 into proper consideration during the formulation in order to enhance the compatibility.
- 1.1.6.2 The chapter does not include the requirements for other management system, such as the quality, environment, occupational health and safety, financial or risk management system, etc, but the requirements contained herein can be coordinated or integrated with other management system standards. The Appendix 1-4 specifies the relationship between requirements for the ship energy

efficiency management system in Chapter 2 hereof and the contents of ISM CODE, ISO/DIS 50001, ISO 14001-2004 and ISO 9001-2008.

- 1.1.6.3 The requirements for the energy efficiency certification contained in Chapter 4 hereof and the energy efficiency audit in Chapter 5 takes the *Rules For Certification Of Safety Management System For Safe Operation Of Ships And Pollution Prevention* (2010) of the society into proper consideration. The audit duration of the company/ship energy efficiency management certification is completely consistent with that of the DOC and SMC audit, so several audits can be carried out simultaneously after coordination.

Section 2 Application and Fees

1.2.1 Application

1.2.1.1 Companies, ships or other relevant parties (principals) applying for the energy efficiency management certification and energy efficiency verification is to submit a written application to the society or its local branches, and if necessary, certification service contract and/or agreement may be signed.

- (1) The company who apply for the energy efficiency management certificate must undertake the responsibilities of ship operation.
- (2) May solely apply for the ship energy efficiency management certification, no matter whether the company has obtained the CEEMC
- (3) May solely apply for the ship energy efficiency verification, no matter whether the ship has obtained the SEEMC.

1.2.2 Fees

1.2.2.1 The applicant is to pay audit fees, traffic fees and other expenses as necessary in accordance with the society tariff and/or contract and/or agreements.

1.2.2.2 The applicant is to pay relevant fees should the audit be terminated or the related activities be duplicated due to the applicant.

Section 3 Responsibilities and Limitation of Liability

1.3.1 Responsibilities and Obligations

1.3.1.1 Responsibilities and Obligations of the company

- (1) The certification of energy efficiency management (including the company energy efficiency management certification, ship energy efficiency management certification and ship energy efficiency verification) conducted by the society does not relieve the company, management, officers or seafarers of their obligation to comply with relevant national and international energy and environmental protection regulations.
- (2) The company and/or ship applying for the energy efficiency certification by the society is to ensure the authenticity and accuracy of the ship energy efficiency data and relevant information.
- (3) The company and/or ship applying for the energy efficiency certification by the society are responsible for:
 - ① developing, implementing, maintaining and improving EEMS (company/ship);
 - ② promptly notifying the society of major modifications of EEMS, including major organization adjustments (such as the establishment of branches) and major changes that influence the energy efficiency (company);
 - ③ promptly notifying the society of the modification of the ships operated (company);
 - ④ promptly applying for the periodical and additional audit (company/ship);
 - ⑤ providing necessary resources and cooperation for the audit team (company/ship);
 - ⑥ regularly submitting the energy efficiency data and annual energy efficiency evaluation reports to the society(company/ship).

1.3.1.2 Responsibilities and obligations of the society

- (1) Ensuring the energy efficiency certification complying with the Rules and the requirements of flag states and relevant organizations such as IMO.
- (2) Ensuring to have, within its organization, competence on:

- ① understanding and implementing the regulations rules and standards with which audited company and/or are to ensure compliance;
 - ② evaluating the energy efficiency management system and verifying the ship energy efficiency data or the improvement of ship energy efficiency;
 - ③ auditing, verifying and issuing the energy efficiency management certificate and verification statement.
- (3) The society is to ensure that personnel providing the certification are completely independent.
- (4) The society's management of energy efficiency certification service is to ensure that:
- ① auditors who participate in the certification service have the practical knowledge of the energy efficiency certification procedures;
 - ② auditors comply with relevant requirements relating to education, training, work and audit experience;
 - ③ the qualification and experience of auditor(s) are adequate and appropriate for the size and/or complexity of the company and/or ship to be audited.
- (5) The society has established and implemented a documented auditor training system to provide theoretical and supervised training for auditor(s) and ensures the qualification and continuous updating of the knowledge and competence of personnel who are to perform energy efficiency management certification and ship energy efficiency verification.
- (6) The society has established and implemented a documented system ensuring that the certification process is performed in accordance with the requirements of the Rules, including the process of the energy efficiency management certification and the procedures and instructions of the ship energy efficiency verification.
- 1.3.1.3 Responsibilities of the audit team
- (1) The auditor is responsible for:
- ① planning and carrying out assigned responsibilities effectively and efficiently;
 - ② ensuring compliance with the applicable requirements and other appropriate directives;
 - ③ reporting any major obstacles affecting the audit process encountered in performing the audit;
 - ④ organizing specialist technical assistance required to fulfill the competence requirements of the audit where necessary;
 - ⑤ promptly notifying non-conformities and observations identified to the company and/or ship.;
 - ⑥ clearly, conclusively and promptly reporting the audit and verification results;
 - ⑦ making the audit report and verification report available to the company and/or shipboard
 - ⑧ verifying the effectiveness of corrective actions taken by the company and/or ship.
 - ⑨ ensuring the confidentiality of relevant certification documents and prudently treating the sensitive information.
- (2) If the audit team comprises two or more auditors, the lead auditor is to be nominated to be responsible for managing the team and controlling the audit.
- 1.3.2 Limitation of liability
- 1.3.2.1 The society is to sufficiently ensure the integrity and effectiveness of the energy efficiency management certification and ship energy efficiency verification.
- 1.3.2.2 A certificate issued by the society is only a statement that at the time of audit the Company/ship had established and implemented energy efficiency management system including verification result of energy efficiency data in accordance with the requirements of the Rules. It is possible that unauthorized change(s) made by the Company and/or the ship energy efficiency management system or their failure in effective implementation of the system due to subjective reasons thereafter will lead to noncompliance with the certificate issued. Compliance with the rules and all applicable requirements of IMO, flag states and related organizations remains the responsibility of the Company and/or the ship.
- 1.3.2.3 The maintenance of the certificate is conditional upon the company's and/or ship's continued compliance with the requirements of the Rules. The society reserves the right to withdraw or invalid the certificate when the company or the ship does not request the audit required by the rules or fails to pay fees

according to the requirement of 1.2.2 or there is evidence for failure of the Company or the ship in implementing EEMS specified by the rules.

- 1.3.2.4 The ship energy efficiency verification statement of the society verified the result of onsite audit is on the basis of the energy efficiency data and relevant information provided by the applicant and ship the on-site audit and verification.

Section 4 Disagreement and Arbitration

1.4.1 Disagreement

- 1.4.1.1 The right of interpretations on the rules published by the society is to be left solely to the headquarters of the society. The rules are translated by the society into English. In case of any ambiguity to the English version, the currently effective Chinese version of the rules is to be considered as solely authoritative.

- 1.4.1.2 Where the company, ship or other applicant (principal) raises an objection to the energy efficiency management audit or ship energy efficiency verification carried out by the auditor of the society, they may appeal in writing to the unit where the auditor serves. Where the handling of the appeal by the unit is not considered satisfactory, they may appeal in writing to the headquarters of the society along with detailed background materials. The Headquarters will make the final judgment.

- 1.4.1.3 The costs arising from any investigation carried out by the Headquarters of the society on request are to be paid by the appellant, except for those cases in which the appeal proves justified.

1.4.2 Arbitration

- 1.4.2.1 The society will be liable only for the loss or damage resulting directly from its negligent act. In no event shall the society be liable for any indirect or consequential losses or damages.

- 1.4.2.2 Notwithstanding the previous paragraph, the society will be liable for the loss or damage due to negligent act judicially attributed exclusively to the society or its employees, agents or other parties acting on behalf of the society. And in no case shall the amount of this liability exceed five times the fee(s) charged by the society in respect of the service(s) in question. The society's liability for the loss or damage is specially excluded when such loss or damage arises out of an act:

- (1) by an employee of the society acting outside the terms or scope of his/her employment; or
- (2) by any agent or other party acting on behalf of the society, when such act exceeds the authority granted in writing by the society to such agent or party.

- 1.4.2.3 Any claim for any loss or damage set forth above is to be made in writing within six months of the date the damage first discovered or the loss occurred; failure of doing so will be deemed as an absolute waiver of this right.

- 1.4.2.4 Unless otherwise agreed with CCS, any dispute of whatsoever nature in respect to the Rules or the service(s) provided in accordance with the Rules shall be referred to China Maritime Arbitration Commission and arbitrated in accordance with its arbitration rules effective at the time of request for arbitration. The arbitration award shall be final and binding upon both interested parties.

1.4.3 Applicable laws

The laws of the Peoples Republic of China shall apply.

Section 5 Availability and Confidentiality of Information

1.5.1 Availability of Information

- 1.5.1.1 Sufficient and correct information necessary for certification of energy efficiency management system and ship energy efficiency verification is to be made available to the society by the company, ship or other applicant (principal).

- 1.5.1.2 The company and the ship obtaining energy efficiency management certificate from the society shall promptly notify the society of the events that have caused or possibly cause major impact to the ship energy efficiency within the validity of the certificate.

1.5.2 Confidentiality

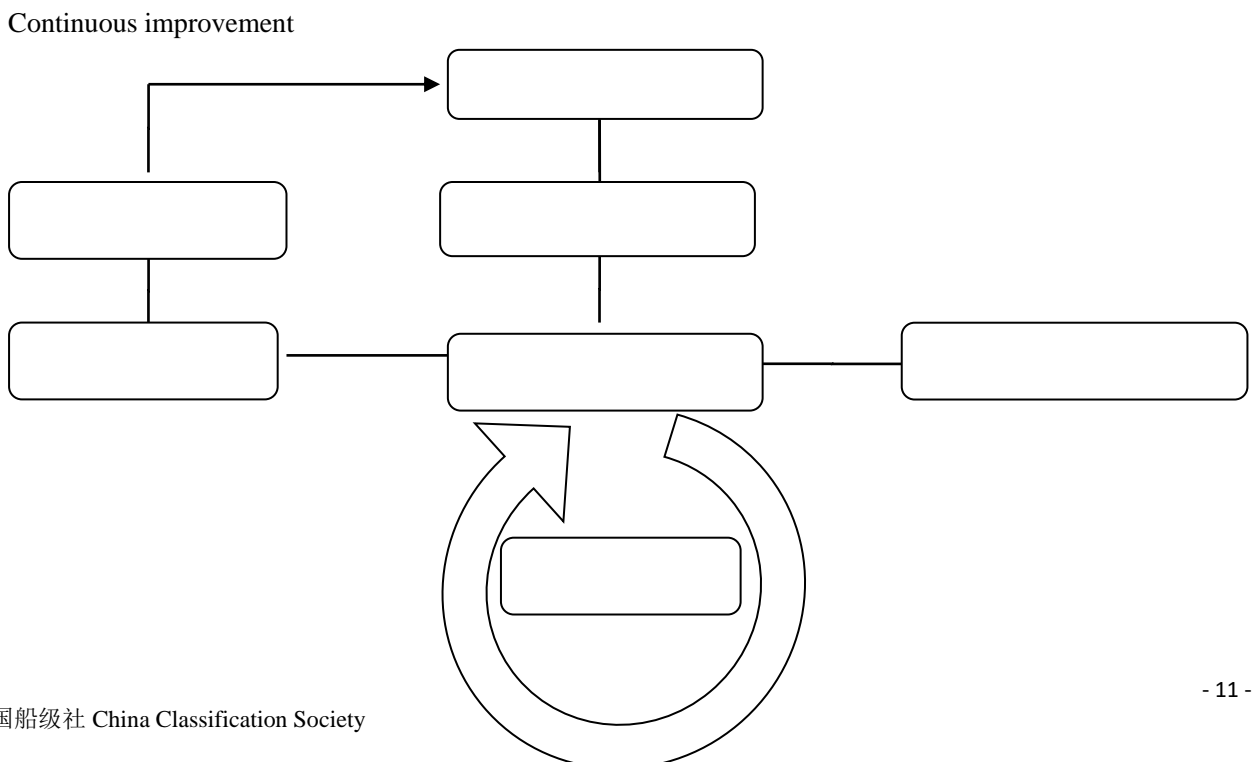
- 1.5.2.1 The society will not disclose sensitive and proprietary information, to which it has access during certification of energy efficiency management system, to individuals and organizations not specified in

the contract including the staff in the society that are not related to the service, except as required by laws and regulations.

Chapter 2 Ship Energy Efficiency Management System-Requirements

Section 1 General Requirements

- 2.1.1 Considering that energy consumption, energy efficiency and CO₂ emission of ships in service are influenced by various factors, also considering that the needs such as meeting the domestic and international requirements, reducing the cost and achieving the sustainable development of the ship owners, improving the ship energy efficiency more economically and effectively and reducing the CO₂ emission, the ship energy efficiency management should be developed and implemented systematically. The most effective approach is to establish the ship energy efficiency management system which could be part of or integrated into the overall structured management system of the company.
- 2.1.2 This chapter specifies the requirements for the ship energy efficiency management system, which is the basis for the development of the energy efficiency system and the self-evaluation as well as the energy efficiency management certification by the society.
- 2.1.3 The successful implementation of the requirements set forth herein shall depend on the commitment of the top management of the company and the participation of the ship and shore staff. Through the implementation of the ship energy efficiency management system, the company/ship may:
- combine the energy efficiency management with the international conventions, laws, regulations, standards and other requirements through the systematic theory, and prompt mutual coordination to reduce the energy consumption of the ship reasonably, improve the energy efficiency and reduce the CO₂ emission.
 - utilize the process method to optimize and control the energy efficiency factors during the ship transportation/operation, for the purpose of controlling and continuously improving the whole process of the energy efficiency management.
 - apply advanced and effective energy-saving technique and method, explore and utilize the best energy-saving practice and experience.
 - improve the effectiveness of the ship energy efficiency and the overall performance.
 - ensure the related parties or interested parties have established suitable ship energy efficiency management system by successfully implementing the requirements of this chapter. .
- 2.1.4 The operation mode of the ship energy efficiency management system is as follows:





2.1.5 The energy efficiency management system-requirements is based on the operation mode of plan-do-check-action. The interpretation and contents of PDCA are as follows:

Planning: Identify and confirm the energy efficiency factors of the company/ship; identify relevant international conventions, laws, regulations, standards and other requirements; identify and utilize suitable energy-saving technology and optimal energy-saving practice; determine the energy efficiency management standards through analysis and determine the benchmark when applicable; establish energy efficiency policy, goals and indexes, and develop energy efficiency management plan.

