



---

<b>Document title</b>	Further actions towards Baltic Sea NECA application
<b>Code</b>	4-6
<b>Category</b>	DEC
<b>Agenda Item</b>	4- Airborne emissions from ships and related measures
<b>Submission date</b>	14.10.2014
<b>Submitted by</b>	Russian Federation
<b>Reference</b>	MARITIME 14-2014, 1-2, Agenda Item 4

---

## Background

Accordingly to the Annotations to the Provisional Agenda of HELCOM MARITIME 14-2014 the countries are invited to consider the outcome of MEPC 66 concerning the amendments to MARPOL annex VI regarding the effective date of the Tier III NO<sub>x</sub> emission standards and future work on the Baltic Sea NECA application.

Implementing the above Russian Federation would like to recall the one of decision of MEPC 66, namely Paragraph 6.67 "The delegation of the Russian Federation, supported by a number of delegations, commended the Committee for adopting, by consensus, the amendments to MARPOL Annex VI concerning the effective date of the Tier III NO<sub>x</sub> emission standards and urged that more research and studies be carried out to address the potential operational safety and environmental effects associated with NO<sub>x</sub> emission reduction technologies (see paragraph 6.30)."

And relevant paragraph 6.30 as follows:

"6.30 A number of other delegations indicated their support for the original draft amendments as circulated, that is to postpone the effective date by five years. Those delegations expressed, inter alia, the following views:

- .1 the development of the Selective Catalytic Reduction (SCR) technology has not reached an acceptable level, and its serious drawbacks have not been rectified; and Exhaust Gas Recirculation (EGR) technology and the use of LNG as fuel for ships other than gas carriers are still at a very early stage;
- .2 ammonia slip and generation of CO<sub>2</sub> emissions as part of the SCR chemical reaction and methane slip in gas engines may lead to an environmental impact that negates the benefit of reducing NO<sub>x</sub> emissions, and these concerns should be carefully addressed; and
- .3 the economic burden associated with compliance with NO<sub>x</sub> Tier III emission standards for shipowners and operators needs to be properly considered."

The Russian Federation submits the first draft document to MEPC 68 concerning a proposal on including a new item into the work programme and the agenda of the Sub-Committee on Pollution Prevention and Response.

## Action required

The Meeting is invited to consider the actions proposed and take measures as appropriate.

MARINE ENVIRONMENT PROTECTION COMMITTEE

68<sup>th</sup> session

Agenda item XX

MEPC 68/XX/X

XX XXXX 2014

Original: ENGLISH

**WORK PROGRAMME OF THE COMMITTEE AND SUBSIDIARY BODIES****Proposals on including a new item into the Work Programme  
of the Sub-Committee on Pollution Prevention and Response****Submitted by the Russian Federation****SUMMARY**

**Executive summary:** This document contains a proposal on including a new item into the work programme and the agenda of the Sub-Committee on Pollution Prevention and Response

Strategic direction: 7.1

High-level action: 7.1.2.

Planned output: 7.1.2.1.

Action to be taken: paragraph 18

Related documents: MEPC 65/47, MEPC 65/4/27, MEPC 66/6/6,  
MEPC 66/6/17, MEPC 65/22, MEPC 66/21

**INTRODUCTION**

1. At MEPC 66, during heated debate and in the course of the work of an informal group, a compromise was reached on amendments to MARPOL Annex VI "Regulations for the Prevention of Air Pollution from Ships" related to the effective date of the Tier III NO<sub>x</sub> ship emission standards in emission control areas. The said amendments will enter into force on 1 September 2015.
2. The basic cause of the prolonged and heated discussion were the disagreements existing between various countries on the matter of availability of the existing technologies for ships to comply with the said standards.
3. The Russian Federation in its interventions during MEPC 65 and 66, as well as in the presentation done at MEPC 65, put forward convincing evidence proving that the existing technologies to comply with the Tier III NO<sub>x</sub> ship emission standards do not warrant their adequacy in the environment and cost-effectiveness perspective. The SCR technology, the only commercially available one with the experience of industrial use, does have some serious drawbacks.

