

## **European Climate Change Programme – WG Ships**

**8<sup>th</sup> February 2011**

### **Background document:**

#### **Monitoring emissions of international maritime transport**

##### **Introduction**

Any measure applied to GHG emissions from international maritime transport will require a sound system for monitoring, reporting and verifying emissions (MRV). Regardless if a measure were to apply upstream (e.g. based on fuel supply) or downstream (e.g. applied on the basis of individual ships), any monitoring system should be designed in a consistent and practicable manner. For the initial consultation, we will focus on issues that we face in terms of monitoring the emissions from international maritime transport. Reporting and verification will be looked at more thoroughly in future consultations.

This issue will require careful consideration in order that the most effective and efficient methodology is applied without adding undue effort or cost for industry or competent authorities.

To date, the issue of monitoring GHG emissions (more specifically CO<sub>2</sub> emissions) have been looked at in two recent studies carried out by the Commission:

**1. Design and impact of potential European policies to reduce GHG emissions from ships, CE Delft led consortia**

<http://ec.europa.eu/environment/air/transport/ships.htm>

**2. Review of Decision 280/2004/EC (Monitoring Mechanism Decision) in view of the agreed Climate Change and Energy package, Oke Institute led consortia**

Need Link

##### **Monitoring emissions**

###### **Monitoring on an Upstream Basis**

It may be possible, depending on the design of any measure, to use fuel sales to estimate emissions from international maritime transport.

Considering the common practices for loading fuel, if a measure is not applied on a global basis, would this provide a good basis for the monitoring of emissions from ships?

What proportion of emissions from international maritime transport is likely to be captured on such a basis? If a measure is EU specific?

## **Monitoring for Individual Ships**

As CO<sub>2</sub> emissions are proportional to fuel consumption, one way to monitor emissions from shipping would be based on the fuel consumption from ships.

*Would fuel consumption provide a good basis for monitoring emissions from individual ships?*

Clearly different methods are used for monitoring fuel consumption onboard ships depending on needs and means. It seems that two broad methods are possible in this regard:

1. Inventory control – this method would be based on fuel loaded, and would involve taking an inventory at the beginning and end of a period and taking account of any de-bunkering within the period. It seems that this information would largely be contained in documentation on board ships.

*Would bunker fuel delivery notes and the vessel's log book or other documentation currently kept allow for this kind of measurement?*

*Are there issues in this regard with the existing documentation?*

2. Direct Measurement – This method would require measurement through the existence or installation of a fuel consumption monitoring system. These types of systems may generally provide a greater level of accuracy for fuel consumption but, may not be used by smaller ships.

*Would fuel consumption monitoring systems be a good method for monitoring fuel consumption on larger ships? What would be the appropriate threshold for which we could expect such systems to be installed?*

## **Chartered Vessels**

*How do chartered vessels complicate a monitoring regime?*

*How could continuity of monitoring be ensured in such a situation?*

*Would a measurement or inventory approach be appropriate?*

## **General**

*What is the best method for monitoring fuel consumption?*

*Should different tiers of accuracy apply to ships based on size?*

*Are there ships that are too small to monitor emissions with any accuracy?*

## **Fuel Carbon Content (Emissions Factors)**

Measuring the actual carbon content of the fuel consumed on specific vessels is not practically feasible. Rather, it is necessary to find a compromise solution based on a set of default values or previously determined emission factors.

*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? Is this a superior approach?*

### **Disclaimer**

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