

**Note by the International Maritime Organization to the fortieth session of the
Subsidiary Body for Scientific and Technological Advice (SBSTA 40)
Bonn, Germany, 4 to 15 June 2014**

**Agenda item 11(c)
Emissions from fuel used for international aviation and maritime transport**

**UPDATE ON IMO'S WORK TO ADDRESS EMISSIONS FROM FUEL USED FOR
INTERNATIONAL SHIPPING**

SUMMARY

IMO's Marine Environment Protection Committee has been considering as an integral part of its agenda, actions to address greenhouse gas (GHG) emission from ships engaged in international trade. It met for its 66th session from 31 March to 4 April 2014 (MEPC 66), at IMO Headquarters in London and had the participation from 105 Member States, 3 United Nations bodies, 7 intergovernmental organizations and 50 non-governmental organizations.

Following the entry into force on 1 January 2013 of the new chapter 4 of MARPOL Annex VI which includes requirements mandating the Energy Efficiency Design Index (EEDI) for new ships, and the Ship Energy Efficiency Management Plan (SEEMP) for all ships, MEPC 66 considered further energy efficiency measures for ships.

MEPC 66 discussed various submissions relating to proposals to establish a framework for the collection and reporting of data on the fuel consumption of ships and established a Working Group on "Further technical and operational measures for enhancing energy efficiency of international shipping" to consider the development of a data collection system for ships, including identification of the core elements of such a system.

IMO is also focusing its efforts on technical co-operation and capacity building to ensure smooth and effective implementation and enforcement of the new regulations worldwide. In this regard, MEPC 66 discussed the implementation of resolution MEPC.229(65) on *Promotion of Technical Co-operation and Transfer of Technology relating to the Improvement of Energy Efficiency of Ships*.

Introduction

1 International shipping plays a vital role in the facilitation of world trade as the most cost-effective and energy-efficient mode of mass transport, making a significant contribution to global prosperity in both developing and developed countries.

2 IMO was established by governments as a specialized agency under the United Nations to provide machinery for intergovernmental cooperation in the field of regulation of ships engaged in international trade. IMO is responsible for the global regulation of all facets pertaining to international shipping and has a key role in ensuring that lives at sea are not put at risk including security of shipping and that the environment is not polluted by ships'

operations – as summed up in IMO’s mission statement: **Safe, Secure and Efficient Shipping on Clean Oceans.**

3 This document provides an update to previous submissions by IMO to SBSTA including: FCCC/SBSTA/2013/MISC.20 and FCCC/SBSTA/2013/MISC.15.

Work on control of GHG emissions from international shipping

4 Measures to improve energy efficiency of international shipping were adopted by Parties to Annex VI of the Convention on the Prevention of Pollution from Ships (MARPOL) at MEPC 62 in July 2011 and entered into force on 1 January 2013. The *Regulations for energy efficiency of ships*, apply to internationally trading ships of 400 gross tonnage and above, and make mandatory:

- .1 the Energy Efficiency Design Index (EEDI) for new ships; and
- .2 the Ship Energy Efficiency Management Plan (SEEMP) for all ships.

5 The EEDI is a non-prescriptive, performance-based mechanism that leaves the choice of technologies to use in a specific ship design to the industry. So long as the required energy-efficiency level is attained, ship designers and builders are free to use the most cost-efficient solutions for the ship to comply with the regulations.

6 All ships of 400 gross tonnage and above engaged in international trade are required to implement and maintain a SEEMP which establishes a mechanism for operators to improve the energy efficiency of ships. This should be achieved by monitoring the energy efficiency performance of a ship’s transportation work and at regular intervals considering new technologies and practices to improve energy efficiency.

7 With regard to mandatory energy efficiency regulations for ships, MEPC 66 took the following actions:

- .1 adopted amendments to MARPOL Annex VI concerning the extension of the scope of application of the Energy Efficiency Design Index (EEDI) to LNG carriers, ro-ro cargo ships (vehicle carriers), ro-ro cargo ships, ro-ro passenger ships and cruise passenger ships with non-conventional propulsion;
- .2 adopted the *2014 Guidelines on the method of calculation of the Attained Energy Efficiency Design Index (EEDI) for new ships* (resolution MEPC.245(66)); and
- .3 agreed to the establishment of an EEDI database in order to support the review of the implementation of the EEDI provisions as detailed in regulation 21.6 of MARPOL Annex VI.

