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## **EU MRV LEGISLATION**

**Context & Implementation**

**White Paper**

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## Introduction

The major objective of the following document is to assist shipowners, companies, verifiers and stakeholders on the implementation of the MRV (Monitoring, Reporting and Verification) regulation.

The legislation (established under Regulation (EU) 2015/757 and amended by Delegated Regulation 2016/2072) will take place since 1<sup>st</sup> January 2018 and it is applied to big pollutant vessels, namely the ones having 5000 GT (Gross Tonnage) or higher and serving commercial purposes (carrying passengers or cargo), regardless of the flag or country of the shipowner. Ships considered in this category must monitor, report and verify information on CO<sub>2</sub> emissions during the maritime transport activities to or from EEA ports.

This document was prepared by Tecnoveritas and does not commit the European Commission. Only the Court of Justice of the European Union is competent to authoritatively interpret the Union law.

## The EU MRV Legislation

MRV is a recently created legislation by the European Council that has the goal of implementing restrictions to Green House Gases (GHG) emissions to maritime means of transportation, specifically CO<sub>2</sub>, considered the most hazardous gas among them. In fact, the EU MRV is only focusing on CO<sub>2</sub> emissions.

Its target obligates shipowners to monitor, report and verify CO<sub>2</sub> emissions, fuel consumptions and transport work of ships.

## The Purpose of MRV

Maritime transportation has a considerable environmental impact. That is reflected in GHG emissions (carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), sulphur oxides (SO<sub>x</sub>), methane (CH<sub>4</sub>)) as well as safety and health impact (particulate matter (PM) and black carbon (BC)).

Between 1990 and 2007 the resulting CO<sub>2</sub> emissions from maritime transportation increased 48%. Due to this fact it was urgent to take measures and, therefore, the best possible option was to set up a system for monitoring, reporting and verification (MRV system) of CO<sub>2</sub> emissions based on the fuel consumption of ships as a first step of a staged approach.

## The Penalties

There are strict penalties in case of non-compliance. Those penalties should be effective, proportionate and dissuasive. The penalties are defined by each Member State.

It is appropriate to provide the possibility of expulsion for ships that failed to comply for two or more consecutive reporting periods with monitoring and reporting requirements.

## Ships Categories

MRV regulation is applied to big pollutants namely, ships with 5000 GT (Gross Tonnage) or higher, ships for commercial purposes (carrying passengers or cargo), regardless of the flag or country of the shipowner during their voyages from/to EEA ports.

Nevertheless there are ships exempted from MRV:

- ▶ Warships;
- ▶ Naval auxiliaries;
- ▶ Fish-catching or fish-processing ships: Wooden ships of a primitive build;
- ▶ Ships not propelled by mechanical means;
- ▶ Government ships used for non-commercial purpose;
- ▶ Dredging; Ice-breaking;
- ▶ Pipe laying;
- ▶ Offshore installation activities.

## Activities covered by the Regulation

The MRV Regulation sets monitoring and reporting obligations for EEA- related voyages carried out after 1<sup>st</sup> January 2018. Among the activities it covers:

- ▶ Activities starting or ending in a port of call serving the purpose of transporting passengers and cargo for commercial purposes (voyages).
- ▶ Ballast voyages (where ships load or discharge cargo and/or passengers for commercial purposes between ports of call).

Any other ship activities that does not serve the purpose of transporting cargo or passengers for commercial purposes are not subject to the monitoring, reporting and verification requirements (ex: ice-breaking, prospection and extraction of material, support to offshore installations).

## The definition of port of call and a voyage according to MRV

**Ports of call** correspond to a start or end point of a voyage, where ships stop to load or unload cargo, embark or disembark passengers. Does not count as a port of call, a stop for the purpose of refueling, gathering supplies, relieving crew members, going into dry-dock or provide reparations to the ship and its equipment. It is also not considered a port of call when for a reason of assistance, distress or by effect of adverse climacteric conditions a ship need take shelter.

In MRV context a **voyage** is considered a journey between two consecutive ports of call and an “EU MRV voyage” is considered when at least one of the ports of call is in the EU.

### The kind of voyages involved are:

- ▶ Voyages from ships that come from the last port of call outside of the EU to the first EU port of call;
- ▶ Voyages within EU ports of call;
- ▶ Voyages from EU ports of call to the first port of call outside the EU.

Besides the mentions voyages it should also be considered the laden voyages.

The Regulation contemplate “ship to ship transfers” outside ports, during a voyage variations of cargo should be considered and a weighted average of cargo should be determined and applied to the voyage.

