



Brussels, 6 June 2017

Minutes  
**European Sustainable Shipping Forum (ESSF)**  
**1<sup>st</sup> meeting of the Sub-Group on Air Emissions from Ships**  
**Brussels, 4th May 2017**  
**DG ENV building BU-5, Room 0/C**  
**Avenue de Beaulieu 5, 1060 Brussels, Belgium**

**1. Introduction, Approval of the agenda**

- 1.1. The Air Emissions from Ships (AEfS) Sub-Group (SG) met for the first time on 4<sup>th</sup> May 2017 to significantly move forward the efforts of the maritime community on realising a cost-efficient and coherent implementation of the Sulphur Directive' provisions with particular attention to the 0,50% sulphur requirement from 1<sup>st</sup> January 2020 in the outside the Sulphur Emission Control Areas (SOx-ECAs). It builds upon the results delivered by its predecessor, the 'Implementation Sub-Group' under the ESSF, which has optimally accompanied the transition to low sulphur fuel in the EU SOx-ECAs.
- 1.2. The mandate for this SG has been set down in the ESSF AEfS Terms of Reference (ToR) with a wider scope and allowing a structure dialogue on maritime emissions than the predecessor. With the technical assistance of European Maritime Safety Agency, the SG is to continue to support the Commission, the Member States and the ESSF stakeholders in the implementation actions under the Sulphur Directive, with high priority focus on the preparation for the consistent and timely implementation of the 0,50% sulphur requirement.
- 1.3. As recommended by the ESSF Plenary, the activities of the ESSF AEfS should not overlap with other ESSF SGs, particularly in relation to the GHGs work. In addition, the SG should not interfere with any ongoing work of the Sulphur Committee or with the overall EU coordination process towards IMO.
- 1.4. In view of the comprehensive lists of subject matters on the agenda it was stressed that while the greatest priority would be indeed put on the matters surrounding the issues of the implementation of the EU/IMO 2020 0.50% outside SOx-ECA, considering possible limited resource and time limitations, but without understating the importance of urgent and general aspects in relation to the reduction of Emissions from Ships beyond the sulphur legislation.
- 1.5. The agenda was adopted reflecting the above considerations (Annex 1).

**2. Nature of the meeting, SG operation and related appointments**

- 2.1. The main objective of this first meeting was to prioritise the areas to be addressed in the agenda in accordance with the ToR and formulate Work Packages (WP) and WP leaders.

- 2.2. Each subject on the agenda was addressed by inviting feedback and views from the SG members and then together defining initial draft scopes for the WP's. The following provides the outcome of these discussions along with the actions and time table arising.
- 2.3. To ensure a smooth operation of the SG, the following Chair, Vice- Chair, EMSA representative, and Rapporteurs were appointed:

*Chair – Rosa Antidormi – European Commission, DG-ENV*  
*Vice Chair – Dorte Kubel DK EPA*  
*Technical Assistance - Sergio Alda – EMSA*  
*Co-Rapporteur: Torsten Mundt DNVGL*  
*Co-Rapporteur: Timothy Wilson Lloyd's Register (FOBAS)*

### **3. List of points discussed**

- 3.1. The agenda was divided into 3 Parts. Part A was dealing with priority 2020 items to ensure that the essential matters that need to be addressed could be achieved given the limited timeline to 2020. Part B looked into general aspects in relation to shipping emission beyond SOx, alternative compliance methods and fuels. Part 'C' covered the formulation of the work packages which are integrated into Part 'A' and 'B' of these minutes.
- 3.2. The importance of developing recommendations and guidelines that would lead to cost effective implementation and identify synergies for alignments with the IMO developments, was well recognised for the WP's leaders to consider in their activity deliverables.
- 3.3. There was constructive feedback and engagement across the floor on matters arising; the following is a summation of the chosen work packages from the feedback based on more specific comments made by the members.

