CHARTING THE FUTURE

ClassNK

FAQs on the FuelEU Maritime (1st Edition)

[English]

FuelEU Maritime

Contents

【Relevant Information】

Introduction

The Paris Agreement adopted in 2015 sets a common goal for the global GHG emissions reduction, which is to keep the increase in global average temperature to at least well below 2°C above pre-industrial levels while aiming to limit it to 1.5°C.

International shipping is no exception; the International Maritime Organization (IMO) adopted the 2023 IMO Strategy on Reduction of GHG Emission from Ships in July 2023, which includes a target for total annual GHG emissions from international shipping to be net-zero by or around 2050.

Meanwhile, in the European Union (EU), maritime transport to and from ports in the European Economic Area (EEA) accounts for approximately 11% of the EU's total transport CO2 emissions and 3% to 4% of the EU's total CO2 emissions, and unless further measures are taken, emissions from maritime transport are expected to increase. Therefore, EU has set a goal of reducing GHG emissions by at least 55% by 2030 compared to the 1990 levels, with the aim of achieving net zero emissions by 2050. In July 2021, a comprehensive climate policy package, "Fit for 55," was announced to achieve the 2030 target, including proposals of the extension of the **EU Emissions Trading System (EU-ETS)** to the shipping sector and **FuelEU Maritime** to promote the decarbonization of fuels used on board ships. It was subsequently decided that the EU-ETS will be introduced in the shipping sector from January 2024. As for the FuelEU Maritime, as both of European Parliament and the Council of the EU adopted the final text of regulations in July 2023, the FuelEU Maritime shall be introduced from January 2025.

This "FAQs on the FuelEU Maritime (1st Edition)" provides an overview of the FuelEU Maritime and the necessary preparations in a Q&A format to assist maritime stakeholders in their first efforts for the compliance with the FuelEU Maritime. Readers of this document may wish to note that many points are yet to be clarified about the practical implementation of the FuelEU Maritime, and thus the information provided herein is solely based on the information currently available. The latest information will be provided to the stakeholders without delay once further details become available.

We hope that the "FAQs on the FuelEU Maritime (1st Edition)" will help all the stakeholders in the shipping sector for their preparation for the FuelEU Maritime.

Q1. What is the FuelEU Maritime？

FuelEU Maritime is regulations to be introduced in EU/EEA Member States from 2025 with an aim of promoting the decarbonization of fuels used on board ships, and consists of: (1) provisions setting a limit of GHG intensity of energy used on board a ship; and (2) provisions requesting the use of on-shore power supply (OPS) or zero-emission technology in port (containerships and passenger ships only).

◆Countries to which FuelEU Maritime applies

FuelEU Maritime will be introduced in the 30 States (EEA States) consisting of 27 EU Member States and 3 States, namely, Norway, Iceland and Lichtenstein. In this document, the terms such as “EU/EEA Member States” or “EU/EEA ports” are used.

◆Responsibility

Shipping companies are responsible for the compliance with the FuelEU Maritime.

(1) An overview of provisions setting a limit of GHG intensity of energy used on board a ship

- Starts from 1 January 2025.
- Fuels used on board ships of over 5,000 GT, arriving at or departing from EU/EEA ports are in the scope of the FuelEU Maritime.
- For the fuels covered, a limit is set for the annual average of “GHG emissions per energy [gCO2eq/MJ]”, called as “GHG intensity”. This GHG intensity limit will be strengthened every five years. The GHG intensity is assessed on a life-cycle (Well-to-Wake) basis.
- The annual average GHG intensity is calculated on a shipping company basis.
- For the same ship, the GHG intensity can be carried forward to the following year (banking), or used in advance from the following year (borrowing). It is also possible to compensate the GHG intensity for multiple ships in the same year (pooling).
- In the case where the GHG intensity of a shipping company exceeds the limit, by paying a penalty for the excess, the shipping company is deemed to comply with the regulation.

