

Report of the 2nd Public Company Workshop

10 June 2014

Project IEE/11/733 SI2.616371 BioGrace-II

1. Rationale and goals of the workshop

This workshop aimed to disseminate information about BioGrace-II and the drafted version of the GHG calculation tool for electricity, heating and cooling from biomass and to raise awareness on EU policies on bioenergy greenhouse gas regulation and how a level playing field in the EU can be reached. The consortium decided to also include the topic of transport biofuels and also present the calculation tool of the first BioGrace project on liquid biofuels. The target group of the workshop were companies that need to perform life cycle greenhouse gas calculations, as well as verifiers, consultants, researchers and policy makers.

2. Technical information about the workshop

BIOENERGY 2020+ has been the partner responsible to organize this one day public workshop. It was dated on June 10, 2014 and located in Vienna. The workshop took place in the Gartenhotel Atlmannsdorf from 9.30 a.m. till 4 p.m.

Invitations were sent over the project's own mailing list that contains some 700 subscribers. Finally, 41 people registered for the workshop and 37 showed up, plus 3 project members. Backgrounds of the participants were:

Advisor	2
Auditor	7
Fuel supplier	3
GHG specialist	3
Others	2
Producer of liquid biofuels	9
Public officer	2
Representative of a voluntary scheme	2
Researcher	7

A complete participants list can be found in the annex of this report.



The major items of the workshop have been:

1. EU sustainability policy developments in bioenergy
2. The BioGrace Excel tool, differences between BioGrace I and II
3. Stakeholders experiences with making actual GHG calculations
4. Interactive sessions on the BioGrace calculation tools

The full agenda can be found in the annex too.

3. Overview of the workshop along the agenda

- **EU sustainability policy developments**

John Neeft (coordinator of the BioGrace-II project) started with giving a brief introduction into the BioGrace projects and the difference between the first and the second one. BioGrace (I) dealt with liquid biofuels and created a GHG calculation tool that was recognised by the European Commission (EC); BioGrace-II has been working on setting up a similar tool for gaseous and solid biofuels used in electricity production, heating and cooling. This tool has not yet been finalised. Neeft then explained the relationship to the European Commission and its Joint Research Centre. He underlined the fact that the BioGrace tools strictly follow the methodology defined by the European Commission and will not include topics that have not yet been formally clarified, e.g. emissions from indirect land use change or carbon debt. BioGrace aims at translating the methodology into detailed calculation rules and setting up a user friendly Excel calculator. The calculation tools consequently serve to harmonise bioenergy GHG calculations in Europe. BioGrace, though, does give signals to the European Commission where the methodology is unclear.

Neeft then gave an overview of the European sustainability policies of the EC and of Member States on solid and gaseous biomass. In 2010 the EC recommended in its report COM(2010)11 that Member States should align as much as possible their existing and planned national sustainability schemes. The same report gives a methodological guidance how to make GHG calculations and gives emission values for default bioenergy pathways. Currently the Commission has been preparing a follow up report that will include updated GHG default values and additional pathways. Neeft then gave an overview of the national policies on sustainability criteria. UK, Belgium and Italy have introduced such. German and the Netherlands have been preparing to do so. Most of the Member States though are waiting for the new Commission's recommendation.



Afterwards, Neeft presented the status quo of the EU policy on liquid biofuels. At the moment the EC is working of an update of RED Annex V that will update pathways, input values, emission factors and fossil fuel references. In terms of emission from indirect land use change, the EC proposed to amend the RED and to introduce – among other steps – a cap for food based biofuels at 5 percent of the transport fuel consumption. The European Council, though, has raised this cap to 7 percent. Parallel to this, the DG Competition recommended in its State Aid Guidelines that no investment aid should be granted to increase the production capacity of food based biofuels. Also in its 2030 Climate Change Package the Commission tends to stop the support for food based biofuels. However, some Member States are in favour of continuing the Fuel Quality Directive after 2020 with its target to reduce the GHG emissions by 6 percent per energy unit of transport fuel. This would make biofuel GHG calculations even more important as every gram of CO₂-emission saving could then be turned into cash.

