

### D5.1

October 2013

# Report on the first round of Feedback Sessions

## 1 Introduction and objective

Five BioGrace-II feedback sessions were organized during the first half of 2013 by project partners AEBIOM, ANL, BE2020 and VREG. These feedback sessions will be followed by a second round of feedback sessions in 2014.

These sessions were organised at different locations as to allow stakeholders to easily participate. Brussels, London, Amsterdam and Wieselburg were the selected places. Moreover, some of the feedback sessions were organised shortly before or after other events (workshops, conferences, meetings) allowing some of the participants to save travelling time.

The objective of this initiative is to get feedback from companies on the draft of the BioGrace-II GHG calculation tool, intending to improve the GHG calculation tool and make it as user-friendly possible. A second and more general objective of the feedback sessions is to demonstrate to participants how the BioGrace GHG calculation tool works and to inform participants on the background of the development of the tool and the relation with the existing (COM(2010)11) and expected new EC report on sustainability of solid and gaseous biomass and the work performed by the Joint Research Centre (JRC).

These sessions were intended to be small group meetings, rather than large workshops, with the purpose of being more interactive and to give to all the participants the opportunity to give their feedback. An average number of 13 participants attended to the sessions, coming from different EU countries. It was a wide variety of participants: utilities, research institutions, certification bodies, national energy agencies, etc. This entails in a wider range of comments and will help the consortium to have the perspective from the different stakeholders involved in the GHG calculations.

The BioGrace-II project partners IFEU, Agency NL and BIO IS worked hard to complete the first version of the BioGrace-II GHG calculation tool as input for the session. The first draft version that was used in the 1<sup>st</sup> round of feedback sessions included 11 solid biomass pathways and was sent beforehand to all the participants of the feedback session. They were asked to already work with the tool in preparation to the sessions in order to minimise time spend on general explanations and in order to assure to have as many comments and questions from the attendees possible.

The table below lists the day, place and number of participants of the 5 feedback session. For the list of participants as well as the other specificities of each feedback session, please refer to the minutes of the meetings.



Date	Place	Partner	Number of participants
7 February 2013	Amsterdam, NL	Agency NL	22
16 April 2013	London, UK	AEBIOM	9
17 April 2013	Brussels, BE	VREG	17
25 April 2013	Wieselburg, Austria	BE2020	3
17 June 2013	Brussels, Belgium	AEBIOM	15

## 2 Content of the feedback sessions

The agenda of the sessions are given in their minutes as an Annex. However as all of them followed a similar structure and principal we summarize below the general content of these sessions.

As a variance it can be mentioned that in the last feedback session (June in Brussels) there were two extra presentations. The EACI project coordinator Emilio Font de Mora made a presentation about the IEE programme and Chrystelle Verhoest from Laborelec described the specific background of Laborelec in GHG calculation and also the specific situation in Belgium.

### 2.1 Introduction to the workshop / Development of the BioGrace-II GHG calculation tool

In the introductory session, the background of the BioGrace-II GHG calculation tool was explained: the BioGrace work started with the BioGrace-I (recently recognised by the Commission as a voluntary scheme). BioGrace uses calculations that are made by JRC as input to the European Commission, the two BioGrace tools therefore demonstrate how the EC default values of the RED (and the expected GHG values in the report on solid and gaseous biomass that is expected) are calculated. A second function of the BioGrace GHG calculation tools is that they allow users to make actual calculations.

It was also explained that BioGrace will not actively participate in scientific discussions on iLUC and carbon debt. Such issues will only be included in the BioGrace tools once the Commission has included them in the GHG calculation methodology in the RED and/or the legislation on sustainability for solid/gaseous biomass.

Finally it was explained that some alternative GHG calculation tools do exist for electricity and heat from biomass, such as the tool in the Wallonian part of Belgium and the UK solid biomass and biogas calculator that was developed by E4Tech. The project BioGrace-II also aims to cause that these different tools will be modified in such a way that they will give the same result when making a calculation for the same biomass/biogas and conversion unit to heat and/or electricity.

