



TECHNICAL INFORMATION

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Title: Initial implementation guidelines following the introduction of EU ETS in the maritime sector

In pursuit of its commitment to reduce greenhouse gas emissions, the European Commission (EC) unveiled the 'EU Fit for 55' package in July 2021. This legislative initiative aims to achieve a 55% reduction in greenhouse gas emissions by 2030, compared to 1990 levels. Notably, within the 'Fit for 55' package, the European Union Emission Trading System (EU ETS) has been introduced, particularly impacting the international maritime sector.

From January 1, 2024, ships with a gross tonnage of 5,000 or more, irrespective of their flag state, calling at ports within the jurisdiction of a Member State of the European Economic Area (EEA) are obligated to purchase EU Allowances (EUA) corresponding to the greenhouse gas emissions generated during their EU MRV voyages on an annual basis. These EUA must be submitted to the administering authority for each shipping company. Non-compliance may result in fines and measures such as a prohibition on entering ports within the EEA territory.

Therefore, the Korean Register has issued a technical information to provide details related to the application of EU ETS in the maritime sector, the process of purchasing emission allowances, and opening accounts for the submission of emission allowances. We encourage stakeholders to refer to this information for guidance on relevant procedures.

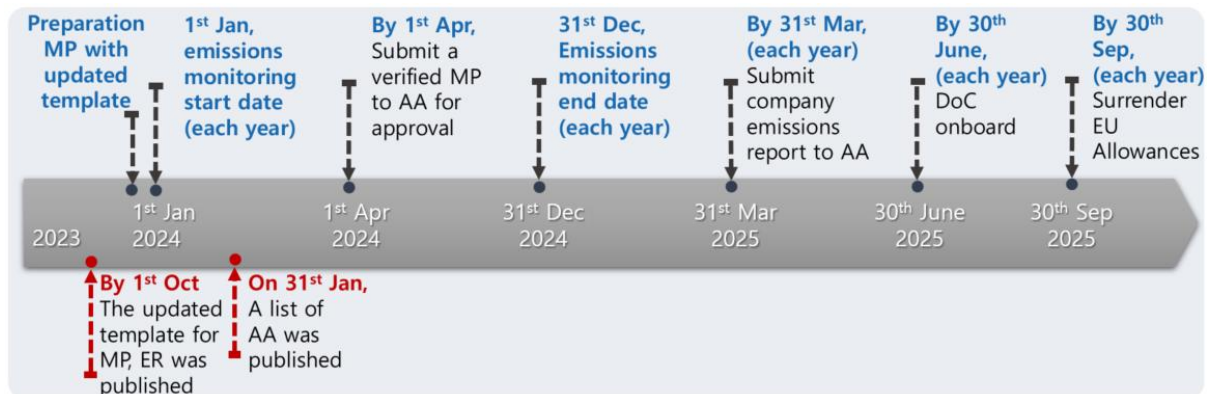
* Attachment

1. Commission Implementing Decision (EU) 2024/411

1. Overview of EU ETS in maritime sector

– To comply with EU ETS regulations in the maritime sector, shipping companies need to refer to the following timeline:

- On January 31, 2024, the list of administering authorities¹ for each shipping company was publicly disclosed by the EU.
- By April 1, 2024, each shipping company shall revise its Monitoring Plan (MP) and submit it to the administering authority (AA) for re-assessment by a verification body.
- From January 1 to December 31 (annually), for each EU MRV voyage conducted, shipping companies must monitor greenhouse gas emissions, including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).
- By March 31, 2025 (annually), shipping companies are required to submit verified emission reports for each vessel and emission reports at company level (CER) to the administering authority.
- By September 30, 2025 (annually), in accordance with EU ETS regulations, shipping companies must purchase EUA corresponding to the greenhouse gas emissions and submit them to the administering authority.