- **The BioGrace Excel tool, differences between BioGrace I and II**

Susanne Köppen (member of the BioGrace consortium) gave a brief introduction into the calculation principle and the functioning of the Excel tools and then explained the methodological differences between the GHG calculations for transport fuels and for electricity, heat, and cooling. The first difference is the final reference unit: In BioGrace (I) (transport fuels) it is MJ (megajoule) of energy carrier, in BioGrace-II (electricity, heating and cooling) it is MJ of final energy. A second difference comes with the allocation of emissions between the main product and co-products. The general rule is to perform allocation according to the lower heating value. In BioGrace (I), however, credits are contributed for surplus electricity from CHP whereas in BioGrace-II, allocation between electricity and heat from a CHP is based on exergy. A third difference concerns the emissions from the combustion of the bioenergy carrier: in BioGrace (I) these are zero, while in BioGrace-II, only the CO₂ emissions are zero, CH₄ and N₂O emissions from final conversion are counted.

- **Stakeholders experiences with making actual GHG calculations**

This panel featured two presentations, the first one represented the experiences of a company, the second one those of an auditor.

Münzer Bioindustrie GmbH is Austria's biggest biodiesel producer with an annual output of 140.000 mt Biodiesel, 14.000 mt Glycerin, 1.800 mt potassium sulphate, and it is also the biggest used cooking oil collector. Münzer has already had calculated its GHG calculation before the BioGrace (I) tool was recognised. The work had been delegated to MEO Carbon Solution and was performed according to the ISCC scheme. Christian Dyczek explained in his presentation which kind of data was easy to find and



which difficult: Output numbers, conversion factors, heating values, use of electricity and heat and the amount of waste were easy. The input number posed some difficulties, e.g. how to handle unusual feedstock? The most difficult part were emission factors and how to use disaggregated default values. He finally expressed his worries about a possible run for the best emission factors, "Will cheating take place or even worse will cheating be tolerated?"

SGS is the world's leading auditing company in ISCC certification. In 2014 about 50 companies which delivered individual GHG calculations were audited. 10 percent of them used BioGrace. Most of the others used an own format in Excel to show the calculations, a few used another calculator (ENZO2). Sarah Moritz explicated in her presentation SGS's experience of auditing calculations on the BioGrace calculator. Clear benefits for auditors when the BioGrace tool is used are that they do not need to check the correct use of emission factors, the allocation between the product and co-products, and the right application of the methodology. Moritz, though, also illustrated by a number of examples where the tool causes more work or needs to be improved. Major inconveniences of the tool are:

1. All numbers have to be converted into or related to MJ; in practice, though, most data are given in different units.
2. Different kinds of feedstock cannot be combined on one calculation sheet. Each kind requires a separate calculation sheet, yet producers often only know process numbers for the total of the feedstock combination.
3. New co-products cannot be added.
4. It misses common transport steps (from farm to trader) and fuel efficiency factors for sea transport.

Moritz therefore proposed to split the BioGrace tool into two versions: one for recalculating the default values, and another one with more flexibility to calculate according to the individual situation.

In the discussion that followed, John Neeft answered that it was very valuable to obtain feedback from user experience of the tool. He also replied that the inconveniences n° 1 and 4 will be dealt with in the next version of the tool, that inconvenience n° 3 can already be performed (example given in experienced parallel session) and that inconvenience n° 2. cannot be taken into account as the sustainability in general and meeting the 35%/50% threshold in particular needs to be demonstrated for each feedstock separately. This is explained by an example: if separate actually calculated emission savings are 46% for FAME from rapeseed, 27% for FAME from palm oil and 38% for FAME from soy, then the biofuel from the combined feedstock with average emission saving of 38% may not be considered to meet the 35% GHG emission saving criterion as this check needs to be made for the three FAME types separately,



resulting in the conclusion that the FAME from rapeseed as well as the FAME from soy are sustainable (if the other criteria are met too) and that the FAME from palm oil is not sustainable as it does not meet the criterion of minimum 35% GHG emission reduction.

- **Parallel session: BioGrace-I tool for beginners**

Nikolaus Ludwiczek (member of the BioGrace consortium) moderated the interactive parallel session on the BioGrace-I tool for beginners. The aim was to make the participants familiar with the general structure of the Excel tool (version 4c) and with the basic calculation functions. To this end, an calculation example was distributed that required to deal with the following tasks

1. Use individual input numbers
2. Make an extra calculation for conversion of units
3. Define own standard values
4. Understand the cut-off criterion for small inputs that can be neglected
5. Find the right emission factor of the electricity use.

The tasks were jointly discussed and solved. By that participants learnt how to navigate through the tool and to read the list of standard values, and they got to know some important calculation rules that need to be considered when making own calculations.

The session was held twice. Both rounds together had some 30 followers.