### 2.2 Demonstration of the BioGrace-II Excel tool

After the introductory part, the draft BioGrace-II tool was demonstrated, including many features that were already build-in the tool to be used later, such as (i) the “track changes” option (to be used when actual calculations need to be verified) and (ii) the choice between “actual value” and “disaggregated default value” for the three separate parts “cultivation”, “processing” and “transport” within the biomass production pathways (to be used only once this element has been allowed by the EC in the methodology in the annex of the coming report).

As all the sessions resulted to be very interactive, the participants asked many questions during this demonstration part, causing that the demonstration became integrated with the question/discussions.

## 3 Suggestions for improving the tool

The participants asked questions and discussed (with the presenter but also amongst each other) on a large number of subjects, related with the background methodology, the implementation of the tool, the European legislation, etc. Nevertheless the purpose of this report is only to summarize the comments or suggestion that were specifically related with the tool and the methodology applied by the BioGrace II consortium.

Suggestions made during the sessions are the following ([and the response of the BioGrace-II consortium in blue font](#)):

- Include a sheet for calculation of end-user efficiency only#
  - Include a separate sheet in which the user can fill in a GHG emission value for the energy carrier (in  $\text{g CO}_{2,\text{eq}}/\text{MJ}_{\text{pellets/chips}}$ ) and then fill in the conversion efficiency and whether the product is electricity and/or heat.  
This sheet is to be used for an end-user who purchases chips or pellets which a GHG calculation emission that has been calculated by the supplier, or to use the EC default values.  
< [This will be done](#) >
  - A separate calculation sheet as proposed for the final conversion step should be set for each step along the production chain: i.e. one sheet for pelletisers, one for biogas producers, etc. Ideally it should be printable on one A4-page.  
< [There is no point doing so. Pelletisers should use one of the calculation sheets for pellets, and biogas producers one of the sheets for biogas. If the result of the calculation has to be past on through the chain, this has to be done by including “results of previous and partial calculations” for which we already have calculation rules \(see BioGrace-I calculation rule document\)](#) >

- Transport
  - It would be practical if the transport modus could be selected from a drop-down list, after which the tool automatically looks for the proper standard value.  
< Unfortunately, this cannot be done.  
Background information: When making an actual calculation, the user is allowed to leave the transport modus as it is and fill out the distance (amount of km's). In this way the user of the tool is not forced to perform the time consuming effort to determine the actual fuel efficiency (including the actual share of empty returns) of the trucks, trains and ships that are used in practice.  
When making an actual calculation it is allowed to replace the transport modus (as listed in column B of the tool) by an actual transport modus. That actual transport modus can come from the list of standard values when this list gives a modus that applies. When not finding the appropriate transport modus in the list of standard values, then the transport efficiency should be determined by the user of the tool (and a user-defined standard value must be used). When making such changes, a verifier shall check whether the choices made in the tool are supported by evidence; there should be documents showing which transport modus was used and – in case of using a user defined value - how the empty returns and fuel efficiency were calculated.  
The two reasons not to include a dropdown list are:  
(1) A list will invite – incorrectly – to choose the closest transport mode, which would not be correct. This is important as transport can contribute significantly to the emissions of electricity/heat/cooling from solid biomass;  
(2) Choosing a transport mode will not update the fuel for the transport mode, which then can easily lead to incorrect calculations.. >
  - Same for fuel of the transport modus.  
< BioGrace will not implement this. Many of the transport modes in practice only use one specific fuel, eg a truck on diesel and a transport carrier on heavy fuel oil >
  - It would be practical if to add a transport step, for instance with a macro button.  
< This is too complicated to be constructed without risking to have errors when executing the macro, so will not be done.  
Moreover, it is not very complicated to add an extra transport modus when the transport step is already there, this is done by inserting two row, copying the formula's and selecting and copying (from the list of standard values) the correct type of transport mode. We will add transport steps at some points in the chains (see also a further question below) >
  - Can different sizes of ships be distinguished – as larger ships have lower emissions per ton.km? It would be practical to select the ship type and that the tool would than automatically select the standard value for the emission per ton.km.  
< BioGrace cannot do so; it only takes over the standard values from JRC. If more