Do: Provide necessary resource, specify the functions, responsibilities and limits of authority, specify training requirements related to competence, training and awareness and provide training accordingly, establish information exchange mechanism, keep necessary documents and records, implement operation control, implement energy efficiency management plan accordingly.

Check and correction: Monitor, measure and evaluate the energy efficiency management activities and energy efficiency goals, identify and rectify the non-conformity, and carry out internal audit and review.

Action: Take proper measures to continuously improve the energy efficiency management performance.

2.1.6 The comprehensiveness , complexity, quantity of system documents, and amount of invested resources of the energy efficiency management system depend on several factors such as the system coverage, size of the company, type and route of ships, technical conditions of ships and requirements of relevant parties.

2.1.7 The fulfillment of the requirements herein can improve the energy efficiency management performance of the company/ship, however, the successful implementation of the energy efficiency management system needs relevant technical support and technical methods to be used. Therefore, companies/ships should adopt the optimal and feasible energy-saving technology and methods, and take the cost efficiency of the energy-saving technology and methods into full consideration under the acceptable economic conditions.

- a) The company is to develop, implement, maintain and continuously improve documented energy efficiency management system as required in the chapter, in order to reduce the energy consumption of the ship, improve the energy efficiency and reduce the CO₂ emission. The company is to determine the coverage of the energy efficiency management system and have it documented.

Section 2 Management Responsibilities

2.2.1 Commitment of the management

2.2.1.1 The top management shall make commitments for the development, implementation, maintenance and continuous improvement of the energy efficiency management system, and provide evidence through following activities:

- (1) complying with the applicable international conventions, laws, regulations, standards and other requirements within the company;
- (2) formulating and implementing the energy efficiency policy and goals, as the component of the strategy and development of the company;
- (3) conducting management review;

- (4) ensuring the required resources available for the energy efficiency management system.
- 2.2.2 Energy efficiency policy
 - 2.2.2.1 The top management is to establish the energy policy of the company and ensure that it can:
 - (1) apply to the characteristics of the ship transportation/operation and coordinate with the existing other management system policies of the company;
 - (2) include the commitment of the reduction of the ship energy consumption, improvement of energy efficiency, reduction of CO₂ emission and continuous improvement;
 - (3) include the commitment to comply with the international conventions, laws, regulations, standards and other requirements applicable to the ship energy efficiency management;
 - (4) provide framework for the formulation and evaluation of the energy efficiency goals and indexes;
 - (5) be documented for full understanding and implementation by all employees;
 - (6) be accessible to relevant parties.
 - 2.2.3 Functions, responsibilities and limitations
 - 2.2.3.1 In order to facilitate the ship energy efficiency management, the managers are to clearly specify and document the functions, responsibilities and limitations, and make proper communications.
 - 2.2.3.2 The top management is to designate special management representatives, no matter whether he is accountable to other aspects. The management representatives shall play the following role in the energy efficiency management system:
 - (1) ensure the development, implementation and maintenance of the energy efficiency management system as required herein;
 - (2) report the effective functioning of the energy efficiency management system to the top management for review, and provide improvement suggestions;
 - (3) responsible for the external liaison related to the energy efficiency management system.

Section 3 Planning

- 2.3.1 Energy efficiency factors
 - 2.3.1.1 The company is to develop, implement and maintain one or more procedures with the purpose of:
 - (1) identifying the existing or potential energy efficiency factors of the ship transportation/operation service within the coverage of the energy efficiency management system, including the planned or new transportation/operation activities;
 - (2) evaluating the energy efficiency factors and determining the energy efficiency priority factors according to the international conventions, laws, regulations, standards and other requirements, as well as the characteristics of the ship transportation/operation service of the company, etc.
 - 2.3.1.2 The company is to document and update the information.
 - 2.3.2 International conventions, laws, regulations, standards and other requirements
 - 2.3.2.1 The company is to develop, implement and maintain one or more procedures with the purpose of:
 - (1) promptly establishing the access to the international conventions, laws, regulations, standards and other requirements;
 - (2) identifying international conventions, laws, regulations, standards and other requirements applicable to the ship energy efficiency management.
 - 2.3.2.2 The company is to comply with applicable international conventions, laws, regulations, standards and other requirements during development, implementation and maintenance of the energy efficiency management system.
 - 2.3.3 Energy efficiency management baseline and benchmark
 - 2.3.3.1 The company is to formulate, implement and maintain one or more procedures with the purpose of establishing the energy efficiency management baseline. When appropriate, the energy efficiency management benchmark is to be established as the main basis for the formulation of the energy efficiency goals and indexes and the evaluation of the energy efficiency performance.
 - 2.3.3.2 The established energy efficiency baseline and benchmark is to be documented.
 - 2.3.4 Energy efficiency goals and indexes

- 2.3.4.1 During the formulation of the energy efficiency goals and indexes, the company is to:
- (1) Develop, implement and maintain the documented energy efficiency goals and indexes for relevant internal functions and levels and all ships. The energy efficiency goals and indexes shall include the energy efficiency operational indexes formulated by the International Maritime Organization and the energy efficiency indexes stipulated by flag states, such as the energy intensity indexes and CO₂ emission intensity indexes of the ships in service stipulated by Chinese competent authority. The goals and indexes shall be measurable.
 - (2) Take the international conventions, laws, regulations, standards and other requirements⁷, energy efficiency management baseline and/or benchmark and the energy factors under the priority control into full consideration. In addition, the optional energy-saving technical proposals and other requirements for the finance, operation and other related parties, etc shall also be considered.
 - (3) Update or adjust the energy efficiency goals and indexes in due time.
- 2.3.5 Energy efficiency management plan
- 2.3.5.1 The company is to formulate and implement the company energy efficiency management plans and ship energy efficiency management plans according to the energy efficiency goals and indexes.
- 2.3.5.2 There is a wide variety of possibilities for energy efficiency improvements for the existing fleet. While there are many options available, they are not cumulative, are often area and trade dependent and likely to require the agreement and support of a number of different stakeholders if they are to be utilized most effectively. As a result, it is likely that the pathway to the most efficient combination of measures will be unique to each vessel within each shipping company. The company and ships are to adopt the optimal proposals considering the compatibility of each energy-saving measure in accordance with the characteristics of the ship, the ship navigation area, trade and other relevant requirements.
- 2.3.5.3 The ship energy efficiency could be improved through four steps in the energy efficiency management plans, i.e. planning, implementation, monitoring, self-evaluation and improvement.
- 2.3.5.4 The formulation of energy efficiency management plans shall refer to the *Guidance for the Development of Ship Energy Efficiency Management Plan* of IMO, or the guidelines/guidance of other industrial organizations as much as possible. The contents of the energy efficiency management plans is to include:
- (1) responsibilities and limitations related to functions and levels;
 - (2) energy efficiency measures and requirements;
 - (3) Schedule;
 - (4) monitoring and measuring requirements;
 - (5) the evaluation requirements and the date of next evaluation.
- 2.3.5.5 The company is to develop, implement and maintain one or more procedures to control the formulation and implementation of the energy efficiency management plan. Also, in the planning process, particular consideration should be given to minimize any onboard administrative burden.

Section 4 Implementation and Operation

- 2.4.1 Resources
- 2.4.1.1 The company is to provide appropriate resources for the development, implementation, maintenance and continuously improvement in the energy efficiency management system, especially:
- (1) provide qualified ship staff and shore staff;
 - (2) equip with necessary energy efficiency measuring tools for ships /equipment ;
 - (3) fully identify and utilize the best energy-saving management practice and experience, as well as the effective energy-saving technology and methods;
 - (4) provide sufficient funds.
- 2.4.2 Competence, training and awareness.
- 2.4.2.1 The company is to ensure that all the employees related to the ship energy efficiency management have corresponding competence based on necessary education, training, skills and experience, and keep relevant records.
- 2.4.2.2 The company is to identify training needs related to the energy efficiency management system, and provide training or other measures;

- 2.4.2.3 The company is to provide job skill training for employees who have great impact on the energy efficiency management and keep proper records;
- 2.4.2.4 The company is to take proper measures to make all employees realize:
- (1) the significance of compliance with the energy efficiency policy and energy efficiency management system;
 - (2) the benefits from reduction of the ship energy consumption, improvement in the energy efficiency and reduction of CO₂ emission, as well as the energy efficiency improvement performance by personal work improvement ;
 - (3) the consequence of the deviation from the specified operation procedure.
- 2.4.3 Exchange of information
- 2.4.3.1 The company is to develop, implement and maintain one or more procedures with the purpose of communicating the relevant information related to the energy efficiency factors and energy efficiency management system:
- (1) The exchange of information between internal levels and functions (including ashore and aboard);
 - (2) The collection, handling and documentation of relevant external information;
- 2.4.3.2 The company is to determine whether the external exchange concerning the energy efficiency factors and the effective functioning of energy efficiency management system shall be carried out. In case it is determined, the company is to document and implement the decision.
- 2.4.4 Documents
- 2.4.4.1 The energy efficiency management system shall comprise of:
- (1) documents and records required by this chapter;
 - (2) documents and records required by planning, operation and control of the energy efficiency management process of the company;
 - (3) the description of the main factors of the energy efficiency management system and their interrelation, as well as the query approach of relevant documents.
- 2.4.5 Document control
- 2.4.5.1 The company is to develop, implement and maintain one or more procedures to control the documents required by the energy efficiency management system (the record is also a kind of document which should be controlled in accordance with 2.4.6), so as to:
- (1) approve the document by the authorizer before release for suitability and sufficiency;
 - (2) review, update and re-approve the document as necessary;
 - (3) identify the modification and revision to the document;
 - (4) ensure the current version of the document available;
 - (5) ensure the document clearly stated and specified;
 - (6) ensure the external document identified, collected and distributed properly;
 - (7) prevent the use of invalid document. In case the invalid document is kept for a certain purpose, a proper mark shall be made.
- 2.4.6 Record control
- 2.4.6.1 The company is to establish and maintain necessary records to verify the compliance with the energy efficiency management system and the energy efficiency performance obtained.
- 2.4.6.2 The company is to establish and maintain one or more procedures for identification, storage, protection, tracking and disposition of the records.
- 2.4.6.3 All the records shall be legible, clear and retroactive.
- 2.4.7 Operation control
- 2.4.7.1 The company is to identify and plan the operations related to the energy efficiency factors in the transport or service of the ship according to energy efficiency policies, goals and indexes, in order to guarantee that the operations are carried out through the following modes under specified conditions:
- (1) formulate, provide and implement the documented procedures and/or operation guidelines for the possible deflected operation due to lack of documents;
 - (2) specify the operational criteria in the procedures;
notify the related/interested parties of the applicable procedures and requirements when the operation

control involves, .The operations shall include:

- ① The design, manufacture, modification and purchase of ships
 - a) The advanced ship design concepts shall be adopted during ship design, manufacture and modification , fully taking the usage of renewable energy and alternative resources, the usage of existing energy-saving technology, the usage of energy-saving equipment and materials into account, to reduce the ship energy consumption, improve the energy efficiency and reduce the CO₂ emission. When appropriate, the following aspects could be considered:
 - ◆ Wind energy usage: For instance, install the sail on the new or existing ship.
 - ◆ Solar energy usage: For instance, install photovoltaic equipment extensively on the new or existing ship, as the propulsive power or auxiliary power.
 - ◆ Alternative resource usage: Such as the usage of newly emerged alternative resources.
 - ◆ Optimization of ship molded lines: For instance, the new ship adopts the advanced molded line, and the existing ship improves the molded line such as installation of bulbous bow, etc.
 - ◆ Optimization of propulsive mode: For instance, the electric propulsive mode or diesel-electricity joint propulsive mode, etc is adopted.
 - ◆ Optimization of propeller: Such as the adoption of the new type propeller or contra rotating propeller.
 - ◆ Optimization of inflow of propeller: Improvements to the water inflow to the propeller using arrangements such as fins and/or nozzles could increase propulsive efficiency power and hence reduce fuel consumption.
 - ◆ Optimization of hull resistance: Hull resistance can be optimized by new technology-coating systems.
 - ◆ Optimization of rudder blade: The change of shape of rudder blade (such as installation of conduit, etc) can improve the propulsive efficiency.
 - ◆ Heading control system (autopilot): Install advanced heading control system on the new ship or update or improve the heading control system of the existing ship.
 - ◆ Optimization of diesel engine and boiler: The adoption of low-consumption and high-efficiency main and auxiliary engines and boilers, etc.
 - ◆ Installation of waste heat recovery (WHR) system.
 - b) Energy efficiency design index shall be calculated and verified according to the requirements of IMO or the competent authorities, and the ship energy consumption, energy efficiency and CO₂ emission indexes shall be effectively reviewed and/or verified before the ship comes into service.
 - c) The energy consumption and energy efficiency shall be evaluated in detail before the purchase of ship. The low-consumption ship in compliance with the conventions and regulations will be chosen by the company with priority.
- ② Maintenance and repair of ships and equipment
 - a) The company and ships are to identify the equipment and facilities with great influence on the energy consumption, energy efficiency and CO₂ emission, and :
 - ◆ carry out effective maintenance and repair to maintain good working conditions;
 - ◆ give priority to the energy-saving technology and products when choosing the updated and alternative equipment.
 - b) Take the following items into consideration if applicable:
 - ◆ Hull cleaning and maintenance
 - ◆ New technology-coating systems on the hull
 - ◆ propeller cleaning and polishing
 - ◆ Propulsion system maintenance
 - ◆ Power station equipment maintenance
 - ◆ Energy consumption equipment maintenance
- ③ Energy management and fuel purchase

