



Actions for enabling energy efficiency savings

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Monitoring Reporting & Verification

- No IMO agreement yet for MBM's
- First need a method to quantify emissions

Quotes are copied from the websites cited on each slide

The EU

The Commission's 2011 White Paper on transport:

Suggests that the EU's CO₂ emissions from maritime transport should be cut:

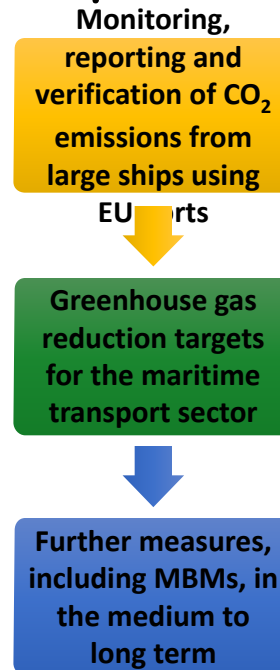
- by at least 40% of 2005 levels by 2050,
- and if feasible by 50%.

International shipping is not covered by the EU's current emissions reduction target'

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

Strategy

[2013] EU Proposed a Strategy for reducing maritime emissions in 3 consecutive steps:



http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm



Time line

[2013] EU Proposed a Strategy for reducing maritime emissions in 3 consecutive steps:

[April 2015] agreed that the Regulation would enter into force on 1 July 2015

[July 2015] The MRV Regulation entered into force

[By 31 August 2017] Companies need to submit a MRV plan to the verifiers for each of their ships indicating the method chosen to monitor and report CO2 emissions, and other relevant information.

[From 1 January 2018] companies will need to monitor CO2 emissions for each ship on a per-voyage and an annual basis

- By applying the appropriate method for determining CO2 emissions
- Following the their MRV Plan



Methods

- Bunker delivery notes
- Tank Soundings
- Flow Meters
- Emission Measurements

<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R0757>



The plan should include: complete and transparent documentation of the monitoring method for the ship concerned and contain at least the following elements:

the identification and type of the ship, including its name, its IMO identification number, its port of registry or home port, and the name of the shipowner;

the name of the company and the address, telephone and e-mail details of a contact person;

a description of the following CO₂ emission sources on board the ship: main engines, auxiliary engines, gas turbines, boilers and inert gas generators, and the fuel types used;

a description of the procedures, systems and responsibilities used to update the list of CO₂ emission sources over the reporting period;

a description of the procedures used to monitor the completeness of the list of voyages;

<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R0757>

A description of the procedures for monitoring the fuel consumption of the ship, including:

- the method chosen from among those set out in Annex I for calculating the fuel consumption of each CO₂ emission source, including, where applicable, a description of the measuring equipment used,
- the procedures for the measurement of fuel uplifts and fuel in tanks, a description of the measuring equipment used and the procedures for recording, retrieving, transmitting and storing information regarding measurements. as applicable

single emission factors used for each fuel type, or in the case of alternative fuels, the methodologies for determining the emission factors, including the methodology for sampling, methods of analysis and a description of the laboratories used, with the ISO 17025 accreditation of those laboratories, if any;



A description of the procedures used for determining activity data per voyage, including:

- the procedures, responsibilities and data sources for determining and recording the distance,
- the procedures, responsibilities, formulae and data sources for determining and recording the cargo carried and the number of passengers, as applicable,
- the procedures, responsibilities, formulae and data sources for a revision record sheet to record all the details of the revision history.

Update

- ‘Companies shall check regularly, and at least annually, whether a ship's monitoring plan reflects the nature and functioning of the ship and whether the monitoring methodology can be improved.’

<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R0757>



Monitoring per Voyage

1. Based on the monitoring, for each ship arriving in or departing from, and for each voyage to or from, a port under a Member State's jurisdiction, companies shall monitor the following parameters:

- (a) port of departure and port of arrival including the date and hour of departure and arrival;
- (b) amount and emission factor for each type of fuel consumed in total;
- (c) CO2 emitted;
- (d) distance travelled;
- (e) time spent at sea;
- (f) cargo carried;
- (g) transport work



Monitoring per Voyage

Companies may also monitor information relating to the ship's ice class and to navigation through ice, where applicable.