- detailed standard values are needed, then either the user has to look for them or they will have to be discussed with JRC before a future update of the numbers >
- Include an extra transport step (with zero emissions when the tool is opened) into pathways where an extra transport step is likely to occur in practice. This extra transport step does not lead to emissions for the "default pathway" but facilitates making an actual calculation. An example is the pathway "wood chips from industry residues". In practice, demolition wood is often transported to a central location where it is sorted and chipped, this transport distance must also be taken into account.  
< This will be done >
  - Data on sea vessels need to be more transparent and close to reality (BIOGRACE is 3 times higher than for CWAPE and has very important impact).
    - . Size of vessels
    - . no return empty< It is JRC who determines these numbers, BioGrace has just taken them over. We understand that there has been communication between some companies and JRC and that this issue might be solved before the final numbers of JRC and DG ENER are published in the new report / proposal for a directive >
  - It is not clear for which transport modes empty return is taken into account and for which transport modes it is not.  
< This will be made clear by JRC. BioGrace will provide a reference >
  - Data on train consumption in Canada should be checked. Actual values are available.  
< The company in question and JRC have discussed on this, the conclusion from JRC is that the company and JRC data for train transport are very close >
  - Truck (40 ton) is rather used in USA/CA, not much in EU. It would be useful to insert also data for more common European trucks.  
< This was checked with JRC. Their response is that there might be a misunderstanding here: a total weight of 40 t (payload plus truck) is the maximum (and most common) type of lorry used in EU and the maximum weight allowed by the Directive 96/53.  
<Addition BioGrace: the typical weight carried is 26 tons.> A 40 ton payload is considered a LHV (Longer Heavier Vehicles) which is allowed in Finland, Sweden and in US but not in the rest of EU >
  - The unit MJ/t.km is not evident for sea transport (nautical miles). It should be explained how to cope with that.  
< The BioGrace consortium does not agree. If we would have standard values for transport (trucks, trains and ships) in MJ/t.km and in MJ/t.nautical miles, then this might very well be a source for calculation errors because the transport types can be replaced (someone might replace "bulk carrier" by "freight train USA", and then fill out the distance in nautical miles (because cell D still reads "nautical miles") although the unit of the standard value for the train is MJ/t.km. In other words: we think that it is important that fuel efficiency values for all transport modes are in the same unit.

The consequence is that for ships, a user has to convert nautical miles into km's. If a user of the tool is not able to make this kind of unit conversions, then probably the user will have difficulties with other parts of the GHG calculations as well. A user of the tool should have some experience with calculations and with Excel, and should have a basic understanding of LCA studies such as how allocation works (see also later comment). If not, then we advise the user to not make the GHG calculations him- or herself, but to hire a consultant instead >

- There are some errors or missing units, especially in the transport parts. To calculate emissions from transport, only the direct emissions of fuel use are considered, not the life cycle emissions of the fuel. This makes a difference of a factor 1,05 to 1,50. The same counts for the use of most fuels throughout the processing chain. E.g. emissions from diesel consider only the direct emissions, not the life cycle emissions.  
< Indirect emissions are part of the conversion factors and hence are included in the calculations. This will also be more clear when JRC has published their data >
- There is no transport of roundwood from forest to plant. It is assumed that chipping occurs in forest --> apparently user can add a step.  
< BioGrace will include a transport step with 0 emissions >

