

MARINE ENVIRONMENT PROTECTION
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AIR POLLUTION AND ENERGY EFFICIENCY

**Projections for NO_x emissions and an assessment of the feasibility and use of
abatement technology**

Submitted by Clean Shipping Coalition (CSC)

SUMMARY

Executive summary: This document welcomes the proposal in documents MEPC 70/5 and MEPC70/5/1 to establish NO_x emission control areas in the Baltic Sea, the North Sea and the English Channel. To build support for the early implementation of these NECAs, a member of the Clean Shipping Coalition commissioned a study in 2015 to provide projections for NO_x emissions from ships in the Baltic Sea, the North Sea and the English Channel together with an assessment of the feasibility and potential of widespread use of abatement technology and of their practicability and costs of mitigation ("NO_x controls for shipping in EU Seas"). An assessment in terms of NO_x reduction instruments that could be implemented, in addition to the NECA requirements in MARPOL, was also included in the study in order to indicate the feasibility to address NO_x emissions from the entire fleet

Strategic direction: 7.1 and 7.3

High-level action: 7.1.2 and 7.3.1

Output: 7.1.2.2 and 7.3.1.6

Action to be taken: Paragraph 9

Related documents: MEPC 66/2, MEPC 70/5 and MEPC 70/5/1

1 This document is submitted in accordance with paragraph 6.12.5 of the Committees' Guidelines and comments on documents MEPC 70/5 and MEPC 70/5/1.

2 Emissions to air from shipping are known to make a significant contribution to environmental and health risks, primarily in coastal regions. The emissions contain health-affecting particles and gases, acidifying and eutrophying substances, as well as greenhouse gases. Nitrogen oxides (NO_x) contribute to particle and ozone formation and also potentially cause acidification and eutrophication upon deposition on land, lakes and seas. NO_x is moved long distances in air and is, therefore, often considered a "regional" pollutant.

3 Emissions from ships in EU waters are to some extent limited by regional and global regulations. MARPOL Annex VI limits the sulphur content of marine fuels to 0.10% in the Baltic Sea, the North Sea and the English Channel with an effect on emissions of sulphur oxides and particles. The EU Directive regulating the sulphur content of marine fuels is consistent with international commitments, but with further restrictions for passenger ships and ships in territorial waters. CO₂ emissions from new ships are regulated globally according to the EEDI regulation and the EU MRV regulation for shipping will require reporting of individual ship CO₂ emissions from 2018.

4 Significant reductions of NO_x emissions from marine engines are however not accomplished by any of the regulations in effect today. Studies have indicated that the share of ship emissions in relation to land-based emissions will continue to increase mainly due to regulations on land, while corresponding regulations for the shipping sector are lacking¹.

5 The Clean Shipping Coalition therefore welcomes the proposal in documents MEPC 70/5 and MEPC 70/5/1 to establish NO_x emission control areas in the Baltic Sea, the North Sea and the English channel. To build support for the early implementation of these NECA, a member of the Clean Shipping Coalition commissioned a study ("NO_x controls for shipping in EU Seas"²) in 2015 to provide up-to-date projections for NO_x emissions from ships in the Baltic Sea, the North Sea and the English Channel, together with an assessment of the feasibility, potential and costs associated with the widespread use of emission abatement techniques. An assessment of complementary NO_x reduction measures that could be implemented, in addition to the NECA requirements in MARPOL, was also included in the study in order to identify how feasible it was to address NO_x emissions from the entire fleet and to achieve near-term emission reductions.

6 The results of the study indicate total NO_x emissions in 2040 of approximately 300,000 tonnes with a NECA in effect from 2021, and 720,000 tonnes without a NECA. This corresponds approximately to a 66% reduction for the NECA scenario, and 21% reduction in the scenario without a NECA, compared to emissions in 2010.

7 The analysis of additional NO_x reduction measures (a NO_x levy, a NO_x levy combined with a NO_x fund, or regulated slow steaming combined with a levy/fund) shows that, if they are combined with the implementation of a NECA, the relative emission reduction associated with all three additional NO_x reduction instruments decreases over time and would eventually converge to zero. This decrease can be explained by a gradually decreasing share of the ships that have to comply with the additional instruments which are the non-Tier III ships.

¹ Air quality in Europe - 2013 report of European Environment Agency, <http://www.eea.europa.eu/publications/air-quality-in-europe-2013>

² NO_x controls for shipping in EU Seas, IVL and CE Delft, 2016, https://www.transportenvironment.org/sites/te/files/publications/2016_Consultant_report_shipping_NOx_abatement.pdf

8 Because the Tier III NECA standard applies only to newly-built ships and ships have a long lifetime, the introduction of economic instruments such as a NO_x levy and fund would provide a useful complement to the NECA, ensuring significant emission cuts in the short term. The study indicates that if a NO_x levy and fund is adopted and put into practice in the Baltic Sea and the North Sea in 2021, this could achieve an accumulated additional emission reduction over the ten years up to 2030 amounting to nearly 4 million tonnes of NO_x. This means that the use of economic instruments could, on average, cut NO_x emissions by around 400,000 tonnes/year throughout the 2020s. For comparison, this is more than the total land-based annual NO_x emissions of Sweden, Denmark and Finland combined, which in 2014 amounted to 385,000 tonnes.

Action requested of the Committee

9 The Committee is invited to note the information contained in this document and take action as appropriate.
