

IMO environment meeting approves revised regulations on ship emissions

Marine Environment Protection Committee (MEPC) - 57th session: 31 March - 4 April 2008

The Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) has approved proposed amendments to the MARPOL Annex VI regulations to reduce harmful emissions from ships.

The main changes would see a progressive reduction in sulphur oxide (SOx) emissions from ships, with the global sulphur cap reduced initially to 3.50% (from the current 4.50%, effective from 1 January 2012; then progressively to 0.50 %, effective from 1 January 2020, subject to a feasibility review to be completed no later than 2018.

The limits applicable in Sulphur Emission Control Areas (SECAs) would be reduced to 1.00%, beginning on 1 March 2010 (from the current 1.50 %); being further reduced to 0.10 % , effective from 1 January 2015.

Progressive reductions in nitrogen oxide (NOx) emissions from marine engines were also agreed, with the most stringent controls on so-called "Tier III" engines, i.e. those installed on ships constructed on or after 1 January 2016, operating in Emission control Areas.

The revised Annex VI will allow for an Emission Control Area to be designated for SOx and particulate matter, or NOx, or all three types of emissions from ships, subject to a proposal from a Party or Parties to the Annex which would be considered for adoption by the Organization, if supported by a demonstrated need to prevent, reduce and control one or all three of those emissions from ships.

In the current Annex VI, there are two SECAs designated, namely, the Baltic Sea and the North Sea area, which also includes the English Channel.

Speaking at the close of MEPC, IMO Secretary-General Mr. Efthimios E. Mitropoulos praised the excellent progress made during the week-long MEPC session in IMO's long-standing efforts to limit and reduce pollution of the atmospheric environment and thanked and congratulated all the parties concerned (Member States and observer organizations) for their hard work and contribution to the results achieved.

"The fact that representatives of some 100 Governments were able to reach decisions by consensus on complicated issues of great importance to the environment not only bears testimony to the responsible manner with which the Members address environmental matters nowadays but also to the great results that can be achieved when States, with the same concerns and determination to produce meaningful solutions to global problems, work together under the auspices of IMO. The co-operation of the shipping industry and environmentalist groups has been of great value and I thank them for that. I am confident that, once adopted as amendments to MARPOL Annex VI, in the coming October, the new measures will prove extremely beneficial to the environment and I commend the Committee wholeheartedly for its achievement in developing them," he said. "It will certainly be one of IMO's finest hours when this happens six months from now", he added.

Mr. Mitropoulos also commended the progress in work on greenhouse gas emissions (GHG) from shipping operations, including the search for practical means to devise any mechanisms deemed appropriate to address this important issue. He welcomed the MEPC's endorsement of his proposal to expedite the Organization's related work, in particular, as regards the CO₂ Emission Indexing Scheme and the CO₂ Emission baseline(s).

"I wish also to express our gratitude to Norway for offering to host an intersessional meeting of the GHG Working Group at the end of June, which will give us all the opportunity to further progress the work in hand and, with that goal in mind, I commend the efforts of the Working Group to seek agreement on global solutions to further develop the action plan approved by the Committee, identifying practical next steps that will facilitate the completion of the plan's three elements within the newly-agreed timelines. Of course, these are issues which, although complex and intricate in nature, are by no means impossible to resolve, especially with the constructive engagement we have witnessed here this week. In this regard, I am confident that, as we look beyond Kyoto, we should be able to put in place a robust regime that will apply fairly to shipping while, at the same time, achieving our main objective of protecting the marine and atmospheric environment," he said.

MARPOL Annex VI *Regulations for the Prevention of Air Pollution from Ships* entered into force in May 2005 and has, so far, been ratified by 49 countries, representing approximately 74.77% of the gross tonnage of the world's merchant shipping fleet.

The proposed draft amendments to Annex VI and the NOx Technical Code will now be submitted to MEPC 58 (which meets from 6 to 10 October 2008) for adoption, in accordance with an agreed timetable. This would see the revised Annex VI enter into force in 2010.

The work on greenhouse gases is scheduled for completion in 2009, in time for IMO to submit a position paper to the Copenhagen Conference (December 2009) called for by last year's Conference in Bali on climate change.

SOx and Particulate Matter (PM) emissions from ships

Following intense efforts to find a workable solution on a matter that had been highly controversial and the subject of extensive debate in its air pollution working group, the Committee agreed with a series of progressive standards in the amended regulation 14 *Sulphur*

Oxides (SOx) and Particulate Matter (PM) that would result in significant reduction of SOx and PM emissions from ships.

