MEETING MINUTES

Meeting:	ILUC quantification project – 2nd consultation meeting with ethanol supply chain
Date:	19 February 2014
Time:	14:00 - 17:00
Attendees:	Carlo Hamelinck (chair, Ecofys), Hugo Valin (IIASA), Maarten van den Berg (E4tech). Richard Stark (AB Sugar), Szymon Kolodziejczyk (BZK Group), Thordis Müller (Fuel21), Emmanuel Desplechin (ePURE), Jesper Kløverpris (Novozymes), Marco Veselka (Crop Energies), Nicolas Kurtsoglou (SNPAA), Johannes Daum (VDB), Vadim Zubarev (Pannonia), Norman Wendt (Bundesverband der Deutschen Bioethanolwirtschaft eV), Dietrich Klein (Bundesverband der Deutschen Bioethanolwirtschaft eV), Valerie Corre (Tereos), Paul Jacquelin (Tereos), Nicolas Rialland (Confederation Generale des Planteurs de Betteraves)
Minutes by:	Maarten van den Berg, Carlo Hamelinck, Hugo Valin
Number of pages:	6

A consortium of Ecofys, IIASA and E4tech has been assigned by the European Commission to model feedstock-specific ILUC emission values associated with the consumption of conventional and advanced biofuels in the EU. The consortium uses the GLOBIOM model, developed by IIASA. Project results are expected by early 2015.

Using inputs received during the first round of stakeholder consultation meetings (held in November 2013) and through the ILUC@ecofys.com e-mail address, a long list of suggestions for improvements has been compiled. In January 2014 the improvements have been prioritised in consultation with the Advisory Committee and the Steering Group.

In this second stakeholder consultation round the consortium aims to obtain feedback on the shortlist of improvements to be implemented in the course of this project as well as on the draft baseline, scenarios and sensitivity analysis. The consortium will try to address the feedback from this second consultation round and suggest a final shortlist and a final baseline, scenarios and sensitivity analysis to the Steering Group in the week commencing 10 March. After the final changes to GLOBIOM and final baseline and policy scenarios have been agreed upon, IIASA will update the GLOBIOM model and subsequently run the model and perform sensitivity analysis.

General points about the process and main questions/areas of interest to discuss today

- Stakeholder: comparison between 1G and 2G is difficult because the latter is not yet available. They are perceived as two different sectors with different investors but in reality that is not the case.
    - Stakeholder: agree, diesel and ethanol crops are grown on the same land. A split should not lead to any negative results.
- Stakeholder: are all aspects of biorefineries included in the modelling?
    - Ecofys: we treat conversion technologies in a generic way; we are not including individual plants.
- Stakeholder: On the pricing of co-products: in a biorefinery producing ethanol is mandated, so co-products such as DDGS are produced as well. This may be seen as a residue but it will always find a place in the market.
- Stakeholder: the model specifies that ethanol will be produced where it is cheapest. Following this would result in ethanol being sourced from Brazil only.
    - IIASA: this point was discussed at the previous meeting. The model takes into account all traditional mechanisms that rule the evolution of trade flows. In particular, we take into account trade costs and tariffs so the EU will not only source from Brazil.

Improvements

Improvement 1 [Improve the representation of agricultural residues]

- Stakeholder: the use of straw does not have to have a negative impact on yield. The use of straw only represents a cost for the farmer to maintain his yield, by adding more fertiliser.
- Stakeholder: are energy grasses the same as residues? If you remove more residues, prices will go up and it will make the use of energy grasses more competitive. You can't look at them in isolation. Economically it should move from residues to energy grasses at some point.
    - Ecofys: we do look at wheat straw and energy grasses as separate feedstocks and will do also a common scenario mixing these feedstocks. IIASA: if the mix scenario, however, we do not let the model calculate endogenously the share of each crop and these will be predetermined by the scenario design.
- Stakeholder: the effect of ILUC of residues is non-linear. The first amount of residue has no ILUC but when you use more, an ILUC effect could appear. You will then see an increase of energy grass. How much is used of each feedstock depends on the mandate design. But in reality it will always be a mix. You should use figures from good farming practices, individual sector results can be very controversial.
    - Ecofys: if you have specific insights on what happens with straw please share it with us and we can see if we can take that into account.

Improvement 2 [More refined representation of US market mechanisms (RFS mandate binding/not binding, RINs, blend wall, E85)]

- Stakeholder: 2G is not going to happen if there is no incentive for post 2020.

- Ecofys: the commission decides which post 2020 advanced biofuel volume is used in the baseline and scenarios but we provide them with suggestions. If you give suggestions to us we will pass them on.

