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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**On the review of the implementation of Directive 1999/32/EC related to the
Sulphur Content of Certain Liquid Fuels and on further pollutant emission
reduction from maritime transport**

SEC(2011) 1052 final

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
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**On the review of the implementation of Directive 1999/32/EC related to the Sulphur
Content of Certain Liquid Fuels and on further pollutant emission reduction from
maritime transport**

1. INTRODUCTION

Air pollutant emissions from maritime transport increasingly contribute to air quality problems in the EU. Key impacts relate to human health and acidification, and extend beyond the coastal regions. The Thematic Strategy on air pollution from 2005¹ concluded that sulphur emissions from shipping were forecast to exceed those from all land-based sources in the EU by 2020. Further action is therefore needed to improve human health and the environment. Considering the international dimension of the shipping industry, the Commission called for action at the International Maritime Organization (IMO) to further reduce emissions. This call was echoed by the co-legislators at the time of concluding the latest amendment to the Directive 1999/32/EC on the sulphur content of certain liquid fuels (the Directive) which regulates the quality of marine fuels used in EU sea areas and ports.²

This Communication reports on progress made at the IMO since 2005 to reduce emissions of air pollutants, as well as on follow-up actions at the EU-level as proposed by the Commission. The latter also account for certain measures proposed on the basis of the experience gained with the implementation of the Directive since 2005 as called for by the co-legislators. It discusses the rationale to align the relevant EU legislation with the latest IMO rules, the 2008 amendment to MARPOL Annex VI setting new standards for lower sulphur fuels globally, but also more stringent limits in the established SO_x Emission Control Areas. Furthermore, it presents a set of accompanying measures to promote and facilitate compliance. These measures include equivalent methods, allowing the shipping industry to achieve compliance in a technology-neutral manner.

¹ COM(2005) 446 final

² Directive 2005/33/EC amending Directive 1999/32/EC

2. PROGRESS AT THE INTERNATIONAL MARITIME ORGANIZATION ON AIR POLLUTION

Pollution from maritime transport is regulated by Annex VI of the Convention for the Prevention of Marine Pollution from Ships (MARPOL 73/78) governed by the International Maritime Organization (IMO).³ Until 2008, the Convention allowed the use of marine fuels with a sulphur content of up to 4.5% in all sea areas with the exception of specified *sulphur emission control areas* (SECAs) where the maximum sulphur content was restricted to 1.5%.⁴ Due to the particular contribution of shipping emissions to the acidification problems in northern Europe, the IMO had designated the Baltic Sea, the North Sea and the English Channel as SECAs in the EU.

Following international calls for further action to reduce emissions from maritime transport, the Parties to the IMO concluded a significant revision of the MARPOL Annex VI at the end of 2008.⁵ This revision prescribes a stepwise reduction of the sulphur content of fuels used in all seas to 0.50% as of 2020 and to 0.10% in SECAs as of January 2015.⁶ Provisions to achieve compliance are technology neutral and can be met also through alternative emission abatement methods such as exhaust gas cleaning systems or alternative clean fuels such as LNG.⁷

The new provisions agreed in 2008 were a major step forward in reducing emissions from the fast-growing shipping sector. As a result, emissions of SO₂ from maritime transport are expected to decrease by more than 90% in SECAs and by more than 75% in other sea areas bordering the EU⁸. Likewise, emissions of particulate matter (PM_{2.5}) are predicted to decrease by more than 60% and 75% in SECAs and other sea areas respectively. The associated benefits of the 2008 MARPOL agreement are estimated to range at least between €15 to €34 billion per annum in 2020 due to improved health and reduced mortality in the EU. The costs of implementing the revision range from €2.6 to €11 billion. The higher cost range assumes a fuel-based compliance strategy while the low cost range assumes the use of above mentioned alternative compliance methods. The high benefit-cost ratios reflect the higher cost-effectiveness of emission abatement measures targeting marine sources compared to land-based sources where considerable emissions reduction have already been achieved.

³ [http://www.imo.org/about/conventions/listofconventions/pages/international-convention-for-the-prevention-of-pollution-from-ships-\(Marpol\)](http://www.imo.org/about/conventions/listofconventions/pages/international-convention-for-the-prevention-of-pollution-from-ships-(Marpol)).