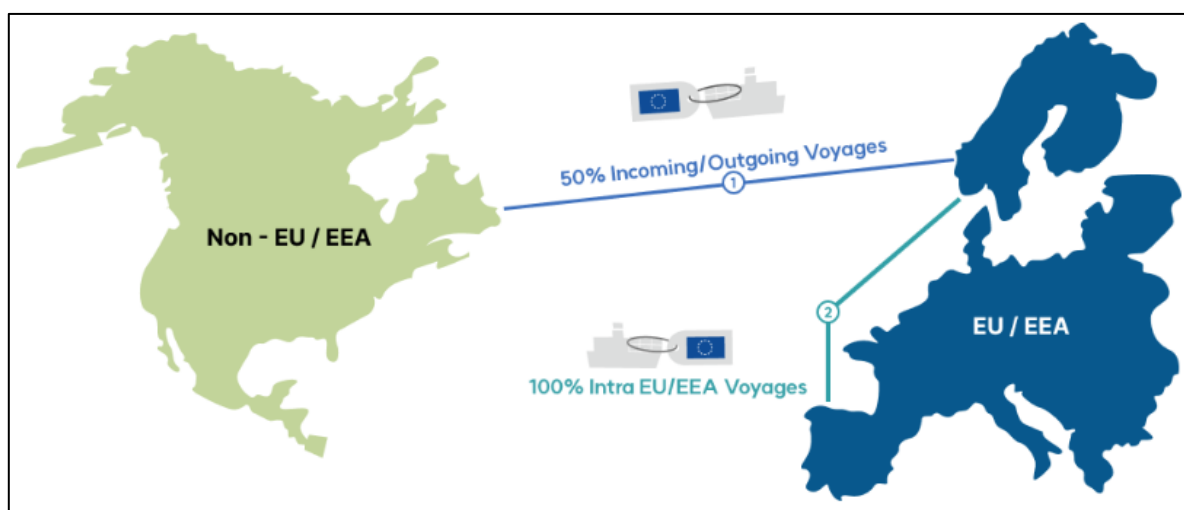
[Image] Timeline for implementation of EU ETS regulations

¹ Refer to Section 1.4 Administering Authority. The list of administering authorities can be found in the COMMISSION IMPLEMENTING DECISION (EU) 2024/411.

1.1 Applications

1) Scope of application

- Effective January 1, 2024, this regulation applies to ships carrying cargo or passengers with a gross tonnage of 5,000 or more that call at EU ports. It encompasses greenhouse gas emissions resulting from the following activities:
- Extra-EU Voyage (EU/EEA Member State ↔ EU/EEA Non-Member State port call): 50% of the emissions.
- Intra-EU Voyage (EU/EEA Member State ↔ EU/EEA Member State port call): 100% of the emissions.
- Emissions within EU Ports (Within EU ports): 100% of the emissions.



[Image] Greenhouse Gas Emission Application Ratios for EU ETS According to EU MRV Voyages

2) Applicable ship type

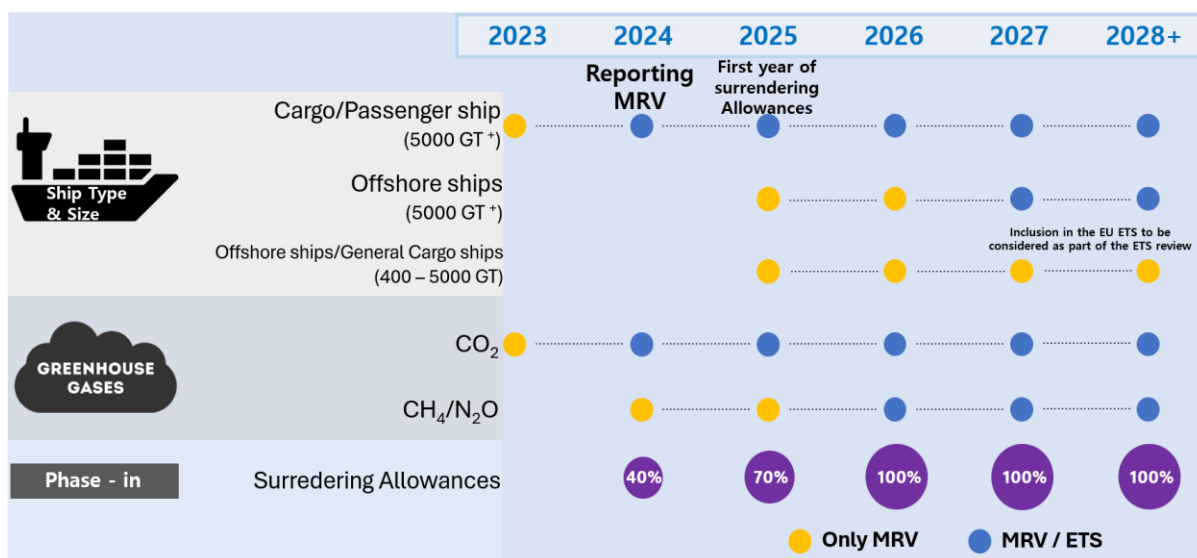
- Starting from 2027, offshore service vessels with a gross tonnage of 5,000 or more will also be subject to the regulation. The inclusion of offshore service vessels with a gross tonnage of 400 or more and general cargo ships will be determined after 2027.

