

MARINE ENVIRONMENT PROTECTION  
COMMITTEE  
65th session  
Agenda item 4

MEPC 65/4/27  
22 March 2013  
Original: ENGLISH

## **AIR POLLUTION AND ENERGY EFFICIENCY**

### **Comments on the report of the Correspondence Group on Assessment of Technological Developments to Implement the Tier III NO<sub>x</sub> Emission Standards under MARPOL Annex VI**

**Submitted by the Russian Federation**

#### **SUMMARY**

*Executive summary:* This document provides comments on the report of the Correspondence Group established by MEPC 62 to review the status of the technological developments to implement the Tier III NO<sub>x</sub> emission standards under MARPOL Annex VI

*Strategic direction:* 7.3

*High-level action:* 7.3.2

*Planned output:* 7.3.2.1

*Action to be taken:* Paragraph 17

*Related documents:* MEPC 65/4/7, MEPC 65/INF.10; MEPC 64/4/16 and MEPC 64/INF.8

#### **Background**

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of the *Guidelines on the Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.4/Rev.2) and comments on document MEPC 65/4/7 (United States), final report of the Correspondence Group on Assessment of Technological Developments to Implement the Tier III NO<sub>x</sub> Emission Standards under MARPOL Annex VI.

#### **Introduction**

2 The revised MARPOL Annex VI was adopted by MEPC 58 in October 2008, and entered into force on 1 July 2010. Regulation 13 of MARPOL Annex VI introduces three Tiers of NO<sub>x</sub> emission standards from ships. The Tier III standards provide for 80 per cent reduction of NO<sub>x</sub> emissions by 1 January 2016 on the understanding that the said standard will be applied in designated "emission control areas". Taking into account the



above-mentioned strict requirements and the compliance time frame set, regulation 13.10 provides that the Organization shall review the status of the technological developments in implementing the said standards no later than 2013.

3 To implement this decision, MEPC 62 established the Correspondence Group whose tasks included a technologies availability assessment as required to meet the Tier III standards.

4 Having considered the reports of the Group, the Russian Federation expresses its gratitude to the Group for the huge work performed. The Russian Federation thinks, however, that recommendations given in the report on the market availability of technologies to meet the regulation 13.10 requirements are not properly founded.

5 The Russian Federation would like to note that virtually the whole of the review carried out is focused on SCR as the only technology with practical application experience. The Russian Federation, however, is sure that a technology can be considered as sufficient and acceptable internationally if it satisfies at least the following three criteria:

- .1 provides for effective nitrogen oxides neutralization in the whole of the interval of the marine diesel engine operation and does not lead to a great amount of side products whose content in the emissions is already regulated by the instruments of the Organization;
- .2 does not have an adverse effect on competitiveness of ports and marine transport as a whole; and
- .3 only reasonable capital and operational costs are required for its implementation.

#### **Effective nitrogen oxides neutralization and prevention of harmful substances regulated by the instruments of the Organization**

6 As shown by a research carried out in the Russian Federation, one of the drawbacks of the SCR technology is the risk of ammonia, a gas no less toxic than NO<sub>x</sub>, appearing in the exhaust system when diesel engine is working in variable load regime, due to the catalyst inertia. The system is reliable only within the narrow temperature range (250-400°C). Furthermore, where NO<sub>x</sub> is neutralized with urea, emissions of greenhouse gas (CO<sub>2</sub>) increase in the quantities approximately to those of the neutralized nitrogen oxides. If greenhouse gases are to be taken into account that are emitted into the air from the whole operation cycle of neutralization plants and urea, the SCR technology may become a factor seriously contributing to greenhouse emissions from shipping. It is common knowledge that reduction of the above emissions is a global issue and so appropriate technological recommendations should not be considered if they cause one type of gas emissions instead of another. In this connection, the Russian Federation is of the opinion that the SCR technology has not been discussed in detail and further discussion is required, as well as research into potential consequences of its application on board ships at sea.