⁴ A 4.5% sulphur limit equals 45 000 ppm and compares with 10 ppm currently allowed in transport fuels. The actual average level of sulphur globally used in marine fuels to date, however, is below the maximum standard, i.e. at 2.7%.

⁵ http://www5.imo.org/SharePoint/mainframe.asp?topic_id=233

⁶ The entry into force of the "global" provision may be delayed to 2025 subject to a review on availability of the necessary fuels.

⁷ Further measures to limit the emissions of other pollutants such as NO_x were agreed as part of the revised MARPOL Annex VI.

⁸ Greenhouse gases and air pollutants in the European Union: Baseline projections up to 2030, EC4MACS Interim Assessment (2010).

3. REVISION OF DIRECTIVE 1999/32/EC

Directive 1999/32/EC as amended regulates, inter alia, the sulphur content of fuels used by maritime transport as well as monitoring and inspection provisions applicable only at EU level.

Following the IMO MARPOL Annex VI amendment agreed at the end of 2008, there are significant discrepancies in the Directive that need to be addressed. Based on the impact assessment conducted in support of the present review, a full alignment of the Directive with the new IMO provisions related to the sulphur content of fuels is proposed.⁹ This includes the incorporation of the stricter sulphur standards applying in SECAs and other sea areas and the adaptation of EU rules to the IMO provisions on alternative compliance methods. Such alternative or equivalent measures will allow operators to choose the most appropriate solution, including the use of exhaust gas cleaning systems or alternative fuels such as LNG, provided they deliver the same emission reduction benefits compared to low-sulphur marine fuels. It will furthermore boost innovation in green technologies as advocated by the EU 2020 strategy whilst enabling ship operators to reduce compliance costs by up to 90%¹⁰. Additional safeguard measures will ensure that alternative compliance methods such as the use of scrubbers do not cause damage to human health, safety and environment.

In addition, and based on the review of the implementation of the Directive, certain targeted adjustments to the EU monitoring and enforcement regimes are proposed given the increased risks for circumventing the tightened international rules on the sulphur content of fuels.¹¹ The attached legislative proposal foresees the possibility for the Commission to develop binding rules on how the member States monitor and report to the Commission although in the first instance the Commission would prepare guidance for the member States on how best to improve implementation of the Directive. More harmonised and strengthened EU monitoring and enforcement actions will help deliver important health and environmental benefits as well as contribute to the establishment of level playing field and fair competition internationally.¹²

Furthermore, and based on the outcome of the impact assessment, the Commission proposes to maintain stricter standards for passenger ships operating outside SECAs to maintain the link between the stricter fuel standards in SECAs (now requiring maximum sulphur content of marine fuel of 1.5% and from 2015 - 0.1%) and those applying for passenger ships on a regular service outside SECAs (at the moment 1.5%). The introduction of the stricter fuel standard for passenger ships would be delayed by 5 years in comparison with SECAs in order to avoid potential problems with fuel availability.

⁹ SEC Impact Assessment Reference.

¹⁰ AEA et al., December 2009.

¹¹ A summary on the assessment of the reports submitted is provided in Annex 1. Further details are provided in the impact assessment accompanying the proposal for an amendment of the Directive.

¹² More details on the legislative proposal are contained in the accompanying explanatory memorandum.

4. ACCOMPANYING MEASURES

While the benefits associated with the introduction of this international environmental standard are significant, compliance with the new rules poses a number of challenges for the most directly affected industry sectors. The Commission will continue to monitor possible impacts on the shipping sector, especially the Short Sea Shipping (SSS) sector to ensure adequate policy response in case of distortions in the logistics chain or in case of significant modal backshift from sea to land based transport.

Making use of the additional technology-based compliance provided by the revised Annex VI of MARPOL, and subsequently by the revised Directive, such as scrubbers, alternative fuels (LNG) and shore side electricity, would require capital investments by the private as well public sector. Such investments may need to be incentivised notably when a wider set of sustainable shipping objectives going beyond compliance with Marpol Annex VI are being pursued. To this end, a number of short-term accompanying measures were identified to assist the sector.