Improvement 4 [Carbon sequestered in perennial crops] and improvement 5 [Carbon sequestered in annual crops]

- Stakeholder: does the amount sequestered come from the model or from other sources?
  - IIASA: we use a number of sources for soil organic carbon in Europe, here the improvement is also about living biomass carbon. Stakeholder: I sent paper on maize (to ILUC@ecofys.com) which describes that it depends on the type of soil and other biophysical parameters.
  - IIASA: SOC dynamics for crops in the EU is directly sourced from EPIC. Stakeholder: what agricultural practices does that reflect? IIASA: it includes in particular change in tillage practices. Stakeholder: oilseed rape is directly drilled into the ground (without tillage), I don't know how that is reflected in GLOBIOM? IIASA: we will publish online what the different tillage practices are for different crops.

Improvement 6 [Differentiating use of wood from carbon emissions from deforestation]

- Stakeholder: if you look at the economics, no one will clear the forest for biofuels, it is always cleared for the wood. Assuming that all the carbon stock from forest clearing goes into the air is not correct. But we don't have a solution either. Please state very clearly in the report what is possible and what not (in terms of modelling), to avoid misuse of the results.
  - IIASA: wood extraction is usually more associated to forest degradation, whereas clearing is associated to agricultural use of land. On the use of biomass from cleared forest, the US EPA analysed it and concluded the sequestered share was very low after a period of 20-30 years.

Improvement 7 [Peat land emissions factors]

- Stakeholder: because of all the uncertainty, why can we not present ILUC ranges? This whole issue (emissions from peat land) is going to be the most contentious part of the report; the minutes reveal there are even different views within the Advisory Committee.
  - IIASA: we will do sensitivity analysis on this parameter.
- Stakeholder: how do you distinguish between DLUC and ILUC.
  - IIASA: we don't distinguish between these two. This would be a difficulty for a LCA approach but with a modelling approach, both are estimated together. Ecofys: we could think about what to do with the part grown on DLUC (because that doesn't have ILUC)

Improvement 11[Improve protein and energy content representation to refine co-product Substitution]

- Stakeholder: Are all co-products used by animals in your modelling?
  - IIASA: in the model co-products are tied to the pathway. In the market equilibrium you will have to get rid of the co-product, so there will be a price associated to them. Stakeholder: I saw in the AC minutes a discussion about sources for prices of co-products. That seems difficult because prices are always changing depending on the feed mix. A suggestion is to take the energy value for the allocation.

Stakeholder: protein substitution based on energy doesn't make sense, the substitution needs to take into account the protein budget as well.

- Ecofys: up to a certain point it is fine to substitute proteins but above a threshold you get problems with digestibility. The question is to what extent DDGS can be used to substitute feed.
- IIASA: We will look at both energy and protein content of the co-product (which can be different per technology, region, etc.). Stakeholder: you will not be able to find one value for substitution. Take a simple solution. Stakeholder: You indicate that all the figures will be different depending on the type of animals. Would suggest that you make explicit your choice on substitution for co-products and what composition you are taking. This will allow us to look at it and comment. The protein price should give you good information on the feed mix. The quality needed depends on the animal you are feeding.

Improvement 15 [Include effect of Multi-cropping]

- Stakeholder: in November you said the rice double cropping would be solved but I don't see a change.
    - IIASA: Double cropping *will* be addressed, mainly through yield increase in the baseline, including for rice. Stakeholder: in some regions double cropping was not allowed, is that taken into account? All these effects should appear in the baseline. Stakeholder: you don't have sensitivity around a switch to multicropping? IIASA: no, just an increase in yield intensity.

Improvement 16 [Distinguish the different intensification effects from N, P and K] and improvement 20 [Improve fertiliser emission data using updated data]

- Stakeholder: this study is about ILUC, but there are also improvements for direct emission accounting identified and short listed.
    - Ecofys: this project is about land use change emissions and even if the model can report other sources of emissions, we have to be clear about the difference in our communication. Stakeholder: emissions from fertiliser are part of the LCA. If that is mixed with land use changes, then there is double counting. Ecofys: understood, we will be clear about the different sources of emissions in the results. Stakeholder: will the direct emissions be in the report? Ecofys: we will explain what can be done with the result and what not. Stakeholder: can you put it in a big red box that your ILUC results cannot be added to the LCA emissions? Ecofys: We should indicate risk of double-counting where they exist. Stakeholder: if you include fertiliser intensification then we have to have a separate discussion on how that is incorporated in the model and how the results are presented. Stakeholder: the EPA study goes much further. It also includes methane emission changes from rice and livestock. Where do you stop? Where do you draw the line? Ecofys: we focus on indirect land use effects and its resulting GHG effects, not on indirect GHG effects.

Improvement 21 [Imperfect substitution of vegetable oils]

- Stakeholder: how are you going to deal with annex IX feedstock and in particular UCO and tall oil?
    - Ecofys: UCO and tall oil are not dealt with in the model. Perhaps a shortcoming but the conclusion is that we cannot say anything about their ILUC. Stakeholder: Is it

the same for molasses? IIASA: yes, molasses are not represented as a separate feedstock, we only consider sugar.