- **Parallel session: BioGrace-I tool for advanced users**

The interactive parallel sessions on the BioGrace-I tool for advanced users was held by John Neeft. The purpose of this session was to answer user questions.

In the first round questions were asked on:

- Allocation, is this just by energy content or (also) by ton/year?
- Allocation, why is this different for crude glycerol as compared to refined glycerol?
- Where do the values come from for the forestry products that are included in the list of additional standard values?
- How to include the allocation of an extra coproduct?
- What are the accounting rules for carbon capturing and replacement or storage (ccr of ccs)?

Using the Excel tool (version 4c), Neft gave answers to all bullets but the last one. On the last bullet, some explanations were given on a known case of ccr: capturing of CO₂ from ethanol production, transporting it via pipeline and using the CO₂ in greenhouses to replace the natural gas that is burned in summer to generate CO₂ for increasing the growth rate of the plants in the greenhouses. Natural gas burned in winter is not replaced as this gas is still burned for production of heat (possibly cogenerated with power). The participants then discussed ccr. Lydia Pforte (ISCC) indicated that ISCC has seen some 5-10 examples of ccr calculations, all from ethanol plants. In some cases the GHG reduction of the biofuel is higher than 100%, and in some cases the CO₂ emissions included in the ccr are larger than the emissions generated by the biofuel production alone. The participants concluded that there is a lack of clear guidance on what can be included in ccr and ccs and what cannot be included. Neft agreed to put this message forward to the JRC and the Commission. The group also claimed that it should be the voluntary schemes discussing this topic. ISCC therefore indicated that they could write down how they understand ccr as a start for the discussion. An additional question in this discussion was whether ccr can also include replacement of other gases than CO₂. The RED (Annex V.C.15) speaks of “replacing fossil derived CO₂”, meaning that this might not be allowed. This should also be part of a future discussion on the accounting rules for ccr/ccs.

In the second parallel session questions were asked on:

- How to calculate GHG emissions made by an oilseed crusher (with results in g CO_{2,eq}/MJ_{crude oil})?
- How to include another co-product (for instance free fatty acids as co-product of crude plant oil refining)?
- How to include another transport step?

On all bullets, answers were given showing how this can be done in the BioGrace-I Excel tool.

- **Parallel session: BioGrace-II tool**

The interactive parallel session on the BioGrace-II tool was led by Susanne Köppen. Since the tool had not yet been published, none of the participants had seen it before. The drafted version that was being demonstrated only featured two pathways of solid biomass. The numbers in the sheets were faked.

As a matter of fact, many basic questions were asked on how the tool can be used in principal, how the default values are generated and how they can be combined with the actual values. Köppen explained how the calculations work. She demonstrated the final conversion, emissions from the final conversion and the allocation. Going further into detail, she also showed the CHPs and boiler options in the pellet pathway and the efficiency calculation sheet. Some of the participants would also have liked to see the biogas sheets – which were not part of demonstration version - and asked about the sheet for co-
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digestion. Köppen stressed that the latter was only for default values. Regarding default values participants were referred to the report to be published. There were no feedbacks on increasing the user friendliness.

4. Participants feedback

A feedback questionnaire was distributed at the end of the workshop. 16 questionnaire were returned.

Question 1: What is your interest in bioenergy GHG calculations?

The professional background of all participants is already shown in a table under chapter 2." Technical information about the workshop".

Question 2: Have you already used the BioGrace tool before?

11 no, 5 yes

Question 3: Has the workshop met your expectations?

13 yes, 3 partly

Question 4: What was most useful for you?

Most important was to get to know the tools. Some also appreciated the opportunity to discuss policy developments and ask detailed questions, and the feeling that the users' feedback helps improve the tool.

Question 5: Any other remarks?

Two replied that the calculation example in the interactive session should have been worked through more slowly, another two regretted that the BioGrace-II tool was not yet publicly available, one asked for another users training, one would have liked a representative of the JRC to present and follow the discussion and one praised the "good workshop with dedicated professionals".