- CHP

- Generates 0 emissions for heat in CHP from forest residues -> need to fill in something in the cooling efficiency to get results for the heat  
< This error is corrected >
- Suggestion: give as a result of the first selection box [main output] a comment indicating which fields in the second selection box [efficiency] have to be entered. It will, for instance, not be evident for non-experts that the temperature of the useful heat should also be filled in.  
< We will explain this in a calculation rule. Users of the tool should have read the calculation rules (and respect them) – any suggestion to make explanations in the tool as to avoid reading the rules will not be followed by BioGrace >
- The combination "cooling and electricity production" is missing. (The commission did not foresee it)  
< BioGrace cannot implement this as the methodology on how this is to be done is not clear >

- Chips

- "Seasoning" to 30% moisture is quite dry. For instance, in The Netherlands the moisture content of the chips will be between 40-45%.

< This is a choice made by JRC and DG ENER for calculating the default values. The value can always be adjusted when making actual calculations >

- Ch-Rwd cell E74-78: units are ton km / MJ roundwood, although chips are transported. Probably it should be km / MJ chips.

< Is corrected >

- Pellets

- No default value for drying with wood chips

< This is included in later versions, so is solved >

- In a pellet mill, it is not possible to give actual values for drying with wood chips.

<this response has been discussed with the stakeholder in question, as in practice this can be done through selecting "Wood chip boiler (actual calculation)" in cell G26.

< Solved >

- Heat and electricity use in pellet plant are significantly higher than in UK tool and sound theoretic. Real figures come from electricity invoices from pellet plants (a company told us that they have collected such info for many plants around the world).

< Numbers have been send to JRC after a workshop in Brussels (end May 2013), numbers were updated >

- With regard to heat provision in pellet production, there are some options given in the pathway configuration. But these options are not always appropriate. For example, CHP on wood shavings is rather used than wood pellet CHP. Is there a possibility to change this? BioGrace might add other options for actual calculations. The amount of options that we can give as "standard" (through the drop-down list at the top of the sheets) is however very limited. So Biograce II consortium may only add "CHP on shavings" if there is information that this is as common as, or even more common than "CHP on wood chips". Industry should provide such information if this is an important topic for them. On the other hand, it doesn't make a big difference whether a "wood shaving CHP" is included or not, as all the values (like "MJ\_wood shavings/MJ\_heat required" and "MJ\_electricity/MJ\_wood\_shavings") will need to be given by the company making the calculation anyway. Also for the wood-chip-CHP these values have to be given by the user of the tool.

< This has to be an actual calculation anyhow, so BioGrace cannot give "input values" that can be used. As a result, we will not include this "wood shaving" CHP, it has to be implemented by the user making an actual calculation >

- Sheet "wood pellets/briquettes from roundwood plantation" cell F64: MJroundwood probably has to be MJwood pellets.

< No, the units are correct, as can be concluded if you follow the calculations making use of these intermediate numbers >

- Even though it is a requirement from the Commission to calculate the balance for each feedstock separately (eg if pellets are made from forest residues + processing residues, you must assess those separately) it is not practical at all and we miss guidance about this in the tool. Furthermore it can have impacts on the efficiency of certain steps --> typically the % of sawdust/chips fed into pelleting impacts the energy efficiency, which is not taken into account in the BioGrace tool.  
< BioGrace closely follows how the default values were calculated. Of course, a user making actual calculations should use actual numbers >
- Waste wood
  - Waste wood (recovered wood) is not explicitly included. Should a user then select "industry residues"? If so, this stream has a moisture content of 30%. Waste wood has lower moisture content (20% moisture or less).  
< Yes, "industry residues" can be used. When making an actual calculation, the number for the moisture content (30%) can be replaced by an actual value >
- Result box
  - The definition of „final energy“ is missing. (Confusion about the terms final energy and useful energy).  
< The wording "final energy" will be used in article 3 of Annex I.F "Methodology" of the new report / proposal (this is what we learn from a leaked draft of the proposal) >
  - The difference between non-allocated results and allocated results (first box in section "Overview Results") is confusing for some participants and should be made clearer.  
< No, BioGrace will assume that the user of the tool has a certain level of understanding of GHG calculations. If not, he should get this level of understanding or hire a consultant to make the calculations for him >
- Conversion efficiencies
  - Definition of the conversion efficiencies is missing: Do users have to insert gross or net values? Can the summed efficiency of the CHP-pathway be more than 100%?!  
< Definition plus some rules on how they should be determined will be given in the calculation rules >