3) Regulated greenhouse gases

- Regarding regulated greenhouse gases, until 2025, only carbon dioxide (CO₂) will be regulated. From 2026 onwards, both carbon dioxide (CO₂) and additional gases, methane (CH₄), and nitrous oxide (N₂O), will be included in the regulated greenhouse gases for ETS.

4) Phase-in

- In the initial two years following the inclusion of the maritime sector into the EU ETS (2024 and 2025), the greenhouse gas emissions used to determine the scope of EUA submissions will be gradually applied, starting at 40% of the 2024 emissions and progressing as follows:
 - 2024 Emissions (Submitted in 2025): 40% of the total CO₂ emissions
 - 2025 Emissions (Submitted in 2026): 70% of the total CO₂ emissions
 - From 2026 Emissions (Submitted in 2027) onwards: 100% of the total greenhouse gas emissions (CO₂, CH₄, N₂O).



[Image] EU ETS Overview, Source: FAQ–Maritime transport in EU ETS, European Commission

1.2 EU ETS and MRV Responsible Entity

- Under the EU ETS and EU MRV (Monitoring, Reporting, and Verification) regulations, the responsibility falls on the shipping company. This is defined as either the 'registered owner' or an organization or individual such as the ISM (International Safety Management) Company or charterer, who has taken over the operational responsibilities of the vessel from the registered owner. By assuming this responsibility, they agree to fulfill all duties and responsibilities imposed by the international management regulations for the safe operation and pollution prevention of vessels, as specified in Annex I of Regulation (EC) No 336/2006 of the European Parliament and of the Council.
- *The 'registered owner' refers to the entity listed as the owner on the ship's certificate of nationality and is assigned an IMO (International Maritime Organization) Unique Company and Registered Owner Identification Number.*
- In the context of EU ETS and MRV regulations, the responsible party can be either the registered owner or the ship's management company. According to these regulations, the responsible party for compliance with both ETS and MRV should be the same, and the registered owner and management company must determine the appropriate entity for compliance.
- If the management company is delegated authority by the registered owner, it can become the responsible party for EU ETS and MRV through an official contract including signatures of both parties. If no explicit decision is made by the registered owner and management company, the registered owner is by default responsible for compliance with ETS regulations. While the ship owner can delegate some operational tasks (like data collection and monitoring) to the ship manager, the EU Member States still consider the registered owner as the responsible party for fulfilling EU ETS and MRV obligations.
- A charterer cannot be considered the ship owner under EU ETS and MRV, but if they are delegated the responsibility of complying with the ISM Code, they can become responsible for the vessel's ETS and MRV obligations. Additionally, if a charterer is delegated authority by the registered owner, they can negotiate, and sign contracts related to EU ETS and MRV compliance with the

management company on behalf of the registered owner.

1.3 Transfer on ETS costs by shipping companies

- If the responsibility for fuel purchases and/or ship operations* is assigned to an entity other than the shipping company as per the contract, the shipping company has the right to a refund for these costs. In this regard, EU Member States must take necessary legal measures to enable shipping companies to receive reimbursement in such situations and provide legal grounds for enforcing this right on a country-by-country basis.

**Ship Operations: Refers to the decision-making regarding the transportation of cargo, routes, and vessel speed.*

1.4 Administering Authority (AA)

- Administering Authority means, under the EU ETS regime, the government agency with administrative responsibility for the implementation of the EU ETS. The role of the management authority is as follows:
 - Confirmation of shipping lines that implement EU MRV and EU ETS
 - Final approval of EU MRV Monitoring Plan (MP)
 - Receive a verified Company Emission Report (CER)
 - Check whether the shipping company implements the EU ETS
- Each shipping company subject to the EU ETS must have a designated administering authority. Until February 1, 2024, and every two years thereafter, the European Commission will republish the list of administering authority for each company for management in EU Member States. The administering authority for each shipping company is determined as follows based on the information provided by THETIS-MRV in accordance with the regulations specified in the EU ETS Directive.