#### **3.4. Part A - Preparation for the 2020 0.50% sulphur content requirement**

Particular attention was to be given to the general consensus of understanding of what the scale and the timing of the change to 0.50% would mean to all stakeholders. While there is wide experience in the maritime community with the implementation of past sulphur requirements, there will be questions needing answers and adjustments regarding the enforcement, local non-availability, supply, transparency of the quality of the fuel delivered and the operational and technical factors that will be influenced by this requirement.

##### **3.4.1. Work Package 1 Enforcement Strategies on ships, best practices and smart measures. Summary of key points raised leading to WP1:**

- 3.4.2. The timeline to 2020 requires that every attempt should be made to deliver on the priority work package and submissions to IMO (PPR5, MEPC 72 as applicable).
- 3.4.3. A wide set of lessons can be learnt from previous sulphur step-down implementations, from which the methods of enforcement are fast being developed. A number of Member States (MS) advised that they were already carrying out various initiatives, developing tools and improved means to target non-compliance over entire sea regions.
- 3.4.4. A smooth and cost effective implementation might well be supported through a compendium of best practices describing the uncertainties lying ahead and by expressing issues in regard of best approaches and clear grounds for

enforcement. The compendium should have an EU and non-EU dimension and take into account practices adopted in the EU and North America.

3.4.5. At the same time, some considerations have been raised for means to offer incentives for ships as well as the supply chain to comply and build an industry culture of compliance.

3.4.6. **Work Package 2 Recommendations on Operational Aspects in ECAs: lessons learned from the use of ECA fuels, best practice and promoting awareness. Summary of key points raised leading to WP2:**

3.4.7. Considering the lessons learnt over the previous three sulphur step-down changes, provides a good grounding of the benefits and failings of the approaches taken to facilitate change. However, a global 0.50% fuel brings in a new dimension for the supply industry to implement.

3.4.8. The SG raised a number of concerns therefore, particularly from the ship operators, surrounding the enforcement, potential local non availabilities, characteristics and transparency of the 0.50% fuel quality that will eventually be offered to the ships, recognising that on a global basis these may not necessarily be fully consistent. Refiners through to the physical suppliers have various options open (and / or are still being considered) as to the methods of preparing and blending such a product or products. The process of gathering/sharing relevant information will likely therefore be an iterative one taking us right up to 2020, before the full picture is clear.

3.4.9. Despite there is wide experience in industry with operational aspects, there are some challenges to deal with the regulation, for which its implementation is being planned and the alignment with IMO developments will be important.

3.4.10. The three activities of the WP2 are therefore essential to enable guidance to all marine stakeholders in achieving an effective implementation on matters pointing to issues of uncertainty.

3.4.11. **Work Package 3 Approach to Monitoring and assuring integrity of the fuel oil supply chain. Summary of key points raised leading to WP3:**

3.4.12. Ultimately the control of sulphur content in the fuel starts at the supplier end of the hose. There has been much focus on enforcing compliance on the ship to date however, the advent of the global 0.50% fuel in 2020, would demand a greater focus on the supply chain. The SG expressed general agreement to develop a best practice approach also on the control of fuel suppliers, with some administrations already looking into this aspect of enforcement and a deeper understanding of how non-availability might best be applied in a uniform and consistent manner.

3.4.13. It has been mentioned whether to have a chapter on how to deal with notes of protest for both, sulphur content as well as other fuel related operational issues are dealt with and how to include this as best practice.

3.4.14. Fuel quality and its compliance again were raised with questions pointing to expectations from the ISO, or any relevant standardisation organisation, and CIMAC fuel committees to address the quality concerns being raised by the industry. Recognising there is a lot of experience in dealing with different fuel formulations or off spec fuels, the supply chain can be a complex order to delivery process with charterers, physical supplier and owners being involved, so further transparency would be welcomed.

### 3.5. PART B - General Aspects of Emissions from Ships

#### 3.5.1. **Work Package 4** *Conventional or Alternative Compliance Methods (impact on emissions). Summary of key points raised leading to the WP 4:*

3.5.2. Numerous alternative compliance options are being offered to the marine market and some such as LNG and Methanol or dual fuels are being selected as a route to compliance. It was proposed that some consideration should be given to understand the consequences of applying alternative compliance means, with regards to their relative impact on emissions, recognising that to address the specifics would be an iterative process.