The principal elements are as follows:

- the sulphur limit applicable in Emission Control Areas beginning on 1 March 2010 would be 1.00% (10,000 ppm), reduced from the current 1.50% (15,000 ppm);
- the global sulphur cap would be reduced to 3.50% (35,000 ppm), from the current 4.50% (45,000 ppm), effective from 1 January 2012;
- the sulphur limit applicable in Emission Control Areas effective from 1 January 2015 would be 0.10 % (1,000 ppm);
- the global sulphur cap would be reduced to 0.50% (5,000 ppm) effective from 1 January 2020, subject to a feasibility review to be completed no later than 2018. Should the 2018 review reach a negative conclusion, the effective date would default to 1 January 2025; and
- introduction of a fuel availability provision under regulation 18 **Fuel Oil Availability and Quality** that outlines what actions are appropriate should a ship be unable to obtain the fuel necessary to comply with a given requirement under regulation 14.

Meanwhile, the MEPC approved an MEPC.1 Circular containing *Unified Interpretations related to the verification of sulphur content in fuel oil*. The Unified Interpretations should be applied until the 2008 amendments to MARPOL Annex VI enter into force. The circular also gives, in an appendix, *Fuel Oil Verification Procedure for MARPOL Annex VI Fuel Samples*.

NOx regulations for new engines

The MEPC agreed amendments confirming the proposed three-tier structure for new engines, which would set progressively tighter nitrogen oxide emission standards for new engines depending on the date of their installation. Tier I applies to a diesel engine which is installed on a ship constructed on or after 1 January 2000 and prior to 1 January 2011 and represents the 17 g/kWh standard stipulated in the existing Annex VI.

For Tier II, NOx emission levels for a diesel engine which is installed on a ship constructed on or after 1 January 2011 would be reduced to 14.4 g/kWh.

For Tier III, NOx emission levels for a diesel engine which is installed on a ship constructed on or after 1 January 2016 would be reduced to 3.4 g/kWh, when the ship is operating in a designated Emission Control Area. Outside a designated Emission Control Area, Tier II limits apply.

NOx standards for existing engines

The MEPC agreed a NOx emission limit of 17.0 g/kWh for a diesel engine with a power output of more than 5,000 kW and a displacement per cylinder at, or above, 90 litres installed on a ship constructed on or after 1 January 1990 but prior to 1 January 2000.

NOx Technical Code

The MEPC approved draft amendments to the NOx Technical Code, to give a revised NOx Technical Code 2008. The draft amended NOx Technical Code, includes a new Chapter 7 based on the agreed approach for NOx regulation of existing (pre-2000) engines established in the draft amended MARPOL Annex VI.

The draft amended NOx Code includes provisions for direct measurement and monitoring methods, a certification procedure for existing engines, and test cycles to be applied to Tier II and Tier III engines.

Other matters

Exhaust Gas Cleaning Systems

The MEPC also agreed, with a view to adoption by an MEPC resolution, the draft revised *Guidelines for Exhaust Gas Cleaning Systems*. It was agreed to forward the interim washwater discharge criteria, to be included in the Guidelines, to the Joint Group of Experts on Scientific Aspects of Marine Environmental Protection (GESAMP) for its review and comment. The interim washwater discharge criteria will be revised in the future as more data becomes available on the contents of the discharged washwater and its potential effects on the marine environment, taking into account any advice given by GESAMP.

Halons

The MEPC approved a draft MSC-MEPC Circular on the *decreasing availability of halons* and forwarded it to the Maritime Safety Committee (MSC) for consideration and concurrent decision. The circular notes the decreasing availability of halons for marine uses and requests shipowners, ship operators, shipping companies and all other interested entities to take appropriate action to reduce their reliance on halons.

Volatile Organic Compounds (VOCs)

Draft *guidelines for the development of a VOC management plan* were approved, with a view to adoption at MEPC 58. The purpose of the VOC Management Plan is to ensure that the operation of a tanker, to which regulation 15 of Annex VI applies, prevents or minimizes VOC emissions to the extent possible. Regulation 15 requires a Party regulating tankers for VOC emissions to submit a notification to the Organization, which should include information on the size of tankers to be controlled, the cargoes requiring vapour emission control systems, and the effective date of such control.

Liaison with ISO

The MEPC instructed the IMO Secretariat to invite the International Standardization Organization (ISO) to consider the development of a fuel oil specification addressing air quality, ship safety, engine performance and crew health, with recommendations for future consideration by IMO and, if feasible, to report back to the Committee at its 58th session in October.

Greenhouse gas emissions from ships

Reflecting the Committee's continuous determination to reduce green house gas (GHG) emissions emanating from shipping operations, the MEPC endorsed a proposal from the Secretary-General to expedite the Organization's work on GHG emissions, in particular as regards developing the CO₂ (carbon dioxide) Emission Indexing Scheme and the CO₂ Emission baseline(s).

The report of the intersessional Correspondence Group on GHG-related issues, which was tasked with discussing and compiling possible approaches on technical, operational and market based measures to address GHG emissions from ships, was considered, along with other relevant submissions from Member Governments and non-governmental organizations in consultative status with IMO.