- CWAPE (BE) and DECC (UK) need to be consulted more intensively to align the tools
  - Differences creates lots of problems and can impact strongly the economics (especially in the Wallonian region where the number of green certificates depends on CO2 saving calculation).  
< BioGrace will consult / discuss with CWAPE and DECC on alignment of the tools. This can most effectively be done once the European Commission has published its new report / proposal (at this moment of time, early September 2013, this has not yet been done) >
- Units
  - Units conversion table: MJ is used everywhere possible. This is good to for easier calculation. Perhaps a conversion table at the end could be useful. In providing a figure such as MJ diesel/MJ forestry residue there could be many differing assumptions therefore the tool may not produce the same result for different users.  
< No. A forestry worker will be able to know how much diesel is used to collect (and chip) a certain amount of forestry residues. He will have to convert the number (which will probably be something like X liters of diesel per Y tons of residues collected) into MJ diesel per MJ forestry residue. Someone who cannot make this conversion should not try to make GHG calculations >
  - It should be clearly stated for units whether it is dry matter or wet matter.  
< We will check where this can be stated more clearly, and then make adjustments >
  - The units used in the tool are often not the commonly used units in practice. It was suggested to insert a conversion chart.  
< The BioGrace consortium does not agree. If a user of the tool is not able to make unit conversions, then probably the user will have difficulties with other parts of the GHG calculations. A user of the tool should have some experience with calculations and with Excel, and should have a basic understanding of LCA studies such as how allocation works. If not, then we advice the user to not make the GHG calculations him- or herself, but to hire a consultant >
- Missing background information
  - How were the fossil fuel comparators calculated? For user accept the calculation methodology it is important to know if the whole production chain of the fossil reference was included.  
< This will be clear from information that JRC will release, BioGrace will make a reference to this information. BioGrace did not make calculations on the fossil fuel comparator as the methodology prescribes which number is to be taken >

- How are the values compared to the fossil fuel comparators in the CHP-option? Is the electricity output compared to the fossil electricity comparator, and the heat output compared to the fossil heat comparator?  
< Yes. The emissions for the energy carrier (eg wood pellets) are divided over the electricity and the heat using the allocation factors calculated from the "Exergy rule" (point 1 in the methodology) >
- Pathways
  - Some pathways take a long time to calculate or even crash (e.g. Natural Gas).  
< We would like to receive more specific details on Excel problems encountered. Please report (1) the version of the tool used (2) the version of Excel used and (3) the operating system of the computer used >
  - The pathway configuration choices are too restricted: the list boiler and fuel considered for heat production at pelleting is not exhaustive.  
< BioGrace cannot make it exhaustive as we cannot "create" default values ourselves. If not included, an actual calculation should be made (or JRC should be requested to include it in a next version of the calculations if the configuration is a common one >
- Biogas
  - How was the difference between open and closed digestate for biogas calculated? One participant wanted to check the plausibility of the value.  
< This question will be answered if JRC releases details on their calculations >
  - Do calculations consider that wet manure – if not used for biogas – causes emissions (N<sub>2</sub>O). Is it possible to have a bonus similar to improved agricultural practices?  
< To our knowledge, the European Commission still has to decide whether or not to use a bonus for N<sub>2</sub>O and CH<sub>4</sub> emissions caused by the manure *if it would have been applied to the field instead of using it in the digester*. This is a fundamental methodological discussion. We (BioGrace) do not decide on this but follow the decision taken by the Commission >
  - GHG calculation for biogas should include the a bonus for the digestate. Digestate contains on average 4.5 kg N/m<sup>3</sup> which as a valuable bio-fertiliser could replace the same amount (4.5 kg) of mineral fertiliser. Avoided emissions of the production of mineral fertilisers should be credited to the biogas calculation.  
< In the current version 4c of the BioGrace calculation tool for biofuels a credit is indeed used for the digestate. Yet strictly taken, this is not in line with the RED methodology where allocation follows the LHV of byproducts which is zero in the case of liquid digestate. The methodology for solid and gaseous biomass as published in the EC report COM(2010)11 does not include such a bonus, and thus the BioGrace-II Excel tool does