- a) Proper measures shall be taken to effectively manage the usage of the ship energy including:
 - ◆ optimization of the energy consumption of cargo operation on ships (optimization of the position of the refrigerated container);
 - ◆ optimization of daily energy consumption management of the accommodation space on the ship;
 - ◆ the usage of shore-based power.
 - b) The company is to properly control the purchase and usage of the ship fuel, and when applicable, the company is to:
 - ◆ evaluate and choose the fuel supplier according to their competence to satisfy the requirements of the company;
 - ◆ evaluate and determine the standards or rules for the fuel used, including the fuel quality, availability and economical efficiency, etc;
 - ◆ measure and/or verify the purchased ship fuel;
 - ◆ specify the requirements for the fuel bunkering, storage, management and usage.
- ④ Management of the ship transport/operation
- a) The company is to determine and control the management process of the company and ships and the operation process of the ship and equipment, which have great impact on the ship energy consumption, energy efficiency and CO₂ emission.
 - b) When appropriate, the processes may include:
 - ◆ fleet management: such as improvement of fleet plan and reduction of ballast voyage.
 - ◆ improved voyage planning: such as selection of the best route.
 - ◆ determination of weather routing: the selection of weather routing.
 - ◆ optimized speed: the selection of the optimum speed.
 - ◆ optimized ship handling: the optimum trim and ballast.
 - ◆ optimized cargo operation: sufficient communication between the ship and port to seek for the optimum loading and unloading plan.
 - ◆ optimized diesel engine: adopt the new technology (electronic control, common rail) to improve the fuel injection of diesel engine and enhance the combustion efficiency.
 - ◆ utilization of new fuel additive: catalyze and gasify the diesel oil to make it fully burnt in the cylinder, in order to enhance the fuel efficiency.
- ⑤ Cooperation with related/interested parties
- a) In addition to the ship owners and ship operators, the energy consumption and energy efficiency during the ship transport/operation are related to other related/interested parties, who may be designers, yards and relevant equipment manufacturers with respect to ship characteristics or, charterers, ports and traffic management organizations with respect to ship operation. All involved parties should consider the inclusion of efficiency measures in their operations both individually and collectively.
 - b) The company and ships are to maintain good communication with the above mentioned related/interested parties to gain the support and cooperation from them. The better coordination among such stakeholders is, the more improvement can be expected. In most cases, such coordination or total management is better made by a company rather than by a ship.
 - c) 中国船级社 China Classification Society
- 2.4.8 Emergency preparation and response
- 2.4.8.1 The company is to develop, implement and maintain one or more procedures to identify the potential emergency situations and accidents which may have an impact on the ship energy consumption and energy efficiency, and prepare emergency response programs.
- 2.4.8.2 The emergency situations and accidents taking into account shall include but not limited to:
- (1) the fuel leakage and emission caused by accidents;
 - (2) the fuel wastage and accidental emission caused by the ship and equipment malfunction or operation false during the bunkering, storage, usage and sludge oil emission;
- 2.4.8.3 The company and ships are to respond to the emergency situations and accidents, prevent and/or

mitigate the subsequent effects

2.4.8.4 The company and ships are to regularly review the emergency preparation and response program, and make proper revisions when necessary, especially after the occurrence of the emergency accident and situations.

2.4.8.5 When applicable, the company and ships are to regularly test the above procedures such as drills and exercise.

Section 5 Check and Correction

2.5.1 Monitoring and measuring

2.5.1.1 General

(1) The company is to develop, implement and maintain one or more procedures to carry out routine monitoring and measuring on the key characteristics with great influence on the ship energy consumption, energy efficiency and CO₂ emission, and regularly conduct statistics and analysis.

(2) Record the monitoring and measuring results

2.5.1.2 Monitoring methods

The ship energy consumption, energy efficiency and CO₂ emission shall be monitored and measured by an established method.

(1) Adopt the international standards or internationally recognized monitoring methods. The EEOI and its measuring and calculating methods formulated by International Maritime Organization (IMO) are the internationally recognized monitoring methods which can be used to obtain the energy efficiency data of the ship and/or fleet in operation. The company and ships may adopt EEOI and its measuring and calculating methods as the main monitoring methods.

(2) In case EEOI is adopted, the information related to the fuel type and quantity, voyage distance and goods type and quantity, etc shall be collected and calculated as required by relevant documents formulated by IMO. If applicable, the EEOI rolling average index may be calculated to monitor the ship energy efficiency.

(3) Adopt monitoring methods stipulated or recommended by the authority of the flag country, such as the energy intensity index of ships in service, CO₂ emission index of ships in service and corresponding measuring and calculating methods formulated by the authority of Chinese flag country.

(4) In case it is convenient and/or beneficial to the company or ship, other energy efficiency indexes and monitoring methods may be adopted. When doing so, the principles and specific requirements of such energy efficiency indexes and monitoring methods shall be planned and specified before adoption.

2.5.1.3 Monitoring system

(1) The company is to establish a monitoring system (including procedures for data collection and assignment of relevant responsible persons, etc.), in order to obtain continuous and reliable data.

(2) To avoid the unnecessary administrative burden on ships crew member, monitoring shall be carried out as far as possible by utilizing data obtained from the following ways:

① utilizing data obtained from existing required records such as official log-books, engine logs and oil record books, etc. by shore staff;

② installation dedicated software for data recording and transporting;

③ the necessary data could be obtained or confirmed during internal audits or routine visits when necessary.

2.5.1.4 Monitoring and measuring equipment

The company is to ensure that the monitoring and measuring equipment is calibrated, verified and properly maintained. Relevant records shall be kept.

2.5.2 Evaluation

2.5.2.1 The company is to develop, implement and maintain one or more self-evaluation procedures to carry out regular self-evaluation on energy consumption, energy efficiency and CO₂ emission of the ships and/or fleets in operation with the data collected through monitoring. The evaluation shall include:

(1) the implementation of the energy efficiency goals, indexes and energy efficiency management plans;

(2) the compliance with applicable international conventions, laws, regulations, standards and other requirements;

- (3) the assessment of the energy efficiency improvement performance in accordance with energy efficiency management baseline and/or benchmark.
- 2.5.2.2 The company is to record the results of the above regular evaluations.
- 2.5.3 Incentive
 - 2.5.3.1 The company is to establish and improve supervision and incentive scheme within the company's relevant internal functions and levels for the issue of ship energy efficiency
- 2.5.4 Voluntary report
 - 2.5.4.1 The company may release the voluntary report on the ship and/or fleet energy consumption and energy efficiency to public as own or related parties requirement, or disclose the actions taken and subsequent energy efficiency improvement, in order to obtain the recognition and rewards from the national administrations, port authority, partner and other related parties.
- 2.5.5 Non-conformity, correction, corrective actions and preventive measures
 - 2.5.5.1 The company is to develop, implement and maintain one or more procedures to deal with the identified or potential non-conformities, and take corrective and preventive measures. The procedures shall provide following requirements:
 - (1) identify and correct the non-conformities, and take proper measures to mitigate the effects;
 - (2) investigate and analyze the non-conformities to determine the root cause, and take corrective measures to prevent recurrence;
 - (3) evaluate the needs for preventive measures of potential non-conformities, when necessary prepare and implement preventive measures to avoid the occurrence of non-conformities;
 - (4) the measures taken are to correspond with the severity of problems;
 - (5) record the results of the corrective and preventive measures;
 - (6) evaluate the effectiveness of the corrective and preventive measures.
 - 2.5.5.2 The company is to ensure that necessary revisions are made to the energy efficiency management system documents related to the corrective and preventive measures.
- 2.5.6 Internal audit
 - 2.5.6.1 The company is to develop, implement and maintain the internal audit procedure of the energy efficiency management system. The procedure shall include the audit standards, scope, frequency and methods, and responsibilities for planning and implementation of the audit, reporting of audit results, and keeping relevant records. The company is to conduct the internal audit to the energy efficiency management system according to the planned time intervals, in order to:
 - 1. determine whether the energy efficiency management system:
 - ① complies with the demands of the company and requirements of this document;
 - ② has been effectively implemented and maintained.
 - 2. Report the audit results to top management
 - ① The internal audit plan shall be made according to the influence of the company energy-saving and results of previous internal audits. The designation of auditors and implementation of the audit shall ensure the independence and justice of the whole audit process.
 - ② Record the results of the internal audit and notify relevant department and personnel of problems discovered during the audit, in order to make necessary modifications.

Section 6 Management Review

- 2.6.1 General
 - 2.6.1.1 The top management is to review the company's energy efficiency management system according to the planned time intervals, in order to ensure its continuous suitability, sufficiency and effectiveness. The review shall look after the time of evaluation and improvement of the energy efficiency management system (including energy efficiency management policies, goals and indexes) and the needs for modification. The records of management review shall be kept.
- 2.6.2 Review input
 - 2.6.2.1 The management review input shall include:
 - (1) internal audit and evaluation results;

- (2) communication with and feedback from relevant external parties;
- (3) energy efficiency improvement performance of the company;
- (4) realization of the goals and indexes;
- (5) implementation of the corrective and preventive measures;
- (6) the subsequent measures determined by previous management reviews;
- (7) objective changes in the energy efficiency management system;
- (8) improvement suggestions.

2.6.3 Review output

The management review output shall include:

- (1) the continuous improvement measures in the energy efficiency management system and energy-saving;
- (2) major decisions on the modification of energy efficiency management baseline and/or benchmark, policies, goals and indexes;
- (3) resource needs

Chapter 3 Ship Energy Efficiency Data Requirements

Section 1 General Requirements

3.1.1 Energy efficiency data and information

3.1.1.1. The company and/or ships is to determine the energy efficiency indexes and monitoring methods as required by 2.5.1.2 of Chapter 2 of the Rules, for example EEOI, energy intensity index and CO₂ emission index of ships in service may be taken as the main indexes for the energy efficiency monitoring, or other energy efficiency indexes and measuring methods. In case other energy efficiency indexes and monitoring methods are adopted, the company and/or ships is to notify the principles, monitoring specific requirements for the energy efficiency indexes and monitoring methods in writing to the society.

3.1.1.2. The basic data and information for calculation of EEOI, energy intensity index and CO₂ emission index of ships in service include:

- (1) voyage distance;
- (2) voyage cargo capacity (ton/TEU/person);
- (3) fuel quantity and type used;
- (4) all information which may influence the CO₂ emission quantity;
- (5) relevant information if a ship is connected with shore power;
- (6) relevant information if a ship uses shore cranes except her own.

3.1.1.3. When calculating the above energy efficiency indexes, the company is to identify the special voyage within each transport cycle and separately calculate, so as to reflect the accurate operation energy efficiency management level of the ship.

3.1.1.4. The company is to develop procedures concerning EEOI, energy intensity index and CO₂ emission index of ships in service, including:

- (1) data collection and record
- (2) regular monitoring and measuring
- (3) quality control and verification of energy efficiency data
- (4) report of energy efficiency data

3.1.2 Reporting energy efficiency data

3.1.2.1 Ships are to regularly report the basic data for calculation of the energy efficiency indexes required by 3.1.1.2 of the Rules, and other energy efficiency data and relevant information required to the company;

3.1.2.2 The company or ships certified by the society for energy efficiency management is to regularly submit energy efficiency basic data and/or other energy efficiency data as required in the Section 2 of this chapter to the society.

3.1.3 Statistics and analysis of energy efficiency data

3.1.3.1 The company is to develop a statistical and analysis system including EEOI, energy intensity index and

CO₂ emission index of ships in service and/or other relevant energy efficiency data, in order to meet the following requirements:

- (1) unified data format convenient for reporting, statistics and analysis;
- (2) statistical and analysis functions in different periods
- (3) calculating function of the rolling average value of EEOI, energy intensity index and CO₂ emission index of ships in service;
- (4) analyzing function of the trend of change in energy efficiency indexes and the improvement points.
- (5) graph output function.

Section 2 Energy Efficiency Data and Submission Requirements

3.2.1 The energy efficiency data submitted to the society for different type of ship is as follows:

3.2.1.1 Container ship (only carrying containers)

- (1) Voyage 8 number;
- (2) Actual distance of each voyage;
- (3) Beginning and ending time of each voyage;
- (4) Quantity and type of fuel consumed, including fuel consumption during voyage and in harbor;
- (5) Cargo capacity of each voyage, including deadweight (total weight of containers and cargo)\TEU (quantity of empty and loaded containers);
- (6) Ballast

3.2.1.2 Ships for carriage of containers and other type of cargoes

- (1) Voyage number;
- (2) Actual distance of each voyage;
- (3) Beginning and ending time of each voyage;
- (4) Quantity and type of fuel consumed, including fuel consumption during voyage and in harbor;
- (5) Cargo capacity in each voyage, every loaded TEU shall be calculated as weight of 10 tons and empty TEU as weight of 2 tons
- (6) Ballast

3.2.1.3 Bulk carrier, tanker, gas carrier, ro-ro cargo ship, general dry cargo ship

- (1) Voyage number;
- (2) Actual distance of each voyage;
- (3) Beginning and ending time of each voyage;
- (4) Quantity and type of fuel consumed, including the fuel consumption during voyage and in harbor;
- (5) Cargo capacity in each voyage
- (6) Ballast
- (7) Average ship speed in the voyage

3.2.1.4 Passenger ship (including ro-ro passenger ship)

- (1) Voyage number;
- (2) Actual distance of each voyage;
- (3) Beginning and ending time of each voyage;
- (4) Quantity and type of fuel consumed, including the fuel consumption during voyage and in harbor;
- (5) The passenger capacity and cargo capacity of the ship in each voyage;
- (6) Ballast

3.2.2 The format of the ship energy efficiency data report refers to Appendix 5.

3.2.3 Requirements for self-evaluation report of the company/ship energy efficiency

3.2.3.1 The company/ship shall develop the company/ship energy efficiency self-evaluation report according to the internal audit and energy efficiency improvement performance, which shall at least include the

followings:

- (1) Main energy efficiency measures taken within the cycle;
 - (2) Energy efficiency data, energy efficiency improvement performance, trend of energy efficiency change and cause analysis;
 - (3) Achievement of energy efficiency goals and indexes;
 - (4) Problems identified and improvement plans.
- 3.2.4 Requirements for submission of the energy efficiency data and energy efficiency self-evaluation report
- 3.2.4.1 The company or ship that requests the energy efficiency management certification for the first time shall submit the relevant ship energy efficiency data and self-evaluation report to the society as required by 5.2.1.2 and 5.3.1.2 of the Rules.
- 3.2.4.2 The company or ship certified by the society for energy efficiency management shall submit the relevant energy efficiency data and energy efficiency self-evaluation report to the society on a regular basis;
- 3.2.4.3 The ship that applies to the society for verification of the energy efficiency data or energy efficiency improvement performance is to submit the relevant ship energy efficiency data to the society at the same time.

