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IMPACT ASSESSMENT

Accompanying the document

PROPOSAL FOR A REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

amending Regulation (EU) 2015/757 in order to take appropriate account of the global data collection system for ship fuel oil consumption data

{COM(2019) 38 final} - {SEC(2019) 20 final} - {SWD(2019) 11 final}

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GLOSSARY

EEA	European Economic Area
EEDI	Energy Efficiency Design Index
EMSA	European Maritime Safety Agency
ETS	Emission Trading System
GT	Gross tonnage
GHG	Greenhouse gas
IMO	International Maritime Organization
IMO DCS	International Maritime Organization Data Collection System
ISO	International Organization for Standardization
MARPOL	International Convention on MARitime POLlution
MEPC	Maritime Environmental Protection Committee
MRV	Monitoring, reporting and verification of emissions
Mt	Metric tonne
NAB	National Accreditation Body
NGO	Non-governmental organisation
SEEMP	Ship Energy Efficiency Management Plan
SOLAS	International Convention for Safety Of Life At Seas

1. INTRODUCTION

Following up on the 2011 EU White paper on transport, the Commission adopted in 2013 a strategy on the decarbonisation of shipping, calling for a gradual approach in the EU, starting with an EU monitoring, reporting and verification (MRV) scheme. As a result, the European Parliament and the Council adopted in April 2015 the Regulation (EU) 2015/757 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport ("the EU MRV Regulation"). This EU regulation is an important milestone to collect robust and verified CO_2 emission data from ships operating in the European Economic Area (EEA) and thereby supporting future policy-making and the implementation of policy tools. It also provides the necessary level of transparency to stimulate and encourage the up-take of new technologies and operational measures to make ships greener.

In 2016, following the entry into force of the Paris Agreement and the adoption of the EU MRV Regulation, the International Maritime Organisation (IMO) adopted a global data collection system (IMO DCS) for fuel oil consumption of ships as well as specific IMO data collection guidelines in 2016-2017. As a result, from 2019, ships calling into EEA ports will have to report under both the EU MRV Regulation and the IMO DCS.

Article 22 of the EU MRV Regulation anticipated this situation as it foresees that the Commission should, in the event of an international agreement on a global MRV system for shipping emissions, review the regulation and, if appropriate, propose amendments to ensure alignment with that international agreement.

Accordingly, while this impact assessment considers different alignment options, the objective is not to replace the EU MRV Regulation by the IMO DCS. This document builds on the inception impact assessment published in June 2017 and the public consultation concluded in December 2017.

Background

GHG emissions from the maritime sector are substantial and are likely to increase significantly in the future if nothing is done.

Due to the considerable consumption of fossil fuels, shipping emits significant amounts of greenhouse gases and therefore contributes to climate change.

Greenhouse gas (GHG) emissions from international maritime transport are estimated to amount to 940 million tonnes of CO_2 per year, representing approximately 2 - 3 percent of total global GHG emissions. This is more than the emissions of any EU state. If the shipping sector were a country, it would rank sixth in emission in the world. The impact of the sector at EU level is equally considerable as it represented in 2015 13% of the overall EU greenhouse gas emissions from the transport sector[1.]

In the future, these emissions are projected to increase significantly if mitigation measures are not put in place swiftly. According to an IMO study[2,] depending on future economic and energy developments, shipping emissions could grow by between 50% and 250% by 2050. Another study[3] projects that emissions could increase by 20-120% compared to 2012 levels over the same period for global temperature rise scenarios less than 2°C.

At the EU level (i.e. for ships calling at EU ports), CO_2 emissions from maritime transport increased by 48% between 1990 and 2008, and are expected to increase by 86% above 1990 levels by 2050; and this despite domestic emissions, already addressed by national measures, have decreased 34% compared to 1990, levels. This clearly shows the need for enhanced action on shipping emissions. The projected increase in GHG emissions is due to the expected growth of the world economy and the associated transport demand from world trade. Today, more than 90% of EU external trade is seaborne.

1.1. Policy and legal context

Climate change is a challenge that requires urgent and meaningful action from all States and all emitting sectors. The growing GHG emissions from the maritime sector are a concern that needs to be tackled both globally and domestically, and included in the National Determined Contributions (NDC) to the UNFCCC[4] that are due to cover all the sectors of the economy. However, maritime shipping remains the only means of transportation not expressly addressed in the EU's commitment to reduce greenhouse gas emissions and the initial strategy adopted in 2018 at the international level to reduce GHG emissions from ships is yet to be implemented.

1 https://www.eea.europa.eu/data-and-maps/indicators/transport-emissions-of-greenhouse-gases/transport-emissions-of-greenhouse-gases-10.

2 http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Greenhouse-Gas-Studies-2014.aspx.

3 https://www.cedelft.eu/en/publications/download/2446.

4 https://unfccc.int/index.php/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs.

As GHG emissions from ships are likely to continue to grow, it risks undermining the objectives of the Paris Agreement (which entered into force in 2016 and is the first universal, legally binding global climate agreement) and the efforts deployed by other sectors. The Paris Agreement stresses the need for global GHG emissions to peak as soon as possible and emphasizes the importance to reduce GHG emissions need in all sectors of the economy with a view to limit global temperature increase well below 2° Celsius.

European context

While at the EU level, shipping remains the only transport mode not explicitly addressed by a specific emission reduction objective for 2030, their GHG emissions are likely to grow and represent an important challenge ahead.

Following up on the 2011 EU White paper on transport, the Commission adopted in 2013 a Communication[5] (COM(2013) 479 final) setting out a strategy for progressively integrating maritime emissions into the EU's Climate policy consisting of three consecutive steps:

- Monitoring, reporting and verification of CO_2 emissions from large ships calling at EEA ports;
- Greenhouse gas reduction targets for the maritime transport sector;
- Further measures, including market-based measures, in the medium to long term.

As a result, the European Parliament and the Council adopted in April 2015 the Regulation (EU) 2015/757 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport. This regulation was adopted following a broad stakeholder consultation and it has been duly complemented by the adoption of four delegated and implementing acts in 2016.

The EU MRV Regulation aims at various policy objectives:

1) Collect *robust* and *verified* CO_2 emission data for all ships calling at European Economic Area (EEA) ports, including CO_2 emissions from these ships in ports;
2) Provide the necessary *transparency* concerning data to stimulate the up-take of green ships and of energy efficient behaviours from shipping operators;
3) Provide robust information to support future policy discussions and implementation of policy tools, as well as for the implementation of international objectives or measures (e.g. on energy efficiency).

The main objective of the EU MRV Regulation is to contribute directly and indirectly to GHG emission reductions from EU related ships, including from purely domestic shipping (within a state), which should lead to potential energy/costs savings. According to the analytical and preparatory work done for the EU MRV Regulation concluded in 2013[6], the EU MRV could lead to annual reductions in fuel consumption and emissions of around 2% by increasing transparency and awareness about GHG emissions from shipping.

5 https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/com_2013_479_en.pdf.

6 SWD(2013) 236 final, https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/swd_2013_236_en.pdf.

With the full regulatory framework now in place, this allowed the implementation to start as required by the EU MRV Regulation with the preparation of monitoring plans that were completed by shipping companies by August 2017.

In practice, the EU MRV Regulation requires companies operating large ships (above 5 000 gross tonnes) to monitor fuel consumption, and by proxy the CO_2 emissions and the energy efficiency of their ships on voyages to and from EEA[7] ports on an annual basis. As a first step, all companies were required to submit, by 31 August 2017, their monitoring plan for each of their ships indicating the method chosen to monitor and report CO_2 emissions and other relevant information. Starting from January 2018, companies had to start monitoring their CO_2 emissions on an annual basis, and as from 2019, companies have to submit an emission report to the Commission and to the authorities of the flag States report by 30 April of each year. Both the conformity assessment of the monitoring plan and verification of the emissions reports, are carried out by independent duly accredited verifiers. Based on this verified data, the Commission shall publish the reported information on CO_2 emissions and produce an annual report on CO_2 emissions and other relevant information from maritime transport covered by the scope of the EU MRV Regulation.

In general, the role and contribution of the shipping sector to emission reductions consistent with the temperature goals of the Paris Agreement remains an important issue in the EU, with the European Parliament consistently raising the need to address shipping alongside all other sectors of the EU economy. As a result, the recent amendment to the EU Emissions Trading System (ETS) Directive, by Directive (EU) 2018/410 of the European Parliament and the Council, emphasises the need to act on shipping emissions as well as all other sectors of the economy. The Directive also states that the Commission should keep IMO action under regular review, calls for action from the IMO or the EU to start from 2023[8], including preparatory work and stakeholder consultation.

International context

Although there is a need to set and implement a global approach to address GHG emissions from international shipping, progress at IMO has been relatively slow.

IMO started working on the reduction of GHG emissions in 1997. In 2011, IMO adopted the Energy Efficiency Design Index (EEDI) for new ships and the requirement to carry a Ship Energy Efficiency Management Plan (SEEMP) on board of all ships. The SEEMP urges ship owners and operators to consider new technologies and practices when seeking to optimise the performance of a ship. However, as the measures described in the SEEMP are not mandatory, the impact of SEEMP remains uncertain.

Following the adoption of the EU MRV Regulation, and, inspired by it, the IMO started negotiations concerning the setting up of a data collection system. In 2016, the Maritime Environmental Protection Committee (MEPC) established the legal framework for an IMO Data Collection System (IMO DCS)[9] where owners of large ships (above 5000 gross tonnes) engaged in international shipping have to report information on fuel consumption of their ships to the States in which those ships are registered ('flag States').

7 The European Economic Area (EEA) brings together the EU Member States with Iceland, Liechtenstein and Norway.

8 See, in particular, recital 4 of Directive (EU) 2018/410.

9 http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Data-Collection-System.aspx.

The aggregated data is then to be reported by flag States to the IMO, which shall produce an annual report to the Marine Environment Protection Committee summarising the data collected. Details and implementing modalities of the system were agreed in IMO through guidelines[10] adopted by MEPC 70 in October 2016 and by MEPC 71 in July 2017. The IMO DCS entered into force in March 2018. The collection of fuel consumption data under the IMO system is due to start on 1 January 2019.

It should be noted that the IMO DCS is part of the MARPOL Convention's Annex VI that has been ratified by many States, but around 40 States have still to do so. An overview of the status of ratification can be found at the IMO website[11].

In addition, and following two years of negotiations, which started in the wake of the Paris Agreement, IMO adopted in April 2018 an Initial strategy on reduction of GHG emissions from ships. The strategy includes a GHG emission reduction objective of at least 50% by 2050 (compared to 2008 levels) and aims to full decarbonisation as soon as possible in this century. However, short-, mid- and long-term further measures, including Research and Innovation, necessary to achieve this objective remain to be developed and agreed.

10 2016 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP) (resolution MEPC.282(70)); 2017 Guidelines for Administration verification of ship fuel oil consumption data (resolution MEPC.292(71)); 2017 Guidelines for the development and management of the IMO Ship Fuel Oil Consumption Database (resolution MEPC.293(71)); MEPC circular on submission of data to the IMO data collection system of fuel oil consumption of ships from a State not party to MARPOL Annex VI (MEPC.1/Circ.871); and sample format for the confirmation of compliance pursuant to regulation 5.4.5 of MARPOL Annex VI (MEPC.1/Circ.876).

11 http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx.

Background: Paris Agreement and EU strategy on maritime emissions

The Paris Agreement aims at limiting global temperature increase well below 2°C compared to pre-industrial levels, and pursue efforts towards 1,5°C, based on adequate emission reductions from all Countries and all emitting sectors. The Paris Agreement states that developed countries should continue to undertake economy-wide absolute emissions reductions while developing countries should move towards an economy wide approach over time.

The EU committed to an economy-wide GHG emission reduction of at least 40% by 2030 below 1990 levels (without the use of international credits), which constitutes the EU economy-wide commitment under the Paris Agreement[12].