(2) An overview of provisions requesting the use of on-shore power supply (OPS) or zero-emission technology in port (containerships and passenger ships only)

- Starts from 1 January 2030. (For some ports, starts from 1 January 2035.)
- Containerships and passenger ships over 5,000 GT should use an on-shore power supply (OPS), etc., when being moored in ports of EU/EEA Member States.
- There are exemptions, e.g., mooring for less than 2 hours is not applicable.
- Failure to comply with this provision is, by paying a penalty based on the amount of power, etc. during the mooring, deemed to be compliance.

Q2. What is an overview of the GHG intensity regulations？

◆Overview

This provision is to set a limit for the annual average of “GHG emissions per energy [gCO2eq/MJ]”, called as “GHG intensity”, for fuels used on board ships.

◆Ship to be covered

Ships over 5,000 GT arriving at or departing from ports under the jurisdiction of EU/EEA Member States are covered.

◆Greenhouse gases (GHGs) to be covered and the GHG intensity

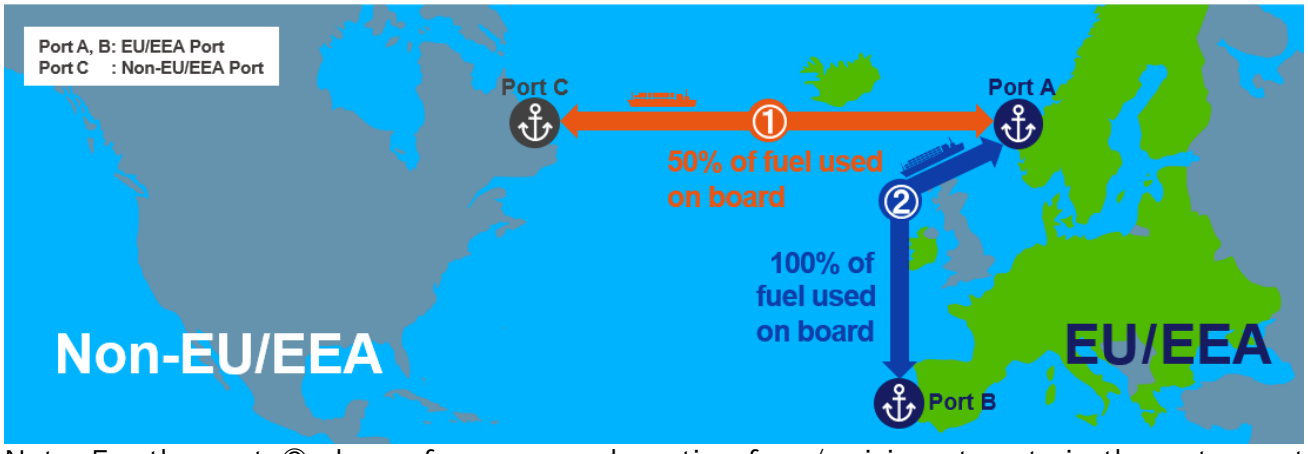
- The greenhouse gases (GHGs) covered are CO2, methane (CH4) and nitrous oxide (N2O).
- In calculating GHG intensity, not only GHG emissions on board ships (Tank-to-Wake), but also GHG emissions during production, distribution and storage of the fuel (Well-to-Tank) are included, i.e., on a life-cycle (Well-to-Wake) basis. The GHG emissions are assessed for each type of fuel.
- The GHG intensity is calculated by converting CO2, CH4 and N2O emissions into CO2 equivalent emissions in the unit “CO2 equivalent emissions per energy [gCO2eq/MJ]”.
- This energy is calculated on the basis of the fuel consumption as identified below.

◆Fuel consumptions to be covered

The fuel consumptions in the geographical scope of the FuelEU Maritime are as follows:

- Voyages between EU/EEA and non-EU/EEA ports (Route ①) :50% of consumptions
- Voyages within EU/EEA ports (Route ②) :100% of consumptions
- Berthing in EU/EEA ports :100% of consumptions

Voyages and berthing in the scope of FuelEU Maritime



Note: For the route② above, for voyages departing from/arriving at ports in the outermost regions of EU/EEA Member States, 50% of fuel consumption is covered instead of 100%.