Further technical and operational measures to enhance the energy efficiency of ships

8 MEPC 65, in May 2013, considered the importance of enhancing energy efficiency and reducing fuel consumption with subsequent reductions of CO₂ emissions and other pollutants emitted to air and considered the use of a phased approach to implementation, with the focus of its initial work being on data collection.

9 MEPC 66 discussed various submissions relating to proposals to establish a framework for the collection and reporting of data on the fuel consumption of ships and established a Working Group on “Further technical and operational measures for enhancing energy efficiency of international shipping” to consider the development of a data collection system for ships, including identification of the core elements of such a system.

10 In discussing the possible scope of a data collection system the Working Group, inter alia, noted the view that a specific gross tonnage threshold for all ship types would be most appropriate with the following additional views that the scope should:

- .1 be in line with the scope of the EEDI regulations, i.e. include all types of ships of 400 gross tonnage and above, with some delegations expressing the view that the administrative burden was not considered much different for ships of all sizes; and
- .2 include ships of 5,000 gross tonnage and above as this is expected to encompass approximately 90% of the total energy consumption by international shipping but not present a disproportionate administrative burden on smaller ships.

11 The Working Group considered that a data collection system could include data elements as follows:

- .1 identity of the ship (name, IMO number and flag State Administration);
- .2 the shipowner and operator (name and address and principal place of business);
- .3 technical characteristics of the ship including, for example, DWT, engine power, reference/design speed, EEDI, etc.;
- .4 total annual fuel consumption per fuel type; and
- .5 total annual transport work (tonne-miles) or transport work proxy, (e.g. distance or service hours).

12 MEPC 66, noting that further work should be undertaken intersessionally, agreed to establish a Correspondence Group and instructed it to consider the development of a data collection system for fuel consumption of ships, including identification of the core elements of such a system. The correspondence group will report to MEPC 67 in October 2014.

Update of the GHG emissions estimate for international shipping

13 MEPC 65 approved the Terms of Reference and agreed to initiate a study for an updated GHG emissions' estimate for international shipping. The new study will focus on updating key figures in the current (second) IMO GHG Study (2009), which estimated that international shipping emitted 870 million tonnes, or about 2.7%, of the global man-made emissions of CO₂ in 2007.

14 The update of the study is considered necessary, in general, to provide a better foundation for future work by IMO to address GHG emissions from international shipping. Sea transport is fuel-efficient and without updated figures it will be difficult to provide a meaningful baseline to illustrate the steadily on-going improvement in fuel efficiency due to improved hull design, more effective diesel engines and propulsion systems and more effective utilization of individual ships resulting from the introduction of mandatory technical and operational measures, including other operational measures employed by ships as a consequence of the economic downturn.

15 There are three main tasks to the study: Recognizing that CO₂ is the most significant GHG emitted by ships, the first task of the study is an update of a CO₂ emission inventory from international shipping. A second task will constitute emission inventories from international shipping of GHGs (other than CO₂) considered under the UNFCCC process (CH₄, N₂O, HFCs, PFCs, SF₆) and other relevant substances (NO_x, NMVOC, CO, PM, SO_x). The third task is the modelling of future emission scenarios for all six GHGs and other relevant substances. These estimates represent a business as usual case, which takes into account the effects of MARPOL Annex VI requirements, as amended, e.g. inclusion of energy efficiency regulations and changes to the provisions for sulphur content of fuel oil.

16 MEPC 66 noted progress had been made on the update study and that the report of the third IMO GHG study 2014 is expected to be completed at MEPC 67 in October 2014.

Technical co-operation and transfer of technology

17 Regulation 23 of chapter 4 of MARPOL Annex VI on *Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships* requires Administrations, in co-operation with the Organization and other international bodies, to promote and provide, as appropriate, support directly or through IMO to Member States, especially developing States that request technical assistance. It also requires the Administration of a Party to MARPOL Annex VI to co-operate actively with other Parties, subject to its national laws, regulations and policies, to promote the development and transfer of technology and exchange of information to States which request technical assistance, particularly developing States.

18 Linked to the implementation of energy efficiency measures, MEPC 65 adopted an MEPC resolution MEPC.229(65) on *Promotion of Technical Co-operation and Transfer of Technology relating to the Improvement of Energy Efficiency of Ships*, which, among other things, requests the IMO, through its various programmes, to provide technical assistance to Member States to enable cooperation in the transfer of energy efficient technologies to developing countries in particular; and further assist in the sourcing of funding for capacity building and support to States, in particular developing States, which have requested technology transfer.