4. While discussing the amendments to Regulation 13 of MARPOL Annex VI, a number of delegations also highlighted the outstanding matters of the technologies to comply with the Tier III NO<sub>x</sub> ship emission standards.
5. Summing up this discussion at MEPC 66 the Committee urged for further research to be done and for studying the potential operational and environmental effect of the application of technologies to reduce nitrogen oxides emissions to meet the Tier III NO<sub>x</sub> emission standards.
6. To facilitate the above work, the Russian Federation would like once again to draw the Committee's attention to the existing environmental and technical issues associated with the recommended technologies in question to comply with the Tier III NO<sub>x</sub> ship emission standards.

#### Exhaust Gas Recirculation Technology (EGR)

7. Exhaust gas recirculation (EGR) technology, a potential alternative to comply with the Tier III NO<sub>x</sub> ship emission standards, has been proved efficient for a number of pilot marine engines of various models. However, with no representative operation based data available, it is not quite clear at the moment how the EGR technology will affect the cost of a marine engine life cycle, its reliability, operating life span and fuel economy; we can so far only have manufacturers' declarations stating that these parameters will be equivalent to those of the existing diesels.

#### Liquefied natural gas and liquefied petroleum gas (LNG and LPG)

8. Research reports done by WARTSILA, M.A.N. Diesel & Turbo, AVL List GmbH, ABB Turbo System, presented at the CIMAC-2013 congress (Shanghai) inform that using LNG in marine dual fuel diesels allows only for 70% reduction in NO<sub>x</sub> emissions against the Tier II NO<sub>x</sub> emission standards.
9. How efficient LNG is going to be as a fuel will depend to a high degree on the ship type as LNG supply takes up about three times the volume of oil fuel. If, for example, on a tanker, LNG can be stored above the cargo tanks with no compromising of the main ship parameters, using LNG on a dry cargo ship will result in reduction of cargo holds effective volume.
10. Wider use of gas fuelled ships is restrained by the gas fuel bunkering problem. There is practically no relevant infrastructure in place, there are only a few LNG bunker barges. Gas fuelled ship mainly receive bunker LNG either at LNG terminals or at mobile offshore LNG-producing units, or from fuel trucks bringing LNG to the mooring point of a gas fuelled ship. Besides, any LNG transshipment inevitably results in gas losses that increase with the number of transshipments performed, or else in its physical deterioration (also increasing with the number of cargo operations performed) that reduces its storage time on a gas fuelled ship.

### SCR technology

11. When using SCR reactors, no exhaust gas boilers are supposed to be used, which adversely affects the fuel economy of the power unit.
12. Several SCR reactors (commensurate with the number of diesels) installed on board together with their tanks and systems will have a significant impact on the ship general arrangement.
13. In the SCR technology, the required exhaust gas temperature, for the time being, can only be achieved for diesel load ranging between 25% and 100% of the power rating. To reach the required exhaust gas temperature for 0% to 25% load range, still requires further research, while it is this range that is used in manoeuvring and calling at ports.
14. There is no certainty (especially with low engine speed) of complete disintegration of the urea solution supplied to the reactor, which, in its turn, may result in ammonia vapours emission into the air.
15. Extra 2 to 3% of CO<sub>2</sub> emissions due to the greater fuel consumption by the engine to counteract the hydraulic resistance of the SCR reactor installed in the exhaust system.
16. Urea supply to be carried on board equal to about 6% of the fuel supply (with the ship operating in emission control areas during the whole voyage) that is consumed alongside the fuel, will take up considerable space often compromising that of the fuel supply.
17. To fulfil the MEPC 66 decision, the Russian Federation proposes a new agenda item to be included into the work programme of the Sub-Committee on Pollution Prevention and Response on the research and study of the potential operational and environmental effects of the technologies to reduce nitrogen oxides emissions to reach the Tier III NO<sub>x</sub> emission standards.  
After consideration of the above matter, recommendations, where necessary, should be developed as appropriate, and the Committee should be advised accordingly.

### **Action requested of the Committee**

18. The Committee is invited to consider the actions proposed and take measures as appropriate.