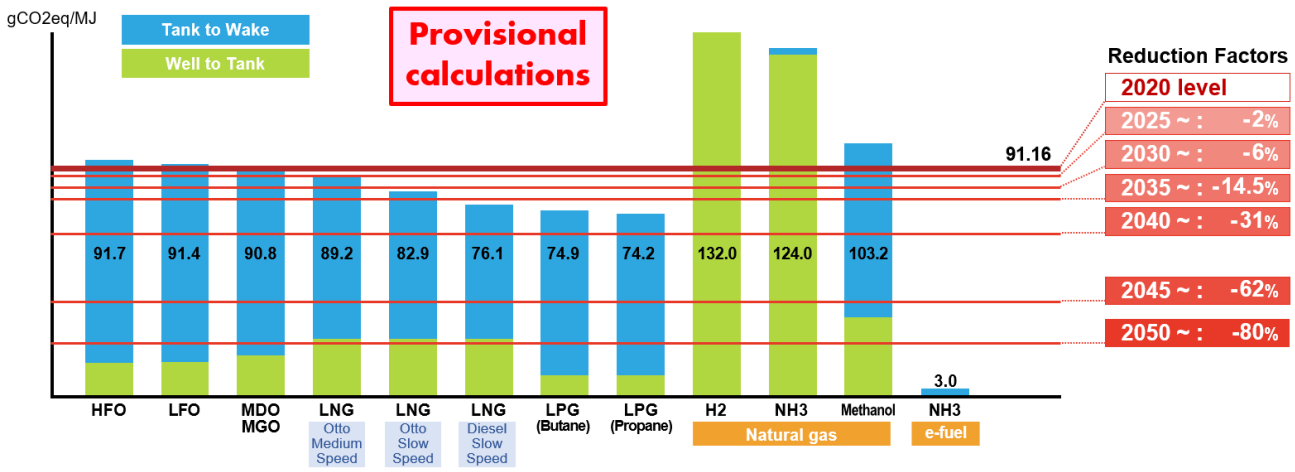
Q3. How will the energy used and GHG intensity be confirmed?

In the FuelEU Maritime regulations, the energy used by a ship and GHG intensity of the ship are confirmed based on the data collected under the FuelEU Monitoring Plan (see Q8).

In the FuelEU Maritime, GHG intensity is calculated on a life cycle (Well-to-Wake) basis. The GHG intensity of each fuel is calculated based on the emission factors determined for the Well-to-Tank and Tank-to-Wake parts, respectively, and the sum of those values is the GHG intensity of the fuel. For example, in the case of marine diesel oil (MDO), the GHG intensity of the Well-to-Tank part is 14.4 [gCO2eq/MJ] and that of the Tank-to-Wake part is 76.4 [gCO2eq/MJ], resulting in a total of 90.8 [gCO2eq/MJ] as the GHG intensity of the fuel.

The GHG intensity limit is strengthened every five years based on the 2020 level of 91.16. The GHG intensity values for each fuel and the limit values are outlined in the diagram below.

Overview of GHG intensity of each fuel and limits



If more than one type of fuel is used, the GHG intensity of the ship is the calculated by weighted average by energy used.

To incentivize the use of renewable fuels of non-biological origin (RFNBO), such as ammonia produced using renewable energy, the GHG intensity of those fuels is calculated as half. This measure applies from 1 January 2025 to 31 December 2033.

In addition, the data collected under the EU-MRV Regulations will be used as necessary when carrying out FuelEU Maritime monitoring and reporting. Details are expected to be announced by EC in due course.

Q4. How to calculate GHG intensity when biofuels are used?

In FuelEU Maritime, “biofuels” means “liquid fuel for transport produced from biomass.” Also, “biomass” means the biodegradable fraction of products, waste and residues from biological origin from agriculture, forestry, fisheries, aquaculture and related industries.

◆GHG intensity for Well-to-Tank

For biofuels, if they are certified under a scheme recognized by the EC, the measured GHG intensity of Well-to-Tank part can be used. However, for biofuels that are not certified such, or if they are produced from food and feed crops, it shall be considered to have the same emission factors as the least favourable fossil fuel pathway for that type of fuel.