Section 3 Ship Energy Efficiency Management System of China Classification Society

- 3.3.1 The society's ship energy efficiency management system is developed for the energy efficiency data statistics, analysis and remote management service. The company users may apply for registration of the system, which can be used to replace the requirements of 3.1.3.1 of the Rules.
- 3.3.2 The system has the following basic functions:
- 3.3.2.1 Statistics and output of the energy efficiency indexes (i.e. EEOI, unit transport volume energy consumption/ CO₂ emission index of the ship in service, CO₂ emission of unit transportation volume, CO₂ emission per nautical mile, utilization rate of deadweight, speed reduction ratio) and other operational energy efficiency data (such as energy consumption, voyage distance and cargo capacity) on the basis of the classified items (company, ship type, ship age, tonnage and navigation route etc.).
- 3.3.2.2 Analysis of energy efficiency indexes
- (1) Trend analysis: Analyze the change trend of the energy efficiency indexes
 - (2) Comparison analysis: The comparison between the energy efficiency indexes of two or more types
 - (3) Correlation analysis: The analysis of the correlation between the energy efficiency indexes
- 3.3.2.3 Providing the services of energy efficiency data management and index inquiry to the outside, and output the detailed statistics and analysis diagrams or simple statistical data according to the limitation of authorization.
- 3.3.3 System application
- 3.3.3.1 Providing services of energy efficiency management tools and energy efficiency information to the companies, to facilitate to understand the policies, laws, regulations and industrial information, to assess the energy efficiency conditions of the ship/fleet, to analyze and compare the energy efficiency trend and make improvement.
- 3.3.3.2 The auditors may log on the system to look through and analyze the relevant energy efficiency data within the scope of authorization when searching for support during the audit preparation and formulation of audit reports.
- 3.3.3.3 The port state governments or organizations, port authorities, industrial organizations and relevant shipping parties may check the energy efficiency index of a single ship.
- 3.3.3.4 The authority may use the system according to the authorization and agreement, in order to gain the fundamental data support for the formulation of relevant policies and regulations.
- 3.3.4 Entry and correction of energy efficiency data
- 3.3.4.1 When applying for initial certification of energy efficiency management system and ship energy efficiency verification, the energy efficiency data submitted by the company/ship is to be confirmed by the responsible auditor of the society before entry into the energy efficiency database.

- 3.3.4.2 The auditors of the society are responsible for verification of the ship energy efficiency data and examination of the energy efficiency self-evaluation reports submitted by the company/ship during the field audit. In case of errors found in the ship energy efficiency data, the auditors shall promptly notify the society's headquarters to correct the energy efficiency database.

Chapter 4 Energy Efficiency Certification

Section 1 General Requirements

- 4.1.1 Energy efficiency management certification
- 4.1.1.1 Goals of energy efficiency management certification
- (1) To determine the compliance of the company's/ships EEMS with the Rules and requirements of IMO, flag state and other relevant organizations;
 - (2) To determine the effectiveness of the implementation of EEMS, and ensure the energy efficiency goals specified in the company/ship have been achieved;
 - (3) To facilitate the company to improve the awareness of energy efficiency and energy efficiency management skills of personnel ashore and aboard ship;
 - (4) To encourage the company to adopt and implement the rules, guidelines and standards of the flag states, port authorities and industrial organizations within the scope of the EEMS.
- 4.1.1.2 The energy efficiency audit is to be carried out to the company and/or ship that intends to obtain the energy efficiency management certification of the society as specified in Chapter 5 of the Rules.
- 4.1.1.3 When conducting the energy efficiency management certification to the company, a sampling audit is to be conducted as defined in Chapter 5.
- 4.1.1.4 In case the company energy efficiency complies with the requirements in the Chapter 2 and 3 of the Rules, the society shall issue the Company Energy Efficiency Management Certificate (CEEMC).
- 4.1.1.5 In case the ship energy efficiency complies with the requirements in the Chapter 2 and 3 of the Rules, the society shall issue the Ship Energy Efficiency Management Certificate.
- 4.1.1.6 The additional classification symbol of EEMS will be assigned to the ships classed with the society and certified by the society for the energy efficiency management system.
- 4.1.2 Certification maintenance
- 4.1.2.1 Periodical and additional audit, if required, are to be carried out for the company and/or ship having obtained the energy efficiency management certification in accordance with the requirements of Chapter 5 in the Rules in order to retain the validity of certificate.
- 4.1.2.2 Renewal audit is to be carried out for the company and/or ship in accordance with the requirements of Chapter 5 in the Rules. If it is considered that the company's and/or ships EEMS is operated effectively, CEEMC and/or SEEMC will be reissued by the society.
- 4.1.2.3 The ship energy efficiency data and energy efficiency self-evaluation report are to be submitted regularly by the company and/or ship that have obtained the energy efficiency management certification to the society as required in Chapter 3 of the Rules.
- 4.1.3 Basic requirements for the energy efficiency management certification
- 4.1.3.1 The company is to develop, implement and maintain the ship energy efficiency management system to ensure the implementation of the energy efficiency policies.
- 4.1.3.2 The energy efficiency management system is to be capable of compliance with the following purposes::
- (1) The energy efficiency management goals of the company are:
 - ① to reduce the unit transport energy consumption, and improve the fuel utilization efficiency;
 - ② to reduce the CO₂ emission and mitigate the impact on the environment;
 - ③ to adopt more efficient energy efficiency programs, and continuously improve the ship energy efficiency;
 - ④ to keep improving the awareness of energy efficiency and energy efficiency management skills of personnel ashore and aboard ship.

- (2) The energy efficiency management standards, including:
 - ① requirements set forth in Chapter 2 of the Rules;
 - ② conventions, regulations and guidelines of IMO concerning the ship energy efficiency;
 - ③ requirements of the flag state, port authority and relevant industrial organization.
- 4.1.3.3 The company's energy efficiency management system is to cover relevant departments, branches and ships.
- 4.1.3.4 The ship applying for the energy efficiency management certification, the company undertaking the operation responsibilities and related parties is to establish and implement the ship energy efficiency management system as required in Chapter 2, which has covered the ship.
- 4.1.4 Energy efficiency verification
 - 4.1.4.1 The ship energy efficiency verification includes the following three items, which can all be verified in one time, or applied for verification individually:
 - ① Verification of the ship energy efficiency management plan to be prepared according to relevant IMO regulations and implemented onboard;
 - ② Verification of the ship energy efficiency data;
 - ③ Verification of the ship energy efficiency improvement performance within one period.
 - 4.1.4.2 The energy efficiency verification shall be carried out as required in Chapter 5 of the Rules, and the Ship Energy Efficiency Verification Statement (SEEVS) will be issued upon the completion of the verification.
- 4.1.5 As a voluntary activity, the company may publish the company/ship energy efficiency management certificate, the company/ship energy efficiency verification report (including the ship energy efficiency data confirmed by the auditor) and ship energy efficiency verification statement, in order to exhibit the status of the energy efficiency or energy efficiency measures taken and the effect of these measures to the public or related parties.
- 4.1.6 The certification of company/ship energy efficiency management and ship energy efficiency verification conducted by the society does not relieve the company and/or ship of their obligation related to energy efficiency management.

Section 2 Certification Certificates and Verification Statement

- 4.2.1 Issue of energy efficiency management certificates
 - 4.2.1.1 Company energy efficiency management certificate (CEEMC)
 - (1) A CEEMC (in the form as specified in Appendix 7 of the Rules) is to be issued to the company by the society after initial or subsequent renewal audits.
 - (2) Where the scope of EEMS of the company covers its branch offices, the names of those offices are to be listed in the Annex of CEEMC.
 - 4.2.1.2 Ship energy efficiency management certificate (SEEMC)
 - (1) Short-term energy efficiency management certificate

A short-term SEEMC is to be issued by branch offices of the society when a ships energy efficiency management is found in compliance with the approved EEMS of the company and the requirements of the Rules after initial or subsequent renewal audits, and the classification certificate and statutory certificates are valid. The form of SEEMC may refer to Appendix 8 of the Rules.
 - (2) Full-term energy efficiency management certificate

A full-term SEEMC (in the form as specified in Appendix 8 of the Rules) is to be issued by the headquarters of the society within the validity of short-term SEEMC when the corrective actions against the non-conformities (if any) have been taken and verified by the auditors of the society to be effective to close them out.
- 4.2.2 Validity of the certificates
 - 4.2.2.1 The validity of the certificates is as follows:
 - (1) The certificates are to be valid for a period not exceeding five years from the date of completion of

initial audit subjected to periodical audit⁹ prescribed in the Rules during this period.

- (2) When a renewal audit is completed within three months of the expiry date of the existing certificate, the new certificate is to be valid from the date of completion of the renewal audit for a period not exceeding five years from the date of expiry of the existing certificate.
- (3) When a renewal audit is completed more than three months before the expiry date of the existing certificate, the new certificate is to be valid from the date of completion of the renewal audit for a period not exceeding five years.
- (4) Where SEEMC renewal audit is carried out after the expiry date of existing SEEMC, the new SEEMC is to be valid from the date of completion of the renewal audit for a period not to exceed five years since the expiry date of existing SEEMC.
- (5) Where renewal audit has been completed and a new SEEMC cannot be issued or placed on board the ship before the expiry date of the existing certificate, the society may endorse the existing certificate and such a certificate should be accepted as valid for a further period which should not exceed five months from the expiry date.

4.2.3 Extension of the certificate

4.2.3.1 If it is estimated that a ship at the time when a SEEMC expires is not in a port in which the renewal audit may be conducted and the company applies for extension in writing prior to the expiry date, extension could be accepted but not longer than three months. Renewal audit is to be completed within three months, otherwise SEEMC will be invalid automatically.

4.2.4 Invalidation, withdrawal and reinstatement of certificates

4.2.4.1 CEEMC

- (1) Reasons for which a CEEMC may become invalid include:
 - ① The company does not request the annual audit of CEEMC;
 - ② Corrective actions are not completed within the agreed schedule and insufficient evidence that the corrective actions are being carried out, or no objective evidence for the reasons of failure to take the corrective actions could be provided;
 - ③ Amendments to Chapter 2 of the Rules are not taken into account;
 - ④ There is evidence of an unresolved major non-conformity;
 - ⑤ The ship energy efficiency data and company energy efficiency self-evaluation reports are not submitted on a regular basis as stipulated of the Rules.
- (2) Reasons for which a CEEMC may be withdrawn include:
 - ① Withdrawal of CEEMC is requested by the company;
 - ② The company's EEMS operation is verified not in compliance with the requirements of Chapter 2 of the Rules by the audit;
 - ③ Significant incidents which may cause major impact to ship energy efficiency occur for the fleet managed by the company's EEMS found through the audit or by other means, and no handling and reporting to the society are taken by the company in accordance with the relevant procedures;
 - ④ There is evidence that the company energy efficiency data and energy efficiency measures records contain false information;
 - ⑤ Payment of certification fees is not made in time and no appropriate action is taken either.
- (3) In case the CEEMC is invalid or withdrawn, the society is to immediately notify the company in writing that the CEEMC is withdrawn from the date of signature of the notification, and request that the CEEMC be surrendered.

4.2.4.2 SEEMC

- (1) Reasons for which a SEEMC may become invalid include:
 - ① The company does not request the intermediate audit of SEEMC;
 - ② Corrective actions are not completed within the agreed schedule and no sufficient evidence that the corrective actions are being carried out, or no objective evidence for the reasons of failure to take the corrective actions could be provided;

- ③ Amendments to Chapter 2 of the Rules are not taken into account;
 - ④ There is evidence of an unresolved major non-conformity;
 - ⑤ The ship energy efficiency data and self-evaluation reports are not submitted on a regular basis as stipulated of the Rules;
 - ⑥ When a ships company changes.
- (2) Reasons for which a SEEMC may be withdrawn include:
- ① Withdrawal of SEEMC is requested by the Company;
 - ② Ship energy efficiency management is verified not in compliance with the requirements for issuance of SEEMC in 4.2.1.2(1) of the Rules by the intermediate and/or additional audit;
 - ③ There is evidence that the company energy efficiency data and energy efficiency measures records contain false information;;
 - ④ The incidents which caused or may cause major impact to ship energy efficiency occur and no handling and reporting to the society are taken in accordance with the relevant procedures;
 - ⑤ The ships classification is suspended or withdrawn, and/or other statutory certificates become invalid;
 - ⑥ Ships operation is ceased, such as loss or recycling of a ship;
 - ⑦ Payment of certification fees is not made in time and no appropriate action is taken either.
- (3) In case the SEEMC is invalid or withdrawn, the society is to immediately notify the master or the company in writing that the SEEMC is withdrawn from the date of signature of the notification, and request that the SEEMC be surrendered.
- 4.2.4.3 Reinstatement of the certificates
- (1) Where the company applies for the reinstatement of CEEMC after it has been invalidated, an additional audit to the extent and scope of initial audit is to be carried out. The expiry date of the new CEEMC is to be calculated from the completion date of additional audit to the expiry date of the withdrawn CEEMC.
 - (2) Where the ship applies for the reinstatement of SEEMC after it has been invalidated, an additional audit to the extent and scope of initial audit is to be carried out. The expiry date of the new SEEMC is to be calculated from the completion date of additional audit to the expiry date of the withdrawn SEEMC.
- 4.2.5 Availability, reissue, amendments or surrender of the certificates
- 4.2.5.1 Availability of certificates
- (1) The Company is to make available original CEEMC and copies of SEEMC for each ship for reference.
 - (2) Each ship is to keep the original SEEMC on board for reference.
- 4.2.5.2 Reissue of certificates
- Applications to the society for reissuing the relevant certificate or documents are immediately to be made by the company in case of the CEEMC and/or SEEMC being lost or damaged.
- 4.2.5.3 Amendments of certificates
- (1) Whenever any amendment occurs to the content of a certificate, the company is to immediately apply to the society for amending or re-issuing the certificate.
 - (2) Whenever the ships managed by the company change, the society is to be immediately notified by the company.
- 4.2.5.4 Surrender of certificates
- (1) Except those reissued due to loss, the original CEEMC and/or SEEMC are to be surrendered to the society immediately when the new CEEMC and/or new SEEMC are issued to the company.
 - (2) Both of CEEMC and SEEMC are to be surrendered to the society immediately whenever the EEMS certification for the company or its ships terminates.
 - (3) Where the lost original certificate is found after it is reissued, the original one is to be immediately surrendered to the society by the company.
- 4.2.6 Issuance of the ship energy efficiency verification statement

The ship energy efficiency verification statement (SEEVS) is to be issued after the verification of the ship energy efficiency. The format of SEEVS refers to the Appendix 9 of the Rules.