The European Parliament has placed a strong emphasis on all sectors of the economy contributing to emission reductions, which was reflected in Directive 2009/29/EC of the European Parliament and Council and Decision No 406/2009/EC of the European Parliament and Council, calling for contributions from all sectors of the economy to achieve emission reductions, including the shipping sector. The most recent revision to the EU emissions trading system, Directive (EU) 2018/410, also emphasises that all sectors must contribute to emission reductions[13].

In 2011, the Commission White Paper on Transport Policy already indicated that EU shipping CO_2 emissions should be reduced by at least 40% (50% if feasible) by 2050[14]. The EU's CO_2 emissions from domestic shipping emissions have, by 2016, been reduced by 33.1% below 1990 levels[15], but international shipping emissions "related" to the EU (i.e. from ships calling to EEA ports from third countries and ships sailing between 2 or more EU Member States) have continued to *increase*, and are currently around 32.5% above 1990 levels.

Following this, the European Commission adopted in 2013 a Communication[16] (COM(2013) 479 final) setting out a strategy for progressively integrating maritime emissions into the EU's Climate policy starting with the monitoring, reporting and verification of CO_2 emissions from large ships calling at EEA ports. A robust MRV system is indeed a key element for climate policies, and for possible additional policy measures building on it, be it at EU or global level.

The present EU basic legislative climate framework, namely the Effort Sharing Regulation (ESR) and the Emissions Trading System (ETS) cover most of the economy, including aviation, but not shipping, which remains the only means of transportation not included in the Union's commitment to reduce GHG emissions[17].

12 http://www4.unfccc.int/ndcregistry/PublishedDocuments/European%20Union%20First/LV-03-06-EU%20INDC.pdf.

13 See, in particular, recital 4.

14 See COM(2011)144, paragraph 29, http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0144.

15 See http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer. It should be noted that 'domestic' emissions are considered for the purposes of UNFCCC reporting to be emissions internal to each Member State, as no decision on the allocation of other emissions has yet taken place.

16 https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/com_2013_479_en.pdf.

17 Recital 3 of Regulation (EU) 2015/757.

2. PROBLEM ANALYSIS

2.1. The problem to be addressed

After the adoption of the IMO DCS, ships calling into EEA ports will have to report under both the IMO and the EU systems from January 2019. In accordance with Article 22 of the EU MRV Regulation, it has not been considered to replace the EU MRV Regulation by the IMO DCS in its entirety. In this context, the main challenge is to find appropriate ways to help market actors implement both schemes while streamlining and reducing administrative burden as possible, and while preserving the objectives of the EU MRV Regulation.

The two MRV systems show some important differences (see 2.2. below). For instance, while the EU MRV Regulation provides the necessary transparency and information at individual ship level to stimulate the up-take of more energy efficient technologies and behaviours, data from the IMO DCS are not available at ship level and not accessible by all market actors. In addition, the scope are different. The EU MRV Regulation aims to collect data on CO_2 emissions from purely domestic activities, international voyages to and from an EEA ports and from ships at berth or moving within an EEA port. On the other hand, the IMO DCS aims to gather global data on fuel consumption by States from their ships engaged in international shipping, and does not cover domestic maritime transport as well CO_2 emissions within ports. There is also a fundamental difference on the reporting entity. In the EU MRV Regulation, the obligation lies with the shipping company while in the IMO DCS the responsibility has been assigned to the flag States.

Nevertheless, the schemes also present many similarities. Both schemes have been designed with the objective to inform and feed future policy-makers' decisions. They are both based on data already available on ships (required by international maritime legislation, to be available on board of ships) and they both require ships above 5000 gross tonnes to collect and report their data annually to the relevant authorities, and to carry on board a document to demonstrate compliance.

2.1.1. The reporting obligations under two systems

Under the EU MRV Regulation framework, shipping companies have the obligation to monitor their CO_2 emissions as described in their monitoring plan (MP) and report their emissions in their emissions report (ER). The reporting obligation is to the Commission and to the authorities of the flag States concerned (EU Member States), and with EMSA managing the database (THETIS-MRV). The first monitoring period for the shipping company started 1 January 2018 and first ERs are due by 30 April 2019.

Under the IMO DCS, according to Regulation 22A of IMO MARPOL Annex VI, the reporting is split into two steps: from the shipping company to the flag State and from the flag State to the IMO. The first monitoring period for the shipping company will start 1January 2019 and first aggregated data are due by the end of March 2020.

Considering the obligations under these two systems, ships calling into EEA ports would have to report under both the IMO and the EU systems. This will require additional administrative effort for shipping companies, even more so when parameters are not aligned. The EU MRV Regulation anticipated this situation and included in its Article 22 the obligation for the Commission to review the Regulation, if appropriate, once the

international agreement is in place, in order to ensure alignment with that international agreement.

2.1.2. The need to preserve the objectives of the EU MRV Regulation: obtaining reliable data on GHG emissions from maritime transport and overcoming market barriers to the uptake of GHG emissions reduction measures

The alignment of the EU MRV Regulation with the IMO DCS should aim at preserving the objectives pursued by the EU system, namely the projected positive impact of the EU MRV Regulation in terms of gathering reliable data and addressing market barriers currently preventing the adoption of energy efficiency measures, while reducing the administrative effort resulting from the compliance with the two systems.

The availability of robust and reliable data on GHG emissions from shipping activities is a prerequisite for any further policy action and the development and implementation of effective measures, be it at EU or global level. The 2013 EU MRV impact assessment concluded that the lack of accurate, comparable and standardised information about fuel consumption is one of the barriers to cost effective GHG emission reductions in the maritime sector and therefore to a reduction of fuel cost. Removing this barrier would trigger an improvement in energy efficiency of the ships and therefore enhance innovation and research due to a better understanding of the fuel consumption. Aggregate data were not considered to provide the necessary detailing for this.

This is relevant for future policy developments in the EU in accordance with the 2013 strategy on shipping and for the development of relevant innovative technologies and is also relevant in the context of the implementation of the recently agreed IMO initial GHG emission reduction strategy. In addition, the availability of robust and accurate data is a key tool for shipping actors to monitor and gradually improve their energy efficiency and was identified as a priority under the 2013 Impact Assessment.

Furthermore, as indicated in the 2013 IA, many of the relevant technical and operational measures, such as slow steaming, weather routing, contra-rotating propellers, propulsion efficiency devices, etc. can be cost effective i.e. they deliver more fuel savings than the investment required. However, their uptake on a large scale is hampered by the existence of market barriers, including lack of information and awareness on energy efficiency of ships, split incentives to improve efficiency (different incentives for actors in the supply chain, e.g. a ship-owner does not necessarily benefit from the reduction in fuel costs due to improved efficiency, however the ship operator does), or the lack of access to finance (e.g. for a ship operator). All these barriers discourage the uptake of GHG emissions reduction measures.

2.2. Design differences between the EU MRV Regulation and the IMO DCS

The two systems have a different design in some important aspects, due to differences in the objectives pursued, notably as regards transparency and the public availability of data, as well as their scope.

The EU MRV Regulation pursues the objective of encouraging the uptake of GHG emissions reduction measures through the publication of data on a per ship basis. By providing comparable and reliable information on fuel consumption and energy efficiency of individual ships, the uptake of measures that reduce GHG emissions is incentivised. As estimated in the 2013 IA, this is expected to result in GHG emission reductions of up to 2% compared to business-as-usual and net costs reduction of up to

€1.2 billion in 2030. On the contrary, while the IMO DCS will also collect annual per-ship data (but anonymised with individual ships not being identifiable), this anonymised data will not be made publicly available.

As a result of this divergence in objectives, even though the two systems bear many similarities, a number of design differences exist between the EU MRV Regulation and the IMO DCS that open up alignment possibilities:

- **Governance**: Under the IMO DCS, companies report to their flag State (e.g. for a ship sailing between EEA states under Panama's flag, the company will report to Panama), whereas under the EU MRV Regulation all ships calling at EEA ports, irrespective of their flag, are obliged to report to the Commission (via the EMSA database) and to the EU flag States. This means that under the IMO DCS a very significant part of EU (EEA) related emissions would not be reported to the Commission as it is estimated that half of the EEA related emissions are caused by ships sailing under non-EU flags[18]. Furthermore, under the IMO DCS, emissions related to the EEA could not be identified as they are part of the annual values covering all voyages of that year reported.
- **Scope (ships, voyages and activities covered)**: The IMO DCS applies only to ships engaged in international shipping while the EU MRV Regulation additionally covers domestic (internal to a Member State) maritime transport. The EU MRV Regulation does not include maritime sector activities other than transport of passengers or cargo for commercial purposes while IMO includes all ship types above 5000 GT performing international voyages including for instance fish catching and processing ships. Another major difference is that the EU MRV Regulation requires differentiated monitoring and reporting of emissions and fuel consumption of intra-EU voyages, incoming and outgoing voyages and in port emissions/ consumption.
- **Definitions**: The definitions of some concepts ("company", "reporting period") are different in both systems, potentially leading to a different attribution of responsibilities and to different timelines for complying with reporting obligations.
- **Monitoring parameters**: Monitoring parameters in the EU MRV Regulation and the IMO DCS present similarities and differences (see table 2.2). The main divergence is that the EU MRV Regulation includes the actual cargo carried as one of the parameters used to calculate individual ships' average operational energy efficiency[19], whereas the IMO DCS includes the cargo carrying capacity of ships. Furthermore, the two systems use slightly different definitions of the parameters 'distance travelled' and 'time spent at sea'/ 'hours underway'.
- **Monitoring & reporting plans and templates:** The EU MRV Regulation requires the use of a mandatory template for the monitoring plan whereas in the IMO DCS, only a recommended template is provided. Under both the EU MRV Regulation and the IMO DCS, the shipping company is responsible for monitoring and reporting.
- **Verification**: The EU MRV Regulation applies in a non-discriminatory way to all ships calling at ports in the EEA and requires third party verification in order to ensure the accuracy of the data submitted. It uses a specific verification system similar (though simplified) to the one applied in the EU Emissions Trading System

18 About 33% of EEA port calls are made by non EEA flags, mainly by large ships and on long voyages, leading to a share of EEA related emissions of roughly 50%.

19 As defined in the EU MRV Regulation (Section B of Annex II).

(ETS), based on internationally agreed ISO standards and EU specific verification rules. Furthermore, EU MRV verifiers are subject to supervision by National Accreditation Bodies (NABs)[20]. In the IMO DCS, flag Administrations shall verify data according to national rules, taking into account IMO guidelines. Within the IMO system, the verification that flag States fulfil their international obligations is carried out via regulatory IMO audits. In case flag States decide to delegate certain tasks to a Recognized Organization (RO), such organization is also subject to a regular supervision in accordance with the RO Code.

- **Demonstration of compliance**: Both systems use documents of compliance to enable ships to demonstrate that they are in compliance with the respective regulations. For the EU MRV Regulation, the third party verifiers issue the documents of compliance whereas this is ensured by the flag State authorities or any Recognized Organization (RO) working on their behalf under the IMO DCS.
- **Transparency**: Similar to other sectors, the EU MRV Regulation includes the publication by the Commission of annually reported data on a "per ship" basis, aggregated for all voyages. This provides stakeholders and the general public information on the CO_2 emissions and the energy efficiency of individual ships. The IMO central database will contain anonymised per-ship data and will be managed by the IMO Secretariat. It will only be accessible to IMO Member States and not be made available to the public.

20 Operational (energy and CO_2) efficiency of a ship expresses its efficiency in its daily operation and relates energy consumption/ CO_2 to the cargo carried over distance.