◆GHG intensity for Tank-to-Wake

For the GHG intensity of Tank-to-Wake part, measured values can also be used if they are certified by means of laboratory testing or direct emission measurements. If it is not certified, the default values specified in the GHG intensity regulations should be used.

What is the EU-MRV regulations?

EU-MRV regulations require the monitoring, reporting and verification of fuel consumptions used onboard ships etc. during EU-related voyages which have been implemented since 2018. Ships of 5,000 GTs and above calling at EU ports are required to prepare a monitoring plan for their fuel consumptions and an emission report containing the records of their CO2 emissions for verification by an EU-accredited verifier.

ClassNK provides verification services as an accredited verification body under EU-MRV regulations.
https://www.classnk.or.jp/hp/en/authentication/eumrv/

Addition of the FuelEU Maritime functionality to ClassNK MRV Portal

ClassNK offers a system “ClassNK MRV Portal” for monitoring and verification of data required under EU-MRV and IMO-DCS regulations. For FuelEU Maritime, verification of FuelEU monitoring plan and FuelEU report are needed, so we will update the system to deal with the FuelEU requirements. We will inform shipping companies once the update is completed.

Q5. What is the “port of call” under the FuelEU Maritime?

Port of call under the FuelEU Maritime is defined as follows:

> *‘port of call’ means a port where ships stop to load or unload cargo or to embark or disembark passengers with the exclusion of stops for the sole purposes of refuelling, obtaining supplies, relieving the crew, going into dry-dock or making repairs to the ship, its equipment or both; stops in port because the ship is in need of assistance or in distress; ship-to-ship transfers carried out outside ports; stops for the sole purpose of taking shelter from adverse weather or rendered necessary by search and rescue activities; and stops of containerships in a neighbouring container transhipment port listed in the implementing act adopted pursuant to Article 2(2);*

As such, “stops of containerships in a neighbouring container transhipment port” are excluded from the *port of call* under the FuelEU Maritime, and the neighbouring container transhipment ports are “neighbouring container transhipment ports where the share of transhipment of containers, measured in twenty-foot equivalent unit, exceeds 65% of the total container traffic of that port during the most recent twelve-month period for which relevant data are available located outside the Union but less than 300 nautical miles of a port under the jurisdiction of a Member State.” It means that the voyages preceding and following such ports are considered as consecutive voyages.

By 31 December 2025, a list of such container transhipment ports will be established by the European Commission.

Ice-class ships under the FuelEU Maritime

The FuelEU Maritime allows ships having the ice class IC, IB, IA or IA Super or an equivalent ice class to exclude the additional energy consumption, due to sailing in ice conditions until 31 December 2034. In addition, it also allows ships having the ice class IA or IA Super or an equivalent ice class to exclude the additional energy consumption, due to the technical characteristics of the ship.

Q6. What is Banking, Borrowing, Pooling?

An overview of Banking, Borrowing, Pooling is outlined below.

◆Banking (for the same ship only)

If the ship's GHG intensity of a reporting year achieves the GHG intensity limit for that year, the overachievement can be carried forward to the following year. Banking should be recorded in the FuelEU database by the shipping company after approval by the verifier. However, the banking is not available after the issue of a FuelEU Document of Compliance.

◆Borrowing (for the same ship only)

If the ship's GHG intensity of a reporting year exceeds the GHG intensity limit for that year, the excess can be borrowed from the expected achievement for the following year. Borrowing amount can be counted to the GHG intensity calculation for the reporting year for the ship in question, but 1.1 times of the borrowed amount will be added to the following year. Borrowing is not allowed in the following cases:

(a) Expected achievement [gCO2eq] > 2% of the GHG intensity limit for the year [gCO2eq/MJ] × energy consumption for the year [MJ].

(b) Borrowing for two consecutive reporting years.

◆Pooling (in the same reporting period)

A shipping company can compensate the "achieved" and "failed to achieve" GHG intensity against the limits for multiple ships in a fleet in the same reporting period, by allocating an achieved GHG intensity of a ship to a ship having an unachieved GHG intensity, which is called pooling. Pooling can also be set up by two or more shipping companies.

