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

**Task 4.2: Black Carbon**

**Task lead: Robert Stewart (Ricardo-AEA)**

**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

Task 4.2 of this project is entitled “Black Carbon” 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**

Black Carbon (BC), Elemental Carbon (EC) and Organic Carbon (OC) are terms used to refer to the carbonaceous part of particulate material in the air. However, each of the three terms are distinct and concentrations in air are quantified using different measurement techniques.

Currently, emissions inventories and associated legislation typically uses the BC metric, whereas ambient air quality legislation (Directive 2008/50/EC) refers to EC and OC. Also other international organisations, in particular IMO, are currently defining metrics for BC. There is concern that the use of different metrics may lead to inconsistency in the reporting of BC in the future.

The aims of this task are summarised as:

* Review the BC EFs included in the EMEP/EEA Guidebook to check that they do represent BC rather than either EC or OC, and that they are internally consistent.
* Integrate the findings of this review with the findings of Task 2.1, to confirm whether measurements refer to filterable or condensable particles. BC EFs in the Guidebook are generally expressed as a proportion of the PM2.5 EF and as part of Task 2.1, the project team is also looking at whether PM EFs refer to condensable or filterable emissions. The BC EFs may need to be reviewed in the light of the findings of Task 2.1.
* Collate BC EFs to clarify, update or extend the existing information reported in the EMEP/EEA Guidebook.
* Collate information on EFs for both EC and OC, which are consistent with the BC EFs.
* Where studies provide enough information to determine a C mass balance, derive any missing EFs for BC, EC or OC.
* Liaise closely with representatives of the TFEIP to facilitate hand-over and subsequent incorporation into the EMEP/EEA Guidebook.

Within the frame of the contract this is a minor and exploratory task, and expectations should be realistic regarding the time that will be available to collate information on EC and OC after reviewing BC.

1. **Proposed approach**

The proposed approach can be summarised in the following steps:

**Guidebook Review:** Information currently reported in the EMEP/EEA Guidebook will be reviewed, to ensure that data is being used and presented appropriately

**Data Gathering:** A structured approach to sourcing new information will be taken, in particular through:

* TFEIP Expert Panel Leaders for suggested data sources.
* representatives of the Danish team who undertook the last Guidebook update with respect to BC.
* IIASA, TNO and EUCAARI project representatives, who are known to hold a recently compiled dataset of BC and OC emission factors.
* key academics (in particular researchers in the US).
* a focused literature search.

As much of this will be undertaken ahead of the TFEIP meeting as possible to allow the TFEIP Expert Panels to comment on the success of collating the information from the different sources during the TFEIP Expert Panel Sessions in May.

Useful information may also be forthcoming from the TFEIP Workshop on Black Carbon and those attending, which follows the TFEIP meeting in May 2015.

**Data Processing and Quality Review:** A tailored quality assessment will be designed, and then implemented on all of the gathered data. If data allow, speciation profiles will be compiled.

**Drafting Guidance for the Guidebook:** Information will be prepared for the Guidebook. Currently we suggest the following approach:

* Text for the main body of the Guidebook on the different definitions of BC, EC and OC.
* Where possible, clarification of the metric used to develop BC emission factors in the Guidebook
* PM speciation profiles for BC, EC and OC to be added as an appendix to the Guidebook if the information proves to be available across several different sources, and of good enough quality.

We have suggested this approach, rather than full incorporation of the BC, EC and OC information into the Guidebook for several reasons. Namely, the information is expected to be very high in uncertainty, potentially of questionable quality and it is being made available for research studies rather than supporting required reporting under the CLRTAP or the NECD.

1. **Your views**

Your views are sought on the following key issues:

1. Is our list of data and information providers comprehensive?
2. Do we already hold detailed information on the origin of the BC EFs in the Guidebook? i.e. do we already have evidence that the Guidebook EFs do specifically refer to BC?
3. Do you agree that our suggested outputs are the most appropriate way of collating new information for the Guidebook?
4. **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.

Date: 24 April 2015 Version no. 03 Issue no. 03