Table 2.1. Comparison of EU MRV Regulation and IMO DCS features

Features and possible candidate for alignment	***EU MRV Regulation***	***IMO DCS***
Governance	All ships calling to EEA ports report to the Commission and the EU flag States	Ships report to their "flag State" and flag State to IMO
Scope	Includes domestic ship emissions. Does not include ships not transporting cargo or passengers for commercial purposes (e.g. dredgers, fish catching and processing ships)	Does not include domestic ship emissions. Includes all types of ships within the scope of Chapter 4 of MARPOL Annex VI.
Definitions	Some concepts are defined differently ("company", "reporting period")	
Monitoring parameters	see table 2.2	
Granularity of parameters	Total EEA-related, total intra-EEA, total incoming voyages, total outgoing voyages, total in ports	Only global figures
Monitoring and reporting plans and templates	EU monitoring templates are used	IMO templates recommended
Verification	Mandatory verification by accredited verifiers based on internationally agreed ISO standards and EU specific verification rules	Mandatory verification by national authorities of flag States or by duly authorised ROs, according to national rules, and taking into account IMO guidelines
Issuance of document of compliance	by accredited verifiers	by national authorities of flag States or duly authorised ROs on their behalf
Transparency	Information published including the identity of the ship (albeit not in all the granularity collected)	Information available to Flag States only and not published

Table 2.2. EU MRV Regulation monitoring parameters[21] *Differences with IMO DCS.*

EU MRV	**IMO DCS**
Port of departure and arrival	Not required. Aggregated reporting. No obligation to monitor per journey.
Amount and emission factor for each type of fuel	Required. Similar.
CO_2 emitted	Not required (although it can be obtained without further monitoring with the data on fuels and emission factors)
Distance travelled	Required. Different definition.
Time spent at sea	Required. Different definition (called "hours underway").
Cargo carried	Different parameter (deadweight, which refers to cargo capacity).
Transport work	Not required

Further detailing on differences and synergies are provided in Annex 5.

21 The monitoring parameters of the EU MRV are listed in Article 9 (1) of the EU MRV Regulation.

2.3. Most affected stakeholders

The following groups are affected by the problem of growing CO_2 emissions from shipping and by the existence of the two parallel systems of data collection:

- Citizens/General public: have an interest in governments taking effective action to avoid dangerous climate change, and in measures enabling to collect robust data on maritime CO_2 emissions and other relevant information, including the carbon footprint of shipping, as these affect their quality of life and that of future generations. They have also an interest as customers of maritime transport services and consumers of goods transported by ships.

- The shipping industry (*ship-owners as well as other parties having assumed the responsibility for the operation of the ship and their European and global associations*) are directly affected by the development of measures aligning the IMO DCS and the EU MRV Regulation. Ships over 5000 Gross tons calling at EEA ports after 1st January 2018 are covered by the EU MRV Regulation and will also be directly affected by the IMO DCS (high interest).

- EU MRV shipping verifiers are directly affected by the revision as they will need to adapt their activities to the newly formulated scheme.

- EEA Member States: National governments have, by definition, a major role in the design and implementation of measures aiming at tackling maritime emissions, both at European level on the EU MRV (as flag States responsible for the compliance with EU laws of the ships flying their flag and as port States responsible for verifying compliance with EU laws of ships calling into their ports) and at international level on the IMO DCS (responsible directly for verifying and reporting to the IMO data collected by the ships flying their flag while verifying compliance of ships not flying their flag calling into their ports through Port State Control).

- Third countries: acting as flag States and IMO are involved in the *implementation* of the IMO DCS. Third country flag States will see their ships calling at EEA ports covered by the EU MRV Shipping.

- Other actors of the shipping sector (such as; ship builders and marine equipment manufacturers, cargo owners, logistics companies and ports) are increasingly concerned to reduce their carbon footprint through improved technology and operations and to use the data to stimulate improvements to the energy efficiency of ships.

- National accreditation bodies responsible for providing accreditation under the MRV shipping regulation.

- Civil society groups addressing the environmental impact of maritime transport e.g. research community, think tanks, environmental NGOs, shipping emission players (developers of solutions related to CO_2 emissions and energy efficiency for shipping).

- International organisations: dealing with transport and climate change e.g. various United Nations bodies (and in particular the IMO), World Bank, Organisation for Economic Co-operation and Development, International Energy Agency.

2.4. Was a fitness check carried out?

A specific retrospective evaluation for the EU MRV Regulation is not feasible at this stage, as the MRV requirements for ships only entered into force in 2018 with the first emissions reports covering 2018 emissions becoming available in April 2019. This impact assessment, focussing on the differences between the EU MRV and IMO DCS' design, is considered adequate in terms of the obligation put on the Commission by the co-legislators as stipulated in Article 22 of the EU MRV Regulation.

3. WHY SHOULD THE EU ACT?

Article 22 of the EU MRV Regulation contains a review clause for the Commission in the event of an international agreement on a global monitoring, reporting and verification system, to review the regulation and, if appropriate, propose amendments to the Regulation.

EU monitoring and verification rules have been in place since 2015, as adopted by the European Parliament and the Council. The co-existence of reporting obligations for ships calling at EEA ports leads to the question whether changes should be proposed to the EU MRV Regulation to align more closely with the IMO system.

While conducting this assessment, maintaining an effective monitoring system and the achievement of the original objectives of the EU MRV Regulation (as described in section 1) remain the starting points. The availability of robust and reliable data on GHG emissions from maritime transport is a prerequisite to assess the progress of the maritime transport's contribution towards achieving climate objectives and, if necessary, for the development of any mitigation measures in the maritime transport sector. At the same time, unnecessary duplication should be avoided whenever possible. Methodological differences that are not functional to the objectives of the EU MRV Regulation should be eliminated or altered. Reporting obligations should be reviewed so as to enable both ship owners and EU flag States to fulfil their obligations under both systems in a way that would avoid unnecessary divergences. The EU should therefore continue to collect reliable EU-related emissions data from maritime transport and incentivize the uptake of emission reduction measures through the publication of emissions data, whilst taking into account and facilitating the implementation of the recently agreed IMO DCS.

3.1. Legal basis

The legal basis for acting at the EU level is the environmental legal basis enshrined in Article 192 of the Treaty on the Functioning of the European Union, as the principal objective of the measure is the protection of the environment through the reduction of GHGs and as used as legal basis for the EU MRV Regulation adopted in 2015.

3.2. Subsidiarity

As the basis of the proposal is EU legislation, any amendments need to be done at EU level with the agreement of the European Parliament and of the Council.

Collecting and publishing data of ships' emissions and energy efficiency based on a mandatory set of requirements has the advantage that the results are fully comparable. This comparability contributes to the removal of the market barrier on lack and scattered information.

Collecting data at national level instead of at EU level would significantly increase the administrative effort for industry and ships using ports as all the EU Member States would need to individually monitor, verify and report data.

4. WHAT SHOULD BE ACHIEVED – OBJECTIVES

4.1. Strategic objectives

a) Addressing GHG emission from ships and ports

The first objective is to tackle maritime's emissions growth. Continued emissions growth from the shipping sector is incompatible with the climate goals of the Paris Agreement. The EU has policies in place (EU MRV Regulation) that address these emissions; in accordance with the Paris Agreement principles, the EU should not backslide on climate action. The IMO is also taking steps in the same direction through the IMO DCS and its initial strategy recently agreed. This too should contribute to achieving the goals of the Paris Agreement, but for this to materialise concrete measures are yet to be agreed.

b) Improving cost-effectiveness of ships by increasing their energy efficiency and minimising administrative burden

The second strategic objective should be enhancing the cost-effectiveness of ships. Climate measures should entail improvements in energy efficiency, lower fuel consumption, shifting to renewable fuel solutions and a reduction of costs for shipping companies. Minimising the administrative burden for companies, notably in the context of the co-existence between the EU MRV Regulation and the IMO DCS, should also contribute to reducing costs.

4.2. Operational objective

Facilitating the harmonious and complementary implementation of the systems by EU Member States while preserving the objectives of the EU MRV Regulation:

With the entry into force of the IMO DCS in 2018, shipping companies will have to collect relevant information on fuel consumption and other related data relating to the international activities of their ships of and above 5000 GT from 2019 onwards with first reports due in 2020. This reporting obligation cumulates to the existing obligations under the EU MRV Regulation to collect EEA-related CO_2 emissions and energy efficiency indicators from 2018 onwards with first reports due in 2019. Alongside preserving the strategic objective, the operational objective is to facilitate the complementary and streamlined implementation of the two systems by EU Member states, with the aim of reducing the administrative burden for companies obliged to report under both.

In doing so, the original EU MRV Regulation objectives have to be preserved, i.e.:

- Collect robust and verified CO_2 emission data for EEA related shipping;
  The objective of the EU MRV Regulation is to ensure the accurate monitoring, reporting and verification of CO_2 emissions and other climate relevant information from ships arriving at, staying in or departing from ports under the jurisdiction of a Member State, in order to promote the reduction of CO_2 emissions from maritime transport in a cost effective manner. This objective should be maintained.
- Prepare for future policy discussions on the need and type of further actions;

The collection and public availability of robust information on CO_2 emissions on EEA related voyages is key to inform policy-makers' decisions on the need and type of further action.

- Stimulate the up-take of new technologies and operational measures making ships greener;
  Monitoring fuel, emissions and other relevant data at individual ship level and providing transparency on them should contribute to raising awareness on the potential for cost-effective improvement of ship energy efficiency. It should also lead to the delivery of robust information on fuel consumption and energy efficiency of EEA-related shipping to relevant markets. Both elements are important for the environmental effectiveness of the EU MRV Regulation, but also for the economic benefits associated with higher efficiency. The legislation should contribute to overcoming existing market barriers that impede undertaking efficiency measures. Those measures should lead to the reduction of fuel consumption and, consequently, to cost savings.

- Level playing field.
  It is essential to maintain equal treatment in order to avoid distortions of competition and to enable moving to the later stages of the EU strategy at the appropriate time. The same rules should apply to all EEA-related shipping activity, so a level playing field is maintained for ships competing on the same routes, irrespective of their flag.

4.3. Stakeholders views

These objectives are widely in line with the interests expressed by stakeholders on their replies to the online public consultation and the targeted e-survey (see synopsis report in Annex 2). Civil society organisations, national accreditation bodies, research institutions and citizens/individuals widely support that some important objectives need to be preserved when amending the EU MRV Regulation. These include raising awareness on emission reduction, providing robust information to market players on fuel consumption and energy efficiency and collecting data for an informed policy making. For the shipping sector the main priority is, however, reducing administrative burden. EEA Member States and EU MRV Regulation verifiers widely support these objectives too, notably the collection of reliable data to develop future policies and minimising the administrative burden.

5. POLICY OPTIONS

Different policy options have been considered to identify the features of the EU MRV Regulation that might be possibly align with the IMO DCS. These alignment options have been assessed based on their ability to streamline and reduce administrative burdens for companies and administrations, as well as their ability to guarantee the preservation of the objectives, integrity and robustness of the EU MRV Regulation.

Discarded candidates for alignment

Considering the further-reaching philosophy of the EU MRV Regulation compared to the IMO DCS, it would be inappropriate to align the following key elements of the EU MRV Regulation design:

Governance

Aligning the "governance" aspects of the EU MRV Regulation to the IMO DCS has been discarded, despite some representatives of the shipping sector have expressed support for relying solely on the IMO system to address EU shipping emissions. Adopting the IMO DCS governance approach would entail that the EU and its Member States can only collect data concerning emissions from EU-flagged ships, leaving aside the CO_2 emissions emitted by non EU-flagged ships as part of voyages involving EEAs. This would prevent the gathering of complete information on EEA related shipping emissions. This approach would not allow meeting the objectives the legislation is pursuing, as the EU and its Member States would only have access to part of the EEA-related data. This would not only limit immediate EU climate action, but would also impede the development of any further measures to tackle shipping emissions, as required by the 2013 EU strategy. Maintaining the EU MRV Regulation approach on governance also requires that reporting is done per voyage, in order to obtain emissions data, specifically, from voyages to and from EEA ports. Therefore, alignment on this aspect to the IMO DCS, where reporting is done in an aggregated manner, must also be discarded.

CO_2 reporting

The possibility that ships do not report CO_2 emissions data, as is the case under the IMO DCS, where only fuel consumption is mandatory for reporting, has also been discarded. This would be fully inconsistent with the very objective of the EU MRV Regulation, which is related to the CO_2 emissions performance of ships and their climate impact.