Chapter 5 Energy Efficiency Audit

Section 1 General Requirements

- 5.1.1 Energy efficiency management audit
The energy efficiency audit includes the energy efficiency management system audit and energy efficiency data verification.
- 5.1.2 Type and period of audit
- 5.1.2.1. Initial audit
- (1) The initial audit of EEMS for any company, which has applied to the society for CEEMC for the first time, is to be carried out by the society, to verify that its EEMS has been established, implemented and maintained, and is in compliance with the requirements of Chapter 2 of the Rules.
 - (2) The initial audit of EEMS for any ship, which has applied to the society for SEEMC for the first time, is to be carried out by the society, to verify that the company's EEMS has been established, implemented and maintained on board the ship, and is in compliance with the requirements of Chapter 2 of the Rules.
- 5.1.2.2. Annual audit
All companies holding CEEMC which is certified by the society are to be subjected to annual audit. Annual audit is to be carried out within three months before and after each anniversary date of the
- 5.1.2.3. Intermediate audit
All ships holding SEEMC which is certified by the society are to be subjected to at least one intermediate audit within the validity of SEEMC. The intermediate audit is to be carried out between the second and third anniversary dates after the initial audit or last renewal audit.
- 5.1.2.4. Renewal audit
- (1) All companies or ships certified by the society are to apply for renewal audit before the expiry date of the CEEMC or SEEMC, otherwise the CEEMC or SEEMC would be invalidated automatically.
 - (2) The CEEMC or SEEMC will be renewed by the society after satisfactory completion of the renewal audit.
- 5.1.2.5. Additional audit
- (1) An additional audit for the CEEMC is to be requested if:
 - ① incidents which caused or may cause major impact to ship energy efficiency occur to the company;
 - ② substantial modifications are made to the EEMS of the company;
 - ③ the scope of certification of EEMS changes;
 - ④ the society needs to follow up the effectiveness of corrective actions for non-conformities;
 - ⑤ the requirements for additional audit specified in Appendix 6.
 - (2) An additional audit for a ships SEEMC is to be requested if:
 - ① incidents which caused or may cause major impact to ship energy efficiency occur to the ship;
 - ② the ship is put into service after being laid up for over six months;
 - ③ the society needs to follow up the effectiveness of corrective actions for non-conformities;
 - ④ the requirements for additional audit specified in Appendix 6.
 - (3) According to the conditions described in above (1) and/or (2), additional audit could be completely or partially carried out for the EEMS.
- 5.1.3 Submission of annual energy efficiency data and self-evaluation report
All the ships and companies whose energy efficiency management have certified by the society are to

- submit the ship energy efficiency data and energy efficiency self-evaluation report to the society as stipulated in Chapter 3 of the Rules.
- 5.1.4 Certification changes
Various audits involving CEEMC/SEEMC changes are to be performed in accordance with the requirements of Appendix 6 of the Rules.
- 5.1.5 Planning the audit
- 5.1.5.1 The society, on receipt of an application, is immediately to nominate an audit team consisted of qualified auditors to carry out the audit.
- 5.1.5.2 The audit team is to communicate with the company and/or ship in time and produce an audit plan. The audit plan is to be designed to cover all factors and give priority to key points with reasonable dispatch of labor and arrangement of time in accordance with the requirements of the Rules and the specific situations of the audited party. The audit plan is to be communicated to all those involved in the audit.
- 5.1.6 Preparing the audit
- 5.1.6.1. The company is to make necessary audit preparation in accordance with the audit plan to ensure smoothly implementation of the field audit.
- 5.1.6.2. The company is to ensure that the ship being audited is to be under normal operating conditions and the ship is not to be in dry dock or laid up.
- 5.1.7 Executing the audit
- 5.1.7.1. Each audit is to start with an opening meeting, participated by the audit team and the company's and/or the ships staff and presided by the lead auditor, the purpose of which is to:
- (1) introduce the audit team to the company's and/or ships management;
 - (2) explain the scope and objective of the audit;
 - (3) explain the methods and procedures to be used to conduct the audit;
 - (4) establish the official communication line between the auditor(s) and the company and/or the ship;
 - (5) confirm that resources, documentation and facilities needed to perform the audit are available; and
 - (6) confirm the time and date of the closing meeting and any possible interim meetings.
- 5.1.7.2. Appropriate working documents¹⁰ are to be used to facilitate the audit and to document the results. In order to gather information for the assessment of the energy efficiency management system, pre-established working documents are not to restrict activities or investigations that are carried out by the auditor(s) during the audit.
- 5.1.7.3. The auditor(s) is to determine the effectiveness of the EEMS in meeting the requirements, on the basis of:
- (1) document review of EEMS;
 - (2) the objective evidence of effective implementation of the EEMS, which is to be collected through interviews, review of documentation and records, observation of activities and examination of the conditions.
- 5.1.7.4. The auditor(s) is to carry out on-site verification of the energy efficiency data and examination of self-evaluation reports of the company and/or ship, including:
- (1) the authenticity of the energy efficiency data involved in the reports;
 - (2) the implementation of the energy efficiency improvement measures taken by the company and/or ship and the energy efficiency improvement performance stated in the reports.
- 5.1.7.5. Audit findings are to be documented in a clear, concise manner and supported by objective evidence. These are to be reviewed by the auditor(s) in order to determine which are to be reported as major non-conformities, non-conformities, or observations.
- 5.1.7.6. At the end of the audit, prior to preparing the audit report, the auditor(s) is to hold a close meeting with the senior management of the company or ship and those responsible for the functions concerned. The purpose is to present major non-conformities, non-conformities and observations to the company's or ships management, in such a manner so as to ensure that they clearly understand the results of the audit.
- 5.1.8 Audit report

- 5.1.8.1. The audit report is to be prepared by the lead auditor, based on the results of site audit, and includes:
- ① the date of completion of the audit and the date on which audit report is submitted;
 - ② the scope and objectives of the audit;
 - ③ audit team members, company's representative;
 - ④ main energy efficiency measures taken within the cycle;
 - ⑤ energy efficiency data and energy efficiency improvement performance;
 - ⑥ realization of energy efficiency goals and indexes;
 - ⑦ all major non-conformities, non-conformities and observations identified during the energy efficiency management audit;
 - ⑧ audit conclusion.
- 5.1.8.2. The ship is to maintain the ship energy efficiency audit report.
- 5.1.9 Corrective action follow-up
- 5.1.9.1 Non-conformity report (NCR)
- ① The NCR is to clearly state the fact identified as noncompliant with the requirements of the company's EEMS and/or the IMO or flag administration.
 - ② The content of the non-conformity report is to be complete and concise.
 - ③ When writing NCRs, auditors are to, whenever possible, include a reference to the applicable requirement of the Companies EEMS, and when necessary for the sake of clarity, restate the requirement.
 - ④ NCRs are to include a reference to the relevant clause or sub-clause of Chapter2 of the Rules and IMO document.
- 5.1.9.2 Where major non-conformities are identified, the company and/or ship is responsible for formulating, implementing corrective actions and closing out the MNC within the agreed time frame. An additional audit is to be carried out by the society not exceeding three months from the date of completion of the audit, and the CEEMC/SEEMC is to be endorsed or re-issued based on the satisfactory audit results.
- 5.1.9.3 A CEEMC or SEEMC may be issued, endorsed or renewed before all identified non-conformities have been closed out provided that a schedule has been agreed between the company and/or ship and the auditor(s) for implementation of the necessary corrective actions. Additional audit(s) may be necessary depending on the nature of any non-conformity identified. The company is responsible for applying for any additional audit required by the society within three months.
- 5.1.9.4 The corrective measures are to be confirmed by the audit team of the society and carried out within an agreed time period, which is not exceeding one month for the non-conformities, and three months for the non-conformities needed to be followed-up through additional audit and major non-conformities . The implementation of the corrective measures is to be verified through conducting field additional audit, or providing the implementation evidence to the auditor of the society within the agreed time period for confirmation.
- 5.1.9.5 Where the non-conformities found onboard the ship are related to insufficient shore support through the audit, the corrective measures are to be formulated by the company.
- 5.1.10 Suspension of audit and verification
- The audit and verification may be suspended in case the company and/or ship is lack of necessary conditions of audit and verification or the audit team assesses that the audit cannot reach the intended purpose or there is evidence that the company energy efficiency data and energy efficiency measures records contain false information, and the company and/or ship is to be notified of the reasons.
- 5.1.11 Handling of complaint
- 5.1.11.1. The society is to notify the company and/or ship to verify the veracity of the complaint and take appropriate measures if any formal complaint is raised to the certification of energy efficiency management conducted by the society.
- 5.1.11.2. The society is to determine whether an additional audit(s) or re-verification to be carried out depending on the nature of the complaint and other circumstance. In addition, the society is to carry out verification of the effective functioning of the EEMS related to any compliant in next planned audit to the company and/or ship.

Section 2 Company Energy Efficiency Management Audit

5.2.1 Initial audit

5.2.1.1 The initial audit of the company consists of document review and field audit:

- (1) Document review: to review the company's EEMS document to be in compliance with the requirements in Chapter 2 of the Rules;
- (2) Field audit: to verify the compliance and the effective functioning of the company's EEMS.

5.2.1.2 Document submission

- (1) The company is to submit the following documents to the society for review:
 1. the energy efficiency management documents defined in Chapter 2 of the Rules;
 2. the business license and other relevant qualification document of the company;
 3. the energy efficiency management plans of the company;
 4. the energy efficiency data of the ship covered by EEMS and the self-evaluation reports of the company at least in the past one year (as defined in Chapter 3 of the Rules).
- (2) If deemed necessary, the society may request the company to provide any supporting document and information.

5.2.1.3 Document review

- (1) The society is to carry out the review after the document specified in 5.2.1.2 is submitted by the company.
- (2) If this review reveals that the documents are not in compliance with the requirements of Chapter 2 of the Rules, the society may request the company to take appropriate corrective measures.

5.2.1.4 Field audit

- (1) The field audit to a company is to collect and verify the following objective evidence:
 - ① the implementation period of EEMS (at least three months);
 - ② the records from the internal audits performed by the company, ashore including branch offices and on board;
 - ③ the energy efficiency data of the ship covered by EEMS at least one year (not applicable to new ships);
- (2) Sampling audit is to be carried out to the ships covered by EEMS to the proportion of two or three ships for each type except those holding SEEMC issued by the society. In case quantity of ship of a certain type is less than three, all of them are to be audited. Sampling audit to ships during company audit may be waived when all the ships covered by EEMS have obtained the SEEMC issued by the society.
- (3) The initial audit is to cover all the elements and activities of EEMS.
- (4) The audit is to cover all the relevant departments and levels of the company. Where a company assigns EEMS responsibilities to branch offices, the field audit is to include a sample of those offices not less than the quantity listed in below 5.2.1.4 (4). The sample selected is to address each requirement of EEMS relevant to that office.

Chart 5.2.1.4 (4)

The total number of branch offices performing the same activities	The number of branch offices to be audited
1	1
2 to 3	2
4 to 6	3
6	\sqrt{X}
> 6	\sqrt{X} Integer is to be taken.

- 5.2.2 Annual audit
- 5.2.2.1 Annual audit is to be carried out by the society within the validity period of CEEMC according to the requirements of the Rules to maintain the validity of CEEMC, which has same scope and extent as initial audit and is to focus on the followings:
- ① any modification of the company's EEMS and document review as defined in the Rules;
 - ② the effective functioning of the company's EEMS;
 - ③ the annual energy efficiency evaluation reports, ship energy efficiency data, and the submission to the society;
 - ④ the energy efficiency improvement performance of the company;
 - ⑤ follow-up of the changes of conventions, regulations, standards and industrial requirements and compliance evaluation;
 - ⑥ realization and adjustment of the energy efficiency management goals and indexes;
 - ⑦ any modification of the scope of certification;
 - ⑧ the corrective actions against the non-conformities identified during the last audit.
- 5.2.2.2 Annual audit is to be carried out with same scope as initial audit, same sample quantity of branch offices and ships and avoiding selection of samples of last audit. If an additional branch office is included by the company in its EEMS during the period of validity of the CEEMC, it is to be verified at the next planned audit. The CEEMC is to be re-issued after the additional audit.
- 5.2.3 Renewal audit
- 5.2.3.1 A renewal audit is to be completed prior to the expiry date of the CEEMC.
- 5.2.3.2 The scope, sampling quantity of branch offices and ships and the sampling requirements of the renewal audit are same as annual audit in 5.2.2.2 of the Rules.
- In addition to the contents of annual audit, the renewal audit is to focus on the followings during the valid period of the certificate:
1. the effective functioning and modification of the company's EEMS;
 2. adjustment and realization of the energy efficiency management goals and indexes;
 3. the continuous improvement performance of the company and ship energy efficiency.
- 5.2.4 Additional audit
- 5.2.4.1 If any circumstances described in 5.1.2.5 (1) of the Rules takes place, the company is to apply to the society for an additional audit to confirm its compliance with the requirements of the Rules and the validity of the CEEMC.
- 5.2.4.2 The society is to define scope and extent of the additional audit depending on its nature.
- 5.2.5 Verification and examination of the company energy efficiency data and self-evaluation reports
- 5.2.5.1 The energy efficiency data and energy efficiency self-evaluation reports submitted to the society by the company are to be verified, audited and examined during initial audit, annual audit and renewal audit of the CEEMC.

