**European Commission Ref. 070201/2014/693666/FRA/ENV.C.3 Service Agreement 7:   
Continued improvements of inventory methodologies**

**Task 4.1: SOx / SO2 inventory estimates**

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**Consultation paper for discussion**

1. **Context**

Ricardo-AEA Ltd, Aether Ltd and AMEC have been commissioned to investigate and propose improvements to inventory methodologies in a number of key areas identified by the Task Force on Emission Inventories and Projections (TFEIP) and other bodies. The European Commission, as part of a collaborative initiative, has provided funding for this project, which is expected to be the focus of discussion at the TFEIP meeting and workshops in May 2015. In addition to the key areas identified by the Task Force, the European Commission has identified other tasks related to the 2012 amendments of the Gothenburg Protocol, specifically on the definitions of "sulphur" and SOx/SO2 and black carbon and their use in developing and reporting emission inventories. This project is expected to be the focus of discussion at the TFEIP meeting and workshops in May 2015.

Task 4.1 of this project is entitled “SOx / SO2 inventory estimates”. This paper sets out our initial views on the delivery of this task, and is intended to form the basis of discussions with TFEIP subgroup chairs, TFEIP members, and other stakeholders.

1. **The issue(s) to be addressed**

Task 4.1 aims to address an existing issue related to differences in reporting requirements under the National Emissions Ceiling (NEC) Directive and the Convention on Long Range Transboundary Air Pollution (CLRTAP). Under CLRTAP there is a requirement to report emissions to air of ‘sulphur’ which is typically reported as SOx (SO2 and SO3) while under the NEC Directive the reporting requirements specifically relate to SO2 only

The core aim of the first sub-task is therefore to better understand the differences between SOx and SO2 estimates and what level of impact SO3 hasto the overall SOx totals.

Additionally the project will also address the issue of ‘reduced sulphur’. The reporting under CLRTAP states that reporting for the convention relates to emissions to air of ‘sulphur.’ This would typically be in an oxidised form (i.e. SOx), however a small number of countries, in particular Finland, have identified reduced sulphur emissions as a potential issue. Therefore a secondary aim of this sub-task will be to carry out preliminary research into the potential significance of reduced sulphur as a contributor to total sulphur emissions.

1. **Proposed approach**

To respond to the aims of this sub-task we have developed a methodology involving four defined steps which are detailed as follows:

***Step 1: Analysis of reporting requirements***

Initially we will review the reporting requirements placed on those Parties covered by CLRTAP reporting. Under the EU context for the NEC Directive the reporting for sulphur is clearly defined as SO2, while for CLRTAP the requirement relates to sulphur, expressed as SOx. However, CLRTAP also contains a number of protocols, notably the first and second sulphur protocols, and the Gothenburg protocol (original 1999, and 2012 amendment – the latter not yet in force), and so it will be necessary to understand the relationship between the protocols and the Convention and also EU reporting requirements in order to understand the intent of the definitions for sulphur emissions. The aims are, where possible, to develop consistent wording and interpretation in relation to the sulphur-related Protocols of the CLRTAP and the NECD and to initiate a discussion of point source emissions monitoring, which in many countries feeds the inventory directly ( IED/LCP and E-PRTR reporting will be into scope as well).

***Step 2: Focused stakeholder engagement***

Following on from step one, we plan to make use of our internal knowledge of the inventory community, and contact with the TFEIP Expert Panels to identify suitable stakeholders who have voiced an opinion regarding the discrepancies between SO2, SOx and total sulphur reporting. In preparation for discussions with these stakeholders (who we expect will largely come from the inventory community and from experts from the industrial sector) we will acquire and review the informative inventory reports (IIRs) for those nations to draw out any data or emission factors which specifically highlight differences between the inventory approach and estimates for SO2 and SOx

***Step 3: Rapid literature review***

Alongside the first two steps of our approach we also plan to carry out a literature review to identify material which would help highlight the differences between SO2 and SOx which could be used to gauge the magnitude of the difference, including sector coverage for the different pollutants. In particular work has been carried out by the USA to look at SO2 and SOx as separate pollutants while the E-PRTR defines the pollutant as “sulphur oxides" SOx/SO2 (SOx and SO2 are not reported separately). .This task will additionally explore the possibility to provide emission factors for SO2 (in addition to SOx) to the TFEIP for potential inclusion in the GB.

***Step 4: Report on SOx / SO2 and estimates and recommendations***

The final stage in our approach will be to collate the findings and provide the information gathered along with recommendations in a report back to the Commission Services and European Environment Agency on the issues identified.

1. **Key sources of data**

The core data to be used within this sub-task will relate to the emission estimates under CLRTAP. On that basis the key sources of data will be:

* Emission estimates provided to CLRTAP and the NEC Directive;
* Informative Inventory Reports (IIRs);
* USEPA AP42 which includes factors for both SO2 and SO3 for some industry sectors (for example in the section on fuel oil combustion);
* Communication with inventory compilers;
* Communication with the TFEIP expert panels.

1. **Your views**

Your views are sought on the following key issues:

1. Is the described approach suitable to meeting the objectives of the sub-task;
2. Are you aware of any specific cases where inventory teams have aimed to differentiate SOx and SO2;
3. Opinion and data on the importance of reduced sulphur as a component of overall sulphur emissions;
4. Are there are specific stakeholders other than the Expert Panel who you feel would be important to include.
5. **Consultation programme**

An introductory discussion has been held with the TFEIP management group at their meeting on 11 February 2015. Consultation with TFEIP members is planned to take place during the TFEIP meeting and workshop in May 2015. Following this, the project team will develop draft methodologies and Guidebook text. This will be circulated for consultation in late 2015, working with the TFEIP Expert Panel co-chairs.

Thank you for your co-operation with this process.

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