Bearing in mind these limitations, three policy options have been considered:

✓ Baseline Scenario (option 1)

The baseline scenario reflects what would happen if action is not taken, i.e., if none of the features of the EU MRV Regulation are harmonised with the IMO DCS ones. Under the baseline scenario, the EU MRV Regulation would remain unchanged. This would mean that the current parameters for monitoring, reporting and verification of data under the EU MRV Regulation would continue to apply irrespective of the existence of additional IMO requirements. Ships of above 5000 GT transporting passengers or cargo for commercial purposes using the European Economic Area (EEA) ports that have to monitor and report their GHG emissions from international maritime transport activities related to the EU under both systems would therefore have to comply with partially different rules.

✓ **Streamlining (option 2)**

Under this scenario, an assessment should be made on which of the EU MRV Regulation's design elements could be harmonised with those of the IMO DCS in order to facilitate compliance and reduce costs for those shipping companies having to report under both systems, in a way that preserves the objectives of the EU MRV.

To this end, the streamlining of the elements for which there is a design difference between the EU MRV Regulation and the IMO DCS should be assessed. This includes the different alignment candidates (except governance & CO_2 monitoring) identified in section 2.2.:

- Scope.
- Definitions.
- Monitoring parameters.
- Monitoring plans and templates.
- Verification.
- Transparency.

✓ **High Convergence (option 3)**

Under this option, the EU MRV Regulation would be amended to harmonise all its technical aspects with the IMO DCS, at the risk of undermining its expected market impact and its key policy objectives. The EU MRV Regulation would adopt the IMO DCS's requirements on monitoring, reporting and verification. The same data collected for the purpose of the IMO DCS would be used for the EU MRV Regulation, subject to similar rules. This means that the data would not be verified by independent third parties but checked in accordance with the IMO guidelines instead. Regarding the scope, information on voyages from or to an EU port would still be collected, independent of flag State, but domestic and in-port emissions would no longer be covered. The reporting of voyage EU port information is not covered under IMO DCS, as there the reporting is based on flag State. Hence, some monitoring parameters would remain as now being recorded under the EU MRV Regulation, to be able to track this type of information.

The next table provides a visual overview of the alignment options considered:

Summary table: features to be aligned to IMO DCS rules under each option (in yellow, elements not to be aligned; in green, features to be aligned, in light green partially aligned)

OPTIONS	GOVER-NANCE & CO2 reporting	SCOPE	MONITO-RING PLANS & TEMPLATES	DEFI-NITIONS	MONI-TORING PARA-METERS	VERIFI-CATION	TRANSPA-RENCY
BASELINE (Option 1)							
STREAM-LINING (Option 2)							
HIGH CONVER-GENCE (Option 3)							

6. WHAT ARE THE IMPACTS AND WHO WILL BE AFFECTED?

This section will assess the impact of the different policy options. It is important to note that the impact assessment carried out for the adoption of the 2013 EU MRV proposal went into an in-depth analysis of the environmental, economic and social impacts of several alternatives, including the one finally resulting in the current EU MRV Regulation. The options to be assessed now only represent technical variations to the existing approach. Therefore, the previous impact assessment is still an important source of data in order to assess the impact of the different options. AEA Technology, who provided support for that impact assessment, developed a model based on the TIMES architecture, building on a representation of shipping activity, a representation of vessels and cost assumptions.

Furthermore, new information from the implementation of the EU MRV Regulation is not available yet, as the system has only started to be applied in 2018 (with reporting obligations starting in 2019).

On that basis, a qualitative analysis of the technical changes that the different policy options represent is undertaken in this section. In some cases, this is complemented by a quantitative assessment of the impacts, which relies on the 2013 impact assessment information.

The options 2 and 3 differ from the baseline option on whether certain features of the current EU MRV Regulation are aligned with the IMO DCS or not, with Option 3 (High Convergence) aiming at a higher harmonisation while Option 2 (Streamlining) is more selective on which parameters should be aligned. For that reason, the following assessment will first consider each of these features and the impact of aligning them or not. This aims at obtaining a specific assessment of each individual element, which can help define the preferred option.

6.1. Scope

Scope considerations refer to two different aspects:

On the one hand, as regards the **geographical scope**, the IMO DCS applies to ships engaged in international shipping while the EU MRV Regulation additionally covers ***domestic*** (internal to a Member State) maritime transport. The geographical coverage of the EU MRV Regulation allows a more complete monitoring of the CO_2 emissions from maritime transport in the EEA.

Another important difference is that ships' ***CO_2 emissions within EEA ports*** are covered by the EU MRV Regulation and monitored and reported separately so as to incentivise the reduction of CO_2 emissions within EEA ports and to substantially reinforce existing awareness of shipping emissions impacts in EEA ports and coastal areas. These emissions are not considered by the IMO DCS.

On the other hand, as regards the **type of ships** affected, both systems are already very much aligned. Both address emissions of ships above 5000 GT. The only difference with respect to the type of ships is that the EU MRV Regulation, contrary to the IMO DCS, does not include maritime sector activities other than transport of passengers or cargo for commercial purposes due to proportionality reasons.

Aligning the EU MRV Regulation to the IMO DCS on scope may have a negative environmental impact. If the scope of the EU system remains unchanged, it would

continue contributing to the achievement of the projected 2% decrease in emissions that should deliver a cumulative emission reduction of 55.9 $MtCO_2$ up to 2030 (as estimated in the 2013 impact assessment). The related reduction in fuel consumption would result also in a reduction of other pollutants (SOx, NOx, particulate matter) beyond current EU legislation, which are particularly relevant to improve air quality at local level[22].

On the contrary, if the systems are aligned, the EU MRV would not address domestic shipping emissions[23] (from shipping activity between a State's ports) and ships' emissions in ports. Data corresponding both to domestic emissions and to in-port emissions are relevant for Member States to be able to design coherent and cost-effective climate, energy and environment policies, including addressing air quality at local level (especially in cities with large ports and in coastal areas). Renouncing to collect those data would create barriers to the development of future measures to further address these emissions. As already mentioned, for different categories of stakeholders, and notably for EEA States authorities, collecting relevant and accurate data to assess the evolution of ship emission and ensure well-informed policymaking is particularly important, as the outcome of the public consultation shows.

On the other hand, the extension of EU MRV requirement to fish catching and processing ships, wooden ships of a primitive build, and ships not propelled by mechanical means does not bring significant benefits, as the emissions by these ships are small. In fact, those types of vessels were not included in the EU MRV scope due to proportionality reasons[24]. Also, considerable efforts are being made to the greening of the EU fishing fleet. The European Maritime and Fisheries Fund (EMFF) supports fishermen in the transition to sustainable fishing by making funds of 4340 million euro available for 2014/2020.

From a social point of view, the main impacts of shipping emissions identified in the 2013 impact assessment where those on human health, linked to reduction of emissions of pollutants such as NOx, SOx and PM (particulate matter). For the reasons explained above, the alignment to the scope of IMO could have negative effects, especially as regards the emission reduction in ports.

Finally, from an economic perspective, the scope of the EU MRV Regulation is expected to contribute to a decrease of fuel consumption of 2%. These improvements in efficiency would mean €9.4 billion up to 2030, in accordance with the 2013 impact assessment. These gains would not change significantly in case the scope of types of ships is aligned; conversely, in order to maximize the efficiency improvements, it is preferable to account also for in-ports and domestic emissions.

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22 The Commission report (COM/2018/188 final) on the implementation of directive (EU) 2016/802 regulating the sulphur content of marine fuels is an example of existing efforts and legislation in this area.

23 The data on the share of domestic or in-port emission is currently not available, albeit it is estimated that about 100 ships above 5000 GT are engaged solely in domestic trade in the EU Member States.

24 As assessed in the 2013 Impact Assessment for the current EU MRV Regulation, the same measure was considered not be proportionate for certain vessels. The effect of the exclusion of certain vessel types and smaller ship categories was analysed. Excluding the 5 least relevant ship types (yacht, offshore, service, fishing and miscellaneous) as these types have the lowest average annual emission per ship, the number of ships was reduced by about 2000. The 13 remaining main ship types included tankers, bulkers, general cargo ships, other dry, container ships, vehicle carriers, roll-on/roll-off ships (RoRo), ferries and cruise ships. These 13 main ship types and vessels of at least 5000 GT represent about 11,000 ships (56% of the total number) representing 160 Mt CO_2 emitted (90% of the total amount) to and from EU ports. Further, consideration was given to the public consultation carried out for the 2013 IA.

6.2. Definitions

The alignment on some key definitions such as the concept of "company" or "reporting period" do not have significant environmental, social or economic impacts.

In the EU MRV Regulation, the owner on the last day of year is responsible for emissions in the calendar year whereas in the IMO system responsibility moves to the new owner from the date the ship is sold.

Harmonising these concepts reduces the administrative burden of complying with the two systems. An alignment on the attribution of monitoring and reporting obligations in case of "changes of companies" would ensure that the same legal entity monitors and reports emissions data for both the EU MRV Regulation and the IMO DCS. In parallel, the harmonisation of the "reporting period" makes possible that the monitoring and reporting activity takes into account similarly calculated reporting periods. Despite not having data available yet (reporting under the EU MRV Regulation and IMO DCS will only start in 2019 and 2020 respectively), it can be presumed that if these parameters were not aligned, the administrative burden would be higher.

6.3. Monitoring parameters

In the light of the feedback from the online public consultation, streamlining the parameters is a priority for the shipping sector.

The two systems use slightly different definitions of some parameters such as "distance travelled" and "time spent at sea" or "hours underway", which can be easily harmonised. Alignment on these definitions would have no significant environmental, social or economic impacts. It would simply facilitate convergence between the systems, resulting in reducing the administrative burden. Several stakeholders favour streamlining monitoring parameters such as "distance travelled" or "hours underway".

Nevertheless, one key parameter in the EU MRV Regulation differs from the one required by the IMO DCS. The EU MRV Regulation requires monitoring *actual cargo carried* in order to obtain accurate information on individual ship's operational energy efficiency. The IMO DCS, instead, uses a proxy (deadweight), which refers to the carrying *capacity* of the ships.

The alignment of this parameter is firmly supported by the shipping sector, which prefers reporting cargo capacity for reasons of simplification and confidentiality, whereas civil society organisations and some EEA States, oppose replacing "cargo carried" by "deadweight" because the former provides more accurate data on ships' individual energy efficiency, and, in their view, should not pose confidentiality problems due to the aggregated nature of the publication of data. Those opposing the alignment of the "cargo" parameter (i.e., NGOs) are of the view that, when using deadweight as a parameter, a ship's operational efficiency metric does not differentiate an empty ship from a more efficient one and thus there will be no incentive towards higher operational efficiency of individual ships.

Indeed, using the carrying capacity instead of the cargo that ships actually carry provides less accurate data on average energy efficiency. The alignment on the parameter of "cargo carried" / "deadweight" may therefore have environmental and economic and, indirectly, social impacts, in particular if the focus is on the improvement of individual ships efficiency. The estimated 2% improvement in fuel consumption of the EU MRV

depends on a better knowledge of the ship's real efficiency, which should trigger measures resulting in less energy use. In this regard, both the estimated cumulative emission reduction of 55.9 $MtCO_2$ up to 2030 and the estimated economic benefits linked to improving efficiency (€9.4 billion up to 2030) may not be maximized.

On the other hand, several operational energy efficiency indicators that do not use cargo carried as a parameter have shown encouraging results[25]. The reason being that when using deadweight instead of actual cargo data to calculate energy efficiency of ships, there is significantly less spread or scatter in the attained values and therefore, it is easier to define a reference line and monitor the trends in energy efficiency.

Therefore, using 'deadweight' as a proxy for 'cargo carried' could still provide a basis for analysis and information about the energy efficiency of ships, as it takes into account its size and cargo carrying capacity. The use of such a proxy could already provide useful information for the purpose of defining future policies and measures.

Consideration should also be given to the administrative burden for collecting and reporting cargo carried information. Having the same monitoring parameters reported under the two systems would significantly lower the administrative burden for the parties having to collect such data.