To use the pooling, the following should also be noted:

- Up to two pools can be set up, but a ship cannot be included in more than one pool.
- GHG intensity of all ships in a pool should achieve the GHG intensity limit of the year.
- A ship that uses "borrowing" cannot be included in a pooling.

When pooling is used, shipping companies must register relevant information in the FuelEU database, including:

- Amount of achieved/not achieved GHG intensity limit for each ship.
- Allocation of the total GHG intensity limit achieved/not achieved for all ships in the pool.
- Information of the verifiers assessing that allocation (if verification of ships in the pool is carried out by more than one verifier).

Q7. What should I do for the FuelEU Maritime?

The specific preparations and their timelines required for shipping companies are as follows.

◆By 31 August 2024

A shipping company is requested to submit to the verifier a FuelEU Monitoring Plan, which sets out the methods for monitoring and reporting the amount of energy (fuel type and consumption) used by ships during voyages and at berth. For ships calling an EU/EEA port for the first time after 31 August 2024 are requested to submit a FuelEU Monitoring Plan to the verifier within 2 months of that port call.

The Monitoring Plan is assessed for the conformity with the requirements before the monitoring period starts and then recorded in the FuelEU database by the verifier.

◆On or after 1 January 2025

For each ship, the date and information identified in the FuelEU Monitoring plan should be recorded.

◆By 31 January 2026 (thereafter, by 31 January every year)

The data and information that are recorded for the previous reporting year should be submitted to the verifier as FuelEU Report for each ship. Subsequently, the report submitted will be assessed by the verifier by 31 March and recorded in the FuelEU database.

◆By 30 April 2026 (thereafter, by 30 April every year)

A shipping companies can record banking, borrowing and pooling, as necessary, on the FuelEU database after the FuelEU Report is verified and recorded in the FuelEU database by the verifier, no later than 30 April.

◆By 30 June 2026 (thereafter, by 30 June every year)

Based on the information recorded in the FuelEU database, the shipping company receives a FuelEU Document of Compliance of the ship, issued by the verifier, if the shipping company meets both the provisions of the GHG intensity and the use of OPS, i.e., in case no need to pay a penalty.

On the other hand, if a shipping company did not meet the GHG intensity limit or there was a non-compliance with the use of OPS, necessary amount of the penalty should be paid by this date. Upon the confirmation that the penalty has been paid, the shipping company will receive a FuelEU Document of Compliance issued by the competent authority.

Q8. What is the FuelEU Monitoring Plan and the FuelEU Report？

In accordance with the timeline identified in Q7, shipping companies should prepare a FuelEU Monitoring Plan and have it assessed by a verifier before the start of the monitoring year. once the monitoring year ends, a FuelEU Report should be prepared for submission to the verifier. The FuelEU Monitoring Plan and FuelEU Report should include the following info.

◆FuelEU Monitoring Plan

The FuelEU Monitoring Plan should include relevant information, such as:

- Ship’s type/name/IMO number/shipowner and information of the shipping company;
- Sources of Energy to be used on board while in navigation and at berth;
- Procedures for monitoring the fuel consumption of each fuel type;
- Procedures for monitoring the WtT and TtW emission factors of energy to be used;
- Standards and characteristics of OPS or a zero-emission technology; and
- Value of the established total electrical power demand of the ship at berth.

The FuelEU Monitoring Plan is required to be updated and assessed by a verifier as appropriate when changing shipping companies or using new types of fuel, etc.

◆FuelEU Report

The FuelEU Report should include relevant information, such as:

- Departure and arrival ports (including date and time);
- Amount of fuels used while at berth and at sea; and
- Amount of electricity supplied to the ship through the OPS.