- In the case of a shipping company registered in an EU Member State, this is the EU Member State in which the shipping company is registered.
 - For shipping company not registered in an EU Member State, this is the EU Member State with the highest estimated number of port calls in EU MRV voyages carried out the shipping company the past four years.
 - For shipping companies that are not registered in an EU Member State and have not undertaken voyages within the scope of the EU ETS Directive during the last four years of monitoring, their vessels have arrived or embarked on their first voyage within the scope of the EU ETS Directive. The EU Member State is designated as the administering authority.
- If a shipping company is not identified on the Administering Authority list to be published on February 1, 2024, it must request registration with the European Maritime Safety Agency (EMSA). Furthermore, if a company is not listed but has conducted EU MRV voyages, it will still be subject to ETS regulations.
 - When a registered owner is responsible for ETS regulation compliance, they are required to provide the Administering Authority with a list of ships subject to ETS and MRV regulations, including the vessel names and IMO Numbers.
 - If a registered owner delegates ETS and MRV responsibilities to a management company, they must submit documents (such as contracts) to the Administering Authority that verify this delegation. If these documents are in a language other than the Member State's official language or English, an English translation must be provided.
 - When an Administering Authority is assigned, the management company must obtain related delegation templates from the Authority and inquire about any additional required documentation. Documents concerning the delegation of responsibilities must also be submitted to the verification bodies during the verification of the vessel's Monitoring Plan.

1.5 Specific rules and derogations

1) Specific rules and exemptions applicable to the EU ETS until December 31, 2030

(1) Ships with an ice class of IA, IA Super or equivalent class.

- 5% reduction in required emission allowances

(2) The following voyages performed by passenger ships and Ro-pax ships:

- emission rights 100% discount on submission volume
- Voyages and port stays between mainland Member States, such as small islands (with a population of less than 200,000 and no road facilities) of EU Member States.
- International public service agreements linking two EU Member States and activities in international public service-related voyages and at ports
- The outermost region of an EU Member State and other ports in the same Member State and staying at ports



[Image] The EU and its outermost regions, Source: European Commission, https://ec.europa.eu/regional_policy/policy/themes/outermost-regions_en

2) RFNBO, RCF, biomass

- The European Commission will consistently deal with biomass and renewable liquid and gaseous fuels of non-biological origin (RFNBOs) and recycled carbon fuels (RCFs), even in other areas, including the maritime sector. The exact treatment of RFNBO and recycled carbon fuels will be determined by the

implementing acts are referred Article 14 of the EU ETS Directive. The implementing acts will be adopted within 2024.

- For biomass, carbon dioxide emissions from biomass that satisfy the sustainability criteria and greenhouse gas reduction criteria set by the European Union Renewable Energy Directive are treated as zero under the ETS Directive.

3) Application of CCU/S (Carbon Capture and Utilization or Storage) technology

- If the following conditions are satisfied, the emission allowances can be deducted for the carbon dioxide emissions.
 - CO₂ captured and transferred to an installation to be stored in a storage site in accordance with the CCS Directive
 - CO₂ utilised to become permanently chemically bound in a product so that it doesn't enter the atmosphere (subject to the conditions to be set out in the implementing acts under development; adoption is expected in the course of 2024).