It can be concluded that aligning the EU MRV Regulation with the IMO DCS on this particular feature may limit, to a certain extent, the beneficial impacts of the current approach particularly in terms of triggering efficiency improvements at ship level. However, the IMO DCS parameter "deadweight" can still provide relevant information for the design of future measures aiming at improving ships' operational performance.

It should be noted that, once companies have started monitoring cargo carried, some may chose continuing doing so on voluntary basis. In fact, part of the shipping industry has shown interest to continue collecting those data and submitting them in order to set the basis for efficiency improvements. Apart from "distance travelled", "time spent at sea" and "cargo carried", the streamlining of other parameters does not need to be considered, either because it has been discarded (ports of departure and arrival, CO_2 emitted) or because it is already similar (amount of fuel and emission factors).

The table below summarizes the main conclusions on the streamlining of monitoring parameters.

25 Such are the Individual Ship Performance Indicator (ISPI) developed by the EC/EMSA (MEPC submissions at MEPC 66 – MEPC 66/4/6) and the Annual Efficiency Ratio (AER) (proposed by Japan). These parameters use fuel consumption and distance, and in the case of AER deadweight tonnage (DWT). The pertinence of these indicators has been revalidated by an analysis by Norway (submitted to MEPC 71 and the first meeting of the intersessional working group on the reduction of GHG from ships– MEPC 71/7/1 and ISWG-GHG 1/2/1).

Table 6.1 Conclusions on streamlining monitoring parameters.

EU MRV Regulation	IMO DCS	CONCLUSION ON STREAMLINING OF MONITORING PARAMETERS
Port of departure and arrival	Not required. Aggregated reporting. No obligation to monitor per voyage.	Discarded. Linked to governance. Parameter needed in EU MRV Regulation to distinguish journeys to and from EEA ports.
Amount and emission factor for each type of fuel	Required. Similar.	Alignment not needed. Already similar.
CO_2 emitted	Not required (although it can be obtained without further monitoring with the data on fuels and emission factors)	Discarded. Essential parameter for the EU MRV Regulation
Distance travelled	Required. Different definition.	Alignment can be easily achieved.
Time spent at sea	Required. Different definition.	Alignment can be easily achieved.
Cargo carried	Different parameter (deadweight, which refers to cargo capacity).	Actual cargo date would be missed, but deadweight also provides useful information. Alignment would reduce administrative burden, and it is considered beneficial.
Transport work	Not required	Linked to cargo.

6.4. Monitoring plans and templates

The alignment of monitoring plans and templates would be a measure of formal / administrative nature that would have no environmental, social or economic impacts. However, it would importantly reduce the administrative burden for companies obliged to report under both the EU MRV Regulation and the IMO DCS, as it would allow using the same approach and similar documents for both, when alignment is possible.

6.5. Verification

The EU MRV Regulation requires mandatory third party verification in order to ensure the accuracy of the data submitted. It uses a specific verification system based on internationally agreed ISO standards and EU specific verification rules. Furthermore, EU MRV verifiers are accredited and subject to supervision by National Accreditation Bodies. This regime is common to other economic sectors in the EU subject to MRV requirements, including the power sector, the industry, aviation, it is already in place and being applied in the EU (including to shipping through the EU MRV Regulation). The mandatory verification also ensures consistency across States on the quality of the checks carried out on the data and is therefore key to ensure the collection of robust data.

In the IMO DCS there is no specific verification system for this data collection. Instead, flag Administrations shall verify the data according to national rules, taking into account

IMO guidelines. Flag States can outsource those tasks to "Recognised Organizations" (RO), subject to verifications and audits under the RO Code. However, ROs do not need to be accredited by National Accreditation Bodies. Note that, in accordance with the EU legislation, EU MS have to use only EU recognised organisations in order to comply with their reporting obligations under IMO DCS.

The alignment of this feature of the EU MRV Regulation with the IMO DCS rules would mean that the EU verification system would be replaced by a system based on less harmonised rules and departing from the concept of third party verification.

Such a change could potentially affect the accuracy and reliability of the MRV system, entailing, possibly, a negative impact in terms of the environmental and economic performance of the scheme. It could also negatively affect the development of future climate policies, which should rely on solid data.

It should be noted that verification cost turned out to be significantly lower than estimated in the 2013 impact assessment (€4500), in the order of below €1000 (according to industry sources, albeit the estimates vary). This is similar to the costs of about 1 or 2 tons shipping fuel.

The outcome of the online public consultation shows that almost all stakeholders agree with the need to ensure high quality data and a level playing field. Representatives of the shipping sector showed concerns about the cost of verification; although aligning verification rules with the IMO DCS ones seems not to be a priority for the sector.

6.6. Transparency

Similar to other sectors, the EU MRV Regulation includes the publication by the Commission of annually reported aggregated data on a "per ship" basis (without differentiating between journeys). This level of transparency was considered one of the key objectives of the EU MRV Regulation. In contrast, the IMO central database will only include anonymous datasets without the possibility to identify individual ships and will only be accessible to IMO Member States[26] strictly for their analysis and consideration . The data will not necessarily be made available to the public.

The alignment in this case would mean that the data reported under the EU MRV Regulation, i.e. information on the CO_2 emissions and the energy efficiency of individual ships, would not be available to stakeholders and to the public.

The 2013 impact assessment found that disclosure of "per ship" aggregated energy-efficiency information and robustness of comparable over time data would be the most important elements under the EU MRV Regulation to address the market failures hampering energy efficiency improvements in the sector.

As said, the regular publication of per-ship energy efficiency information was found to be one of the key elements to overcome market barriers and reach the estimated 2% improvement in fuel consumption (bringing positive environmental impacts in terms of CO_2 emission reductions (cumulative 55.9 Mt up to 2030), black carbon emissions (which are important short-lived climate forcers) and air pollutants such as SOx, NOx and particulate matter (impacting human health). To this end, both the collection of data on a per ship basis and their publication in a transparent form are instrumental to the objectives being pursued. Removing transparency would remove incentives to enhance

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efficiency and reduce fuel use, loosing, at least partially, the social, environmental and economic benefits of the EU MRV Regulation.

Furthermore, the harmonization with the IMO DCS on transparency would not mean any gain in terms of reducing the administrative burden, as the publication does not affect the monitoring and reporting obligations.

Keeping the EU MRV levels of transparency is fundamental for most categories of stakeholders (citizens, NGOs, academia, verifiers, etc.), with the shipping sector being more sceptical about its usefulness. In any case, harmonising this feature of the EU MRV is not a priority for the sector (especially in the case if actual cargo carried is not to be reported).

6.7. Impacts on SMEs

The EU MRV Regulation applies to ships above 5000GT. This threshold excludes around 99% of maritime transport SMEs from the scope of the regulation, as estimated by the 2013 impact assessment.

7. HOW DO THE OPTIONS COMPARE?

7.1. Comparison of options

As seen in the previous section, some features of the EU MRV Regulation can be aligned with those of the IMO DCS ones without compromising the environmental, social and economic benefits to be delivered by the existing EU legislation. Aligning some of the features would have a positive impact in terms of reducing the administrative burden linked to the existence of the two systems. However, aligning some other features would reduce the improvement in energy efficiency of the shipping sector that the EU MRV Regulation is expected to deliver and undermine its main objectives. That would mean that less CO_2 emission reductions would be achieved, and lower economic gains associated with lower fuel consumption would be attained.

When comparing the options we can conclude that:

- Under **Option 1 (Baseline)** the positive environmental and social impacts identified by the 2013 impact assessment are maintained. The 2% reduction in fuel consumption results in the cumulative avoidance of 55.9 Mt CO_2 by 2030. In parallel, there is a reduction in emissions of air pollutants such as SOx, NOx and particular matter, which results in social benefits is terms of a reduced impact on human health. Finally, the expected economic impact of saving €9.4 billion up to 2030 as a consequence of lower fuel consumption would also be delivered. This option would meet the operational objectives related to reducing shipping emissions, enhancing cost-effectiveness and maintaining a level playing field. However, it would fail on achieving a streamlined implementation of the two systems. It would result in a somewhat higher administrative burden[27], related to the definition of some basic parameters such as "distance travelled" and "time spent at sea" or "hours underway).
- Under **Option 2 (Streamlining)**, the positive impacts of the current EU MRV Regulation can be maintained if some key features are kept unchanged. In the light of the assessment in section 6, "scope", "verification" and "transparency" are the three key alignment candidates that most impact the effectiveness of the scheme. Aligning on those elements would risk jeopardising the objectives of the EU MRV Regulation. On the other hand, streamlining the definitions, monitoring parameters and monitoring plans and templates reduces the administrative burden associated with the co-existence with the IMO DCS without putting at risk the estimated positive impacts of the current legislation. While the alignment of the monitoring parameter "cargo carried" / "deadweight" could result in lower efficiency gains, it has benefits in terms of reducing administrative burden for companies although MRV costs are already considered very low. Based on these different elements, the alignment of this parameter has been proposed.
- Under **Option 3 (High Convergence),** the changes in terms of "scope", "verification" and "transparency" would significantly undermine the expected environmental, social and economic benefits of the EU MRV Regulation as shown in the analysis of option 2. In short, although this option might lead to more significant

27 The administrative burden of the EU MRV was, nevertheless, estimated as very low by the 2013 Impact Assessment. In cases where ship-owners and ship operators do not yet apply fuel monitoring of their emissions, it was estimated at €26.1 million per year for ships above 5000 GT. This represents 0.28% of the average operational costs (excluding fuel costs). The 2013 Impact Assessment also mentions that many ship-owners have already adopted highly sophisticated MRV standards and will have no difficulty complying.

reduction in administrative burden compared to option 2, it would reduce or supress the incentives to overcome market barriers and get the efficiency improvements pursued through the EU MRV Regulation. Furthermore, because less detailed and possibly less accurate data would be obtained, the EU and Member States would face limitations to develop future policies to address shipping emissions. This would compromise the EU strategy to tackle these emissions, based on a progressive approach where the EU MRV is only a first step. This option would better deliver on the operational objective of ensuring a harmonious implementation of the EU and the IMO schemes, but would fail on meeting the objectives related to reducing emissions and improving cost-efficiency.

7.2. Preferred option

In the light of the comparison above it can be concluded that an approach where, under Option 2 (streamlining), some selected parameters (in relation to definitions, monitoring parameters and monitoring plans and templates) are streamlined delivers, largely, on all the aspect of the operational objective identified in section 4. This partial alignment achieves, where considered appropriate, a reduction of the administrative burden and associated costs of an EU MRV Regulation being applied in combination with the IMO DCS, while, at the same time, it preserves most of the positive impacts estimated by the 2013 impact assessment by not aligning features such as scope, verification and transparency.

Compared to this approach, Option 1 means a higher administrative burden for affected entities plus monitoring and reporting of slightly different data under two separate data collection systems, as some definitions are not aligned between IMO DCS and EU MRV Regulation.

As regards option 3, it clearly puts at risk the positive impacts of the EU MRV Regulation. On Option 3 notably, for verification we would give up data reported by shipping companies to be verified by a verifier accredited via Regulation 2016/2072. This independent verification system is a well-established system in the EU to ensure robust and reliable data, and insisting on ISO standards guarantees the robustness of data, a principle well-guarded in the larger Paris Agreement, aside of the general EU obligations to use ISO standards when available. No independent standardised verification is required under the IMO DCS.

In particular, the information on EU emissions from ships sailing under a non-EU flag would be missed, which could amount to half of the EEA related emissions. Regarding transparency, the foreseen benefit of having energy efficiency data available at ship level to incentivise the uptake of such measures, would be lost, as no such data will become available via the IMO DCS system. This was an important part of the considerations given in the 2013 impact assessment, namely that ship-owners, ship operators and charterers may not be aware of the energy efficiency of a ship, and are therefore not able to compare this energy efficiency amongst other ships or are not aware of technologies delivering cost-effective emissions reductions. The political agreement between the institutions confirmed the importance to retain this aspect with the adoption of the EU MRV Regulation in 2015.

Consequently, Option 3 is discarded and Option 2 (streamlining), as described above, is considered as the preferred option.