### The EEA (European Economic Area)

The countries that are included in the regulation are part of the EU State Members, Iceland, Norway, and the EEA Outermost Region.



**Note:** Gibraltar is also a EU port.

## The parameters each ship should monitor and report

The most relevant information to be monitored and reported are:

- ▶ CO<sub>2</sub> emissions (based on emissions factors for each type of fuel);
- ▶ Fuel consumption at sea and at berth for each emission source;
- ▶ Voyage data (time at sea, distance travelled, cargo carried, transport work);
- ▶ Energy efficiency parameters (total fuel consumption per distance, total fuel consumption per transport work, total CO<sub>2</sub> emissions per distance, and total CO<sub>2</sub> emissions per transport work);
- ▶ Emissions sources (main engines, auxiliary engines, boilers, gas turbines, inert gas generators).

## The cargo and the number of passengers

Shipowners should monitor the cargo and the number of passengers transported per voyage. In order to perform it the type of ship is an important issue.

Type of Ships	Cargo	Units of Cargo
Passenger Ship	ship that carries more than twelve passengers but not cargo.	Passengers
Container Ship	ship designed exclusively for the carriage of containers in holds and on deck.	Tonnes
Oil tanker	ship constructed or adapted primarily to carry oil in bulk in its cargo spaces.	Tonnes
Chemical tanker	ship constructed or adapted for the carriage in bulk of any liquid product listed in the International Bulk Chemical Code (a chemical tanker) or a ship constructed or adapted to carry a cargo of noxious liquid substances in bulk	Tonnes
LNG carrier	tanker for the bulk carriage of liquefied natural gas (LNG) (primarily methane) in independently insulated tanks. Liquefaction is achieved at temperatures down to -163°C.)	Cubic meters
Gas carrier	tanker for the bulk carriage of liquefied gases other than LNG	Tonnes
Bulk carrier	ship which is intended primarily to carry dry cargo in bulk, including such types as other carriers	Tonnes

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Type of Ships	Cargo	Units of Cargo
Combination carrier	ship designed to load 100% dead weight with both liquid and dry cargo in bulk	Tonnes
General cargo	ship with multi-deck or single-deck hull designed primarily for the carriage of general cargo	Tonnes, Tones of dead-weight carried (ton)
Refrigerated cargo	ship designed exclusively for the carriage of refrigerated cargoes in holds	Tonnes
Vehicle carrier	ship designed for the carriage of empty cars and trucks	Tonnes, Tones of dead-weight carried (ton)
Ro-ro Ship	ship designed for the carriage of roll-on roll-off cargo transportation units or with roll-on roll-off cargo spaces	Tonnes
Ro-pax ship	passenger ship with roll-on roll-off cargo space	Tonnes, Tones of dead-weight carried (ton)
Container / ro-ro cargo ship	hybrid of a container ship and a ro-ro cargo ship in independent sections.)	Cubic meters
Other ship types	ships not covered by any of the above definitions which fall under the scope of the regulation	Tonnes, Tones of dead-weight carried (ton)

## MRV obligations

The MRV obligations (monitoring plan) are to be considered per ship and the entity fulfilling the obligations is the MRV Company. It can be either the shipowner or any person that assume the responsibility for the operation of the ship.

The Regulation allows the parties involved in the operation of each ship to determine, who assumes the MRV monitoring and reporting obligations.

### According to the Regulation, companies for each ship after 1<sup>st</sup> January 2018 must fulfill:

- ▶ **31<sup>st</sup> Aug.2017:** Companies must submit the Monitoring Plan to a MRV accredited verifier. It consists of a documentation of the monitoring method and procedures to be applied;
- ▶ **31<sup>st</sup> Dec.2017:** Shipowners must complete the Monitoring Plan assessment;
- ▶ **1<sup>st</sup> Jan.2018:** Initiates the first Reporting Period. Companies shall monitor the ships CO<sub>2</sub> emissions, fuel consumption and other relevant information with a view to aggregate data into an annual emissions report;



- ▶ **31<sup>st</sup> Dec.2018:** End of the first Reporting Period;
- ▶ **30<sup>th</sup> Apr.2019:** Companies must submit a satisfactorily verified emissions report to the EC and Flag State. MRV verifiers are to indicate that the report has been satisfactory and in conditions for issuing a Document of Compliance to be fulfilled;
- ▶ **30<sup>th</sup> Jun.2019:** Companies should carry on board a Document of Compliance (DOC) for the activities of the precedent calendar year.

For ships which call into EEA ports for the first time after the deadline (31<sup>st</sup> August 2017) for submitting monitoring plans, companies should submit a monitoring plan to an accredited verifier without delay, and no later than two months after the ship's first call at an EEA port.