3.5.3. The SG recognised that this would be a demanding task to deliver within the given timeline, however it was agreed that a form of matrix should be attempted. DG MOVE advised that similar work had been carried out by the research and innovation SG which could first be reviewed as to its applicability to this work package.

#### 3.5.4. **Work Package 5** *Conventional or Alternative Compliance Methods (impact on emissions); Experience with Ship Emission modelling / monitoring; primary and secondary PM and Black Carbon state of play. Summary of key points raised leading to the WP 5:*

3.5.5. On the various alternative compliance options WP 5 should take the matrix a step forward and differentiate between the whole delivery chain and when energy (the fuel) is consumed on board only (not taking into account the emissions produced in the delivery chain until delivered to the ship).

3.5.6. This section covered important aspects of the ToR for the “AEfS sub-group”. It was acknowledged that priority needed to be given to WP 1, 2, 3, and 4. Nevertheless, there was some useful discussion and the mentioned themes should have been taken up and carried forward.

3.5.7. Some members recognised the importance for monitoring and the effective impact of current legislation on maritime emissions and the need to assess the progress of the implementation of the Directive and determine how the legislation initially based on modelling, performs. The Commission and the Member States competent authorities are accountable for the implementation and due to report as appropriate on the state of play in regard of environmental performance also by validation with separate and independent monitoring and modelling techniques.

3.5.8. For example, the IMO GHG model study was a typical one to which the industry drew its base line for performance expectations. Further on, it was stated that models help in estimating and projecting the effects of current or upcoming (or new) regulations also to the benefit of industry.

There were some concerns about the validity of ship modelling by some members in the SG as a means to further regulate however it was advised that a range of monitoring methods has been in place and proved to be able to demonstrate the likely impact of regulation and thus steer the industry to a more uniform and workable approach.

#### 3.5.9. **Work Package 6** *NOx Implementation and enforcement of future NECAs in the Baltic/ North Sea. Summary of key points raised leading to the WP6:*

- 3.5.10. It was noted that the issue of NO<sub>x</sub> required some administrations in the relevant Member States to monitor NO<sub>x</sub> emissions and therefore it was considered that this SG needs to obtain an outcome on the enforcement efforts made by the administrations as well as the ship operators.
- 3.5.11. A member hinted to the IMO SCR-guidelines which should serve as technical basis for the guidance document/best practice as what can be enforced and noted it would need to be linked to IMO's approach.
- 3.5.12. The guidance should also capture the differentiation of the technical ability of the ship to comply with a certain NO<sub>x</sub> standard and the operational aspect, i.e. Tier III level was to be switched on in ECA areas in relation to a certain keel lying date.

### **3.6. PART C General Aspects of Emissions from Ships**

- 3.7. The determination of related Work Packages was already captured within Parts A and B and the work package leaders have been identified during the meeting and were assigned also in above parts. The 'steering crew' thanked the volunteering candidates and appreciated very much the additional workload inherently allocated behind the take-over of a Work Package.

## **4. Conclusions/recommendations/opinions**

- 4.1. The delivery of the work packages will enable the EU MSs (and other member stakeholders) to provide suitable information to the ESSF Plenary in accordance with the Terms of Reference and enable it to seek for advice and endorsement on sound technical basis.
- 4.2. The outcome might also provide valuable material for contributing to the development of the 2020 implementation plan by IMO through the PPR/MEPC.

## **5. Next steps**

- 5.1. **Work Package leaders were asked to timely prepare progress draft reports in accordance with ANNEX2 (Work Packages Matrix) to DG ENV until 4<sup>th</sup> September 2017 in order to prepare for the next meeting of the ESSF Plenary and of the SG.**
- 5.2. Being mindful that some documents may, if appropriate, form the technical basis of submissions to the IMO (PPR5) and respect the relevant deadlines.

## **6. Next meeting**

- 6.1. The next meeting was scheduled for *2<sup>nd</sup> October 2017*.