Based on the information provided in the FuelEU Report, the verifier makes necessary calculations, including:

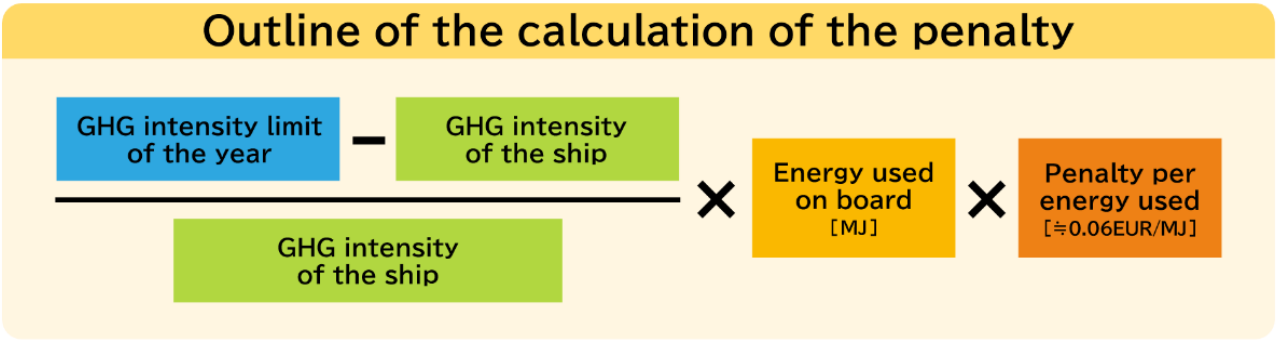
- Yearly average GHG intensity of the energy used on board by the ship concerned;
- Amount of the yearly energy from the RFNBO used on board by the ship;
- GHG emissions for which the GHG intensity limit was achieved or not achieved;
- Number of non-compliant port calls for the use of OPS.

In the event of a change in the ship’s shipping company during a monitoring year, the previous shipping company should promptly submit the necessary data for the period under its control to the verifier. The verification is then completed by the verifier within one month after the change, and the data is recorded by the verifier in the FuelEU database. In addition, the responsibility for compliance with FuelEU Maritime requirements for the entire monitoring period rests with the shipping company that manages the ship as of 31 December of the year.

Q9. How is the penalty calculated for GHG intensity provisions?

Under GHG intensity provision, if the GHG intensity of the fuel used on board exceeds the GHG intensity limit for the year in question, a penalty should be paid. The amount of the penalty is calculated according to the type of fuel and the amount of the fuel used, etc.

The formula for calculating the penalty for a ship is outlined below.



If the calculation result of the formula is negative, the penalty will be incurred being converted to the absolute value of it. If multiple fuels are used, the ”GHG intensity of the ship” in this calculation formula is the weighted average GHG intensity of the fuels used.

For ships that have failed to achieve the GHG intensity limit for two or more consecutive years, the amount of the penalty is multiplied by 1+(n－1)/10, where n is the number of years to which the penalty applies. For example, a ship that needs to pay the penalty for two consecutive years, the amount of the penalty for the second year will be 1.1 times of the amount calculated using the formula above.

How are the revenues from the FuelEU Maritime used?

Revenues from the penalty of the FuelEU Maritime will be used to support the introduction and promote the use of renewable and low-carbon fuels in the maritime sector. It is envisaged to encourage the production of more renewable low-carbon fuels in the maritime sector, facilitate the construction of on- shore power supply facilities in ports and support the development, testing and implementation of innovative technologies to achieve significant GHG emission reductions.

Q10. Who pays the penalties in FuelEU Maritime?

In the FuelEU Maritime, a "company" which is defined as follows, should comply with regulations:

'company' means the shipowner or any other organization or person such as the manager or the bareboat charterer, which has assumed the responsibility for the operation of the ship from the shipowner and has agreed to take over all the duties and responsibilities imposed by the International Management Code for the Safe Operation of Ships and for Pollution Prevention.

In addition, the following provisions are also included in the FuelEU Maritime.

The *company* shall remain responsible for the payment of the FuelEU penalties, without prejudice to the possibility for the company to conclude contractual agreements with the commercial operators of the ship that provide for the liability of the commercial operators to reimburse the company for the payment of the FuelEU penalties, when the responsibility for the purchase of the fuel or the *operation of the ship* is assumed by the commercial operator. For the purposes of this provision, *operation of the ship* shall mean determining the cargo carried, the route and the speed of the ship.