Section 3 Ship Energy Efficiency Management Audit

- 5.3.1 Initial audit
- 5.3.1.1 The purpose of initial audit of the ships EEMS is to verify the effectiveness of the company's EEMS onboard the ship and compliance with appropriate requirements of the Rules, IMO and flag states etc. The initial audit of the ships EEMS includes necessary document review and shipboard audit.
- 5.3.1.2 Following documents are to be submitted to the society:
- (1) the EEMS documents of the company and ship;
 - (2) the ship energy efficiency management plan (SEEMP);
 - (3) the ship energy efficiency data at least in the past one year (for new ships more than three months) and the ship energy efficiency self-evaluation reports as defined in Chapter 3 of the Rules.
 - (4) other information.
- 5.3.1.3 Document review

- (1) The society is to carry out the review after the document specified in 5.3.1.2 is submitted by the company.
 - (2) If this review reveals that the documents are not in compliance with the requirements of Chapter 2 of the Rules, IMO and flag states etc., the society may request the company or ship to take appropriate corrective measures.
- 5.3.1.4 Shipboard audit
- (1) At least, the following objective evidences are to be focused on and verified during shipboard audit:
 - ① the implementation period of EEMS in the company and onboard (at least three months);
 - ② the internal audit records of the ship energy efficiency management;
 - ③ the recent energy efficiency data verification of the ship (more than one year at least);
 - ④ the implementation of SEEMP onboard the ship and the verification of ship energy efficiency improvement performance;
 - ⑤ the familiarization of the master and senior officers with the implementation requirements of E
 - ⑥ ship energy efficiency self-evaluation reports.
 - (2) Shipboard audit is to verify the compliance and effectiveness of all the EEMS elements.
- 5.3.2 Intermediate audit
- 5.3.2.1. Intermediate audit is to be carried out by the society to verify the effective functioning of the EEMS within the validity period of the SEEMC and compliance with the requirements of the Rules in order to maintain its validity .
- 5.3.2.2. The intermediate audit has the same scope and extent as initial audit and is to focus on the followings:
- (1) any modification of the company's /ships EEMS and document review as defined in the Rules;
 - (2) the effective functioning of the ships EEMS;;
 - (3) ship energy efficiency evaluation reports, ship energy efficiency data, and submission to the society;
 - (4) realization and adjustment of the ship energy efficiency management goals and indexes;
 - (5) the energy efficiency improvement performance of the ship;
 - (6) follow-up of the changes of conventions, regulations, standards and industrial requirements related to ship energy efficiency and compliance evaluation;
 - (7) verification of effectiveness of the corrective actions against the non-conformities identified during the last audit.
- 5.3.3 Renewal audit
- 5.3.3.1. A renewal audit is to be completed prior to the expiry date of the SEEMC.
- 5.3.3.2. In addition to the contents of intermediate audit, the renewal audit is to focus on the followings during the valid period of the certificate:
- (1) the overall effective functioning of the EEMS onboard the ship;
 - (2) adjustment and realization of the energy efficiency management goals and indexes;
 - (3) the continuous improvement performance of the ship energy efficiency.
- 5.3.4 Additional audit
- 5.3.4.1. If any circumstances described in 5.1.2.5 (2) of the Rules takes place, the ship is to apply to the society for an additional audit to confirm its compliance with the requirements of the Rules and the effective functioning of EEMS.
- 5.3.4.2. The society is to define scope and extent of the additional audit depending on its nature.
- 5.3.5 Verification and examination of the ship energy efficiency data and self-evaluation reports
- 5.3.5.1. The ship energy efficiency data and energy efficiency self-evaluation reports submitted to the society are to be verified, audited and examined during initial audit, intermediate audit and renewal audit of the SEEMC.
- 5.3.5.2. The ship energy efficiency data within the audit period that have been verified to be correct may be confirmed by the auditor with signature.

Section 4 Ship Energy Efficiency Verification

- 5.4.1 The purpose of the ship energy efficiency verification is to verify the compliance, authenticity and

accuracy of the stipulated contents. The ship energy efficiency verification consists of the following three aspects:

- (1) review of ship energy efficiency management plan(SEEMP);
 - (2) verification of ship energy efficiency data;
 - (3) review of ship energy efficiency improvement performance.
- 5.4.2 The process of the ship energy efficiency verification is to be referred as defined in 5.1.5-5.1.8 of the Rules.
- 5.4.3 The requirements of document submission and review of the ship energy efficiency verification:
- 5.4.3.1. The following documents are to be submitted to the society for verification:
- (1) Ship energy efficiency management plan;
 - (2) Ship energy efficiency data (as per the requirements in Chapter 3 of the Rules);
 - (3) Evidence and performance data of the ship energy efficiency improvement.
- 5.4.3.2. The document of above-mentioned 5.4.3.1 is to be submitted for review of the ship energy efficiency management plan, documents of 5.4.3.1 (1) and (2) for the ship energy efficiency data verification, and documents of 5.4.3.1 (1) to (3) for review of the ship energy efficiency improvement performance.
- 5.4.3.3. The auditor of the society is to review the above-mentioned documents prior to the field verification.
- 5.4.4 The contents and requirements of the shipboard verification
- 5.4.4.1. Review of ship energy efficiency management plan
- (1) Whether the ship carries the Ship Energy Efficiency Management Plan SEEMP;
 - (2) Whether the plan complies with the requirements of the guidelines of IMO;
 - (3) Whether the actual situations of the ship and her operations have been taken into consideration, and the plan is easy to operate.
- 5.4.4.2. Verification of ship energy efficiency data
- ① Whether the data obtaining approach of the energy efficiency and responsibilities are clearly stated, and the measuring equipment meets the requirements and has been effectively controlled;
 - ② To verify the energy efficiency data within the stipulated period (or voyage), including check and field confirmation of the energy efficiency data records;
 - ③ To check whether the calculating method of EEOI and other relevant energy efficiency indexes complies with the requirements, and verify the calculation results.
- 5.4.4.3. Review of ship energy efficiency improvement performance
- ① To verify the ship energy efficiency data and energy efficiency indexes before the improvement of energy efficiency as defined in 5.4.4.2;
 - ② To verify the ship energy efficiency data and energy efficiency indexes after the improvement of the energy efficiency as defined in 5.4.4.2;
 - ③ To verify the improvement performance of various energy efficiency indexes.

附录 1

Appendix 1

“船舶能效管理体系—要求”与 ISM CODE 关系对照表

Cross reference between Energy Efficiency Management System-Requirements and ISM CODE

第 2 章 船舶能效管理体系 —要求 Chapter 2 Ship Energy Efficiency Management System-Requirements		ISM CODE-国际船舶安全营运及防污染管理规则 ISM CODE- International Management Code for the Safe Operation of Ships and for Pollution Prevention	
总要求 General requirements	2.1	1	通则General Rules
		1.3	适用范围Scope of application
		1.1	定义Definition
		1.4	安全管理体系(SMS)的基本要求 Basic requirements for the safety management system
管理职责 Management responsibilities	2.2		
管理承诺 Management commitments	2.2.1		
能效方针 Energy efficiency policy	2.2.2	2	安全与环境保护方针 Safety and environment protection policy
作用、职责和权限 Functions, responsibilities and limitations	2.2.3	3	公司的责任与权限
		4	Company responsibilities and authority
		5	指定人员 Designated person(s) 船长的责任与权限 Master's responsibilities and authority
策划 Planning	2.3		
能效因素 Energy efficiency factors	2.3.1		
国际公约、法律法规、标准和其他要求 International conventions, laws, regulations, standards and other requirements	2.3.2	1.2	目标 Objectives
能效管理基准与标杆 Energy efficiency management baseline and benchmark	2.3.3	1.2	目标 Objectives
能效目标和指标 Energy efficiency goals and indexes	2.3.4	1.2	目标 Objectives
能效管理计划 Energy efficiency management plans	2.3.5		
实施与运行 Implementation and operation	2.4		
资源 Resources	2.4.1	3	公司的责任与权限 Company responsibilities and authority
能力、培训和意识 Competence, training and awareness	2.4.2	6.1-6.5	资源与人员 Resource and personnel
信息交流 Exchange of information	2.4.3	6.6,6.7	资源与人员 Resource and personnel
文件 Documents	2.4.4	11	文件管理 Documentation
文件控制 Document control	2.4.5		
记录控制 Record control	2.4.6		
运行控制 Operation control	2.4.7	7 10	船上操作计划的制订 Shipboard operations 船舶与设备的维护

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			Maintenance of the ship and equipment
应急准备和响应 Emergency preparation and response	2.4.8	8	应急部署 Emergency preparedness
检查与纠正 Check and correction	2.5	12	公司验证、评审与评估 Company verification, review and evaluation
监测和测量 Monitoring and measuring	2.5.1		
总则 General	2.5.1.1		
监测方法 Monitoring methods	2.5.1.2		
监测系统 Monitoring system	2.5.1.3		
监测和测量设备 Monitoring and measuring equipment	2.5.1.4		
评价 Evaluation	2.5.2		
激励 Incentive	2.5.3		
自愿性报告 Voluntary report	2.5.4		
不符合、纠正、纠正措施和预防措施 Non-conformity, correction, corrective actions and preventive measures	2.5.5	9	不合格、事故与险情的报告及分析 reports and analysis of non-conformities, accidents and hazardous occurrences
内部审核 Internal audit	2.5.6	12	公司验证、评审与评估 Company audit, review and evaluation
管理评审 Management review	2.6	12	公司验证、评审与评估 Company audit, review and evaluation
总则 General	2.6.1 2.6.2 2.6.3		
评审输入 Review input			
评审输出 Review output			

附录 2
Appendix 2
“船舶能效管理体系—要求”与 ISO/DIS 50001 关系对照表
Cross reference between Energy Efficiency Management System-Requirements and ISO/DIS 50001

第 2 章 船舶能效管理体系—要求 Chapter 2 Ship Energy Efficiency Management System-Requirements		ISO/DIS 50001 能源管理体系要求及使用指南 ISO/DIS 50001 Energy Management System-Requirements with Guidance for Use	
总要求 Overall requirements	2.1	1	范围 Scope
		2	引用标准 Normative references
		3	术语定义 Terms and definitions
		4	能源管理体系要求 Energy Management System Requirements
		4.1	总要求 General requirements
管理职责 Management responsibilities	2.2	4.2	管理职责 Management responsibility
管理承诺 Management commitments	2.2.1	4.2.1	总则 General
能效方针 Energy efficiency policy	2.2.2	4.3	能源方针 Energy policy
作用、职责和权限 Functions, responsibilities and limitations	2.2.3	4.2.2	作用、职责和权限 Roles, responsibility and authority
策划 Planning	2.3	4.4	策划 Energy planning
能效因素 Energy efficiency factors	2.3.1	4.4.1	总则 General
		4.4.3	能源评估 Energy review
国际公约、法律法规、标准和其他要求 International conventions, laws, regulations, standards and other requirements	2.3.2	4.4.2	法律法规和其他要求 Legal and other requirements
能效管理基准与标杆 Energy efficiency management baseline and benchmark	2.3.3	4.4.4	能源基准 Energy baseline
		4.4.5	能源绩效指针 Energy performance indicator
能效目标和指标 Energy efficiency goals and indexes	2.3.4	4.4.6	能源目标和指标和行动计划 Objectives, targets and action plans
能效管理计划 Energy efficiency management plans	2.3.5		
实施与运行 Implementation and operation	2.4	4.5	实施与运行 Implementation and operation
资源 Resources	2.4.1	4.5.1	总则 General requirements
能力、培训和意识 Competence, training and awareness	2.4.2	4.5.2	能力、培训和意识 Competence, training and awareness
信息交流	2.4.3	4.5.5	信息交流

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Exchange of information			Communication
文件 Documents	2.4.4	4.5.3	文件 Documentation
文件控制 Document control	2.4.5		
记录控制 Record control	2.4.6	4.6.5	记录控制 Control of records
运行控制 Operation control	2.4.7	4.5.4	运行控制 Operational control
应急准备和响应 Emergency preparation and response	2.4.8	4.5.6 4.5.7	设计 Design 能源服务的购买、产品、设备和能源 Procurement of energy services, products, equipment and energy
检查与纠正 Check and correction	2.5	4.6	检查 Checking performance
监测和测量 Monitoring and measuring	2.5.1	4.6.1	监视、测量和分析 Monitoring, measurement and analysis
总则 General	2.5.1.1		
监测方法 Monitoring methods	2.5.1.2		
监测系统 Monitoring system	2.5.1.3		
监测和测量设备 Monitoring and measuring equipment	2.5.1.4		
评价 Evaluation	2.5.2	4.6.2	合规性评价 Evaluation of legal/other compliance
激励 Incentive	2.5.3		
自愿性报告 Voluntary report	2.5.4		
不符合、纠正、纠正措施和预防措施 Non-conformity, correction, corrective actions and preventive measures	2.5.4	4.6.4	不符合、纠正、纠正措施和预防措施 Nonconformities, correction, corrective, and preventive action
内部审核 Internal audit	2.5.6	4.6.3	能源管理体系的内部审核 Internal audit of the Energy Management System
管理评审 Management review	2.6	4.7	管理评审 Management review
总则 General	2.6.1 2.6.2 2.6.3	4.7.1 4.7.2	评审输入 Input to management review
评审输入 Review input			评审输出 Output from management review
评审输出 Review output			

附录 3
Appendix 3
“船舶能效管理体系—要求”与 ISO14001-2004 关系对照表
Cross reference between Energy Efficiency Management System-Requirements and ISO14001-2004

第 2 章 船舶能效管理体系—要求 Chapter 2 Ship Energy Efficiency Management System-Requirements		ISO14001-2004 环境管理体系 要求及使用指南 ISO14001-2004 Environmental Management System-Requirements with Guidance for Use	
总要求 Overall requirements	2.1	1	范围 Scope
		2	引用标准 Normative references
		3	术语和定义 Terms and definitions
		4	环境管理体系要求 Environmental Management System Requirements
		4.1	总要求 General requirements
管理职责 Management responsibilities 管理承诺 Management commitments	2.2 2.2.1	4.4.1	资源、作用、职责和权限 Resource, roles, responsibility and authority
能效方针 Energy efficiency policy	2.2.2	4.2	环境方针 Environmental policy
作用、职责和权限 Functions, responsibilities and limitations	2.2.3	4.4.1	资源、作用、职责和权限 Resource, roles, responsibility and authority
策划 Planning	2.3	4.3	策划 Planning
能效因素 Energy efficiency factors	2.3.1	4.3.1	环境因素 Environmental aspects
法律法规、标准和其他要求 Laws, regulations, standards and other requirements	2.3.2	4.3.2	法律法规和其他要求 Legal and other requirements
能效管理基准与标杆 Energy efficiency management baseline and benchmark	2.3.3	4.3	策划 Planning
能效目标和指标 Energy efficiency goals and indexes 能效管理计划 Energy efficiency management plans	2.3.4 2.3.5	4.3.3	目标、指标和方案 Objectives, targets and programme(s)
实施与运行 Implementation and operation	2.4	4.4	实施与运行 Implementation and operation
资源 Resources	2.4.1	4.4.1	资源、作用、职责和权限 Resource, roles, responsibility and authority
能力、培训和意识 Competence, training and awareness	2.4.2	4.4.2	能力、培训和意识 Competence, training and awareness
信息交流 Exchange of information	2.4.3	4.4.3	信息交流 Communication
文件 Documents	2.4.4	4.4.4	文件 Documentation