This is also in line with the priorities expressed by most stakeholders on the online public consultation, where there was wide consensus on aligning technical aspects, with the

streamlining of monitoring parameters being the main priority for the shipping sector. At the same time, it keeps the EU MRV approach on verification and transparency, in line with civil society, academia, citizens and Member States interest to collect and publish reliable data that raise awareness on emission reductions, contribute to address market barriers and improve efficiency and provide a solid basis for informed policymaking.

The most sensitive element of this option is the alignment of the monitoring parameter "cargo carried" / "deadweight", where also stakeholders' views are split, with civil society organisations opposing to it and the shipping sector being strongly supportive. Aligning this element helps to reduce the administrative burden and it is considerate appropriate. In any case, some entities that had already started reporting cargo carried under the EU MRV might be interested in continuing reporting cargo carried. This should not be prevented. For this reason, it is proposed to allow entities to report cargo carried on voluntary basis.

Table 7.1. Summary table: assessment of impacts from the alignment with IMO DCS rules per feature

The following table provides succinct conclusions on the impact (positive, negative, neutral) of fully aligning the EU MRV rules to the IMO DCS rules on the different features assessed:

Alignment with IMO DCS / Impacts	Scope	Definitions	Monitoring parameters	Monitoring plans/ templates	Verification	Transparency
Environmental, economic and health impacts	Negative: domestic and in-port emissions not covered	Neutral: no impact on the effectiveness of EU MRV regulation	Slightly negative: actual information on ships efficiency missing because ships not reporting cargo carried, but a useful proxy (deadweight) is collected	Neutral: no impact on the effectiveness of EU MRV regulation	Negative: less harmonised verification rules departing from the concept of third party verification could possibly lead to less reliable data	Negative: lack of public information reduces incentives to improve efficiency
Administrative burden	Neutral: more ships categories to report their emissions but not for domestic voyages and in ports.	Positive: same entities report according to the same timelines under both systems	Positive: same parameters are monitored under both systems	Positive: same templates and plans are used to report under both systems	Slightly positive: double verification not needed	Neutral: not publishing the data does not reduce the administrative burden

Summary:

The analysis that has been undertaken, as summarised in the table above, shows that streamlining elements like the definitions, the monitoring parameters and the monitoring plans and templates contributes to reducing the administrative burden for shipping companies, facilitating compliance with the reporting obligations under the two systems.

At the same time, this does not jeopardise the objectives pursued by the current EU MRV Regulation and its projected positive impacts. Conversely, aligning aspects such as scope, verification or transparency (and governance) would severely affect the objectives pursued by the EU MRV Regulation, while not contributing to reducing the administrative burden (except to some extent in the case of verification).

Consequently, Option 2 (Streamlining) should be the preferred option, and elements such as definitions, the monitoring parameters and the monitoring plans and templates should be aligned as appropriate.

8. MONITORING AND EVALUATION

The Impact Assessment carried out in the context of the Proposal for the 2015 EU MRV Regulation proposed five indicators to monitor and evaluate the progress made towards the reduction of GHG emissions from maritime transport. The ones valid for this alignment proposal are:

a. Annual CO_2 emissions from maritime transport within the EU scope (on a per ship and fuel consumption basis);

b. Annual CO_2 emissions from maritime transport compared to the annual maritime transport activity of the EU (in tonnes-nautical miles);

c. Annual turnover of European shipbuilders, equipment manufacturers and services providers of the shipping sector;

d. Number and percentage of ships that are monitoring and reporting their emissions in line with the regulation compared to the number of ships calling into EEA ports.

It furthermore indicated that these indicators should be calculated on an annual basis based on data from relevant European Agencies provided by the Competent Authorities and that the functioning of measures for monitoring and reporting of emissions as well as for internalisation of climate externalities and any potential revenue recycling should be reviewed periodically.

The first and second indicators are data collected as part of the monitoring and reporting requirements. They aim to ensure that the objective to reduce the impact of EU shipping emissions on climate through a reduction in CO_2 emissions from maritime transport by at least 40% by 2050 compared to 2005 levels as put forward in the 2011 White Paper on Transport Policy[28] is fulfilled. The third indicator aims to ensure the objective to promote technological improvement of ships and to improve the competitiveness of maritime supply chains of the EU by supporting continued innovation of the European shipbuilders, equipment manufacturers and service providers of the shipping sector.

Regarding the fourth indicator, the number of ships that are monitoring and reporting their emissions can be compared with the number of ships calling into EEA ports and these numbers can be provided by EMSA using the Thetis MRV database. This indicator aims to address compliance of the EU regulation by the shipping sector.

The monitoring and evaluation will be carried out in the context of the reporting of the Commission on the implementation of the EU MRV Regulation. The EU MRV Regulation obliges the Commission to publish by 30 June each year the information on CO_2 emissions reported as well as other relevant information (Article 21). The Commission is also required to publish an annual report on CO_2 emissions and other relevant information from maritime transport. Furthermore, the Commission is also asked to assess every two years the maritime transport sector's overall impact on the global climate including through non-CO_2-related emissions or effects.

As the monitoring and reporting required by the Regulation has only started in January 2018 and the first reports are due in June 2019, the monitoring and evaluation of implementation of the Regulation is only possible after this date. In any case, the monitoring and evaluation of the amended regulation will only be possible after the

28 Regulation (EC) 765/2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EC) 399/93

amended regulation has been adopted by the European Parliament and the Council, and has entered into force.

ANNEX 1: PROCEDURAL INFORMATION

Lead DG Decide Planning internal references

The Directorate-General (DG) for Climate Action was leading the preparation of this initiative and the work on the impact assessment in the European Commission.

Organisation and Timing

An inter-service steering group (ISG), chaired by DG Climate Action and the Secretariat-General was established in May 2017 for preparing this initiative. The ISG met four times in the period from May 2017 to July 2018. The following Directorates-General (DGs) were invited to participate in the work of the group: Secretariat-General (SG), Legal Service (SJ), EEAS, DG GROW, DG MOVE, DG ENER, DG ENV, RTD, DG REGIO, DG FISMA and DG TRADE.

An Inception impact assessment was published in June 2017.

An online public consultation took place from 7 September to 1 December 2017 (see Annex 2).

Table 1.1. ISG meeting dates and topics of discussion as well as other consultations

Date	Topics of discussion
10.05.2017	Context of the Commission proposal for a Regulation amending Regulation 2015/757/EC timeline for adoption; draft Inception Impact Assessment (IIA), draft terms of reference for a study supporting the Impact Assessment, draft Consultation strategy.
20.07.2017	Overview of the feedback received on the Inception impact Assessment Presentation and last discussion on the terms of reference and the consultation strategy Discussion on the draft questionnaires for the public online consultation
07.12.2017	Overview of participation in the online public consultation. Presentation of the outline and general sections of the draft IA: problem definition and objectives of the IA; discussion on main policy options to be developed by the consultants in the study supporting the impact assessment.
06.06.2018	Update on recent developments and updated work plan; presentation of the draft Impact Assessment (SWD), and its annexes (including Annex 2 on the output of stakeholders' consultation activities).

External Expertise

Analysis supporting this proposal was undertaken via a study commissioned by DG CLIMA.

The Regulatory Scrutiny Board (RSB) of the European Commission assessed a draft version of the present evaluation and issued its positive opinion on Friday, 13th of July 2018. The Board made several recommendations to further improve the report. Those were addressed in the revised report as follows:

RSB recommendations	**Modification of the report**
Clarify the political intention of Article 22 on revision with IMO	Text added to the Introduction
Add further clarification on the greater UNFCC framework and the role of EU MRV	Additional clarification introduced in section 1.1
Add quantification on impact of fishing boats being outside of the scope of MRV	Quantification added to section 6.1
Add quantification on emissions relevant to the EU region that would not be covered in IMO DCS	Quantification added to section 2.2
Provide more information on the administrative burden	Additional context provided in section 6.5
Further explain the reporting obligations under both systems	Further details added to section 2.1.1
Provide more details on how energy efficiency is covered in IMO versus EU MRV	Further details on SEEMP added to introduction, additional detailing in section 2.1.2 and 7.2
Explain better the benefits of technical alignment	Explanation added to 7.1 and 7.2, and 2.2
Explain better the effects and benefits of transparency on energy efficiency of ships	Explanation added to 7.2
Burden and cost information from the	Throughout the document

original 2013 impact assessment should be added	
Interlinkage between IMO and EU system should be better explained	Figure added to Annex 5, plus reference in text in 2.2
	Explanation added to 7.2
Importance of a robust verification system should be further clarified	
The options and difference between the options should be better described	An improved table was added to section 5, plus additional detailing in section 7.1 and 7.2, and a new table in Annex 3
The report should explain upfront that the IMO system cannot replace the EU MRV without undermining the purpose of the MRV	Revised introduction

ANNEX 2: SYNOPSIS REPORT

Stakeholder consultation activities

INTRODUCTION

The Commission has actively engaged with stakeholders throughout the impact assessment process in line with the consultation strategy.

This Annex provides a summary of the outcomes of the stakeholder consultation activities, analysis of the range of stakeholder groups that were engaged in those activities and a summary of the main issues raised. The objectives of the consultation activities were to:

- Enhance Commission's understanding of stakeholders' and wide public views regarding the way the global IMO DCS could be taken into account under the MRV shipping legal framework
- Gather specialised input (data and factual information, expert views) from private and public stakeholders' perspective so as to help to identify solutions fitting the MRV shipping objectives.

CONSULTATION ACTIVITIES AND METHODOLOGY

The consultation activities included:

- Feedback received in relation to the Inception Impact Assessment.
- A public on-line consultation between 8 September and 1 December 2017.
- A targeted e-survey organised by consultants during the period December 2017 - January 2018.

OVERVIEW OF CONSULTATION ACTIVITIES

- **FEED BACK TO THE INCEPTION IMPACT ASSESSMENT (IIA)**

The Commission received 19 contributions further to the publication of the IIA in June 2017. A majority came from the shipping sector (12), which submitted common and, in some cases, identical contributions. Some NGOs active in transport/environment (4), European Accreditation EA (1), Class societies (1) and other associations (1) also participated.

Views on the policy options and related potential impacts can be summarised as follows:

Full alignment: the shipping sector is the only sector largely supporting this option. However a thorough reading of their contributions indicates that they support an interpretation which amounts *"to only IMO DCS should be in place" and that collection and reporting of EU data has become redundant.* Their main reasons are related with reducing administrative burden and the future global action sparking new behaviours.

Partial alignment: a majority of the other respondents (NGOs, a class society and European Accreditation) indicated that valuable shipping MRV elements (metrics for operational efficiency, verification and publication) should be kept. Two NGOs called for additional data or insights on likely impacts of these different elements.

Non alignment: one respondent chose this option invoking the need to ensure monitoring and reporting of domestic" emissions and "emissions within EU ports".

These results were taken into consideration in order to design the questionnaire for the on-line public consultation.

- **PUBLIC ON LINE CONSULTATION (OPC)**

Format and participation per stakeholder group

It consisted of six closed questions covering general objectives and more specific shipping MRV objectives and its relation with its key aspects. Two final open-ended questions enabled further comments or suggestions. Also almost a quarter of respondents submitted positions or non- papers summarising their views[29].

Overall, 118 responses were submitted, mainly from stakeholders from EEA countries (28 EU MS, plus NO and IC). Respondents from Greece (19), Belgium and the United Kingdom (12 each) formed the largest groups. Ten per cent of respondents (12) were from countries outside of the EEA.