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL  
ENVIRONMENT  
Directorate C - Air  
ENV.C.3 - Air

**FIRST MEETING OF THE SUB-GROUP ON  
AIR EMISSIONS FROM SHIPS  
SET UP UNDER THE EUROPEAN SUSTAINABLE SHIPPING FORUM**

**DRAFT AGENDA**

**Date:** 04 May 2017, 10.00-17:30  
**Venue:** DG ENV building BU-5, Room XX  
Avenue de Beaulieu 5, 1060 Brussels, Belgium

**10:00 – 10:15**

Welcome

Round table

Introduction from COM

- Highlight of past ESSF Implementation SG work
- Air Emission from Ships SG (AEfS SG): Terms of Reference

- 0. Adoption of the agenda**
- 1. Objectives of the meeting**
- 2. Appointment of Chair, Vice-Chair and Rapporteur**

**PART A**

**Preparation for the 2020 0.50% sulphur content requirement - Consistent Implementation**

**10:30 – 13:00**

- 3. High Level Matrix of Implementation Issues:** *Identification of priorities for smooth EU/global implementation, gaps and tools to address these gaps based on the ToR endorsed by the ESSF Plenary. Exchange of views by the SG on the work topics*
  - **1 – Enforcement Strategies on ships, best practices and smart measures**
  - **2 – Recommendations on Operational Aspects in ECAs: lessons learned, best practice and awareness raising**
  - **3 – Appropriate Enforcement on Fuel suppliers, identification of best practices**

**Coffee break 11:00 – 11:30**

- **4 - Development of proposals for a Cost Effective Implementation**

- **5 – Identification of synergies for alignments with IMO Developments**
- **6 - Other priorities identified by the SG**

**Lunch Break: 13:00 – 14:00**

**PART B**

**General Aspects of Emissions from Ships**

**14:00 – 15:30**

**4. High Level Matrix of General Aspect Issues: *Identification of priorities based on the ToR endorsed by the ESSF Plenary. Exchange of views by the SG on the work topics***

- **7 - Conventional or Alternative Compliance Methods (impact on emissions):**
  - **Alternative Fuels uptake**
  - **Emission abatement systems**
- **6 - Experience with Ship Emission Modelling/Monitoring**
- **7 - NOx Implementation and enforcement of future NECAs in the Baltic/ North Sea**

**Coffee break 15:30 – 16:00**

- **8 - Primary and secondary PM and Black Carbon, state of play**
- **9 - Other priorities identified by the group**

**PART C**

**Identification of Work Packages (WPs) based on previous Discussions**

**16:30-17:00**

**5. Determination of related Work Packages, main issues under the WPs, and WP leaders**

**17:00 – 17:30 (Close of the Meeting)**

**6. AOB**

**7. Conclusions and Next Steps**

Summary – guidance, timeline, methods for WP Leaders to take and to action before next meeting by CG, dates for next meetings