7 It is recognized in analyzing the SCR technology that the high sulphur content causes bad catalyst deterioration. It is also concluded that such issues will not arise in sulphur emission control areas (SECA). The Russian Federation thinks it is important to note that if fuels with 0.1 per cent sulphur content are used in these areas, some ships will need to have scrubbers to remove sulphur oxides and consequential need to install both SCR plants and scrubbers on board will present a complicated task due to the lack of space on board.

It should also be noted that oil and fuel spills on catalyst, in cases of ship systems damage, will also result in the catalyst deterioration entailing its replacement at high cost.

8 As one of the grounds for the SCR technology application, it is mentioned that shipowners and manufacturers have gained experience with SCR systems over the last 10 to 15 years. The opinion of the Russian Federation is that these figures cause the greatest concern as the drawbacks specified in paragraph 5 have not been rectified within such a long period.

9 In analyzing the port infrastructure, the issue of urea availability for ships was the only one in focus, while there was no attention drawn to the problem on how to make catalysts available or how to dispose of them in the end of their operational life. The Russian Federation considers in this connection that the port infrastructure readiness for the SCR technology has not been thoroughly considered and needs further consideration.

### **Decrease of competitiveness of ports and marine transport**

10 If regulation 13.5.1 requirements are to be met, shipowners striving to ensure compliance will have to incur serious expenses to properly equip their ships or they will have to avoid calling at ports in NO<sub>x</sub> emission control areas. This will result in cargoes finally leaving those ports in redistribution of traffic flow and in higher transportation by, say, road transport, which will entail much higher air pollution.

### **Reasonable capital and operational costs on the technology realization**

11 The report of the Correspondence Group states approximate costs per unit to realize the SCR technology with no general idea of real costs. For a ship of 20,000 deadweight, the shipowner will have to spend about 6 million euros to purchase and install the system with the pay-off period of not less than 8 to 10 years and this does not take into account, any emergencies involving the catalyst replacement or operational costs.

12 Alternatives for compliance with the Tier III NO<sub>x</sub> emission standards are only very briefly described in the report of the Correspondence Group.

### **Exhaust Gas Recirculation (EGR)**

13 In considering the EGR technology, the report of the Correspondence Group often mentions the need of further work and research to allow the above technology to be used in a broader range of marine diesel engines including higher-speed engines. This technology is not seen as available for the implementation of Tier III NO<sub>x</sub> emission standards.

### **Use of Liquefied Natural Gas (LNG)**

14 Members of the Correspondence Group had various opinions about LNG use and this clearly shows that, though the technology can provide a solution for many complicated issues of emission reduction from ships, nowadays it is not possible to consider it sufficiently. Only 24 ships are in operation and there is no port infrastructure. Small terminals are only planned for construction in Denmark, Finland, Norway and Sweden by 2020. The information assessed by the Correspondence Group demonstrates that this technology cannot be considered as available from 2016 to meet the Tier III NO<sub>x</sub> emission standards.

15 In the Baltic Marine Environment Protection Commission (HELCOM), a draft proposal to IMO is under discussion at the moment on designating the Baltic Sea area as a NO<sub>x</sub> emission control area (NECA). The countries of the region have not reached consensus on the submission date. The HELCOM Conference "The Baltic Sea: NECA" was held on 4 March 2013, causing significant interest in the shipping industry. Many delegates expressed concern about economic and environmental drawbacks of the SCR technology.

### **Conclusions**

16 The Russian Federation cannot agree with the conclusions of the Correspondence Group to retain the effective date of the Tier III NO<sub>x</sub> emission standards and thinks it is necessary to move the effective date of MARPOL Annex VI, regulation 13, paragraph 5.1 at least five years back, to carry out another review of the technologies before the effective date of the Tier III standards, by establishing the terms of reference for the review, which will take into account the criteria specified in paragraph 5 of this document.

### **Actions requested of the Committee**

17 The Committee is invited to consider the proposed actions above and take action, as appropriate.

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