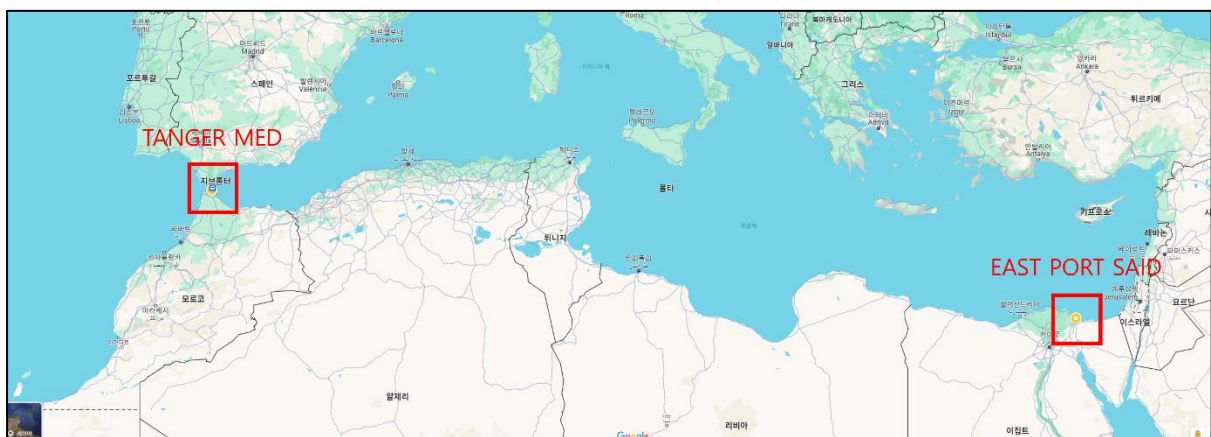
** Utilization technology: Divided into direct utilization technology that directly uses captured CO₂ and conversion technology that converts it into other useful products.*

1.6 Notes on implementing ETS regulations

1) Exceptions to port calls (container transshipment port)

- To reduce diversions of container ships to non-EU ports and the risk of transferring container transshipment activities outside the EU, Directive 2003/87/EC states that 'stopovers at adjacent container transshipment ports' do not qualify as 'port calls'. Such ports are identified as 'adjacent container transshipment ports' when they meet three criteria specified in Directive 2003/87/EC:
 - The port's container transshipment volume exceeds 65% of its total container volume over the most recent 12 months for which data is available.
 - Located within 300 nautical miles from a port under EU Member State jurisdiction.
 - The port's country does not apply equivalent measures to ETS.

- The European Commission adopted Implementing Regulation (EU) 2023/2297 on October 26, 2023, designating Tanger Med (Morocco) and East Port Said (Egypt) as 'container transshipment ports'. This list will be revised every two years.
- For container ships, even if they stopped at these two ports for cargo operations during an EU MRV voyage, these stopovers are not considered port calls. This means that docking at these ports does not mark the end of an EU MRV voyage but is considered a continuation of the voyage.



[Image] Containership transshipment ports, Source: Google Maps

2) Precautions for reporting blending oil emission factors

- Blended oils used in 2023 must be calculated using the emission coefficient calculated using the methodology for determining the emission coefficient specified in Table B.4 of the existing monitoring plan.

Data reporting period	Applicable emission factor
'23 EU MRV data (Reporting at 2024 year)	Apply the emission factor calculated using the emission factor determination methodology specified in the monitoring plan. The total consumption of blended oil should be reported as 'Other' and calculated emission factor should be reported as well.
'24 EU MRV data (Reporting at 2025 year)	Application of emission factors found in Annex I of Regulation (EU) 2023/2776. For blending oil, fuel consumption and emission factors for each fuel are to be reported separately.

[Table] Blending oil applied emission factor according to data reporting period

1.7 Penalties

- Ships calling at EU ports are required to purchase emission allowances corresponding to the greenhouse gas emissions generated by the vessel and submit them to the relevant authorities. Failure to submit the emission allowances or exceeding the submitted allowance amount results in a fine of 100 euros per excess ton of emissions.
- Even after paying the fine, additional emission allowances must be purchased and submitted for the unreported allowances within the following year.
- Furthermore, for ships violating the emission allowances submission requirements for two consecutive years, the administering authorities of the Member State may issue an expulsion order.

2. How to purchase EU Allowances (EUA)

1) Introduction to EU Allowances (EUA)

- The EU Allowances (EUA) is a type of greenhouse gas emissions allocation that allows companies to emit a certain amount of greenhouse gas emissions. Emissions can be bought and sold in the market, and the market price of emission allowances always changes depending on the supply and demand of emission allowances through auctions. It is important for shipping companies to consider the amount of greenhouse gas emissions per company that they emit before purchasing them and the amount that they need to submit emission allowances for that amount. Emission allowances can be obtained by means of primary and secondary markets (spot/futures/options).