Annex

- I Workshop Agenda
- II List of participants
- III Exemplary feedback questionnaire



BioGrace-II public workshop

Date: 10 June 2014

Location: Gartenhotel Altmannsdorf, Vienna

Free of charge

Programme

09.30 Welcome coffee

10.00 Opening of workshop

10.10 EU sustainability policy developments

John Neeft (BioGrace-Project)

- Policy developments on solid and gaseous biomass used in electricity, heating and cooling (BioGrace-II)
- Policy developments on liquid biofuels (BioGrace-I)

11.00 The BioGrace Excel tool, differences between BioGrace I and II

Susanne Köppen (BioGrace-Project)

11.15 Coffee break

11.30 Current experiences with making actual GHG calculations

- Experience of a company *Christian Dyczek (Münzer Bioindustrie GmbH)*
- Experience of a verifier *Sarah Moritz (SGS)*

13.00 Lunch

13.45 Parallel interactive sessions – part one

The handling of the tool will be demonstrated and specific questions will be answered. Participants split into three groups and will use their own laptops.

- **BioGrace-I for beginners** *Nikolaus Ludwiczek (BioGrace-Project)*
How to use the calculation tool on liquid biofuels, easy examples
- **BioGrace-I for advanced users** *John Neeft (BioGrace-Project)*
Experienced users have the opportunity to ask specific questions
- **BioGrace-II** *Susanne Köppen (BioGrace-Project)*
How to use the calculation tool on heat and electricity from biomass (draft version)

14.45 Coffee break

15.00 Parallel interactive sessions – part two

- **BioGrace-I for beginners (as above)** *Nikolaus Ludwiczek (BioGrace-Project)*
- **BioGrace-I for advanced user (as above)** *John Neeft (BioGrace-Project)*
- **BioGrace-II: (as above)** *Susanne Köppen (BioGrace-Project)*

16.00 End of the workshop

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BioGrace Public Workshop Participants
Vienna, 10 June 2014

Name	Country	Organisation	Interest	Signature
Peter Smith	United Kingdom	Cargill	Producer of liquid biofuels	
Jeffrey Farenback-Brateman	United States	ExxonMobil Research & Engineering Co	GHG Calculation Specialist	
Christian Dyczek	Austria	Münzer Bioindustrie GmbH	Fuel Supplier	
Peter Kozlik	Slovakia		Auditor	
Johan Gereels	Belgium	Vanden Avenne Commodities	Advisor	
Johannes Lindorfer	Austria	Energieinstitut an der JKU	GHG Calculation Specialist	
Michal Cierpialowski	Poland	qap	Auditor	
Rafael Llamas de Andres	Spain	BUNGE EMEA	Producer of liquid biofuels	
Da Silva E Serra	France	2BSvs	Representative of a Voluntary Sustainability Scheme	
Adrian Sedivy	Slovakia	AGRANA	Producer of liquid biofuels	
Josef Breinesberger	Austria	AGRAR PLUS GmbH	Others	
Lydia Pforte	Germany	ISCC System GmbH	Representative of a Voluntary Sustainability Scheme	
Monika Enigl	Austria	BE2020 ⁺	Others	
Manfred Woergetter	Austria	bioenergy2020+ GmbH	Advisor	
Hana Fratricova	Slovakia	Ministry of Agriculture and Rural Development	Public Officer	
Martin Mattes	Austria		Others	
Andrej Arvensis	Slovakia	Slovak Association of Petroleum Industry and Trade	Others	
Dr. Bettina Mihalyi	Austria	TU Wien	Others	
Constance Mahrer	Austria	Bio Oil Development GmbH	Producer of liquid biofuels	
Barbara Lazar	Austria	Bio Oil Development GmbH	Producer of liquid biofuels	
Miro Banicevic	Austria	agroVet GmbH	Auditor	
Andrej Miljevic	Austria	Technical university Vienna	Others	
Milan Toth	Slovakia	SGS Slovakia	Auditor	
Kristian Bachman	Slovakia	SGS Slovakia	Auditor	
Berend Breman	Germany	PCU Deutschland GmbH	Auditor	
Elvis Makic	Austria	AGRANA Bioethanol GmbH	Producer of liquid biofuels	

Feedback questionnaire

Biograce-II Public Workshop, 10 June 2014, Vienna

1. What is your interest in bioenergy GHG calculations ? (Auditor, biofuel producer, etc.)

STUDENTS PURPOSE - HEATING SYSTEMS COMPARISON

2. Have you already used the BioGrace tool before?

NO

3. Has the workshop met your expectations?

YES AND NO

BIOGRACE II TOOL NOT AVAILABLE FOR US

4. What was most useful for you?

OVERVIEW OF HOW TO USE BIOGRACE II

5. Any other remarks?

EXCEL TOOL SHOULD BE PROVIDED
TO THE PARTICIPANTS TO GAIN FEEDBACK
AND DEVELOPE IT!