船舶能效管理认证规范
Rules for Certification of Ship Energy Efficiency Management

文件控制 Document control	2.4.5	4.4.5	文件控制 Control of documents
记录控制 Record control	2.4.6	4.5.4	记录控制 Control of records
运行控制 Operation control	2.4.7	4.4.6	运行控制 Operational control
应急准备和响应 Emergency preparation and response	2.4.8	4.4.7	应急准备和响应 Emergency preparedness and response
监测和测量 Monitoring and measuring	2.5	4.5	检查 Checking
总则 General	2.5.1	4.5.1	监视和测量 Monitoring and measurement
监测方法 Monitoring methods	2.5.1.1		
监测系统 Monitoring system	2.5.1.2		
监测和测量设备 Monitoring and measuring equipment	2.5.1.3		
监测和测量 Monitoring and measuring	2.5.1.4		
评价 Evaluation	2.5.2	4.5.2	合规性评价 Evaluation of compliance
激励 Incentive	2.5.3		
自愿性报告 Voluntary report	2.5.4		
不符合、纠正、纠正措施和预防措施 Non-conformity, correction, corrective actions and preventive measures	2.5.5	4.5.3	不符合，纠正措施和预防措施 Nonconformity, corrective action and preventive action
内部审计 Internal audit	2.5.6	4.5.5	内部审计 Internal audit
管理评审 Management review	2.6	4.6	管理评审 Management review
总则 General	2.6.1		
评审输入 Review input	2.6.2		
评审输出 Review output	2.6.3		

附录 4
Appendix 4
“船舶能效管理体系—要求”与 ISO9001-2008 关系对照表
Cross reference between Energy Efficiency Management System-Requirements and ISO9001-2008

第 2 章 船舶能效管理体系—要求 Chapter 2 Ship Energy Efficiency Management System-Requirements		ISO9001-2008	
总要求 Overall requirements	2.1	1	范围 Scope
		2	引用标准 Normative references
		3	术语和定义 Terms and definitions
		4	质量管理体系 Quality management system
		4.1	总要求 Overall requirements
管理职责 Management responsibilities	2.2	5	管理职责 Management responsibility
管理承诺 Management commitments	2.2.1	5.1	管理承诺 Management commitment
能效方针 Energy efficiency policy	2.2.2	5.3	质量方针 Quality policy
作用、职责和权限 Functions, responsibilities and limitations	2.2.3	5.5	职责、权限与沟通 Responsibility, authority and communication
策划 Planning	2.3	5.4	策划 Planning
能效因素 Energy factors 法律法规、标准及其他要求 Laws, regulations, standards and other requirements 能效管理基准与标杆 Energy efficiency management baseline and benchmark	2.3.1 2.3.2 2.3.3	5.4.2	质量管理体系策划 Quality management system planning
能效目标和指标 Energy efficiency goals and indexes	2.3.4	5.4.1	质量目标 Quality objectives
能效管理计划 Energy efficiency management plans	2.3.5	5.4.2	质量管理体系策划 Quality management system planning
实施与运行 Implementation and operation	2.4	7	产品实现 Product realization
资源 Resources	2.4.1	6 6.1 6.2 6.2.1	资源管理 Resource management 资源提供 Provision of resources 人力资源 Human resources 总则 General
能力、培训和意识 Competence, training and awareness	2.4.2	6.2.2	能力、意识和培训 Competence, training and awareness

船舶能效管理认证规范
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信息交流 Exchange of information	2.4.3	5.5.3 7.2.3	内部沟通 Internal communication 顾客沟通 Customer communication
文件 Documents	2.4.4	4.2 4.2.2	文件要求 Documentation requirements 质量手册 Quality manual
文件控制 Document control	2.4.5	4.2.3	文件控制 Control of documents
记录控制 Record control	2.4.6	4.2.4	记录控制 Control of records
运行控制 Operation control	2.4.7	7 7.1 7.2 7.2.1 7.2.2 7.3 7.3.1 7.3.2 7.3.3 7.3.4 7.3.5 7.3.6 7.3.7 7.4 7.4.1 7.4.2 7.4.3 7.5 7.5.1	产品实现 Product realization 产品实现的策划 Planning of product realization 与顾客有关的过程 Customer-related processes 与产品有关的要求的确定 Determination of requirements related to the product 与产品有关的要求的评审 Review of requirements related to the product 设计和开发 Design and development 设计和开发策划 Design and development planning 设计和开发输入 Design and development inputs 设计和开发输出 Design and development outputs 设计和开发评审 Design and development review 设计和开发验证 Design and development verification 设计和开发确认 Design and development validation 设计和开发更改的控制 Control of design and development changes 采购 Purchasing 采购过程 Purchase process 采购信息 Purchasing information 采购产品的验证 Verification of purchased products 生产和服务提供 Production and service provision 生产和服务提供的控制 Control of production and service provision

船舶能效管理认证规范
Rules for Certification of Ship Energy Efficiency Management

		7.5.2	生产和服务提供过程的确认 Validation of processes for production and
		7.5.3	服务提供 service provision
		7.5.4	标识和可追溯性 Identification and traceability
		7.5.5	顾客财产 Customer property
		7.5.5	产品防护 Preservation of product
		8.3	不合格品控制 Control of nonconforming product
应急准备和响应 Emergency preparation and response	2.4.8	8	测量、分析和改进 Measurement, analysis and improvement
检查与纠正 Check and correction	2.5	8.1 8.2 8.2.1 8.2.3 8.2.4 8.4	总则 General 监视和测量 Monitoring and measurement 顾客满意 Customer satisfaction 过程的监视和测量 Monitoring and measurement of processes 产品的监视和测量 Monitoring and measurement of product 数据分析 Analysis of data
监测、测量 Monitoring and measuring 总则 General 监测方法 Monitoring methods 监测系统 Monitoring system	2.5.1 2.5.1.1 2.5.1.2 2.5.1.3	7.6	监视和测量装置的控制 Control of monitoring and measuring equipment
监测和测量设备 Monitoring and measuring equipment	2.5.1.4	8.2.3 8.2.4	过程的监视和测量 Monitoring and measurement of processes 产品的监视和测量 Monitoring and measurement of product
评价 Evaluation	2.5.2	8.3 8.5	不合格品控制 Control of nonconforming product
激励 Incentive	2.5.3	8.5.1	改进 Improvement
自愿性报告 Voluntary report	2.5.4	8.5.2 8.5.3	持续改进 Continual improvement
不符合、纠正、纠正措施和预防措施 Non-conformity, correction, corrective actions and preventive measures	2.5.5		纠正措施 Corrective action 预防措施 Preventive action
内部审核 Internal audit	2.5.6	8.2.2	内部审核 Internal audit

船舶能效管理认证规范
Rules for Certification of Ship Energy Efficiency Management

管理评审 Management review	2.6 2.6.1	5.6 5.6.1	管理评审 Management review
总则 General	2.6.2 2.6.3	5.6.2 5.6.3	总则 General
评审输入 Review input			评审输入 Review input
评审输出 Review output			评审输出 Review output

附录 5 船舶能效数据报告格式

Appendix 5 Ship Energy Efficiency Data Forms

表 a: 散货船、液货船、普通货船、气体运输船、载运集装箱及其它货物的船舶、滚装货船报告表格

Form a: for bulk carrier, tanker, general dry cargo ship, gas carrier, ships carrying containers and other type of cargoes, and ro-ro cargo ship

船名: _____ 航次序号: _____
Name of ship: _____ Voyage No.: _____

航段 Voyage	出发港 Port of departure	到达港 Port of arrival	航行 里程(海 里)[1] Voyage distance (nautical mile) [1]	燃油消耗量 (吨) Fuel consumption quantity (t)				载货量 (吨) Cargo capacity (t)			起止 时间 Beginning and ending time
				重燃料油 Heavy fuel oil [2]	轻燃料油 Light fuel oil [3]	柴油 Diesel oil [4]	其他 Others	载货量-吨 Cargo capacity-t	载货量 -TEU Cargo capacity- TEU	压载量 Ballast capacity [5]-吨	
1											
2											
3											
...											
N											

表 b 集装箱船

Form b: for container ship

船名 : _____ 航次序号: _____
Name of ship: _____ Voyage No.: _____

航段 Voyage	出发港 Port of departure	到达港 Port of arrival	航行 里程(海 里)[1] Voyage distance (nautical mile) [1]	燃油消耗量 (吨) Fuel consumption quantity (t)				载货量 (吨) Cargo capacity (t)			起止 时间 Beginning and ending time
				重燃料油 Heavy fuel oil [2]	轻燃料油 Light fuel oil [3]	柴油 Diesel oil [4]	其他 Others	载货量-吨 Cargo capacity-t	载货量 -TEU Cargo capacity- TEU	压载量 Ballast capacity [5]-吨 t	
1											
2											
3											
...											
N											

表 c 客船 (包括客滚船)

Form c: for passenger ship (including ro-ro passenger ship)

船名 : _____ 航次序号: _____
Name of ship: _____ Voyage No.: _____

船舶能效管理认证规范
Rules for Certification of Ship Energy Efficiency Management

航段 Voyage section	出发港 Port of departure	到达港 Port of arrival	航行 里程(海 里)[1] Voyage distance (nautical mile) [1]	燃油消耗量 (吨) Fuel consumption quantity (t)				载货量 (吨) Cargo capacity (t)			起止 时间 Beginning and ending time
				重燃料油 Heavy fuel oil [2]	轻燃料油 Light fuel oil [3]	柴油 Diesel oil [4]	其他 Others	总吨 Tonnage	载人数 Number of people	压载量 Ballast capacity [5]-吨 t	
1											
2											
3											
...											
N											

[1] 船舶航行里程系指船舶考虑航段内的实际航行距离，取自船舶航海日志；

The voyage distance means the actual distance of the ship, taken from the ship official log book;

[2] 重燃料油（HFO）系指 ISO8217 Grades RME through RMK（HFO），包括 380、250、180、120、100 等油品。

Heavy fuel oil means the ISO8217 Grades RME through RMK (HFO), including the 380, 250, 180, 120 and 100 etc.

[3] 轻燃料油（LFO）系指 ISO8217 Grades RMA through RMD（MDO）。

Light fuel oil means ISO8217 Grades RMA through RMD (MDO).

[4] 柴油（DIESEL）系指 ISO8217 Grades DMX through DMC（MGO），包括 0 号，-10 号，-20 号等柴油。

Diesel means ISO8217 Grades DMX through DMC (MGO), including 0, -10 and -20 etc.

[5] 压载量系指三种载货状态，空载、满载、部分载货时的压载水量。

The ballast capacity means the ballast water quantity in three loading conditions, i.e. empty, full load and partial load.

附录 6 涉及 CEEMC/SEEMC 变更的各类审核要求
Appendix 6 Audit Requirements on the Modification of CEEMC/SEEMC

情景 Scenario	审核类型 Type of audit	审核最小范围 Minimum scope of audit	审核执行者 Carried out by	签发的证书 Certificate issued
1 公司名称变更 Change of company name	现场确认 Confirmation on site	① 验证公司组织机构和相关职责未发生根本改变。 Verify that Company organization and responsibilities remain essentially unchanged. ② 确保对 EEMS 已做出必需的变更。 Ensure that necessary changes have been made to EEMS documentation.	审核员 Auditor	按新公司名称重新签发 CEEMC (有效期限与原证书相同) Reissue DOC with new name (expiry date as pervious certificate)
2 公司地址变更 Change of company address	现场确认 Confirmation on site	在下次年度审核时, 验证变更。 Verify the modification in the next annual audit	审核员 Auditor	按公司新地址重新签发 CEEMC (到期日与原证书相同) Reissue DOC with new address (expiry date as pervious certificate)
3 增加 CEEMC 覆盖范围 Increase the coverage of CEEMC	现场附加审核 Additional audit on site	① 评审 EEMS 是否进行了适当修改。 Review changes to EEMS ② 评审新增范围内公司/船舶能效管理体系的运行情况, 验证相应的能效数据。 Review the effective functioning of the company/ship energy efficiency management system within the newly increased ships, and verify relevant energy efficiency data. ③ 评审内部审核结果。 Review the internal audit results.	审核员 Auditor	签发包括新增范围的 CEEMC, 到期日与原 CEEMC 相同。 Issue a new CEEMC including the newly increased ships, with the same expiry date as the previous CEEMC.
4 变更船名 Change of ship's name	船上确认 Verification on board	验证所有证书和文件上的船名的正确性。 Verify correct name on all certificates and documents.	审核员或验船师 Auditor or surveyor	在现有 SEEMC 上作更改并随后签发新证书。 Change name on existing SEEMC and subsequently issue new certificate
5 更换船旗 Change of flag	现场附加审核 Verification on board	① 验证是否持有有效的法定证书和船旗国签证。 Verify the ship has valid statutory certificates and flag endorsement. ② 验证是否满足船旗国的相关要求。 Verify the compliance with relevant requirements of the flag state	审核员或验船师 Auditor or surveyor	签发新的 SEEMC 证书 (有效期限与原证书相同)。 Issue a new SEEMC (expiry date as pervious certificate)
6 变更船舶经营/管理公司 Change of company	船舶初次审核 Initial shipboard audit	按本规范 5.3.1 要求进行审核。 Carry out audit as defined in 5.3.1 of the Rules.	审核员 Auditor	签发新的 SEEMC Issue a new SEEMC



附录7 CEEMC 格式
Appendix 7 CEEMC Format
中国船级社
CHINA CLASSIFICATION SOCIETY

No. _____

公司能效管理证书
COMPANY ENERGY EFFICIENCY MANAGEMENT CERTIFICATE

本证书系根据中国船级社《船舶能效管理认证规范》的规定签发。
Issued under China Classification Society's Rules For Certification Of Ship Energy Efficiency Management by China Classification Society.

