

# **Stakeholder meeting on monitoring, reporting and verification (MRV) of greenhouse gas emissions from ships**

**5 December 2012**

## **Background document**

### **Disclaimer**

The purpose of this background paper is to indicate possible areas for discussion and assist participants with their preparation. This document is not intended to indicate any preferences or views of the Commission.

### **1. Introduction**

As announced by Commissioner Hedegaard and Vice-President Kallas in early October, the European Commission will propose early 2013 legislation for monitoring, reporting and verification of CO<sub>2</sub> emissions of maritime transport. This measure aims at robust monitoring, reporting and verification (MRV) which is essential preparation for a global measure. It is aligned with a three-step approach towards global action to reduce GHG emissions from international shipping currently discussed at the IMO and can contribute to building readiness and understanding of the challenges associated with different policy measures. Building on a robust monitoring, reporting and verification system, and intermediate measures to increase the energy efficiency of existing ships, the long-term goal in this sector remains a market-based measure in the IMO, to ensure the sector makes a fair contribution to the global efforts to keep temperature rises below 2°C.

A robust monitoring, reporting and verification (MRV) system is an essential element of any measure reducing GHG emissions of ships at EU or global level. Although MRV is the foundation for other measures, even as a stand-alone measure it has the potential to yield significant benefits. A decision on a MRV measure does not prejudge the subsequent policy choices and its implementation can be prepared before a decision on the specific choice of a measure has been taken.

Accordingly, a "MRV first" approach gives more time to agree on global measures to reduce GHG emissions from ships. It also allows for informed discussions in Europe on appropriate reduction targets for the sector and the right measure to achieve them, by facilitating the provision of reliable and comparable data to set precise emission reduction targets and to assess the contribution of maritime transport towards building a low carbon economy.

According to the preliminary results of the Impact Assessment, the implementation of MRV is expected to result in both environmental and economic benefits (up to 2% reductions in annual GHG emissions and of up to € 1.2 billion annual net savings for the sector in 2030 due to reduced fuel bills at EU level). Availability of reliable information on fuel consumption and energy efficiency will contribute to addressing the key market barriers for the implementation of cost-effective abatement measures. The predicted fuel cost savings are expected to outweigh the costs for monitoring and reporting.

These expectations are in line with recent developments in the sector to monitor and partly report data on fuel consumption in view of optimising the operations of ships and to provide market-relevant information on ship efficiency. These developments indicate a growing data demand in the sector and a system for MRV should also address such needs.

The MRV system should also minimise the administrative burden on ship-owners or ship-operators by using mostly available data and processes.

Following the announcement by the two Commissioners, the online consultation and numerous bilateral contacts with stakeholders raising interesting ideas and issues on MRV, this stakeholder meeting is an important step to bring further stakeholder input into the preparation of the proposal.

## 2. **Data availability and needs**

### 2.1. *Minimum requirements*

#### **Scope**

Proportionality is a key issue for the envisaged MRV system. To this end, the following parameters should be considered:

- Greenhouse gases: the MRV system should focus on CO<sub>2</sub> as the predominant greenhouse gas for maritime transport; the feasibility of including other greenhouse gasses or climate forcers should only be analysed at later stage;
- Routes: the envisaged MRV system should cover ship voyages with a clear link to the EU. This includes:
  - o all intra-EU journeys,
  - o all journeys from the last non-EU port to the first EU port of call (incoming journeys)
  - o all journeys from an EU port to the next non-EU port of call (outgoing journeys) and
  - o emissions occurring in EU-ports.
- Size of ships: irrespective of type, the MRV system should be applied to large ships of 5000 GT and above as these ships accounting for about half of the fleet calling into EU ports are responsible for around 90% of the GHG emissions.

#### **CO<sub>2</sub> emissions determination**

CO<sub>2</sub> emissions of ships could be determined by calculation using the fuel consumption or by estimates using calculation models based on activity data. Top-down approaches based on bunker fuel sales do not deliver reliable results for the envisaged scope. More precisely, approaches based on bunker fuel sales do not give any insight on where the fuel is consumed. It therefore prevents a reliable understanding of energy efficiency taking into account operational conditions (such as weather condition, speed, etc.). Measurements of CO<sub>2</sub> emissions are not considered as important alternative given the additional costs for installing and operating such equipment.

For simplicity reasons, the envisaged MRV system should in principle be based on fuel consumption of ships as this constitutes the most reliable source of information while

minimising the administrative burden for ship-owners and operators. For the given reporting period, the fuel consumption within the scope of the MRV system and the fuel types used (together with default emission factors) would be used to calculate the relevant emissions.

However, for large ships calling only occasionally in EU ports (so-called medium emitters), emission estimates based on vessel tracking data and characteristics might be an appropriate alternative which could also be used for data quality checks.