2. A company shall be exempt from the obligation to monitor the information referred to in 1 of this on a per-voyage basis in respect of a specified ship, if:

- (a) all of the ship's voyages during the reporting period either start from or end at a port under the jurisdiction of a Member State; and
- (b) the ship, according to its schedule, performs more than 300 voyages during the reporting period.



Monitoring Annually

Based on the monitoring plan, for each ship and for each calendar year, companies shall monitor in accordance the following parameters:

- a) amount and emission factor for each type of fuel consumed in total;
- (b) total aggregated CO₂ emitted within the scope of this Regulation;
- (c) aggregated CO₂ emissions from all voyages between ports under a Member State's jurisdiction;
- (d) aggregated CO₂ emissions from all voyages which departed from ports under a Member State's jurisdiction;
- (e) aggregated CO₂ emissions from all voyages to ports under a Member State's jurisdiction;
- (f) CO₂ emissions which occurred within ports under a Member State's jurisdiction at berth;

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Monitoring Annually

- (g) total distance travelled;
- (h) total time spent at sea;
- (i) total transport work;
- (j) average energy efficiency.

Companies may monitor information relating to the ship's ice class and to navigation through ice, where applicable.

Companies may also monitor fuel consumed and CO2 emitted, differentiating on the basis of other criteria defined in the monitoring plan.





Format of Emissions Report

- The emissions report shall be submitted using automated systems and data exchange formats, including electronic templates.
- The Commission shall determine, by means of implementing acts, technical rules establishing the data exchange formats, including the electronic templates.

Other Articles in the Regulation

Article 13

- Scope of verification activities and verification report

Article 14

- General obligations and principles for the verifiers

Article 15

- Verification procedures

Article 16

- Accreditation of verifiers

Article 17

- Document of compliance

<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R0757>



Reporting

[Article 18]

- **Obligation to carry a valid document of compliance on board**
- **By 30 June of the year following the end of a reporting period, ships arriving at, within or departing from a port under the jurisdiction of a Member State, and which have carried out voyages during that reporting period, shall carry on board a valid document of compliance.**



Inspections

[Article 19]

- Compliance with monitoring and reporting requirements and inspections
- 1. Based on the information published, each Member State shall take all the measures necessary to ensure compliance with the monitoring and reporting by ships flying its flag.
- Member States shall regard the fact that a document of compliance has been issued for the ship concerned as evidence of such compliance.
- 2. Each Member State shall ensure that any inspection of a ship in a port under its jurisdiction includes checking that a valid document of compliance is carried on board.

Penalties, information exchange and expulsion order

[Article 20]

- **1. Member States shall set up a system of penalties for failure to comply with the monitoring and reporting obligations and shall take all the measures necessary to ensure that those penalties are imposed. The penalties provided for shall be effective, proportionate and dissuasive. Member States shall notify those provisions to the Commission by 1 July 2017, and shall notify to the Commission without delay any subsequent amendments.**

<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R0757>

Publication of information and Commission report

[Article 21]

- 1. By 30 June each year, the Commission shall make publicly available the information on CO2 emissions reported

<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R0757>

Continuing research

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

Following the entry into force of the MRV Regulation in July 2015 two MRV shipping subgroups of experts (one subgroup dealing with

- [monitoring of cargo and monitoring methods and rules\(152 kB\)](#) ,
- [verification rules and accreditation of verifiers\(104 kB\)](#)

Four/five meetings of the MRV subgroups have been scheduled between July 2015 and spring 2016.

Continuing research

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

Expected output of this experts' consultation process is a set of recommendations addressed to the Commission on the following:

- further defining technical rules for cargo monitoring for "other ships types" (Implementing Act)
- setting additional rules on verification & accreditation (Delegated Act)
- assessing the need for updating Annexes I & II in the light of international rules and standards or scientific and technical developments and, if needed, recommend possible changes (Delegated Act, if required)
- setting relevant monitoring and reporting templates and technical rules for submission, applicable to companies and to verifiers (Implementing Acts)

Are non-EU ships also covered? What about small ships?