公司名称及地址

Name and address of the Company: _____

公司识别码

Company Identification Number: _____

包括的分支机构

The branches included: _____

兹证明:该公司的能效管理体系和船舶能效数据¹已经审核和验证,满足本社《船舶能效管理认证规范》和 IMO. MEPC.1/Circ.683《船舶能效管理计划 (SEEMP) 制定导则》及 IMO. MEPC.1/Circ.684《船舶能效营运指数 (EEOI) 自愿使用指南》要求。认证范围如下:

THIS IS TO CERTIFY that, the energy efficiency management system and energy efficiency data of the company have been audited verified to comply with China Classification Society's Rules For Certification Of Ship Energy Efficiency Management, Guidance For The Development Of A Ship Energy Efficiency Management Plan (SEEMP)(IMO. MEPC.1/Circ.683) and Guidelines For Voluntary Use Of The Ship Energy Efficiency Operational Indicator (EEOI) (IMO.MEPC.1/Circ.684).Scopes of Accreditation are as below:

1、船舶类型²:

Type of ship: _____

2、货物类型:

Type of cargo: _____

3、主要航线:

Main shipping routes _____

本证书所依据的初次/换证审核日期:

Completion date of the **initial/renewal** verification on which this certificate is based: _____

本证书有效期至:

此期间须经定期审核。

This certificate is valid until _____ subject to periodical verification.

发证地点:

Place of issue: _____

发证日期:

Date of issue: _____

中国船级社

CHINA CLASSIFICATION SOCIETY

¹公司能效数据详见审核报告/The details of company energy efficiency data refer to the audit report.

² 船舶清单详见附录/Ship list of the company refers to appendix.

公司能效管理证书

COMPANY ENERGY EFFICIENCY MANAGEMENT CERTIFICATE

年度审核签证栏

ENDORSEMENT FOR ANNUAL VERIFICATION

No. _____

兹证明，按中国船级社《船舶能效管理认证规范》进行了定期审核和验证，公司能效管理体系和船舶能效数据满足中国船级社《船舶能效管理认证规范》和 IMO.MEPC.1/Circ.683 通函《船舶能效管理计划（SEEMP）制定导则》及 IMO.MEPC.1/Circ.684《船舶能效营运指数（EEOI）自愿使用指南》要求。

THIS IS TO CERTIFY that, at the periodical verification required by China Classification Society's Rules For Certification Of Ship Energy Efficiency Management, the energy efficiency management system and the energy efficiency data were found to comply with China Classification Society's Rules For Certification Of Ship Energy Efficiency Management, Guidance For The Development Of A Ship Energy Efficiency Management Plan (SEEMP)(IMO.MEPC.1/Circ.683)and Guidelines For Voluntary Use Of The Ship Energy Efficiency Operational Indicator (EEOI) (IMO.MEPC.1/Circ.684).

第一次年度审核
1st ANNUAL VERIFICATION

签署：
Signature: _____

地点：
Place: _____

日期：
Date: _____

第二次年度审核
2nd ANNUAL VERIFICATION

签署：
Signature: _____

地点：
Place: _____

日期：
Date: _____

第三次年度审核
3rd ANNUAL VERIFICATION

签署：
Signature: _____

地点：
Place: _____

日期：
Date: _____

第四次年度审核
4th ANNUAL VERIFICATION

签署：
Signature: _____

地点：
Place: _____

日期：
Date: _____



中国船级社
CHINA CLASSIFICATION SOCIETY

No. _____

船舶能效管理证书

SHIP ENERGY EFFICIENCY MANAGEMENT CERTIFICATE

本证书系根据中国船级社《船舶能效管理认证规范》的规定签发。

Issued under China Classification Society's *Rules for Certification of Ship Energy Efficiency Management*.

船名:

Name of ship: _____

船籍港:

Port of registry: _____

船舶类型:

Type of ship: _____

总吨位:

Gross tonnage: _____

国际海事组织编号:

IMO Number: _____

兹证明:

- 1 该船能效管理体系和能效数据¹已按中国船级社《船舶能效管理认证规范》要求进行了审核和验证;
- 2 审核和验证表明本船的能效管理体系和能效数据符合中国船级社《船舶能效管理认证规范》和《船舶能效管理计划 (SEEMP) 制订导则》(MEPC.1/Circ.683)、《船舶能效营运指数 (EEOI) 自愿使用指南》(MEPC.1/Circ.684) 的适用要求。

THIS IS TO CERTIFY that the energy efficiency management system and energy efficiency data of this ship:

1. have been audited/verified according to China Classification Society's *Rules for Certification of Ship Energy Efficiency Management*;
2. have been recognized to comply with China Classification Society's *Rules For Certification Of Ship Energy Efficiency Management & Guidance for The Development of Ship Energy Efficiency Management Plan (MEPC.1/Circ.683)\Guidelines for Voluntary Use of The Ship Energy Efficiency Operational Index (MEPC.1/Circ.684)*.

本证书所依据的初次/换证审核日期:

Completion date of the initial/renewal verification on which this certificate is based: _____

本证书有效期至:

此期间须经定期审核。

This certificate is valid until: _____, subject to periodical verification.

发证地点:

Issued at: _____

发证日期:

Date of issue: _____

中国船级社

CHINA CLASSIFICATION SOCIETY

¹ 船舶能效数据详见该船的能效数据案卷和本社的审核报告。

The details of ship energy efficiency data refer to China Classification Society's audit report .

船舶能效管理证书

SHIP ENERGY EFFICIENCY MANAGEMENT CERTIFICATE

No. _____

中间审核和附加审核(如需要)签证栏

ENDORSEMENT FOR INTERMEDIATE VERIFICATION

AND ADDITIONAL VERIFICATION (IF REQUIRED)

兹证明, 按中国船级社《船舶能效管理认证规范》的要求进行了定期审核和验证, 船舶能效管理体系和能效数据满足《船舶能效管理认证规范》和 IMO.MEPC.1/Circ.683《船舶能效管理计划 (SEEMP) 制定导则》及 IMO.MEPC.1/Circ.684《船舶能效营运指数 (EEOI) 自愿使用指南》要求。

THIS IS TO CERTIFY THAT, at the periodical verification required by China Classification Society's *Rules for Certification Of Ship Energy Efficiency Management*, the ship energy efficiency management system and energy efficiency data were found to comply with China Classification Society's *Rules for Certification of Ship Energy Efficiency Management & the Guidance for The Development Of A Ship Energy Efficiency Management Plan (SEEMP)*(IMO.MEPC.1/Circ.683), *Guidelines for Voluntary Use of The Ship Energy Efficiency Operational Index (EEOI)*(IMO.MEPC.1/Circ.684).

中间审核

INTERMEDIATE VERIFICATION

(在第2个和第3个周年日之日完成)

(to be completed between the second and third anniversary date)

签署:

Signature: _____

地点:

Place: _____

日期:

Date: _____

附加审核

ADDITIONAL VERIFICATION

签署:

Signature: _____

地点:

Place: _____

日期:

Date: _____

附加审核

ADDITIONAL VERIFICATION

签署:

Signature: _____

地点:

Place: _____

日期:

Date: _____

船舶能效管理记录

Records of Ship Energy Efficiency Management

No. _____

注:

Notes:

1 本记录应永久附于 SEEMC 证书之后; SEEMC 证书应随时保存在船上。

This Record shall be permanently attached to SEEMC. The SEEMC shall be available on board the ship at all times.

2 记录应使用中文和英文, 发生争执或不一致时, 以中文为准。

The Record shall be in both Chinese and English. In case of dispute or discrepancy, the Chinese version shall prevail.

3 在方格内应填入(×)表示“是”和“适用”; 或填入(-)表示“不”和“不适用”。

Entries in boxes shall be made by inserting either: a cross (x) for the answers “yes” and “applicable”; or a dash () for the answers “no” and “not applicable”, as appropriate.

4 除非另有说明, 本记录中所提及的规范系指本社《船舶能效认证规范》, 决议或通函系指由国际海事组织通过的决议或通函。

Unless otherwise stated, the rules mentioned in this Record refer to the society’s Rules for Certification of Ship Energy Efficiency , and regulations or circulars refer to those adopted by the International Maritime Organization.

1 船舶资料 Ship information

1.1 船名

Name of ship: _____

1.2 IMO 编号

IMO Number _____

1.3 建造合同日期

Date of building contract: _____

1.4 总吨位

Gross tonnage: _____

1.5 载重吨

Deadweight: _____

1.6 船舶类型

Type of ship: _____

1.7 公司名称及地址

Name and address of the company: _____

2 主要耗能设备

Main energy-consumption equipment

2.1 主推进机械:

Main propulsion system: _____

型式及数量

Type and Quantity : _____

额定功率及转速

Rated Power and Speed: _____

制造者及制造日期

Manufacturer and Date of Manufacture: _____

2.2 发电机组:

Generator Plants:

原动机型式及数量

Type & Quantity of Prime Mover: _____

额定功率, 电压

Rated Power and Voltage: _____

2.3 锅炉:

Boiler:

型式及数量

Type & Quantity: _____

设计压力

Design Pressure: _____

2.4 焚烧炉:

Incinerator:

型式/型号

Type/Model: _____

3 船舶能效管理体系文件

Ship energy efficiency management system document

3.1 船舶运行符合规范第 2 章要求的能效管理体系文件

The energy efficiency management system document as required in Chapter 2 of the Rules is being operated on board the ship.....□

能效管理体系文件开始实施日期: _____

The date from which the implementation of energy efficiency management system document on board the ship starts: _____

3.2 船舶制订并实施符合规范及 IMO 通函要求的船舶能效管理计划 (SEEMP)

The ship energy efficiency management plan (SEEMP) in compliance with the requirements of the Rules and IMO circulars has been formulated and implemented on board the ship.□

4 船舶能效检测方法

Measuring methods of ship energy efficiency

4.1 能效营运指数

Energy efficiency operational indicator..... □

4.2 中国政府规定的能耗强度指标和二氧化碳排放强度指标

Energy consumption intensity index and CO₂ emission intensity index stipulated by Chinese government..... □

4.3 其它能效指标和测量方法:

Other energy efficiency indexes and measuring methods..... □

5 船舶能效数据案卷

Ship energy efficiency data records

5.1 船上保存有证书有效期内各时段的包括 EEOI 在内的船舶能效数据/指标和自评估报告

The ship energy efficiency data/indexes (including EEOI) and self-evaluation reports of each period within the valid period of the certificate are kept on board the ship..... □

5.2 船舶能效数据/指标按规范（第 5 章）要求进行核查/验证

The ship energy efficiency data/indexes have been verified as defined in Chapter 5 of the Rules..... □

兹证明本记录准确无误。

THIS IS TO CERTIFY that this Record is correct in all respects.

签发于..... (记录签发地点) 审核员.....

Issued at: (Place of issuing) Auditor

(年/月/日) (签发日期) (签署)

(YY/MM/DD) (Date of issue) (Signed by)

(盖章)

(stamp)



中国船级社
CHINA CLASSIFICATION SOCIETY

No. _____

船舶能效核查证明
SHIP ENERGY EFFICIENCY
VERIFICATION STATEMENT

兹证明：应公司申请，署名审核员根据中国船级社《船舶能效管理认证规范》、IMO. MEPC.1/Circ.683 《船舶能效管理计划（SEEMP）制定导则》和 IMO. MEPC.1/Circ.684 《船舶能效营运指数（EEOI）自愿使用指南》要求，对下述船舶的“船舶能效管理计划（SEEMP）”、能效数据、能效改进绩效¹进行了核查和验证，相关内容如下：

THIS IS TO CERTIFY THAT, at the request of the company, the ship energy efficiency management plan (SEEMP), energy efficiency data and energy efficiency improvement performance¹ have been verified by the undersigned auditor(s) according to the applicable provisions of China Classification Society's *Rules For Certification of Ship Energy Efficiency Management, Guidance for The Development of A Ship Energy Efficiency Management Plan (IMO. MEPC.1/Circ.683) & Guidelines for Voluntary Use of The Ship Energy Efficiency Operational Index (EEOI) (IMO.MEPC.1/Circ.684)*. Details are as below:

船名
Name of ship: _____

船籍港
Port of registry: _____

船舶类型
Type of ship: _____

总吨位
Gross tonnage: _____

国际海事组织编号
IMO Number: _____

《船舶能效管理计划》
SEEMP : _____

EEOI 或其它能效数据
EEOI or other energy efficiency data: _____

地点
Issued at: _____

日期
Date of issue: _____

中国船级社审核员
Auditor to CHINA CLASSIFICATION SOCIETY

¹ 不适用项删除。
Delete as appropriate.

附录 10 能效管理证书失效通知书格式

Appendix 10 Notification of Invalidation of Energy Efficiency Management Certificate



能效管理证书失效/撤消通知书
Invalidation/Withdrawal Notification of Energy Efficiency Management Certificate

公司能效管理证书 Company energy efficiency management certificate





船舶能效管理证书 Ship energy efficiency management certificate

船名: Name of ship:	(公司/船舶) IMO 编号: (Company/ship) IMO Number:
公司名称/地址: Name/address of company:	(公司/船舶) 能效管理认证证书编号: (Company/ship) Energy Efficiency Management Certificate No.:
证书失效/撤消原因: Reasons for invalidation/withdrawal of the certificate:	
1. 中国船级社《船舶能效认证规范》2.2.4.1 第 () 条; Clause () of 2.2.4.1 of China Classification Society's Rules For Certification of Ship Energy Efficiency Management	
2. 中国船级社《船舶能效认证规范》2.2.4.2 第 () 条; Clause () of 2.2.4.2 of China Classification Society's Rules For Certification of Ship Energy Efficiency Management	
3. 其他原因(请详细列出): Others (please specify):	
审核员 (签 署): _____ 日 期: _____ Auditor (signature): _____ Date: _____	
中国船级社 (印章) China Classification Society (Seal) 公司代表签收: Received by:	

船舶能效管理认证规范
Rules for Certification of Ship Energy Efficiency Management

签 名: _____	职 务: _____	日 期: _____
Signature:	Title:	Date:

船舶能效管理认证规范
Rules for Certification of Ship Energy Efficiency Management

 MEPC.1_Circ.681.pdf  MEPC.1_Circ.682.pdf  MEPC.1_Circ.683.pdf  MEPC.1_Circ.684.pdf