Sub-Group: AEfS – updated after ESSF AEfS 1 <sup>st</sup> meeting					
WP	Work-Package Title	Coordinator	Members	Activity/Expected Deliveries	Comments/Milestones/Deadlines
1	<b><i>Enforcement Strategies on ships, best practices and smart measures</i></b> (ToR Reference to Tasks 2.2.1 and Deliverable D1 and D2)	Denmark (+ EMSA)		Compendium of best practices for enforcement	<ul style="list-style-type: none"> <li>- Lessons learnt from 0.10% implementation 2015</li> <li>- Include exchange of Strategies in the EU, Canada, US, China...others?</li> <li>- Involvement of industry</li> <li>- Distinguish between EU and Global issues</li> </ul>
				Dedicated Port State and Flag State guidelines for sulphur inspection	<ul style="list-style-type: none"> <li>- Identification of clear grounds for enforcement in particular non-compliance in international waters</li> <li>- Grounds for sanctions?</li> <li>- Alignment with IMO, avoiding duplication</li> </ul>
2	<b><i>Recommendations on Operational Aspects in ECAs: lessons learned, best practice and awareness raising</i></b> (ToR Reference to Tasks 2.2.1 and Deliverable D1 and D2)	Hapag Lloyd		0.50% Fuels - Information Matrix on fuels	<ul style="list-style-type: none"> <li>- Monitor progress and build a matrix on available 0.50% fuel types and possibly on the development of 0.5 fuel formulations. Regarding refinery, storage and blending, what is traders approach to the different formulations to be supplied.</li> <li>- Include any trials and development programmes.</li> <li>- Build on the official IMO Fuel Availability Study and others.</li> </ul>
				MARPOL Verification procedure versus ISO 4259	<ul style="list-style-type: none"> <li>- Review current MARPOL Verification procedures taking into consideration ISO 4259.</li> <li>- Address and mitigate the application of these two standards without changing EU and IMO regulation.</li> </ul>
				Identifying Ship concerns	<ul style="list-style-type: none"> <li>- Identify the concerns of the ship operator on receiving fuel of diverse characteristics –</li> <li>- Develop requirements for facilitating transparency of the fuel characteristics to the receiving ship.</li> <li>- Identify essential fuel properties to be reported by the supplier.</li> <li>- Develop guidance for the marine industry on the preparatory steps needed to be taken (to be 2020 ready, and during the current transition period which ends at the implementation date of 01 Jan 2020.)</li> </ul>
3	<b><i>Approach to Monitoring and assuring integrity of the fuel oil supply chain</i></b>	KVNR		Review and collate current requirements to facilitate the delivery of a compliant fuel	<ul style="list-style-type: none"> <li>- Review and collate what is already required under MARPOL Annex VI, i.e. the BDN, statutory Sample, declarations, etc...</li> <li>- Work in alignment with IMO fuel quality CG best practice for suppliers / MS / users ...</li> <li>- List current Supplier registration scheme practices and recommend additional practices to enhance supply compliance performance</li> </ul>



## ANNEX 2 – Work-packages matrix

				Define fuel oil non-availability requirements and application of letters of protest	- Define best practice for addressing ship notification of fuel non-availability - The application of notes of protest for both sulphur content and fuel related engine operational issues
				Guideline and procedures for supply chain integrity	- if time permits, provide draft guidelines to facilitate the integrity of the fuel oil supply chain
4	<b><i>Conventional or Alternative Compliance Methods (impact on emissions)</i></b>	EGCSA		Matrix of alternatives and their impacts on emissions (conventional & non-conventional fuels)	- Draft a matrix of alternative fuels and technological alternatives and their relative / qualitative impact on emissions - following emissions should be captured / displayed: <ul style="list-style-type: none"> <li>○ SO<sub>x</sub>, NO<sub>x</sub> (and CO<sub>2</sub>),</li> <li>○ PM / BC</li> <li>○ unburned hydrocarbons, CH<sub>4</sub> separately</li> <li>○ other non-regulated emissions?</li> </ul> - differentiation between “tank-to-wake” and “well-to-wake” emission impact
5	<b><i>Agenda items 7, 8 and 10 covering: Conventional or Alternative Compliance Methods (impact on emissions); Experience with Ship Emission modelling / monitoring; Primary and Secondary PM and Black Carbon state of play.</i></b>	FMI (+EGCSA, EMSA)		Experience with ship emission modelling	- identify different models (available via Member States or companies and willing to share this) and then compare different models and analyse their accuracy compile a guidance paper which addresses general aspects on how such models work and where uncertainties and boundaries are discuss appropriate / latest emission figures that apply for other air pollutants (as listed in the matrix of WP 4)
				Primary and secondary PM / BC emissions, state of play	- provide latest info about PPR discussion on this topic - identify other scientific and other research info that suits the purpose of this task
6	<b><i>NO<sub>x</sub> Implementation and enforcement of future NECAs in the Baltic/ North Sea</i></b>	Denmark		NO <sub>x</sub> compliance Matrix of technical and operational issues in maintaining compliance	- To act as a guidance document to facilitate compliance and its enforcement