IMO activities on reduction of Air Pollution & GHG emissions from ships

Development of market-based measures for international shipping

Marine Environment Division - IMO
International Maritime Organization (IMO)

- The IMO Convention was adopted in 1948 and IMO first met in 1959
- A specialized agency of the UN
- 169 Member States
- Develop and maintain a comprehensive regulatory framework for shipping
- Safety, environment, legal matters, technical co-operation, security and the efficiency of shipping

Safe, secure and efficient shipping on cleaner oceans!
Ship emissions one of the last major ship pollutants to be regulated

Work started at IMO in the late 1980’s

Revised Annex VI in force 1 July 2010

- Prohibits ODS in line with the Montreal Protocol
- Regulates exhaust gas: NOx & SOx (PM), and cargo vapours from tankers (VOC)
- Energy Efficiency or CO₂ emissions not covered
Resolution A.963(23)


IMO’s GHG Work has three distinct routes: **Technical** - mainly applicable to new ships - EEDI, **Operational** - applicable to all ships in operation – SEEMP and EEOI, and **Market-based Instruments** (MBI) - carbon price for shipping, incentive, may generate funds.

A.963(23) requests MEPC to:
- develop a work plan with timetable – (technical/operational culminated at MEPC 59, the work plan for MBIs culminates at MEPC 62 (Assembly 27))
- establishment of GHG baseline and develop CO2 indexing methodology
## Distribution of the world fleet March 2008

ships above 400 GT

<table>
<thead>
<tr>
<th>Flag States</th>
<th>Number of ships</th>
<th>GT</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annex I</td>
<td>33.4%</td>
<td>26.1%</td>
<td>22.82%</td>
</tr>
<tr>
<td>Non-Annex I</td>
<td>66.6%</td>
<td>73.9%</td>
<td>77.18%</td>
</tr>
</tbody>
</table>

Lloyd’s Register Fairplay

**Article 1(b) of the IMO Convention**

Encourage removal of discriminatory actions .... promote the availability of shipping without discrimination ...... not be based on measures designed to restrict the freedom of shipping of all flags ....;
Second IMO GHG Study 2009

2007 shipping CO2 emissions 870 million tons

Future CO2 emissions:

• Significant increase predicted – 200 300% by 2050 in the absence of regulations
• Demand is the primary driver
• Technical and operational efficiency measures can provide significant improvements but will not be able to provide real reductions if demand continues
Energy Efficiency Design Index

\[ EEDI = \frac{\text{Environmental cost}}{\text{Benefit for society}} \]

- Cost: Emissions of CO\textsubscript{2}
- Benefit: Cargo capacity & transport work

Complex formula to accommodate most ship types and sizes
SEEMP - Ship Energy Efficiency Management Plan

Onboard management tool to include:

• Improved voyage planning (Weather routeing/Just in time)
• Speed and power optimization
• Optimized ship handling (ballast/trim/use of rudder and autopilot)
• Improved fleet management
• Improved cargo handling
• Energy management
EEOI - Energy Efficiency Operational Indicator

- An efficiency indicator for all ships (new and existing) obtained from fuel use, voyage (miles) and cargo data (tonnes)

\[
\text{Actual Fuel Consumption Index} = \frac{\text{Fuel Consumption in Operation}}{\text{Cargo Onboard} \times (\text{Distance traveled})}
\]
MEPC 60 (22 – 26 March 2010)

Main topics:

• Mandatory EEDI/SEEMP
• MBM feasibility/impact studies: methodology and criteria
• Work programme 2010:
  - Intersessional meeting EE- WG (28 June – 2 July) dedicated to develop the regulatory text on technical and operational measures
  - Expert Group on MBM
Ten MBM proposals or variants to MEPC 60

International Fund for Greenhouse Gas Emissions from Ships (Denmark et al (Japan)) Contribution - Target line – Funds (Incentive Scheme)

Global Emission Trading Scheme for International Shipping (France, Germany, Norway and the United Kingdom) C & T - Full auctioning – Open

Trading with Efficiency Credits based on the EEDI (United States) All ships – Funds only through toll

No MBM for international shipping (Bahamas); Vessel Efficiency System (WSC); Ship Traffic, Energy and Environment Model (Jamaica); Rebate Mechanism for a MBM for International Shipping (IUCN)

Any funds generated by a market-based instrument under the auspices of IMO should be used for climate change purposes in developing countries
Expert Group to evaluate the MBM proposals

The scope of the study/assessment is to review the practicability of implementing the various options. Identify for each proposed MBM:
- reduction potential
- impact on world trade
- impact on the shipping industry, and the maritime sector in general, giving priority to the maritime sectors in developing countries.
The MBM work plan (agreed by MEPC 59) states:

Taking into account the outcomes and conclusions of the study/assessment, MEPC 61 would be able to clearly indicate which MBM it wishes to evaluate further and identify the elements to include.

The work plan culminates at MEPC 62 in July 2011 Assembly 27 to decide on future steps, e.g. instruct MEPC to develop the MBM as mandatory.
Possible need for a new treaty instrument

Legal framework and treaty text will continue to be developed in parallel with the MBM.

The new treaty instrument may be adopted by a diplomatic conference towards the end of 2012.

The most uncertain element will be the speed of ratifications and its entry-into-force requirements.

Early implementation through an MoU, principally among developed states, may be considered.
Thank you for your attention!

For more information please see: www.imo.org