not contain it. This might change after the release of the update report, see also the answer to the question under the previous bullet >

- Pathway Bg-wMa cell C60 und pathway Bm-wMa cell C62 do not show the same value; it says „Biogas input per MJ heat“, for biogas CHP and for biogas boiler respectively; this value is unclear to one participant whose own value would be 2,2.  
< This has been solved in a next version of the tool >
- Some input cell legends are not sufficient. e.g. pathway BM-wMa cell B54: „biogas“ should be named „biogas output“ and cell B66. „methane“ should be named „methane loss“.  
< First suggestion implemented, second suggestion not as the standard value for “methane” is being looked for in the sheet “Standard values” which does not contain a standard value for “methane loss”. Besides, the fact that the methane is a “loss” is self-explaining if the user has some knowledge on digestion >
- What to do when you have different inputs manure-maize-waste? The EC says you have to calculate the separate paths individually: manure, maize and waste. How to cope with the different results or how to combine them will be given in the coming EC report.  
< BioGrace might develop some guidance on this, however, this has not yet been decided. Also the European Commission might come with further decisions on this specific issue >
- Standard values
  - What are the conditions to be met in order to be allowed to use a user defined standard value for an actual calculation?  
< This will be clear from the calculation rules >
  - What are the verification requirements? < BioGrace-I contains rules on when a user defined standard value may be used. Probably the same rules will apply for BioGrace-II, this still has to be decided by the project consortium, input from stakeholders is most welcome. On verification rules: the BioGrace-I calculation rules contain some rules on verification. However, in general, the BioGrace-I (and we expect in future also the BioGrace-II) tool is used in combination with other (recognised) voluntary schemes which contain the rules for verification, the voluntary scheme BioGrace-I (and in future also BioGrace-II?) is only recognised for GHG calculations, not for verification or mass balance >
- Default values
  - It should be more clear where the factor 1.4 is being applied (conservative approach for default values). How is the 140% factor calculated? What is considered within this factor? E.g. is it possible that empty returns of ships is taken into account to calculate the factor? The 140% factor used for default values for bioliquids in the RED is not the

same as what JRC applied for solid biomass. Which calculation is used for solid biomass by JRC?

< This clarity will need to come (and will come) from DG ENER and JRC. Probably, it will not be a factor of 1.4 for conversion, but a factor of 1.2 for conversion and a factor of 1.2 for transport >

- Related to the previous question: In sheet "wood pellets/briquettes from roundwood plantation" cell C39, there is a comment on the 1,4 factor. What does this mean? Why this comment here?

< In the draft version of the tool, the comments were not yet updated. This will be done in a next version of the tool and when it is clear what this factor will be >

- The "default values" can be used, but potential "actual values" defined by independent auditor and validated by the necessary documentation (bills, consumption data onsite, ...) have the priority in the hierarchy of the data to be used. This would be an incentive to have continuous improvement of the supply chain energy balance.

< Correct >

- It was suggested to add the option to use other reference values than those laid down in the European Directive.

< What is meant by "reference value"? If this means "fossil fuel reference" than the BioGrace response is "no, it is not allowed to use other fossil fuel references than the ones given in the methodology". If this means "standard values" than the BioGrace response is "BioGrace includes a list of "additional standard values", the calculation rules explain how and when this list can be used" >

- There is no possibility to allocate values to by-products: e.g. in Bm-Mze.