2) Types of Emission allowances

- Emission allowances include EUA (European Union General Allowance) and EUAA (European Union Aviation Allowance). Shipping companies can use any of the two emission allowances to surrender emission allowances.

3) Emission Allowance Market

- Emission allowances can be purchased directly by shipping companies, or can be traded indirectly through brokers. This can be divided into primary market and secondary market, and the details are as follows.

(1) Primary market

- Emission allowances can be acquired in the primary market through bidding processes on the European Energy Exchange (EEX), which is presently appointed by the EU and its member countries to oversee this arrangement. The minimum transaction unit for the auction is at least 500 EUA (500tCO₂eq). Eligible applicants for auction bidding are as follows, and it is necessary to check the requirements of EEX for participation in the auction bidding.
 - Emissions Responsible Entity (MOHA (Maritime Operator Holding Account) Account Holder)
 - Investment firms and credit institutions entrusted with emission rights responsibilities.
 - Business grouping of persons listed in Emissions Responsible Entity
 - Public bodies or state-owned entities of the Member States that control Emissions Responsible Entity

**European Energy Exchange : Emissions trading platform that can trade emissions on behalf of 25 EU Member States and 3 EFTA countries.*

(2) Secondary market

- A secondary market exists where emission allowances can be traded directly between parties or through a range of derivatives offered by financial institutions. Emission allowances can be traded on exchanges and over-the-counter (OTC) markets, and its price fluctuates depending on supply and demand. The transaction unit is at least 1000EUA (1000tCO₂eq), and types include spot/futures/options.

3. Open an emissions account

3.1 Account opening procedure

- Opening an emissions account can be done through the 5-step process below. Account opening is possible through the EU login website², and installation of the EU login app (“EU Login”) is required. In addition, after the list of national administrators for each shipping company is designated, it is necessary to create a URID (Union Registry Identifier) in the Member-States designated as the national administrator, and the opened account can only be accessed by entering the registration key finally given.

Step	Method
Step 1	After creating an account with EU Login, register with the EU Login Authentication Service (“EU Login” app)
Step 2	Generation of URIDs for each Member State from the Union Registry
Step 3	Submit Application for account opening (Application form and supporting documents required by Member-States)
Step 4	Enter the registration key given by the Member-States
Step 5	Access to opened accounts

[Table] Account opening procedure

3.2 Union Registry

- The Union Registry is an IT system, similar to an online banking system, that is responsible for accounting for emissions allowances. This system manages the accounts of account operators and traders active in the emissions market, and manages emissions allowances obtained through auctions or secondary markets. It allows shipping companies to check the verified annual CO₂ emissions and also enables emissions trading between emissions trading

² <https://webgate.ec.europa.eu/tracesnt/login>

participants and records verified annual CO₂ emissions .

- Shipping companies shall register with the Union Registry to purchase emission allowances and apply for the opening of Maritime Operator Holding Account (MOHA) to the national administrators. In addition, shipping companies can open a Trading Account. The contact point for the administering authorities for account opening applications can be found on the Union Registry website³.

Information recorded in the Union Registry
List of ships covered by the ETS Directive
Accounts of companies holding emission allowances
Responsible entity's emission allowances trading records
Annual verified CO ₂ emissions
Annual reconciliation of allowances and verified emissions, where each company must have surrendered enough allowances to cover all its verified emissions.

[Table] Information recorded in the Union Registry

3.3 MOHA (Maritime Operator Holding Account)

- MOHA is a unique emissions allowances holding account for shipping companies. Through the Union Registry, shipping companies can register annual company level greenhouse gas emissions from 2025 years (2024 MRV data) until March 31 of each year, and surrender emission allowances for the reported greenhouse gas emissions by September 30. Each shipping company shall have no more than one maritime operator holding account.
- If a shipping company with a listed national administrator, MOHA information must be provided to the relevant national administrator within 40 business days or 65 business days after the first port of call in the EU Member-State of the operating ship and request the Union Registry to open MOHA.

³ https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/union-registry_en#links

- Authorized Representatives are required to open a MOHA, the national administrator opens a MOHA for each shipping company in the Union Registry within 20 to 40 business days or, if the account application is rejected, reports the refusal to open an account. The prospective account holder must be notified.