In the short term, under the current financial perspective, support is already available through the existing EU transport funding instruments, i.e. the Trans-European Transport Networks (TEN-T) and Marco Polo II Programmes. Accordingly, the TEN-T Programme will continue to support projects of wider benefits e.g. addressing environmental issues, such as implementation projects, studies and pilot actions introducing new technologies, innovative infrastructure, and facilities supporting the deployment of LNG. Under the Marco Polo II Programme, priority is given to projects aiming at the implementation and use of innovative technologies or operational practices that significantly reduce air emissions from ships, such as the use of low sulphur fuels, alternative fuels like LNG, abatement technologies (scrubbers), or vessels using shore side electricity.

In addition, investments targeting research, development, and innovation to reduce emissions from ships and to promote energy efficiency could be financed through the European Clean Transport Facility (ECTF), a European Investment Bank (EIB) dedicated lending programme.

The use of Member States' funds could also be envisaged to support measures such as retro-fitting air pollution control devices or marine engines on vessels ahead of the entry into force of the new standards, or developing onshore infrastructure for the treatment of residues or marine-LNG refuelling stations. Any such support must be in compliance with existing Community Guidelines on State aid for environmental protection¹³ and the Community Guidelines on National Regional Aid for 2007-2013¹⁴ respectively.

Regarding the formulation of medium and longer-term accompanying measures, the European Commission is developing a multi-dimensional action approach, e.g. a "sustainable waterborne transport toolbox" that would address, from a broader perspective, and in an integrated manner the environmental challenges the sector is

¹³ OJ C82 of 1.4.2008, p.1

¹⁴ OJ C54 of 4.3.2006, p13

confronted with. This policy approach would explore measures such as hard and soft regulatory measures, green ship technology and alternative fuels, adequate green infrastructure, economic and funding instruments, research and innovation, and international cooperation. These measures will be put in place following the adoption of the White Paper outlining a Roadmap to a Single European Transport Area¹⁵, the new TEN-T Policy and Guidelines based also on further consultations with stakeholders, including relevant Member State authorities. This set of integrated measures may be further elaborated in a forthcoming Commission Staff Working Document complementing this Communication.

5. CONCLUSIONS AND NEXT STEPS

The new measures (as agreed in IMO MARPOL Annex VI provisions in 2008) are a major step forward in reducing air emissions from the fast-growing maritime transport sector. The present proposal for amending Directive 1999/32/EC will align EU law with the latest IMO rules applicable in SECAs and other sea areas and the provisions on equivalent compliance methods. In addition, it will align existing fuel standards for passenger ships operating outside SECAs with those applying in SECAs and strengthen the monitoring and enforcement regime. The proposal will contribute to the achievement of the objectives stated in the existing EU Thematic Strategy on Air Pollution to the Europe 2020 strategy. Thereby, the proposal will ensure that the benefits for EU citizens and the environment are reaped and promote at the same time green technologies and growth driven by sustainable low-carbon transport systems. In addition, the *Sustainable Waterborne Transport Toolbox* will help collaborative efforts from all stakeholders in moving further towards a truly innovative and sustainable shipping sector that can support economic growth with minimised environmental impacts.

The Commission has made an initial assessment of additional measures to reduce emissions of SO_x, particulate matter, and NO_x, for example through extended SECAs and new NO_x emission control areas (NECAs). These showed promising benefit/cost ratios but the Commission is not in a position to make formal proposals to establish additional emission control areas. Emission control areas can only be established in EU law once they have been agreed internationally by the IMO following the procedures specified in the MARPOL Convention. Moreover, the Commission does not have the competence to submit proposals to the IMO and so the current Communication and legislative proposal restricts itself to the previously established emissions control areas and the 2008 amendment of Annex VI of the MARPOL Convention. The Commission notes with appreciation, however, that certain Member States are in the process of requesting the designation of NECAs. The Commission will work closely with those and other Member States to support such and other additional measures where appropriate, as part of the ongoing review of the EU Thematic Strategy on Air Pollution due in 2013 at the latest.¹⁶