< There is indeed no possibility in the standard pathway Bm-Mze as no co-products are formed in this pathway. If an actual calculation is made with this pathway in which a co-product is formed, then the user should include the allocation step into the calculation. Other pathways will include an allocation to a co-product (currently there are no such pathways in the tool, but in the future bioliquids such as plant oil from rape and plant oil from soy will be added, and these pathways will include allocation to a co-product >

- Natural gas boiler: Natural Gas from Russia is taken as standard fuel for the boiler, but this is not always the case. Can this be changed?

< At the moment only natural gas from Russia is included in de standard values. Therefore, the desired alternative must be inserted through the user defined standard values sheet. This may only be done if the user can show (including verifiable evidence) that other natural gas has been used and if an emission factor is used that meets the calculation rules on using user-defined emission factors >

- Miscanthus: no value for rhizomes. Duration of the crop (20 years) not taken into account properly.

< Miscanthus was not yet included in the BioGrace-II tool, so we do not understand where the comments come from >

- Heating value of diesel should be corrected. A range of values is possible and BioGrace should not take the less favourable one. Transparency is required.  
< We take the value as determined by (and soon documented by) JRC. If companies feel that this is an incorrect value, than they should contact JRC. We will not use another value and also will not allow using a range of values as this will cause “cherry-picking”, in practice it will not be simple to determine an emission factor for diesel in the same way as JRC did. As a result we use the European average value as determined by JRC >
- User friendliness
  - Pellets producers will be reluctant to use the tool because it looks very complicated and it takes too long until one knows how to deal with it. Even the ENplus-tool was reported by some operators to be difficult to handle although it is much simpler. Therefore it is crucial to make the tool as more simple and user friendly as possible.  
< We agree that the tool should be as simple and user friendly as possible. Please give us suggestions >
  - There should be two versions of the tool:
    - One for basic users, not allowing to change formulas or anything else but the white cells, and not featuring the track-changes-button; this would allow to undo operations (Ctrl+Z).
    - One for advanced users allowing for changing formulas and calculating own pathways.  
< Undo is possible if putting “Track changes” to “OFF”. However, we (and with us the European Commission who fully agrees with us) require that calculations that will be verified, will be made with “Track changes” left to “ON”. Of course, a user can first make a calculation with track changes put to “OFF” and afterwards – after the calculation is completed – remake the calculation with “Track changes” put to “ON”.  
We cannot make two versions of the tool, we do not have the capacity and it will not serve any function as a basic user can use the tool without attempting to change formulas (moreover, in the “Track changes = ON” version of the tool, any change in a formula will be marked also.. >
  - The info box that pops up in the beginning of each calculation sheet was clicked away by most of the participants without being read. In order to raise the attention to the box, participants suggested to use louder colours and to copy a picture of the “general settings” into the box so that everybody notices what it is about.  
< We are afraid that even if we make it more clear/coloured, then a user will overlook this. In the end, the user will start to wonder why he/she does not get a result, and will find out. Once you know how it works, there is no need to read the comment again... >