## *2.2. Issues under discussion*

The minimum requirements provide for the reporting of CO<sub>2</sub> emissions associated with specific routes, which is already useful information for the public authorities to take action. Moreover, it can give a basic estimate of the energy efficiency of ships, as the distance travelled between the port of origin and the port of destination can be calculated.

However, to get a more accurate estimate of the energy efficiency of ship, the following data might be appropriate to be reported:

- real distance travelled,
- cargo carried.
  
- Is getting an accurate estimate of energy efficiency relevant? Why?
- Can these data be reported for all types of ships?
- Can they be reported at the same time as the minimum required data (amount and type of fuel consumed per route related to the EU) without significant administrative burden?

Moreover, to take adequate action to improve energy efficiency of a ship, operational conditions of the ship should be known. This would allow a better understanding of energy efficiency and, eventually, a comparison within a given ship category. The following data related to the operational conditions could be reported:

- weather conditions (wind, waves,...)
- speed (real and designed)
  
- Can such data be reported at the same time as the minimum required data (amount and type of fuel consumed per route related to the EU) without significant administrative burden?
- Are there any other operational conditions that could be reported?

Finally, to calculate the CO<sub>2</sub> emissions from fuel consumption, the Commission intends to use default emissions factors (which are calculated by multiplying the net calorific value per mass of fuel (TJ/Gg) and the emission factor (t CO<sub>2</sub>/TJ)<sup>1</sup>). A pragmatic approach to determining fuel carbon content might be to classify fuels as either distillate or residual and assign emission factors as per the IPCC guideline defaults. Another approach would be to use the IMO factors established for heavy fuel oil, light fuel oil and marine diesel and gas oil along with the IPCC factors.

- Which approach should be pursued?

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<sup>1</sup> Both values are provided by the 2006 IPCC Guidelines

### **3. Entities in charge of data collection and approval**

#### *3.1. Minimum requirements*

The data monitored would have to be made available to the Competent Authority (reporting). To minimise the administrative burden and to maximise the comparability and transparency, the data should be transferred to the Competent Authority by electronic tools using a standardised format.

Before submitting data to the Competent Authority, these data need to be validated and approved (see also section 4). This should be ensured by independent and competent third parties. Once all legal requirements are fulfilled, compliance with the reporting requirements is documented by issuing a certificate by the third party.

The Competent Authority would set up the database and establish the standardised format.

#### *3.2. Issues under discussion*

The described approach to validate and approve data to be reported to the Competent Authority relies on independent and competent third parties.

- Who should serve as third parties?
  - Service providers?
  - Classification societies?
  - Others?

To ensure independence and competence of these third parties, a recognition or accreditation process needs to be applied. Such recognition or accreditation could be based on existing procedures or a dedicated scheme could be introduced.

- Should reference be made to schemes such as the one established by Regulation (EC) No 391/2009?
- Should a dedicated scheme be designed and introduced for the purpose of validation and approval of CO<sub>2</sub> emission data reported to the Competent Authority?

Procedures for the submission of data to the Competent Authority need to be established.

- Should the ship-owners (or others acting of their behalf) be required to submit the validated and approved data to the Competent Authority?
- Should the independent and competent third parties (authorised by the ship-owners) be in charge of submitting the data?
- Should both options be kept open?

### **4. Reporting and validation**

#### *4.1. Minimum requirements*

The ship-owner should be responsible for reporting validated CO<sub>2</sub> emissions and related information. These obligations could be delegated to other entities.

The information provided to the Competent Authority should be reliable. Therefore, third party validation is needed. It should be provided electronically.

Compliance with the MRV obligations would be a condition for entry into EU ports. Enforcement will be made on the ship. Flag and Port State Control as existing instrument would ensure the enforcement of the legal obligations.

#### *4.2. Issues under discussion*

Often, the ownership, operation and management of ships are split between several actors. In addition, they are changing over time as ships are frequently sold to other owners and charter contracts are often agreed for rather short durations (down to a single voyage). This leads to a particular situation in the maritime transport sector.

- How do chartered vessels complicate a monitoring regime?
- How could continuity of monitoring be ensured in such a situation?

To ensure its reliability, the information provided has to be validated. The validation can be done in two ways:

- a monitoring plan, explaining the methodology used and processes to monitor the CO<sub>2</sub> emissions, is established and a third party control that the emissions are reported in accordance with the monitoring plan,
  - estimation of the CO<sub>2</sub> emissions is made using vessel tracking system and ship's technical specifications; the emissions declared are compared by a third party to this estimate and any difference is justified.
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- Which approach is the most relevant?
  - Can these approaches be combined?
  - Is there any other approach that could be envisaged?