¹⁵ Commission White Paper – Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, COM(2011) 144 of 28.3.2011

¹⁶ SEC(2011) 342 final

Annex 1: Summary report on the implementation of Directive 1999/32/EC on the sulphur content of certain liquid fuels

Background

Directive 1999/32/EC on the sulphur content of certain fuels¹⁷ was adopted on 26 April 1999 and has been amended several times. The most significant amendment related to marine fuel standards dates from 2005¹⁸. The deadline for bringing national legislation in compliance was 11 August 2006. Based on Article 7(2) of the Directive 1999/32/EC as amended, the Commission has reviewed a number of general and specific issues following its experience with the implementation of the Directive. The review fully accounted for the new standards related to the quality of marine fuels and related emission controls adopted by the IMO at the end of 2008. This Annex summarises the main results of the review with more details provided in the accompanying impact assessment report.¹⁹

Transposition

Member States were obliged to transpose the Directive into national legislation by 11 August 2006. Only three Member States had reported national transposing measures within this time frame. Seven Member States submitted their transposition information within 1.5 years whilst the latest transposition was reported in April 2010. In response to late and/or missing transpositions, the Commission initiated 16 infringement procedures, all of which are now closed.

Reporting by Member States

Pursuant to Article 7.1 of the Directive, Member States must report annually to the Commission information on the sampling and analysis conducted for the purpose of ensuring that the sulphur content of fuels complies with the relevant provisions of the Directive. This article also requires Member States to report on the average sulphur content of marine fuels used in their territory which do not fall within the scope of the Directive. The Commission received 26 reports covering year 2007, i.e. the first full calendar year following the transposition deadline. For the year 2008 and 2009, respectively 25 and 26 reports were received to date. Pending the decision to launch infringement procedures, a series of reminders were sent between 2008 and 2010.

Member State reports have been analysed on an annual basis by the Commission assisted by the European Maritime Safety Agency (EMSA). Analysis showed that reports received from Member States vary significantly in structure and content with many reports exhibiting significant information gaps making assessment difficult. The most important issues would appear to be:

- Few reports distinguish between sampling and results related to fuels for marine use and similar fuels used in land based installations;

¹⁷ OJ L121, 11.5.1999, p.13

¹⁸ OJ L191, 22.7.2005, p.59

¹⁹ [SEC reference]

- The number of samples taken and sampling frequency in the EU are very low (typically 1 sample per 1000 ships) and are insufficient to ensure a representative view of the fuel quality used and sold and that the Directive is correctly implemented;
- Samples were almost exclusively used to monitor the sulphur content of fuels covered by the Directive. This falls short of the entire requirement set by Article 7.1 of the Directive;
- Problems with sampling and the analysis seem to stem also from a lack of clear provisions on the frequency and analytical methods to be used;
- Information related to the inspections of log books and bunker delivery notes has been equally limited. A separate study conducted by EMSA, however, showed that bunker delivery notes in general are fairly reliable.

Sulphur content of marine fuels

Following requests of ship operators, bunker deliveries are systematically tested by independent bodies. EMSA has obtained anonymised statistical information on fuel samples analysed in 2008. In addition, EMSA has commissioned a study on the fuels used by passenger ships operating in the Mediterranean and the Bay of Biscay. These are non-SECA areas and passenger ships on regular service are obliged to use fuel with a maximum sulphur content of 1.5%. The main results can be summarised as follows:

- 1.5% SECA standard: 5-10% of tested samples exceeded the allowed sulphur content. However, approximately 60% of the exceedances are within the statistical confidence limit.
- 0.1% "at berth" standard: 25% of the samples violated the maximum sulphur limit.
- 1.5% standard for passenger ships outside SECA areas: With the exception of France and to some extent of Spain, the average sulphur content of fuel was between 2.3 and 3.3%.

The rate of compliance varies considerably and is not yet satisfactory. In particular the fuels used by passenger ships in some parts of the Mediterranean Sea are a major cause of concern.

Conclusions

The present practise of reporting by Member States renders assessment of compliance with Directive 1999/32/EC very difficult. The provisions of this Directive on reporting and fuel sampling require clarification and guidance.