Improvement 27 [Represent unused agricultural land in Europe]

- Stakeholder: in the policy scenario, what is understood with "Europe"? Is that EU-27?
    - Ecofys: not decided upon yet. Possibly EU-28 + Ukraine.
- Stakeholder: how are you going to take the greening of the CAP into account? It has been mentioned in some of the minutes.
    - IIASA: that is to be discussed with the SG, but we only take into account policies that are in place or confirmed for the future. Stakeholder: why is this improvement limited to the EU? IIASA: because we want to look at a scenario that can be steered by EU policy. Stakeholder: do you want to make a separate scenario with zero CAP and set aside land? It would be interesting to compare these scenarios. Ecofys: yes, that is an interesting suggestion, but we probably will not have enough time to include it in the analysis. Stakeholder: you cannot model the land use implications of the new CAP provisions because there are big differences between Member States and it is not even completely implemented yet. You should acknowledge this limitation. Stakeholder: it would be interesting to compare figures with and without set aside land. Is the set aside land part of this scenario? Ecofys: we have to specify what is included in the abandoned land scenario. Stakeholder: can you run a scenario with set aside to zero? That would be very useful for policy makers. IIASA: If we do 0%, we will be asked by some other stakeholders to test a 10% set aside scenario as well, which means two additional scenarios. Stakeholder: we would like to see a 0 and a 10% set aside land in the EU scenario.

Improvement 30 [Additional drivers of deforestation]

- Stakeholder: what is the source of the 80% figure (percentage of total deforestation driven by agricultural expansion)?
    - IIASA: this comes from a paper by Hosonuma et al (accessible here: http://iopscience.iop.org/1748-9326/7/4/044009/). For degradation the drivers are different from deforestation (lower contribution from agriculture).

Improvement 31 [Improve land cover/use datasets]

- Stakeholder: it should be stated clearly that the quality of the databases used is low.

Improvement 34 [Refine oilseed crushing coefficients]

- IIASA: We will publish the coefficients so you can comment on them later. Stakeholder: I can point you to the coefficients at NUTS 2 region level. Stakeholder: are the coefficients fixed?
    - IIASA: we hope that we get updated figures from stakeholders so we can look at the historic trend on technical change. Stakeholder: we wrote you that Christensen monitored coefficients of US corn ethanol, you could look at that. What can be achieved in the future can be informed by advanced ethanol players. You can expect some increase in efficiency over time.
- Stakeholder: in November we discussed about the differences between the baseline and the scenarios and the timing of emissions. What do you plan to do on this.
    - IIASA: we have to stick to 20 years amortisation, in line with IFPRI so we can compare our results to those. Stakeholder: I would like to see some autonomy, and

a comparison with a different approach (other payback time) would be valuable too. Ecofys: it is an important point for the interpretation of the results which we'll explore in our report.

- Stakeholder: the Annex IX feedstocks, shouldn't they be included?
    - Ecofys: what is your joined vision on this? Stakeholder: if these are supposed to be the feedstock of the future they should be looked at, otherwise your study is incomplete. Stakeholder: maybe not inclusion for sake of calculating their ILUC but they do contribute to the ILUC of the other biofuels so somehow they should be accounted for. Ecofys: we will discuss with the Commission how to deal with these. We will anyway discuss them when constructing the portfolio mix used in the scenarios. Stakeholder: E4tech recently did a study on annex IX feedstock which is widely available.

Baseline and scenarios

- Stakeholder: the study is on conventional and advanced biofuel consumption in the EU. Do you assume the RED is met?
    - Ecofys: we are taking scenarios into account that react to the target in different ways. Stakeholder: you do not take into account FQD and other limitations? Ecofys: no we do not take the FQD into account. Stakeholder: will you use data from E4tech for the fossil fuel mix in transport? E4tech? no, we will use data from the EC. Stakeholder: do you do sensitivity analysis on the baseline? IIASA: yes, the Monte-Carlo analysis will also apply to the baseline.
- Stakeholder: we do not agree with improvement 37 [Reduce time-step to 5 years] scoring 'low' on importance. We do not see big technical issues with that.
    - IIASA: the parameterisation is built for 10 yrs so we would need a lot of time to update these. It also means the computational time per run increases, which means we would have to lower the number of scenarios.
- Stakeholder: the US mandate caused a strong technological change (higher yields). Older models used parameters from non-mature technologies. We are several years later and we should be able to see that in the model results.
    - Ecofys: This point is well noted. The update of technological information will mainly depend on the stakeholder inputs.
- Stakeholder: what will be done with the results of this stakeholder consultation round?
    - Ecofys: the same approach as previously. E4tech: we will publish anonymised minutes. If you see something is missing, let us know and we will make changes to the online version.
- Ecofys: we will produce a document with assumptions on technical parameters in the coming weeks, please review it carefully. Other changes to the baseline and improvements will be published too and you will be invited to comment.
- Stakeholder: about the B1 scenario and 5% scenario: I am not sure if it is in the ToR but 5% is not a sensible percentage, 7% is more likely. Please reconsider this. Ecofys: We assume this will be discussed again, but eventually it is up to the policy makers what scenarios they would like to see.

Sensitivity analysis

Not discussed