Study on Actual GHG Data for Diesel, Petrol, Kerosene & Natural Gas

DG ENER Framework Service Contract

SRD MOVE/ENERSRD.12/2012-409-LOT3-COWI

COWI Consortium

EXERGIA, E3M-Lab, COWI

STAKEHOLDERS' QUESTIONAIRE

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BACKGROUND

The European Union is promoting the use of renewable energy in transport with an objective of 10% renewable energy in transport by 2020 as set out by the **Renewable Energy Directive (RED).** The use of biofuels is one way of meeting these targets. Road transport depends almost entirely on oil as a fuel at present and corresponding greenhouse gas emissions continue to increase at a high rate. Transport is the only sector where energy consumption is not expected to decrease over the next two decades, if development follows business as usual scenarios. At present the main alternative to fossil based fuels in road transport are biofuels, whether liquid or gaseous.

The RED required Member States to submit by June 2010 National Renewable Energy Action Plans setting out inter alia the contribution expected of each renewable energy technology to meet the 2020 targets, including in the transport sector. According to the National Renewable Energy Action Plans, Member States collectively intend to slightly over-achieve the 10% target. They intend to use about 8.5% of first generation biofuels, 1% of second generation biofuels and 1% of renewable electricity, most of the latter in railways rather than in cars. In total this adds up to approximately 10.5% renewable energy in transport; with the different modification factors that the Directive applies to second generation biofuels and renewable electricity used in cars it would be counting as approximately 11.5%.

The **Fuel Quality Directive** (FQD) further sets a target of 6% reduction of Green House Gas (GHG) emissions from road transport.

Both Directives have specified identical sustainability criteria for the use of biofuels in the European Union and the FQD increased the volumetric limits of ethanol and FAME to 10 vol% and 7 vol% respectively in the EN 228 and EN 590 standards.

The impact on the GHG performance of bio-energy of emissions from land use change (direct or indirect) has been discussed extensively and although uncertainty exists on the various predictive models and their reliability there is general consensus that the issue has become important and needs to be addressed by the EU. In addition, emissions from land use (i.e., from carbon stock changes not involving land-use change) are also important, in particular for feedstock originating from forests.

In June 2010 the European Commission issued a set of guidelines explaining how the RED should be implemented, including principles for schemes for certifying sustainable biofuels. This was based on two communications and a decision.

Moreover, the FQD obliges suppliers to report from 2011 information on, inter alia, the GHG intensity of the fuel they have supplied to authorities designated by the Member States. Moreover the Commission is empowered to adopt implementing measures concerning the method for calculation and the mechanism to monitor and reduce GHG emissions of fuels used in transport.

ACTUAL AGAINST AVERAGE GHG EMISSIONS DATA

The GHG emissions calculations for biofuels are based on the work undertaken by the **JRC-CONCAWE-ACEA.** The GHG data for biofuels are compared to diesel and petrol. However, although real and **actual data** are used for biofuels with a significant

range of values and with maximum and minimum points, these are compared only to **average singular points** for diesel and petrol. No detailed information has been provided on how these average singular points have been determined and on which data they are based.

In order to have a transparent comparison between biofuels and fossil fuels it is necessary to determine the actual GHG emissions from diesel and petrol by comparing the GHG from oil originating from various geographical areas and different types of operations taking into account other environmental concerns wherever appropriate.

QUESTIONNAIRE OBJECTIVE

Recently, the European Commission assigned the project: "Study on actual GHG data for diesel, petrol, kerosene and natural gas", to be implemented by EXERGIA S.A. (Leader), in collaboration with E3M-Lab (Economics Energy Environment Modelling Laboratory) of the National Technical University of Athens and COWI A/S. The main project objective is to assess the range of well-to-tank GHG emissions of diesel, petrol, kerosene and natural gas consumed in the EU transport sector, based in principle on calculations of actual data. In the context of providing recommendations to the Commission the project team aims to consult the main stakeholders and would therefore like to know the views of public authorities, businesses, NGOs, industry, technology developers, researchers and other interested parties on how the results of the study should be considered.

Therefore, we welcome your views on the following set of concrete questions. For data protection reasons the project team will not process any specific personal data that you might include in your reply. An analysis of the responses will be published with the final report of the contract on an anonymous basis.

Responses should be sent to the project manager, Dr. Theodor Goumas,
Email address: theodor.goumas@exergia.gr
by **15 April 2015**.

QUESTIONNAIRE

1 Calculation of GHG emissions of biofuels and fossil fuels

Question 1.1

Are you satisfied with the way the GHG emissions of fossil fuel final products are presented (average singular points)?

◯ YES ◯ NO

If your answer is "NO" then how you recommend this compilation should be made?

☐ a) Distinctive calculation of carbon intensities for each fuel stream in all phases of transformation and transportation from extraction up to the supply of final consumers

☐ b) Average carbon intensities based on geographical areas of fuels' origins

☐ c) Average carbon intensities based on natural gas and crude oil technical characteristics (API, Sulphur, unconventional sources etc.)