A ship which has not carried out voyages during a whole reporting period of a calendar year X will not be required by the authorities to have a Document of Compliance on board showing compliance for that specific reporting period, when calling at EEA ports between 30<sup>th</sup> June of next year and 29<sup>th</sup> June of the subsequent one.

## The content and the format of the monitoring plan

Each company must assure an English translation of the assessed monitoring plan.  
The monitoring plan must follow a template as indicated in Regulation EU 2016/1927 Annex I.

### In terms of the content necessary, it must include:

- ▶ Vessel and Company data;
- ▶ Description of the Emission Sources on board (eg: main engines, auxiliaries, gas turbines, boilers, inert gas generators and types of fuel used);
- ▶ Description of procedures, systems and responsibilities;
- ▶ Procedures to monitor the voyages and its activity (departure and arrival points, date and time using Greenwich Mean Time, distance recorded, transport activity, cargo transported, data sources for determination and recording of time spent at sea between ports);

- ▶ Procedures for monitoring fuel consumption on the ship (method chosen for calculation, description of measuring equipment, procedure for measuring fuel and fuel supplies in tanks, method for determining density, procedure to ensure the total uncertainty inherent in measurements);
- ▶ Emission factors;
- ▶ Methodologies for sampling;
- ▶ Calculation of Energy Efficiency Average by one of the possible 4 methods: fuel consumption by distance, fuel consumption by activity, CO<sub>2</sub> emissions by distance or CO<sub>2</sub> emissions by activity;
- ▶ Methods of analysis and description of the laboratories used;
- ▶ Additionally, a number of voluntary fields that might be relevant for limited number of ship categories. These voluntary fields concern for example: Ice class Ship, time and distance spent at sea when navigating on ice, data sources and formulas to determine records (if applicable).

## The four possible methodologies

Shipowners can use any of the following methodologies:

- ▶ Bunker Fuel Delivery Note (BDN) and periodic stocktakes of fuel tanks;
- ▶ Bunker fuel tank monitoring on board;
- ▶ Flow meters for applicable combustion processes;
- ▶ Flow meters for applicable combustion processes.

## Conditions for a ship to be exempted

A ship can be exempt from the obligation to monitor a per-voyage basis, if:

- ▶ All of the ship's voyages during the reporting period are EEA-related voyages and
- ▶ The ship performs more than 300 voyages during the reporting period.

Both conditions need to be fulfilled at the beginning of the reporting period.

## Shipowner's Obligations

- ▶ Develop a monitoring plan (per voyage and annual) which must be submitted to an independent accredited verifier (until 31<sup>st</sup> August 2017 for assessment and completed before 31<sup>st</sup> December 2017)
- ▶ Provide to the verifiers emissions data (fuel consumption, GHG, energy efficiency) and ships activity data (distance, cargo, time spent at sea);
- ▶ Provide certifications of flowmeters and emissions source; Provide procedures and calculations;
- ▶ Provide monitoring methodologies for each emission source; Have its Emissions Report independently verified; Carry on board a Document of Compliance (DOC).

## The Verifier's Role

In order to fulfil MRV's obligations and avoid penalties shipowners should require the assistance of an independent accredited entity – the verifier, which has the following responsibilities:

- ▶ Check the client's monitoring plan, assuring its content and requirements according to regulations;
- ▶ Define sampling plan, the nature and extension of its activities;
- ▶ Assess the emissions report, verify data credibility and compare estimations based on the ship location data and its features on-board;
- ▶ The verifier must be impartial, independent, capable and accredited;
- ▶ Identify and evaluate the risks related to the monitoring activity (inherent, calculations, control and detections).

## Request accreditation

According to the Regulation 765/2008, the Commission stipulated that each Member State in the EEA will define National Accreditation Bodies that can grant accreditation to legal entities performing verification activities pursuant to MRV.

Under exceptional circumstances an entity can request accreditation from another National Accreditation Body of the Member State.

A conformity assessment body may request accreditation by a National Accreditation Body in any one of the following situations:

- ▶ When the Member State in which it is established has decided not to establish a National Accreditation Body and has not had recourse to the National Accreditation Body of another Member State;
- ▶ When the National Accreditation Bodies do not perform accreditation in respect of the conformity assessment activities for which accreditation is sought;
- ▶ When the National Accreditation Bodies have not successfully undergone peer evaluation in respect of the conformity assessment activities for which accreditation is sought.

## The verifier's selection

National Accreditation Bodies are to set up and manage a public database with the list of accredited entities. The verification activities must take in consideration that the verifier avoid any conflict of interest with the company, and should be completely impartial to it.