- Place the „General settings“ on the very top of the page  
< This was discussed but after quite some discussion we came to the version as it is shown. We know that both options (General settings on top, and where it is now) have advantages as well as disadvantages >
- Screen jumps to start (top) when selecting main output. Would be nicer if it just stays where it is.  
< We will improve this >
- Implement the possibility of “undo”.  
< “Undo” is allowed when putting “Track changes” to “OFF”. >
- When a row is added the format gets lost. Also during the workshop it was tried to insert a new input by adding a new row, copying the right cell information from another similar input in the same section, and adjusting this towards the wanted input. Unfortunately this didn't work out because something was not right in the copied formula related to cell referral within the same sheet (the cells to which was referred were not locked and therefore copying the formula into another row made the referral go to an empty cell which gave error). Input cells/formula might have to be adjusted towards this aim. The same happen when inserting a new input stream by inserting a new row and copying the content of a similar row, the referral to the cell “yield” is not always locked in the formulas that give the results for the emissions per MJ product (on the right half of the calculation frames). As such, copying the formula of another row results in errors because in the formula a link is made to another cell than the one with “yield” which is often an empty cell.  
< As a result, a user inserting new rows and copying information should be quite familiar with the tool and be able to adjust the formulas. We cannot design the tool in such a way that copying information will always give the proper result. If the user is not able to do so (because of unavailability of time or knowledge to understand the tool) then he should probably hire a consultant who is familiar with the tool >
- Track changes: Perhaps when a cell is changed, it should change colour only rather than a text box appearing. This is because the text boxes crowd the worksheet, making it look too busy. Or maybe text boxes should be hidden.  
< Text boxes can be hidden, how to do so depends on the version of Excel that you are using >
- Clear distinction of cells where data is directly entered from those which have a formula. The user should be able to quickly identify which bits he/she needs to amend to come up with final figure. It seems that only white cells are to be filled in by users but then it turns out that all cells including formulas can be changed. What is the difference than between white and grey cells? It's confusing because the user does not know which cells can be changed and which not or must not be changed. A better grading of the colours of the cells to guide the user could be helpful (white – bright grey – middle grey – dark grey etc.).

- < This is explained in the calculation rules. White cells MUST be changed when making an actual calculation. Formulas can be adjusted if there is need to (but normally there is not unless rows need to be inserted because there are additional input, or whole steps in the calculation need to be inserted) >
- It should not be able to change cells containing formulas.
  - < If we would disable this, then many users would not be able to make actual calculations. So we will not disable this >
- Suggestion to lock the results cells so that they can't be amended.
  - < We cannot lock then because if a user would insert an additional step in the production pathway (for instance an extra transport step) then the result of this step must be included in the calculation, and, therefore, the result box must be adjusted. This is why we allow to make changes in any cell, but also make clear that any change is marked so that a verifier can check whether the changes are made correctly and/or can ask why changes to formula's or result boxes have been made >
- Have a column for comments on each calculation sheet to put the references and a link of the source of the input values. This would not only serve for the verifier to understand the changes but also for the one who does the calculation in order to remember all changes when the calculation has to be updated in the following year.
  - < Everyone is free to do so insert comments (like references to the source of the input values) in for instance a column at the right part of the tool (in a way similar to how this is done in the user defined stand values). We will however not include a column "References" in the pathway sheets of the tool, as we will not require users of the tool to include this information. In the end, a verifier must be able to check whether the correct input values have been used, so a verifier will (for instance) want to check information on the process and readings or documents showing energy and material use in the process. It is not up to us to decide which kind of documents the verifier will ask for, this is to be communicated / agreed between the verifier and the person/company making the actual calculation >
- More clarity needed on various definitions. E.g. forest residues, industry residues, round wood.
  - < BioGrace cannot and will not give definitions that the Commission has not given. So if it is difficult to make calculations when a definition is missing (for instance it is not clear whether a certain material is a residue) then this is an implementation issue to be solved by the national policy makers and/or national regulators (like BLE, NEa are NORA regulators for biofuels in Germany, Netherlands and Ireland, respectively).
- The suggestion was made to include a macro to add an extra step (transport/processing/...).
  - < This is too complicated to be constructed without risking to have errors when executing the macro, so will not be done >

- It is confusing to have an English tool with „continental“ number separators (1.000,00 instead of 1,000.00).  
< This does not depend on us, but on your Excel programme. Probably this can be adjusted (so that your Excel version shows 1,000.00 instead of 1.000,00) >
- The tool calculations and references must be transparent and easily comparable to actual values and local references.  
< We do not understand this comment – where is to tool not transparent and where can it not be easily compared with actual values ?? >
- The tool should be translated into the languages of the users' countries.  
< We understand the wish but do not have the capacity do so, in particular as we foresee that the tool will have to be modified and updated in the future >

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Co-funded by the Intelligent Energy Europe  
Programme of the European Union