☐ d) Average carbon intensities based on combination of geographical and technical characteristics criteria

☐ e) Other, please specify:

Question 1.2

Recently bio-methane (either from upgraded biogas or produced synthetically from biomass) is added in natural gas pipelines that may supply CNG or LNG filling stations. Should information of GHG emissions from bio-methane and natural gas be included in the calculations of GHG emissions for transport fuels?

◯ YES ◯ NO

If your answer is "YES" then how you recommend this compilation should be made?

☐ a) Separate average carbon intensity for bio-methane and another separate average carbon intensity for natural gas

☐ b) Average carbon intensity for natural gas, either in the form of pipeline gas or LNG, originating from geographical areas such as North Sea, Russia, Algeria, etc.

☐ c) Include shale gas too based on geographical areas such as the USA

☐ d) Other, Please specify:

2 Actual data for GHG for fossil fuels

In general oil and natural gas companies do not disclose information on actual GHG emissions from the various operations and almost always decline to provide such information if they are asked to do so. The Commission has advised in the project's Invitation to Tender, that in case the consultant is not able to obtain actual data of GHG emissions on the production of oil and natural gas directly from the oil and natural gas companies, to use available simulation models to estimate such emissions.

Question 2.1

In case the oil and natural gas companies do not provide information on actual GHG emissions from their operations do you agree with the Commission's advice?

○ YES ○ NO

2.1.1 If your answer is "NO" do you have any other advice? Please specify:

2.1.2 If your answer is "YES" would you consider the results of the model reliable since there is sufficient published information in various sources?

2.1.3 Do you have any recommendation on how the reliability of the results of the models could be improved?

2.1.4 The estimates of oil and gas carbon intensity could be expressed in terms of weighted average and min, max values in order to cope with uncertainty factors. Do you consider that this approach contributes to sufficient and reliable results?

Question 2.2

Do you consider that tracking key GHG emissions data along the supply chain of oil and gas is a justifiable new cost for the oil and gas companies and operators?

◯ YES ◯ NO

Are you able to provide an estimation about this additional cost for the suppliers? Please specify:

3 Results of the Project

The draft project results present a broad range of carbon intensities for diesel, petrol, kerosene and natural gas supplied to the tanks of the transport means of the EU. In this context, there are oil and gas streams from extraction to final use, with considerably less GHG emissions than others, in our well-to-tank assessment. This fact might be considered in the existing and future climate change policies of the EU.

Question 3.1

Do you consider that this variation of carbon intensities of fossil fuels for transport could be considered in the estimation of the reduction of GHG emissions mandated by the FQD?

◯ YES ◯ NO

Please explain:

Question 3.2

In view of forthcoming policies of the European Union and Member States to reduce GHG emissions and in accordance to the above mentioned variation of GHG emissions in transport fuels, what type of measures related to transport fuels do you think are more appropriate?

☐ a) Combined measures, i.e. use of life-cycle GHG emissions reduction goals for final products of fossil fuels as an essential component of decarbonisation in combination with other relevant measures

☐ b) Independent measures, i.e. use of life-cycle GHG emissions reduction goals for final products of fossil fuels in addition to other measures and GHG goals set by the UNFCCC and/or the EU to help drive the energy sector actions needed for decarbonisation

☐ c) Inherent within general measures, i.e. use of GHG emissions of transport fuels as a component of energy sector policies and actions that reduce GHG emissions and may be motivated primarily by wider benefits such as energy security, air pollution, reducing energy bills, etc.

Question 3.3

Are you of the opinion that the sustainability criteria for biofuels in the RED and FQD should be revised subject to the results of this study?

◯ YES ◯ NO

What type of measures related to the revision of sustainability criteria do you think are more appropriate? Please specify:

Question 3.4

Depending on the measures possibly adopted by the EU, if any, related to the reduction of GHG emissions from transport fuels, there may be impacts on the international trading conditions of (certain types of) crude oil and natural gas. In other words, this may have an impact on the competitive conditions of (certain types of) crude oil and natural gas from certain sources vis-à-vis comparable products from other sources and/or countries.

3.4.1 Do you agree with the statement above?

◯ YES ◯ NO

Please explain:

3.4.2 Do you think that this could constitute a violation of the international obligations of the EU (including, but not limited to, the EU's WTO obligations)?

◯ YES ◯ NO

Please explain:

3.4.3 If your answer is "YES", do you think that the EU could adopt measures in such a way as to meet the regulatory objective of reducing GHG emissions from transport fuels for environmental purposes, without violating its international obligations?

◯ YES ◯ NO

Please explain:

3.4.4 What, in your view, would be the least trade restrictive measures the EU could adopt in this regard, while at the same time meeting the regulatory objective of reducing GHG emissions from transport fuels for environmental purposes? Please only take into account the trade restrictiveness of such measures, without taking into account whether or not such measures may constitute a violation of the EU's international obligations.

Question 3.5

Do you think that the FQD obligation of suppliers to provide information on life-cycle GHG emissions has to be strengthened in order all market participants in the oil; and gas supply chain to measure, assess and confirm the carbon intensity of their activity?

◯ YES ◯ NO