Participation of stakeholders' groups can be summarised as follows:

- ✓ **Shipping sector:** It is the quantitatively prevalent group with slightly over 50 per cent of respondents from shipping companies or individuals working for them (32), (most of them from Greece have submitted very similar, if not identical, answers), and from industry associations (28). A high level of coordination has been found in the answers of this group.
- ✓ **EEA States/non-EEA Flag administrations:** its participation is also significant (14), with 11 EEA national administrations, plus a consortium of EEA local and regional public entities and also 2 non-EEA States;
- ✓ **Civil society organisations/NGOs** (11): includes non-lucrative organisations active in environment and transport and also EU /non- EU trade unions;
- ✓ **EU MRV verifiers and Classification Societies:** (7) includes MRV independent verifiers, its associations (5) plus classification societies (2)
- ✓ **Providers of monitoring and reporting technology or consultancy services** (7);
- ✓ **Accreditation Bodies** (4): European Accreditation plus two NABs (one not providing accreditation for MRV activities) and a non-EEA accreditation body.
- ✓ **Research/academia** (4).
- ✓ **Citizens** (7): only seven respondents have qualified as "individual/citizens replying in their personal capacity" - the rest given their professional profile and in some cases the high level of coordination in their answers in the case of the shipping sector, have been considered as part of the above groups.
- ✓ **Other actors:** 2 respondents represent ports and their associations.

29 required under Article 21 of Regulation (EU) No 525/2013.

Summary of input to OPC

a) Policy objectives Sector's contribution to the Paris mitigation objectives

The statement on a fair contribution of the sector to the climate goals of the Paris was largely supported by majority of the respondents from all groups**.** However a relatively important share of the shipping sector and in particular its professional associations (12) opted for a "don't know" answer.

b) Specific policy objectives to be taken into consideration when assessing MRV amendments

Stakeholders were asked to specify the degree of importance they attached the following four objectives, in the view of assessing likely amendments to the EU MRV Regulation:

1) providing company-internal tools raising awareness on emission reduction opportunities and triggering action at company level;
2) providing robust information to the markets on ships' fuel consumption and energy efficiency;
3) collecting transparent data for informed policy making, and
4) reducing administrative burden for ships performing EEA-related maritime transport.

On the one hand, civil society organisations, Accreditation bodies and Research citizens/individuals overwhelmingly support the three-wide ranging objectives (letters a, b, and c) while letter d is considered as "not important/somehow important"

Conversely, the shipping sector and non-EEA Flag Administrations consider reducing administrative burden as a very important one while the other three wide ranging objectives are considered relatively important objectives.

As a middle ground, EEA MS and EU MRV verifiers widely support the three wide-ranging EU objectives, (in particular EEA MS "collecting transparent data for further informed policy making" (letter c) appears as "very important"). They also support "lessening administrative burden," as an important objective, but not to the same extent as the shipping sector.

c) Ranking key areas for amendment in light of the objectives pursued

Stakeholders were asked to rank five key areas where amendments to the EU MRV Regulation could be considered: a) scope, b) monitoring parameters, c) verification approach and specificity of the rules applicable; d) transparency/ public access to data collected and e) monitoring and reporting processes (including templates).

The shipping sector considered "Monitoring parameters" followed by "Monitoring and reporting processes" as their highest priority. Under this assumption, verification, transparency and scope ranked lower.

MRV verifiers/RO have quite mixed views: with some of them ranking "Monitoring parameters" and "monitoring mechanisms" and others ranking "Verification" as their highest priority, probably with a view to ensure mutual recognition of those performing

verification. In any case, "transparency/publication of data" ranks as their lowest priority for amendment.

EEA MS/Flag Administrations ranked higher "scope" but limited to IMO DCS definitions followed by "Monitoring processes (incl. templates) while "per-voyage" monitoring shall be maintained," Monitoring parameters", "verification" and "transparency" rank lower in any case.

Civil society organisations rank higher "Monitoring processes" followed by "scope", "verification" and "transparency". In their contributions, they objected to taking into account "Monitoring parameters" and especially "cargo carried".

MORE DETAILED VIEWS on the different elements were provided through a number of questions.

- <u>On operational energy efficiency business decisions and political decision making"/parameters to be monitored and reported</u>

The questionnaire contained three statements and asked participants to indicate their support for them.

i) "Operational energy efficiency is relevant for business decisions and political decision making"

- Civil society organisations, EU MRV verifiers and other stakeholders groups (in particular those working on the policy side) "fully agreed" or "tended to agree" with this statement.
- The shipping sector is somehow divided on this issue: while industry associations was more reticent, a relatively majority of ship owners/managers were "fully agreeing" or "tending to agree" with this statement.

ii) "EU MRV should use "cargo capacity" instead of 'cargo carried"

- Shipping sector: the majority of the respondents of this group favour this option.
- Around half of EEA MS/Flag administrations also welcome this idea.
- MRV verifiers, service providers, accreditation bodies, research and academy and citizens don't have a firm stance about this issue, with a relatively share of them opting for the "*don't know"* option.
- A majority of civil society organisations fully disagree with this statement.

iii) EU MRV should use 'IMO DCS parameters 'distance travelled over ground' and 'hours underway'

- A large majority (84) of respondents across all the stakeholders groups agreed on the value of taking into account the IMO DCS parameters of "distance travelled over ground "and "hours underway", instead of 'distance travelled' and 'time spent at sea".
- The shipping sector and Member States/Flag administrations were especially explicit about this. Also a majority of independent MRV verifiers and service providers were "fully agreeing"/"tending to agree' with this option.
- The rest of the groups seem not to have a clear position: civil society organisations have a less strong position that in the case above with half fully agreeing/ tending to agree and half in favour of the "don't know" option. Citizens/individuals are also split. Finally a majority of national accreditation bodies and ports stakeholders opt for the "don't know option".

- On verification

The questionnaire contained three statements and asked participants to indicate their support for them.

i) On the role of MRV verification in guaranteeing data quality and level playing field for ships and companies

Almost all respondents either fully agreed or tended to agree with the general statement that MRV should ensure both quality plus equal level playing field no big differences can be signalled in terms of stakeholders' groups.

ii) On the benefits of robust and verified data against its costs estimated at 500 euros per year

The shipping sector is the group with the highest level of disagreement on this particular statement, but without a unanimous view on the issue. A majority (18 out of 29) of ship owners/managers tend to disagree, whereas their professional associations seem not to have a firm opinion or insights into this.

On the other hand, MRV verifiers/RO, Accreditation bodies, citizens/individuals and researchers fully agree/tend to agree, almost unanimously, that the benefits are justified by the verification costs. Also civil society organisations fully agree/tend to agree with this assessment and consider third party verification critical to ensure the quality of reported emissions data while it represents an insignificant additional operating cost which cannot justify weakening the MRV approach.

EEA MS/Flag administrations, by a small majority, also support this statement.

iii) Who should perform verification under the EU MRV Regulation?

Stakeholders appear divided in relation to who should perform verification

- 37 respondents indicated a preference for EU Recognised Organisations (RO) performing verification according to specific rules,
- 33 respondents prefer verification to be performed by independent verifiers,
- 12 opted for Port State Controls Officers carrying out in-depth inspections for MRV shipping according to specified rules,
- 11 participants chose "Other".

A small share of the Shipping sector (6) indicated in a clearly coordinated manner that no verification EU level was necessary as "only IMO DCS should be in place".

- Transparency of data collected

i) Is publication of environmental information on CO_2 emissions of individual ships relevant for the public?

A majority of stakeholders groups considers that publication of environmental information on CO_2 emissions of individual ships is relevant for the public.

- In particular civil society organisations, citizens/individuals and research and academy, EU MRV verifiers, National Accreditation Bodies and service providers, EEA MS /Flag administrations fully agree or tend to agree with this statement.

- On the other hand, the shipping sector is quite sceptical in particular ship-owners/managers: 20 of the 29 ship owners / managers fully disagree with this statement. Industry associations are less negative: 13 out of 24 fully disagree

ii) Does transparency of technical and operational efficiency of ships help markets' actors to take informed decisions?

A majority of stakeholders (65) "fully agree/tend to agree" with this statement.

The shipping sector replies are the most reticent ones, while there seem to be some nuances as industry associations "fully disagree" and "ship owners / managers, "tend to disagree" on the usefulness of this information for markets as they fear distortion of competition.

Other aspects, information, comments or suggestions

At the end of the questionnaire, stakeholders could identify relevant issues areas/aspects or add further information, comments or suggestions.

Some suggestions are clearly out of the scope of the OPC: independent MRV verifiers willing to be recognised as RO under IMO DCS, a NGOs requesting inclusion of other shipping pollutants, including methane and black carbon, under the EU MRV Regulation or those indicating that no EU monitoring reporting of EU related data should be in place.

The most relevant for the study can be summarised as follows

EEA MS/Flag administrations submitted five position papers. A majority of EEA MS supported the current approach on "cargo carried", "verification" and "transparency" as pivotal aspects. They also supported that domestic shipping and in- ports emission are kept under the scope of the EU MRV. Two other EEA MS prefer a closer approach to IMO DCS for some of these elements.

Civil society organisations indicated a preference for delaying any amendment of the MRV and leaving both schemes operate in parallel, as this could provide relevant views on those elements needing modification. They support the current approach on domestic shipping and in-port emissions and on actual cargo data as critical to calculate ship operational efficiency. Finally, they supported third party verification to ensure the quality of reported emissions data and transparency of "per ship" data, as a key element to improve efficiency.

- **E-SURVEY**

Stakeholder sample and respondents

A total of 58 survey responses (out of sample of 150) were received. The majority of responses (34) came from the shipping sector and particularly its professional associations Also independent MRV verifiers (7) participated on a large scale. Member States (4), NGOS (4) and accreditation bodies (4) participated as well.

Output and qualitative analysis

The following conclusions can be stressed:

Scope, in terms of ship size, and definitions (e.g.: companies, "at berth" versus "at sea") were considered important.
Monitoring parameters have been considered essential to the goal and intent of the schemes.
Technical adjustments ensuring a common and harmonized approach would reduce administrative burden related to the coexistence of two schemes.
Verification rules and processes were not necessarily a priority area, while ensuring competent verifiers at a reasonable costs was important.
Accreditation: using the same process for both schemes was considered somehow important.
Transparency was not deemed as important element once alignment of the monitoring parameter cargo carried is taken into account.
Reduction of administrative burden will result from closer approaches in terms of definitions, monitoring parameters and reporting and verification processes.

- **"AD HOC" CONTRIBUTIONS**

Four "*ad hoc*" contributions were received outside the formal consultation context.

- Two professional associations submitted identical responses indicating that collecting a separate set of data under an EU system was unnecessary;
- Another professional association of ships carrying out activities currently excluded supports maintaining the current scope for the EU MRV for a transitional period;
- One consortium of regional and local authorities praised the objectives of the MRV shipping in its current design.

ANNEX 3: WHO IS AFFECTED

Who is affected?	How are they affected?
The shipping industry (high interest).	Ship-owners as well as other parties having assumed the responsibility for the operation of the ship and their European are to monitor and report on a ship basis both the EU- MRV shipping and the global IMO DCS. Companies need to collect and report data for each of the ships they operate calling at European Economic Area (EEA) ports since 1st January. From 2019 onwards, a largely similar sample of ships (EU flagged and Non EU flagged) will be requested to report on their global activities to their Flag Administration pursuant to IMO DCS and on their EEA related voyages to the Commission pursuant to MRV (via THETIS MRV)
Other actors of the shipping sector (as cargo owners, logistics companies and ports) (high interest)	Reducing and compensating their carbon footprint and stimulating energy efficiency in maritime transport is part of these actor's priorities. EU ports have an interest in having CO_2 emissions monitored, collected and published.
EEA Member States:	MSs have a continuous interest in receiving their ships' verified annual report for their EEA voyages as this will facilitate MS' verification and collection tasks under IMO DCS. MS will ultimately be responsible for enforcement under both schemes (either as flag States as a port States). EEA MS acting as flag States will have a major role for their own ships under IMO DCS, which entails a considerable administrative burden.
Third countries flag States	are involved in the implementation of IMO DCS and will receive EU related data from their ships.
International organisations	dealing with transport and climate change e.g International Maritime Organisation (IMO), the UN Framework Convention on Climate Change (UNFCCC) and various United Nations bodies, World Bank, Organisation for Economic Co-operation and Development, International Energy Agency, etc, have a moderate interest.
Regional and local authorities (moderate interest).	Especially from regions and cities whose communications rely on maritime transport services, may also be interested.
National accreditation bodies (high interest).	Are affected as responsible for providing accreditation under the MRV shipping

Civil society groups (high interest).	Those actors addressing the environmental impact from maritime transport e.g. academia, think tanks, Environmental NGOs, shipping emission players (developers of projects related to CO_2 emissions and energy efficiency for shipping) are interested in climate change being addressed across the economy, and in data from MRV.
Technology providers and innovators such as ships producer (robust fuel consumption and emission data should incentivize the designing of more efficient ships), marine equipment companies and research bodies	These dealing with the development and provision of marine equipment are indirectly affected to an extent as they provide means to reduce emissions, increase efficiency and support the monitoring of emissions from ships
Citizens/General Public (medium interest).	They have an ***interest*** in action being taken to tackle climate change across the economy, with all sectors contributing, as well as measures for collecting robust data on maritime CO_2 emissions and other relevant information, as these affect their quality of life and that of future generations. On the other hand, having robust information on maritime transport emissions concerns citizens as customers of maritime transport services and consumers of goods transported by ships.