19 MEPC 66 discussed the implementation of resolution MEPC.229(65) and established, in accordance to the resolution, the Ad Hoc Expert Working Group on Facilitation of Transfer of Technology for Ships (AHEWG-TT). The AHEWG-TT agreed on the methodology for conducting its work, as well as a work plan which was endorsed by the Committee.

20 This work plan envisages: assessing the potential implications and impacts of the implementation of the energy efficiency regulations in chapter 4 of MARPOL Annex VI, in particular, on developing States, as a means to identify their technology transfer and financial needs; identifying and creating an inventory of energy efficiency technologies for ships; identifying barriers to transfer of technology, in particular to developing States, including associated costs, and possible sources of funding; and making recommendations, including the development of a model agreement enabling the transfer of financial and technological resources and capacity building between Parties, for the implementation of the energy efficiency regulations.

21 MEPC 66 agreed that a second meeting of the AHEWG-TT be held prior to MEPC 67 (scheduled to take place from 9 to 10 October 2014 at IMO Headquarters) in order for the Group to provide a progress report to the Committee at that session. The meeting will discuss the specific tasks under the AHEWG-TT work plan (document MEPC 66/WP.8).

Technical cooperation activities

22 MEPC 66 noted the information provided by the Secretariat (document MEPC 66/INF.24) informing the Committee of the technical cooperation activities that the Secretariat has undertaken, as well as planned future activities in relation to the implementation of MARPOL Annex VI, in particular chapter 4 thereof.

23 Under the 2014 to 2015 Integrated Technical Co-operation Programme (ITCP) of IMO, several national and regional capacity building activities are currently planned, in order to sustain the level of technical cooperation interventions in various regions for the effective implementation and enforcement of energy efficiency measures for ships. In this context, four regional workshops to raise awareness with regard to improving energy efficiency and the control of GHG emissions from ships are scheduled to take place in the biennium.

GEF-UNDP-IMO Project: Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency

24 MEPC 66 noted that IMO, through the UNDP, submitted a Project Identification Form (PIF) to the Global Environment Facility (GEF) for funding a medium-size project entitled "Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency" to assist the developing countries in the implementation of new energy efficiency measures adopted by IMO.

25 The PIF has received the GEF endorsement for funding of \$2 million. This two-year global project builds on IMO's experience in delivering the project on capacity building in East Asia to address GHG emissions.

26 The proposed project, while focusing on legal, policy and institutional reforms (LPIR) and related tools development, will also help to enhance the technical knowledge and capacity for implementation of the new regulatory measures related to ships energy efficiency. Moreover, the project will facilitate creation and exchange of knowledge in developing countries on energy efficient shipping practices and opportunities, and provide a platform for sharing innovation and R&D, catalyse demonstrations of selected feasible energy efficiency measures and technologies by the private sector.

27 With the global tools developed and partnerships created by the project and the funding support by the project, pilot beneficiary countries, selected based on their level of interest and commitment to undertake a fast-track approach, are expected to initiate their legal, policy and institutional reforms and necessary capacity-building efforts – leading to creation of successful models and centres of excellences that can be replicated in other countries around the world.

28 The principal components of the project include: 1) legal, policy and institutional reforms for GHG reductions through improved energy efficiency within maritime transport sector in developing countries; 2) maritime sector energy efficiency related capacity building, awareness raising, knowledge creation and dissemination and; 3) public-private partnerships to catalyse maritime sector energy efficiency innovation and R&D.

29 The IMO Secretariat is currently preparing a detailed project implementation document (ProDoc) for which the GEF has already approved \$100,000 as Project Preparation Grant (PPG). The PPG will allow IMO Secretariat to have detailed discussions with the pilot beneficiary countries as well as with other potential partners, including the private sector, before finalizing the ProDoc. Once the ProDoc is completed and approved by the GEF CEO, the implementation of the project activities can begin approximately by mid-2014.

Summary

30 Although international maritime transport is the most energy efficient mode of mass transport and only a modest contributor to worldwide CO₂ emissions (estimated as 2.7% in 2007), a global approach for further improvements in energy efficiency and emission reduction is considered necessary as sea transport is predicted to grow significantly in line with expected future growth in world trade.

31 IMO has developed and adopted a framework of technical and operational measures that now serves as mandatory performance standards for increased energy efficiency in international shipping. The framework builds on IMO's enforcement and control provisions (flag and port State controls) and includes also ship management aspects such as monitoring, verification and reporting, as well as guidelines for effective implementation.

32 IMO, as the global regulator of international shipping, will continue its endeavours to reduce environmental impacts from international maritime transport, a vital industry to world trade and sustainable development, and keep relevant bodies of the UNFCCC informed of its progress.