Supporting materials for opening a MOHA account
IMO Unique Company and Registered Owner Identification Number
Mandate by the registered owner to the ISM company (where the shipping company is the ISM company)
List of ships under the responsibility of the registered owner (where the shipping company is the registered owner)
Document identifying the structure of the group (if the shipping company is part of a group)
Bank account details, legal beneficial owner information, etc.

[Table] Evidence required to open a MOHA account

3.4 AR (Authorized Representatives)

- AR performs roles such as surrendering emissions allowances on behalf of shipping companies within the Union Registry account.
- Emission Allowances must comply with the 'Four Eyes Principle'. The 'Four Eyes principle' refers to the principle that at least two ARs are required for emissions trading, where one representative register and carries out the transaction, and another AR confirms it and gives final approval (Double-Check).
- When operating a MOHA account, a shipping company can designate a third party as the AR, and the AR of a third party can act as the AR of several shipping companies. The information that shipping companies must submit and obtain approval from the competent authority to designate an AR can be found in Annex 8 of the Union Registry Regulation (EU 2019/1122).

3.5 Account management fee

- Accounts registered in the EU's Union Registry must pay an account management fee to the authorities every year. Since each administering authority has different account fee policies, shipping companies must check the account management fee policy for each administering authority.

4. Preparation requirements for shipping companies to implement EU ETS regulations

1) Opening an account with the Union Registry and confirming the Administering Authority

- Confirmation of responsibility for ETS and MRV compliance between registered owner and ISM company
- Confirmation of Union Registry regulations and open an account
- After confirmation by the administering authority, request for opening MOHA

2) Monitoring plan (MP) update * and request verification, submit approved MP to Administering Authority

- Approved MP, submitted to management on THETIS-MRV by April 1, 2024

** In accordance with the revision of MRV regulations, it is necessary to prepare a monitoring plan with the information as follows.*

- Details on using carbon capture and storage technology (CCUS)
- Added emission factors for carbon dioxide (CO₂) as well as methane (CH₄) and nitrous oxide (N₂O)
- Emission factor for Biofuels, Renewable liquid and gaseous fuels of non-biological origin (RFNBOs), and Recycled Carbon Fuels (RCFs)
- Emission source from LNG and slippage coefficient for LNG-using
- Shipping company details (Administering authority of registered owner, ice class, etc.)
- Risk assessment and voyage data management methodology

3) Monitoring GHG emissions

- Monitoring greenhouse gas emissions according to the methodology specified in the MP.

4) Request for preparation and verification of Emissions report and submission to approved report Administering Authority

- Request for preparation and verification of individually registered emissions reports and company-level emissions reports (CERs)
- Approved emissions report required to be submitted to management authority by March 31, 2025

5) Purchase and submit EU Allowances

- Purchase and surrender emission allowances corresponding to greenhouse gas emissions submitted to the administering authority by September 30, 2025.
- Blended fuel , alternative fuel, exempt and derogations need to be checked

5. Technical Support Service For Shipping company by Korean Register

KR actively supports shipping companies to effectively respond to EU MRV and EU ETS regulations through KR GEARs, a greenhouse gas online management system. From January 2024, KR is providing updated features such as monitoring plan creation, EU ETS Calculator, and Voyage statement.

1) Creation of monitoring plan

- KR supports the preparation of an EU MRV monitoring plan for each vessel, reflecting the format required by Commission Implementing Regulation (EU) 2023/2449. Additionally, KR GEARs will provide the functions to download approved monitoring plans in XML file format and upload them to THETIS-MRV.

2) EU ETS Calculator

- Based on EU MRV data entered or verified in KR GEARs, KR provide a simulation function for the expected purchase cost of emission allowances by year in connection with emission allowances price information (EUA Spot/Future Price).

3) Voyage Statement

- Separate from the regular verification service, KR provides a verification service that frequently issues Voyage Statements on greenhouse gas emissions for some EU MRV voyages or periods of a ship. As a technical service for shipping companies voluntary implementation of EU ETS regulations, we issue statements to settle emission allowances costs between stakeholders such as ship managers, registered owners, charterers, and shippers.
- ※ As a follow-up to this technical document, our classification society plans to develop and distribute technical documents on EU-ETS and EU MRV regulations (new and revised).

Distributions : KR Surveyors, Ship owners, Other relevant Parties

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