The MEPC agreed that a coherent and comprehensive future IMO regulatory framework on GHG Emissions from ships should be:

- effective in contributing to the reduction of total global greenhouse gas emissions;
- binding and equally applicable to all flag states in order to avoid evasion;
- cost-effective;
- able to limit - or at least - effectively minimize competitive distortion;
- based on sustainable environmental development without penalizing global trade and growth;
- based on a goal-based approach and not prescribe specific methods;
- supportive of promoting and facilitating technical innovation and R&D in the entire shipping sector;
- accommodating to leading technologies in the field of energy efficiency; and
- practical, transparent, fraud free and easy to administer.

The Working Group on GHG Emissions from Ships developed practical next steps covering the development of short-term and long-term measures to address CO₂ emissions from ships. The next steps were approved by the MEPC.

Short-term measures include a proposal to establish a global levy scheme on marine bunker fuel to achieve GHG emission reductions. Under this scheme, all ships engaged in international voyages would be subjected to a bunker levy established at a given cost level per ton of fuel bunkered. With such a scheme in place, a baseline of fuel used and CO₂ emissions would be obtained. The prospect of a global levy/credits scheme contributing to a GHG emissions reduction from ships was found promising, although it was noted that several aspects would need to be clarified and worked on, including:

- the practical implementation of a global levy scheme;
- who would collect the levies and how;
- how would the revenues be distributed;
- the relation with existing environmental levies and tax regimes in general;
- would there be enough Clean Development Measures¹ to buy with the credits; and
- the potential for a modal shift in transport at the regional level.

Other short-term measures listed for further consideration include:

- improvement of specific fuel consumption;
- Energy Efficiency Design and Management Plan/Using a Test Mode for estimating CO₂-index of new-build ships;
- onshore power supply;
- use of wind power;
- voluntary/mandatory requirements to report CO₂ index values, information exchange/outreach and rating performance of ships and operators;
- strict limitations on leakage rates of refrigerant gases;
- vessel speed reductions;
- measures to improve traffic control, fleet management, cargo handling operations and energy efficiency.

Some of the measures could lead to immediate reduction of CO₂ emissions and should be implemented as soon as possible. The MEPC endorsed the view of the Working Group that a resolution (to be adopted by the MEPC and/or Assembly), urging the shipping industry and other related entities to do so, should be developed at an intersessional meeting of the GHG Working Group to be held in Oslo, Norway, from 23 to 27 June 2008.

The longer-term measures identified by the Working Group and approved by the Committee for

further development include:

- technical measures for ship design;
- use of alternative fuels
- a CO₂-Design Index for new ships;
- external verification scheme for CO₂ operational index;
- unitary CO₂ operational index limit, combined with penalty for non-compliance;
- Emissions Trading Scheme (ETS) and/or Clean Development Mechanism (CDM); and
- inclusion of mandatory CO₂ element in port infrastructure charging.

The Oslo intersessional meeting was instructed to further address market-based, operational and technical measures identified by the MEPC 57 Working Group on GHG-related issues, including:

- developing a CO₂ Design Index for new ships with a view to approval at MEPC 58 and establishing the future use of this index, and its GHG reduction potential;
- reviewing the existing CO₂ operational index guidelines (MEPC/Circ.471), with a view to finalization at MEPC 58 and, in particular, develop a methodology for a CO₂ baseline in terms of efficiency; and consider the purpose of the CO₂ operational indexing scheme;
- further developing mechanisms with GHG reduction potential for international shipping, inter alia: global levy/hybrid mechanism; Emissions Trading Schemes (ETS) and/or Clean Development Mechanism (CDM); and reviewing best practices on the range of measures as identified by MEPC 57 and how they can be implemented by ship builders, operators, charterers, ports and other relevant partners to make all possible efforts to reduce GHG emissions, with the aim of developing a resolution, as appropriate, with a view to selecting the most promising measures for consideration at MEPC 58; and
- considering the level of reductions that can be achieved, addressing the design, implementation, cost-benefit and regulatory/legal aspects as well as the impacts for the shipping industry, the flag and port States and other stakeholders as appropriate, associated with each of these options.

The intersessional group will submit a written report to MEPC 58.

Other measures to reduce GHG emissions from ships will be considered by the Intersessional Correspondence Group on Greenhouse Gas Emissions from Ships, which was re-established to report to MEPC 58.

1 Refers to the so-called "Clean Development Mechanism" which is provided for under the Kyoto Protocol and allows for reductions in emissions to be "sponsored" in countries not bound by emissions targets. In simplified form, industrialized countries pay for projects that cut or avoid emissions in poorer nations and are awarded credits that can be applied to meeting their own emissions targets. Refer to: <http://unfccc.int/2860.php>

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