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

‘The Regulation will cover all types of ships above 5000 gross tons with the exception of the following categories, which are fully exempted: warships, naval ships, ships for catching or processing fish, ships not propelled by mechanical means, yachts and government ships for non-commercial purposes.

Based on the principles of non-discrimination and flag neutrality, the Regulation will apply to any such ship calling at any EU port, irrespective of where it is registered.

The 5000 gross ton threshold means that only large ships emitting significant levels of emissions will be covered.’

What if IMO adopts a global framework for maritime emissions?

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

- ‘The likely timeline for the Regulation's adoption leaves ample opportunity for the IMO to make progress before the EU rules come into force.
- Moreover, in the draft Regulation the Commission specifically states its intention to propose amendments to take into account progress towards an international agreement on global measures to reduce GHG emissions from maritime transport.’

What are the costs and benefits of the proposed MRV system?

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

- ‘The Commission's analysis of the proposal shows the MRV system will be economically profitable for the shipping sector. The predicted fuel cost savings would outweigh the cost of monitoring, reporting and verification of emissions, leading to net cost savings of up to €1.2 billion a year by 2030.
- The MRV system would also reduce emissions by up to 2% compared with a 'business as usual' scenario. By providing reliable data on ships' fuel consumption and emissions, the system would encourage the sector to implement technical and operational measures for reducing emissions and fuel consumption at no (or even negative) cost. Such measures are already available but not sufficiently used. Their uptake is currently hampered by market barriers such as lack of information and lack of access to finance.’

What types of data will be collected?

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

- ‘The primary objective is to collect data on CO2 emissions, which will help raise the sector's awareness of its contribution to climate change. Accordingly, the amount and type of fuel consumed by ships on routes covered by the Regulation are the core data to be collected.
- Ship owners will also have to provide information on distance travelled, cargo carried and time spent at sea, in particular to obtain a general overview of ships' average energy efficiency. This will facilitate the alignment of the EU regulation with the on-going IMO discussions, which focus on enhancing the energy efficiency of the sector.
- The proposed MRV system will not cover other GHGs besides CO2 nor air pollutants since measuring equipment for these is currently not sufficiently reliable. However the scope could be expanded at a later stage, in order to clarify and simplify monitoring and reporting requirements.’

Why is the Commission proposing measures at EU level, not internationally?

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

- ‘The European Union and its Member States have consistently supported ambitious international action to address climate change. They are actively engaged in current discussions within the International Maritime Organization (IMO) to develop energy efficiency standards for existing ships and on other medium- to long-term measures. Monitoring and reporting proposals are part of this gradual approach.
- The EU has a strong preference for a global approach to maritime emissions led by IMO. The EU and its Member States are working closely in IMO with the USA, Japan, Australia, Canada, Russia, Korea and others on these issues.
- Consistent with this international cooperation, the EU system of MRV for shipping emissions is designed as a concrete contribution to building an international system. First steps in this direction have recently been taken at the IMO, with active support from the EU and partner countries. By yielding further insights into the sector's potential to reduce emissions, an MRV system will also provide new opportunities to agree on efficiency standards for existing ships.
- The Commission's proposal combines monitoring of data on CO₂ emissions with other data related to energy efficiency. This will facilitate the alignment of the EU scheme with any IMO system agreed in future. ‘

- **7. What journeys will be covered by the monitoring and reporting obligations?**
- **The application of the MRV rules will follow the principles of international maritime law in that it will be applied in a non-discriminatory manner to all ships regardless of their flags.**
- **From 1 January 2018, CO2 emissions and fuel efficiency will need to be monitored for:**
 - **all intra-EU Union voyages (ie those between ports under the jurisdiction of an EU Member State)**
 - **all incoming voyages from the last non-EU port to the first EU port of call;**
 - **all outgoing voyages from an EU port to the next non-EU port of call.**
- **After being monitored, this data will need to be independently verified and then reported to the Commission and the ship's flag state.**
- **Emissions from vessels within ports will also need to be monitored, reported and verified. This is intended to encourage the use of available shore-based emission-reduction technologies.**

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm

ISO 50001:2011

- **An International Standard for
Energy management systems —
Requirements with guidance for use**
- **Companies can choose to follow and adopt the
standards, which they can then be accredited for.
(The ISO standards are not a regulation)**