FuelEU Maritime and the IMO's candidate mid-term measures

IMO, at MEPC 80 in July 2023, adopted the 2023 IMO Strategy on Reduction of GHG Emissions from Ships, having the levels of ambition to reach net-zero GHG emissions by or around, i.e., close to 2050. As mid-term measure, economic measures such as carbon pricing mechanism and technical measures such as phased reduction of fuels' life-cycle-based GHG intensity, like the FuelEU Maritime, will be considered.

On the other hand, EU will consider states that, if IMO adopts a global measure on energy used by ships, the ambition and overall environmental integrity of the measure in the context of the goals of the Paris Agreement. EU will also consider possibilities, including the alignment of FuelEU Maritime with such global measures, the need to avoid duplication of regulations on GHG emissions from maritime transport at EU and international level.

Q11. What are the consequences of failing to pay a penalty?

FuelEU Maritime sets out measures for the case that the penalty was not been paid.

Where a ship fails to comply with the regulation to have a FuelEU Maritime Document of Compliance for two or more consecutive reporting years, the competent authority of EU/EEA Member State of the port of call may issue an expulsion order. Every Member State shall refuse entry of the ship which is subject to the expulsion order into any of its ports until the company fulfils its obligations.

Addition of the FuelEU Maritime functionality to ClassNK ZETA

ClassNK released ClassNK ZETA (Zero Emission Transition Accelerator) in 2022 to efficiently manage GHG emissions from ships.

ClassNK ZETA, linked to the ClassNK MRV Portal storing various data provided by ships, is equipped with the functions to enable the constant monitoring of CO2 emissions and CII ratings for individual ships as well as for the entire fleet, and to simulate how CO2 emissions and CII ratings are changed with slow steaming, etc. Currently, ClassNK ZETA is serving more than 5,000 ships.

In relation to the introduction of the FuelEU Maritime regulation from 2025, ClassNK ZETA will in a future add the ability to calculate the GHG intensity required for FuelEU Maritime compliance and to manage fleet-wide compliance with the regulation. Please utilize ClassNK ZETA for the compliance with the EU-ETS for shipping.

ClassNK ZETA as a cloud service is accessible immediately with only a simple application. Please place the application from “ClassNK ZETA application form” in the following website: https://www.classnk.or.jp/hp/en/info_service/ghg/nk-zeta.html

Q12. What is an overview of the use of on-shore power supply?

◆Overview of provisions requesting the use of on-shore power supply (OPS) or zero-emission technology in port(containerships and passenger ships only)

From 1 January 2030, containerships and passenger ships are required to use an on-shore power supply (OPS) for all electricity d while moored in EU/EEA ports. These ports will be identified in a separate EU regulation. In addition, from 1 January 2035, ships moored at the quayside which is not covered by the above-mentioned ports will also be required to connect to OPS, where the port is equipped with available OPS.

However, the obligation to use OPS shall not apply to ships that:

- are moored at the quayside for less than two hours;
- use zero-emission technologies, such as fuel cells, batteries, wind or solar power, for all their electrical power demand at berth, while moored at the quayside;
- have to make an unscheduled port call for reasons of safety or saving life at sea;
- are unable to connect to OPS due to the unavailability in a port;
- are unable to connect to OPS because exceptionally the electrical grid stability is at risk;
- are unable to connect to OPS because the shore installation at the port is not compatible with the onboard on-shore power equipment;
- for a limited period of time, require the use of onboard energy generation, under emergency situations representing immediate risk to life, the ship or the environment or for other reasons of force majeure; or
- while remaining connected to OPS, for a period of time limited to what is strictly necessary, require the use of onboard energy generation for maintenance tests or for functional tests carried out at the request of an officer of a competent authority or the representative of a recognised organization undertaking a survey or inspection.

◆Penalties for the failure to comply with provisions requesting the use of OPS

Failure to comply with this provision is, by paying a penalty based on the amount of power, etc. during the mooring, deemed to be compliance. The formula for calculating the penalty is as follows:

Penalty [EUR] =

1.5 [EUR] × Total electrical power demand of the ship at berth [kW] × Total number of hours (rounded up to the nearest whole hour) spent at berth by the ship in non-compliance with the requirements [hour]

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