Overview of administrative burden

MRV activities	Administrative burden – Baseline scenario	Administrative burden – Preferred option (Option 2)
Verification activities	Verification costs turned out to be significantly lower than estimated in the 2013 impact assessment (€4500 per vessel per year for outsourcing verification activities and all corresponding processes). According to industry sources, albeit the estimates vary, verification costs are in the order of below €1000.	The preferred option would keep the verification costs at their current relatively low level.
Monitoring and Reporting activities	In the 2013 impact assessment, the administrative burden of the EU MRV was estimated at €26.1 million per year for 11400 ships above 5000 GT. This is in cases where ship-owners and ship operators do not yet apply a similar monitoring approach. According to the 2013 impact assessment, these additional costs represent only an increase of 0.28% of the average operational costs (excluding fuel costs).	In the preferred option, the proposed revised definitions, monitoring parameters, plans and templates would reduce administrative burdens. However, the actual savings would depend on the MRV system installed in each company and the nature of their fleet. In addition, these savings would apply to the current monitoring and reporting costs, which are low in comparison to other operational costs (of 0.28%).

ANNEX 4: MODELLING

This Impact Assessment relies largely on the outcomes of the one carried out in 2013 (SWD(2013) 237 final) accompanying the EU MRV Regulation. Quantitative impacts of the EU MRV as assessed in 2013, are recalled in sections 6 and 7. It has not been considered necessary to update those data by running the model again or carrying out a new analysis, given the short time that has passed since the EU MRV Regulation was adopted, and the fact that its implementation has started recently, not having yet provided any data (with reporting obligations only starting in 2019).

The 2013 impact assessment used a model developed by AEA Technology based on the TIMES model architecture. This model allowed an assessment of the costs of the different policy options then considered, of the emissions abatement profile over time and of the cost effectiveness (€ per tonne CO_2 abated) of taking action on shipping emissions. Additional areas of interest included the extent to which shipping routes may change in response to policy action, the potential for modal shift as a policy response, and the extent of in-sector abatement versus out-of-sector abatement. This model was built on three building blocks: (i) a representation of shipping activity, (ii) a representation of vessels and (iii) cost assumptions. Detailed information on this model can be found on Annex VI of SWD(2013) 237 final.

On this basis, it should be noted that the scenarios that have been assessed in the current impact assessment are all based on adjustments to the same policy instrument, the EU MRV. The options that have been considered mean adjustments mostly of technical nature, but do not alter the nature of the instrument used to address shipping emissions. As a consequence, a refined quantification of impacts cannot be done through existing tools. Therefore, this impact assessment takes the 2013 data as a point of departure, and the additional analysis that has been undertaken is mostly of a qualitative nature.

ANNEX 5: COMPARING THE EU MRV REGULATION AND THE IMO DCS

The EU MRV Regulation has the objective of collecting CO_2 emissions data from maritime transport to inform policy-makers' decisions on the need and type of further action, if any. In addition, the EU MRV Regulation aims to encourage the uptake of reduction measures through the publication of CO_2 emissions and energy-efficiency related data on a "per ship" basis, providing data on emissions in ports that can facilitate their action, and providing a potential basis for future action as set out in the EU's 2013 Communication. The IMO DCS has the objective to collect data on fuel consumption, and with this indirectly addresses CO_2 emission data. Besides this, while the two systems bear many similarities, some important design differences exist:

Firstly, in terms of scope, the IMO DCS applies to all international maritime transport activities of ships of 5000GT and above. In contrast, the EU MRV Regulation covers not only data from EU-related international voyages but also from domestic (as internal to a MS) and emissions within EU ports and from ports from ships above 5000 GT. While the EU MRV Regulation only applies to maritime transport activities (carrying cargo or passengers or cargo for commercial purposes), whereas the IMO DCS comprises any activity carried out by ships operating in the marine environment. There are also some differences in terms of categories of ships covered as fish catching and processing ships are covered by IMO DCS, but not under EU MRV Regulation.

In addition to the divergences in scope, some of the parameters to be monitored differ. The EU MRV Regulation includes monitoring and reporting of "*actual cargo carried*" as the basis to calculate average operational energy efficiency "per ship". Instead of "*actual cargo carried*", the IMO DCS collects data on the "*cargo carrying capacity*". Furthermore, the two systems use slightly different definitions of the parameters "*distance travelled*" and "*time spent at sea*"/ "*hours underway*".

The definition of company is also a divergent point as the company fulfilling the MRV obligations is to be determined on a case by case basis by parties involved. Under the IMO DCS, its obligations go without exception to the one having assumed the SIM obligations.

Allocation of monitoring and reporting obligations in case of change of shipping companies is also different. Under the EU MRV Regulation shipping, submission of data occurs annually by the company responsible on 31st December in the form of an annual emissions report. Under IMO DCS, reporting of aggregated data for segments shorter than the calendar year, are possible in case of change of company. Moreover, the EU MRV describes in details the minimum procedures to be part of the monitoring plan templates, whereas the IMO DCS only provides for some general directions.

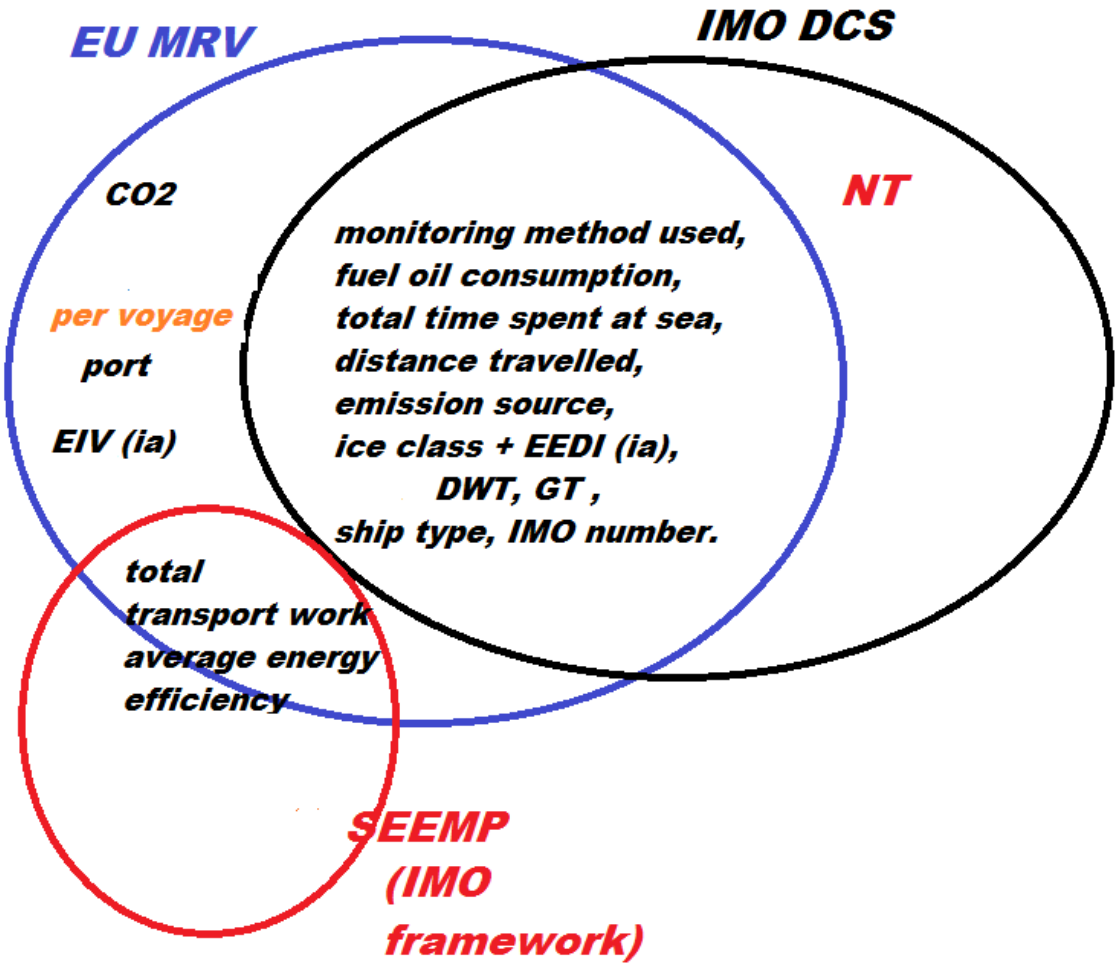
Furthermore, the verification methods diverge. Under the EU MRV Regulation, data accuracy is guaranteed by third party verification taking place before submitting those data to the flag State and to the Commission. It uses a similar but simplified verification system as the one applied under the EU's Emissions Trading System, based on internationally agreed ISO standards and EU specific verification rules. Verifiers' performance and competencies are supervised by National Accreditation Bodies (NABs) in line with usual regulatory practices in the EU. Under IMO DCS flag Administrations or its RO are to verify, in accordance with their national rules and taking into account IMO guidelines, the data submitted by their ships.

Finally, as regards the publication of data and transparency. Similar to other sectors, the EU MRV Regulation foresees public access to "per ship" annually aggregated reported

data on CO_2 emissions and average energy efficiency. It will thus provide information to stakeholders and the general public on CO_2 emissions from EU related maritime transport activities and create incentives for more efficient ships in the market. In contrast, datasets under IMO DCS will be anonymized such that identification of individual ships is not possible. Also, only IMO Member States will have access to this data and no publication via the IMO DCS is foreseen. While this will enable IMO to analyse global data on the GHG emissions from international maritime activities so as to inform further the decision-making measures, if any, the uptake of emissions reduction measures will not be incentivised in the absence of any peer review.

The next table provided by EMSA gives an overview of the main differences between the two systems, where the figure aims to also indicate the synergies between the systems:

	EU MRV Regulation	IMO DC System
Scope	Ships above 5000 GT Voyages to/from & between EEA ports Monitoring Plan (MP) 1 January 2018	Ships 5000 GT and above All International Voyages SEEMP 1 January 2019
First monitoring period	2018	2019
Reporting responsibility	Company responsible on 31 Dec	Flag responsible for effective period
Reporting Parameters	Fuel consumption and CO_2 Distance travelled Time spent at sea Cargo carried Transport work - Distance × Cargo	Fuel consumption (CO_2 derived) Distance travelled Hours under way DWT (deadweight) Transport work proxy (not required) - Distance × DWT
Verification	Independent Accredited Verifiers	Flag Administrations or ROs
Governance	European Commission & flag State	Flag Administrations
Certification	Document of Compliance (DoC)	Statement of Compliance (SoC)
Transparency	Distinctive - ship specific database	Anonymous - aggregated ship database
Disclosure	Public	Confidential (Parties access/analysis)



Explanatory Figure: per voyage (indicated in orange) is not a reporting obligation under the EU MRV Regulation but rather a monitoring obligation. Also, the SEEMP (MARPOL) is not reported, but contains energy efficiency parameters that should be available on a ship. Abbreviation: NT: net tonnage; DWT: deadweight tonnage; GT: gross tonnage; EEDI: energy efficiency design index; EIV: estimated index value.